

# Assigned Numbers

## **Bluetooth® Document**

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- **Version Date:** 2024-08-29

### **Abstract:**

This is a regularly updated document listing assigned numbers, codes, and identifiers in the Bluetooth specifications.



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# 1 Introduction

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This is a regularly updated document listing assigned numbers, codes, and identifiers in the Bluetooth specifications. This document is referenced by the Bluetooth Core Specification, Volume 1, Part E, Section 2.6 [4], and other profile and service specifications.

Any value defined in this document is reserved for that use by the Bluetooth SIG within the scope of a Bluetooth specification.

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## 2 Core Specification

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The following section includes the assigned numbers defined by the Core Specification [4]. The subsections are organized by volume and part within the Core Specification.

## 2.1 Core specification versions

Referenced from the following:

- Bluetooth Core Specification [Vol 2] Part C, Section 5.2 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.4.1 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.7.12 [4].
- Bluetooth Core Specification [Vol 6] Part B, Section 2.4.2.13 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/core\\_version.yaml](#)

| Core Specification Name                           | Version |
|---|---------|
| Bluetooth® Core Specification 1.0b (Withdrawn)    | 0x00    |
| Bluetooth® Core Specification 1.1 (Withdrawn)     | 0x01    |
| Bluetooth® Core Specification 1.2 (Withdrawn)     | 0x02    |
| Bluetooth® Core Specification 2.0+EDR (Withdrawn) | 0x03    |
| Bluetooth® Core Specification 2.1+EDR (Withdrawn) | 0x04    |
| Bluetooth® Core Specification 3.0+HS (Withdrawn)  | 0x05    |
| Bluetooth® Core Specification 4.0 (Withdrawn)     | 0x06    |
| Bluetooth® Core Specification 4.1 (Deprecated)    | 0x07    |
| Bluetooth® Core Specification 4.2                 | 0x08    |
| Bluetooth® Core Specification 5.0                 | 0x09    |
| Bluetooth® Core Specification 5.1                 | 0x0A    |
| Bluetooth® Core Specification 5.2                 | 0x0B    |
| Bluetooth® Core Specification 5.3                 | 0x0C    |
| Bluetooth® Core Specification 5.4                 | 0x0D    |

## 2.2 Special LAPs

Referenced from the following:

- Bluetooth Core Specification [Vol 1] Part B, Section 1 [4].
- Bluetooth Core Specification [Vol 2] Part B, Section 1.2.1 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.1.1 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.1.3 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.7.74 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/diacs.yaml](#)

| Name                               | Value    |
|------------------------------------|----------|
| Limited Inquiry Access Code (LIAC) | 0x9E8B00 |
| General Inquiry Access Code (GIAC) | 0x9E8B33 |

## 2.3 Common Data Types

Referenced from the following:

- Supplement to the Bluetooth Core Specification Part A, Section 1 [22].
- Bluetooth Core Specification [Vol 3] Part C, Section 8 [4].
- Bluetooth Core Specification [Vol 3] Part C, Section 11 [4].
- Bluetooth Core Specification [Vol 6] Part B, Section 2.3.4.8 [4].

Last Modified: 2024-06-13

Filename: [assigned\\_numbers/core/ad\\_types.yaml](#)

| Common Data Type | Name  | Reference   |
|------------------|---|---|
| 0x01             | Flags   | Core Specification Supplement, Part A, Section 1.3                                |
| 0x02             | Incomplete List of 16-bit Service or Service Class UUIDs  | Core Specification Supplement, Part A, Section 1.1                                |
| 0x03             | Complete List of 16-bit Service or Service Class UUIDs    | Core Specification Supplement, Part A, Section 1.1                                |
| 0x04             | Incomplete List of 32-bit Service or Service Class UUIDs  | Core Specification Supplement, Part A, Section 1.1                                |
| 0x05             | Complete List of 32-bit Service or Service Class UUIDs    | Core Specification Supplement, Part A, Section 1.1                                |
| 0x06             | Incomplete List of 128-bit Service or Service Class UUIDs | Core Specification Supplement, Part A, Section 1.1                                |
| 0x07             | Complete List of 128-bit Service or Service Class UUIDs   | Core Specification Supplement, Part A, Section 1.1                                |
| 0x08             | Shortened Local Name                                      | Core Specification Supplement, Part A, Section 1.2                                |
| 0x09             | Complete Local Name                                       | Core Specification Supplement, Part A, Section 1.2                                |
| 0x0A             | Tx Power Level  | Core Specification Supplement, Part A, Section 1.5                                |
| 0x0D             | Class of Device   | Core Specification Supplement, Part A, Section 1.6                                |
| 0x0E             | Simple Pairing Hash C-192                                 | Core Specification Supplement, Part A, Section 1.6                                |
| 0x0F             | Simple Pairing Randomizer R-192                           | Core Specification Supplement, Part A, Section 1.6                                |
| 0x10             | Device ID   | Device ID Profile (when used in EIR data)   |
| 0x10             | Security Manager TK Value                                 | Core Specification Supplement, Part A, Section 1.8 (when used in OOB data blocks) |
| 0x11             | Security Manager Out of Band Flags                        | Core Specification Supplement, Part A, Section 1.7                                |

|      |  |   |
|------|--|---|
| 0x12 | Peripheral Connection Interval Range       | Core Specification Supplement, Part A, Section 1.9  |
| 0x14 | List of 16-bit Service Solicitation UUIDs  | Core Specification Supplement, Part A, Section 1.10 |
| 0x15 | List of 128-bit Service Solicitation UUIDs | Core Specification Supplement, Part A, Section 1.10 |
| 0x16 | Service Data - 16-bit UUID                 | Core Specification Supplement, Part A, Section 1.11 |
| 0x17 | Public Target Address                      | Core Specification Supplement, Part A, Section 1.13 |
| 0x18 | Random Target Address                      | Core Specification Supplement, Part A, Section 1.14 |
| 0x19 | Appearance                                 | Core Specification Supplement, Part A, Section 1.12 |
| 0x1A | Advertising Interval                       | Core Specification Supplement, Part A, Section 1.15 |
| 0x1B | LE Bluetooth Device Address                | Core Specification Supplement, Part A, Section 1.16 |
| 0x1C | LE Role                                    | Core Specification Supplement, Part A, Section 1.17 |
| 0x1D | Simple Pairing Hash C-256                  | Core Specification Supplement, Part A, Section 1.6  |
| 0x1E | Simple Pairing Randomizer R-256            | Core Specification Supplement, Part A, Section 1.6  |
| 0x1F | List of 32-bit Service Solicitation UUIDs  | Core Specification Supplement, Part A, Section 1.10 |
| 0x20 | Service Data - 32-bit UUID                 | Core Specification Supplement, Part A, Section 1.11 |
| 0x21 | Service Data - 128-bit UUID                | Core Specification Supplement, Part A, Section 1.11 |
| 0x22 | LE Secure Connections Confirmation Value   | Core Specification Supplement, Part A, Section 1.6  |
| 0x23 | LE Secure Connections Random Value         | Core Specification Supplement, Part A, Section 1.6  |
| 0x24 | URI  | Core Specification Supplement, Part A, Section 1.18 |
| 0x25 | Indoor Positioning                         | Indoor Positioning Service                          |
| 0x26 | Transport Discovery Data                   | Transport Discovery Service                         |
| 0x27 | LE Supported Features                      | Core Specification Supplement, Part A, Section 1.19 |
| 0x28 | Channel Map Update Indication              | Core Specification Supplement, Part A, Section 1.20 |

|      |  |  |
|------|--|--|
| 0x29 | PB-ADV   | Mesh Profile Specification, Section 5.2.1            |
| 0x2A | Mesh Message                                     | Mesh Profile Specification, Section 3.3.1            |
| 0x2B | Mesh Beacon                                      | Mesh Profile Specification, Section 3.9              |
| 0x2C | BIGInfo  | Core Specification Supplement, Part A, Section 1.21  |
| 0x2D | Broadcast_Code                                   | Core Specification Supplement, Part A, Section 1.22  |
| 0x2E | Resolvable Set Identifier                        | Coordinated Set Identification Profile v1.0 or later |
| 0x2F | Advertising Interval - long                      | Core Specification Supplement, Part A, Section 1.15  |
| 0x30 | Broadcast_Name                                   | Public Broadcast Profile v1.0 or later               |
| 0x31 | Encrypted Advertising Data                       | Core Specification Supplement, Part A, Section 1.23  |
| 0x32 | Periodic Advertising Response Timing Information | Core Specification Supplement, Part A, Section 1.24  |
| 0x34 | Electronic Shelf Label                           | ESL Profile  |
| 0x3D | 3D Information Data                              | 3D Synchronization Profile                           |
| 0xFF | Manufacturer Specific Data                       | Core Specification Supplement, Part A, Section 1.4   |

## 2.4 Characteristic Presentation Format

See Bluetooth Core Specification [Vol 3] Part G, Section 3.3.3.5 [4].

### 2.4.1 GATT Format Types

Referenced from Bluetooth Core Specification [Vol 3] Part G, Section 3.3.3.5.2 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/formattypes.yaml](#)

| Value | Type Name  | Description                         |
|-------|------------|-------------------------------------|
| 0x01  | boolean    | unsigned 1-bit; 0 = false; 1 = true |
| 0x02  | uint2      | unsigned 2-bit integer              |
| 0x03  | uint4      | unsigned 4-bit integer              |
| 0x04  | uint8      | unsigned 8-bit integer              |
| 0x05  | uint12     | unsigned 12-bit integer             |
| 0x06  | uint16     | unsigned 16-bit integer             |
| 0x07  | uint24     | unsigned 24-bit integer             |
| 0x08  | uint32     | unsigned 32-bit integer             |
| 0x09  | uint48     | unsigned 48-bit integer             |
| 0x0A  | uint64     | unsigned 64-bit integer             |
| 0x0B  | uint128    | unsigned 128-bit integer            |
| 0x0C  | sint8      | signed 8-bit integer                |
| 0x0D  | sint12     | signed 12-bit integer               |
| 0x0E  | sint16     | signed 16-bit integer               |
| 0x0F  | sint24     | signed 24-bit integer               |
| 0x10  | sint32     | signed 32-bit integer               |
| 0x11  | sint48     | signed 48-bit integer               |
| 0x12  | sint64     | signed 64-bit integer               |
| 0x13  | sint128    | signed 128-bit integer              |
| 0x14  | float32    | IEEE-754 32-bit floating point      |
| 0x15  | float64    | IEEE-754 64-bit floating point      |
| 0x16  | medfloat16 | IEEE 11073-20601 16-bit SFLOAT      |
| 0x17  | medfloat32 | IEEE 11073-20601 32-bit FLOAT       |
| 0x18  | uint16[2]  | IEEE 11073-20601 nomenclature code  |
| 0x19  | utf8s      | UTF-8 string                        |
| 0x1A  | utf16s     | UTF-16 string                       |
| 0x1B  | struct     | opaque structure                    |

|      |         |                                 |
|------|---------|---------------------------------|
| 0x1C | medASN1 | IEEE-11073 ASN.1/MDER structure |
|------|---------|---------------------------------|



## 2.4.2 GATT Characteristic Presentation Format Name Space

Referenced from Bluetooth Core Specification [Vol 3] Part G, Section 3.3.3.5.5 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/namespaces.yaml](#)

| Value | Name          | Reference                       |
|-------|---------------|---------------------------------|
| 0x01  | Bluetooth SIG | <a href="#">Section 2.4.2.1</a> |

### 2.4.2.1 Bluetooth SIG GATT Characteristic Presentation Format Description

Referenced from Bluetooth Core Specification [Vol 3] Part G, Section 3.3.3.5.6 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/namespace.yaml](#)

| Value  | Name           |
|--------|----------------|
| 0x0000 | unknown        |
| 0x0001 | first          |
| 0x0002 | second         |
| 0x0003 | third          |
| 0x0004 | fourth         |
| 0x0005 | fifth          |
| 0x0006 | sixth          |
| 0x0007 | seventh        |
| 0x0008 | eighth         |
| 0x0009 | ninth          |
| 0x000A | tenth          |
| 0x000B | eleventh       |
| 0x000C | twelfth        |
| 0x000D | thirteenth     |
| 0x000E | fourteenth     |
| 0x000F | fifteenth      |
| 0x0010 | sixteenth      |
| 0x0011 | seventeenth    |
| 0x0012 | eighteenth     |
| 0x0013 | nineteenth     |
| 0x0014 | twentieth      |
| 0x0015 | twenty-first   |
| 0x0016 | twenty-second  |
| 0x0017 | twenty-third   |
| 0x0018 | twenty-fourth  |
| 0x0019 | twenty-fifth   |
| 0x001A | twenty-sixth   |
| 0x001B | twenty-seventh |
| 0x001C | twenty-eighth  |
| 0x001D | twenty-ninth   |

|        |                |
|--------|----------------|
| 0x001E | thirtieth      |
| 0x001F | thirty-first   |
| 0x0020 | thirty-second  |
| 0x0021 | thirty-third   |
| 0x0022 | thirty-fourth  |
| 0x0023 | thirty-fifth   |
| 0x0024 | thirty-sixth   |
| 0x0025 | thirty-seventh |
| 0x0026 | thirty-eighth  |
| 0x0027 | thirty-ninth   |
| 0x0028 | fortieth       |
| 0x0029 | forty-first    |
| 0x002A | forty-second   |
| 0x002B | forty-third    |
| 0x002C | forty-fourth   |
| 0x002D | forty-fifth    |
| 0x002E | forty-sixth    |
| 0x002F | forty-seventh  |
| 0x0030 | forty-eighth   |
| 0x0031 | forty-ninth    |
| 0x0032 | fiftieth       |
| 0x0033 | fifty-first    |
| 0x0034 | fifty-second   |
| 0x0035 | fifty-third    |
| 0x0036 | fifty-fourth   |
| 0x0037 | fifty-fifth    |
| 0x0038 | fifty-sixth    |
| 0x0039 | fifty-seventh  |
| 0x003A | fifty-eighth   |
| 0x003B | fifty-ninth    |
| 0x003C | sixtieth       |
| 0x003D | sixty-first    |
| 0x003E | sixty-second   |
| 0x003F | sixty-third    |
| 0x0040 | sixty-fourth   |
| 0x0041 | sixty-fifth    |

|        |                       |
|--------|-----------------------|
| 0x0042 | sixty-sixth           |
| 0x0043 | sixty-seventh         |
| 0x0044 | sixty-eighth          |
| 0x0045 | sixty-ninth           |
| 0x0046 | seventieth            |
| 0x0047 | seventy-first         |
| 0x0048 | seventy-second        |
| 0x0049 | seventy-third         |
| 0x004A | seventy-fourth        |
| 0x004B | seventy-fifth         |
| 0x004C | seventy-sixth         |
| 0x004D | seventy-seventh       |
| 0x004E | seventy-eighth        |
| 0x004F | seventy-ninth         |
| 0x0050 | eightieth             |
| 0x0051 | eighty-first          |
| 0x0052 | eighty-second         |
| 0x0053 | eighty-third          |
| 0x0054 | eighty-fourth         |
| 0x0055 | eighty-fifth          |
| 0x0056 | eighty-sixth          |
| 0x0057 | eighty-seventh        |
| 0x0058 | eighty-eighth         |
| 0x0059 | eighty-ninth          |
| 0x005A | ninetieth             |
| 0x005B | ninety-first          |
| 0x005C | ninety-second         |
| 0x005D | ninety-third          |
| 0x005E | ninety-fourth         |
| 0x005F | ninety-fifth          |
| 0x0060 | ninety-sixth          |
| 0x0061 | ninety-seventh        |
| 0x0062 | ninety-eighth         |
| 0x0063 | ninety-ninth          |
| 0x0064 | one-hundredth         |
| 0x0065 | one-hundred-and-first |

|        |                                |
|--------|--------------------------------|
| 0x0066 | one-hundred-and-second         |
| 0x0067 | one-hundred-and-third          |
| 0x0068 | one-hundred-and-fourth         |
| 0x0069 | one-hundred-and-fifth          |
| 0x006A | one-hundred-and-sixth          |
| 0x006B | one-hundred-and-seventh        |
| 0x006C | one-hundred-and-eighth         |
| 0x006D | one-hundred-and-ninth          |
| 0x006E | one-hundred-and-tenth          |
| 0x006F | one-hundred-and-eleventh       |
| 0x0070 | one-hundred-and-twelfth        |
| 0x0071 | one-hundred-and-thirteenth     |
| 0x0072 | one-hundred-and-fourteenth     |
| 0x0073 | one-hundred-and-fifteenth      |
| 0x0074 | one-hundred-and-sixteenth      |
| 0x0075 | one-hundred-and-seventeenth    |
| 0x0076 | one-hundred-and-eighteenth     |
| 0x0077 | one-hundred-and-nineteenth     |
| 0x0078 | one-hundred-twentieth          |
| 0x0079 | one-hundred-and-twenty-first   |
| 0x007A | one-hundred-and-twenty-second  |
| 0x007B | one-hundred-and-twenty-third   |
| 0x007C | one-hundred-and-twenty-fourth  |
| 0x007D | one-hundred-and-twenty-fifth   |
| 0x007E | one-hundred-and-twenty-sixth   |
| 0x007F | one-hundred-and-twenty-seventh |
| 0x0080 | one-hundred-and-twenty-eighth  |
| 0x0081 | one-hundred-and-twenty-ninth   |
| 0x0082 | one-hundred-thirtieth          |
| 0x0083 | one-hundred-and-thirty-first   |
| 0x0084 | one-hundred-and-thirty-second  |
| 0x0085 | one-hundred-and-thirty-third   |
| 0x0086 | one-hundred-and-thirty-fourth  |
| 0x0087 | one-hundred-and-thirty-fifth   |
| 0x0088 | one-hundred-and-thirty-sixth   |
| 0x0089 | one-hundred-and-thirty-seventh |

|        |                                |
|--------|--------------------------------|
| 0x008A | one-hundred-and-thirty-eighth  |
| 0x008B | one-hundred-and-thirty-ninth   |
| 0x008C | one-hundred-fortieth           |
| 0x008D | one-hundred-and-forty-first    |
| 0x008E | one-hundred-and-forty-second   |
| 0x008F | one-hundred-and-forty-third    |
| 0x0090 | one-hundred-and-forty-fourth   |
| 0x0091 | one-hundred-and-forty-fifth    |
| 0x0092 | one-hundred-and-forty-sixth    |
| 0x0093 | one-hundred-and-forty-seventh  |
| 0x0094 | one-hundred-and-forty-eighth   |
| 0x0095 | one-hundred-and-forty-ninth    |
| 0x0096 | one-hundred-fiftieth           |
| 0x0097 | one-hundred-and-fifty-first    |
| 0x0098 | one-hundred-and-fifty-second   |
| 0x0099 | one-hundred-and-fifty-third    |
| 0x009A | one-hundred-and-fifty-fourth   |
| 0x009B | one-hundred-and-fifty-fifth    |
| 0x009C | one-hundred-and-fifty-sixth    |
| 0x009D | one-hundred-and-fifty-seventh  |
| 0x009E | one-hundred-and-fifty-eighth   |
| 0x009F | one-hundred-and-fifty-ninth    |
| 0x00A0 | one-hundred-sixtieth           |
| 0x00A1 | one-hundred-and-sixty-first    |
| 0x00A2 | one-hundred-and-sixty-second   |
| 0x00A3 | one-hundred-and-sixty-third    |
| 0x00A4 | one-hundred-and-sixty-fourth   |
| 0x00A5 | one-hundred-and-sixty-fifth    |
| 0x00A6 | one-hundred-and-sixty-sixth    |
| 0x00A7 | one-hundred-and-sixty-seventh  |
| 0x00A8 | one-hundred-and-sixty-eighth   |
| 0x00A9 | one-hundred-and-sixty-ninth    |
| 0x00AA | one-hundred-seventieth         |
| 0x00AB | one-hundred-and-seventy-first  |
| 0x00AC | one-hundred-and-seventy-second |
| 0x00AD | one-hundred-and-seventy-third  |

|        |                                 |
|--------|---------------------------------|
| 0x00AE | one-hundred-and-seventy-fourth  |
| 0x00AF | one-hundred-and-seventy-fifth   |
| 0x00B0 | one-hundred-and-seventy-sixth   |
| 0x00B1 | one-hundred-and-seventy-seventh |
| 0x00B2 | one-hundred-and-seventy-eighth  |
| 0x00B3 | one-hundred-and-seventy-ninth   |
| 0x00B4 | one-hundred-eightieth           |
| 0x00B5 | one-hundred-and-eighty-first    |
| 0x00B6 | one-hundred-and-eighty-second   |
| 0x00B7 | one-hundred-and-eighty-third    |
| 0x00B8 | one-hundred-and-eighty-fourth   |
| 0x00B9 | one-hundred-and-eighty-fifth    |
| 0x00BA | one-hundred-and-eighty-sixth    |
| 0x00BB | one-hundred-and-eighty-seventh  |
| 0x00BC | one-hundred-and-eighty-eighth   |
| 0x00BD | one-hundred-and-eighty-ninth    |
| 0x00BE | one-hundred-ninetieth           |
| 0x00BF | one-hundred-and-ninety-first    |
| 0x00C0 | one-hundred-and-ninety-second   |
| 0x00C1 | one-hundred-and-ninety-third    |
| 0x00C2 | one-hundred-and-ninety-fourth   |
| 0x00C3 | one-hundred-and-ninety-fifth    |
| 0x00C4 | one-hundred-and-ninety-sixth    |
| 0x00C5 | one-hundred-and-ninety-seventh  |
| 0x00C6 | one-hundred-and-ninety-eighth   |
| 0x00C7 | one-hundred-and-ninety-ninth    |
| 0x00C8 | two-hundredth                   |
| 0x00C9 | two-hundred-and-first           |
| 0x00CA | two-hundred-and-second          |
| 0x00CB | two-hundred-and-third           |
| 0x00CC | two-hundred-and-fourth          |
| 0x00CD | two-hundred-and-fifth           |
| 0x00CE | two-hundred-and-sixth           |
| 0x00CF | two-hundred-and-seventh         |
| 0x00D0 | two-hundred-and-eighth          |
| 0x00D1 | two-hundred-and-ninth           |

|        |                                |
|--------|--------------------------------|
| 0x00D2 | two-hundred-and-tenth          |
| 0x00D3 | two-hundred-and-eleventh       |
| 0x00D4 | two-hundred-and-twelfth        |
| 0x00D5 | two-hundred-and-thirteenth     |
| 0x00D6 | two-hundred-and-fourteenth     |
| 0x00D7 | two-hundred-and-fifteenth      |
| 0x00D8 | two-hundred-and-sixteenth      |
| 0x00D9 | two-hundred-and-seventeenth    |
| 0x00DA | two-hundred-and-eighteenth     |
| 0x00DB | two-hundred-and-nineteenth     |
| 0x00DC | two-hundred-twentieth          |
| 0x00DD | two-hundred-and-twenty-first   |
| 0x00DE | two-hundred-and-twenty-second  |
| 0x00DF | two-hundred-and-twenty-third   |
| 0x00E0 | two-hundred-and-twenty-fourth  |
| 0x00E1 | two-hundred-and-twenty-fifth   |
| 0x00E2 | two-hundred-and-twenty-sixth   |
| 0x00E3 | two-hundred-and-twenty-seventh |
| 0x00E4 | two-hundred-and-twenty-eighth  |
| 0x00E5 | two-hundred-and-twenty-ninth   |
| 0x00E6 | two-hundred-thirtieth          |
| 0x00E7 | two-hundred-and-thirty-first   |
| 0x00E8 | two-hundred-and-thirty-second  |
| 0x00E9 | two-hundred-and-thirty-third   |
| 0x00EA | two-hundred-and-thirty-fourth  |
| 0x00EB | two-hundred-and-thirty-fifth   |
| 0x00EC | two-hundred-and-thirty-sixth   |
| 0x00ED | two-hundred-and-thirty-seventh |
| 0x00EE | two-hundred-and-thirty-eighth  |
| 0x00EF | two-hundred-and-thirty-ninth   |
| 0x00F0 | two-hundred-fortieth           |
| 0x00F1 | two-hundred-and-forty-first    |
| 0x00F2 | two-hundred-and-forty-second   |
| 0x00F3 | two-hundred-and-forty-third    |
| 0x00F4 | two-hundred-and-forty-fourth   |
| 0x00F5 | two-hundred-and-forty-fifth    |





|        |                               |
|--------|-------------------------------|
| 0x00F6 | two-hundred-and-forty-sixth   |
| 0x00F7 | two-hundred-and-forty-seventh |
| 0x00F8 | two-hundred-and-forty-eighth  |
| 0x00F9 | two-hundred-and-forty-ninth   |
| 0x00FA | two-hundred-fiftieth          |
| 0x00FB | two-hundred-and-fifty-first   |
| 0x00FC | two-hundred-and-fifty-second  |
| 0x00FD | two-hundred-and-fifty-third   |
| 0x00FE | two-hundred-and-fifty-fourth  |
| 0x00FF | two-hundred-and-fifty-fifth   |
| 0x0100 | front                         |
| 0x0101 | back                          |
| 0x0102 | top                           |
| 0x0103 | bottom                        |
| 0x0104 | upper                         |
| 0x0105 | lower                         |
| 0x0106 | main                          |
| 0x0107 | backup                        |
| 0x0108 | auxiliary                     |
| 0x0109 | supplementary                 |
| 0x010A | flash                         |
| 0x010B | inside                        |
| 0x010C | outside                       |
| 0x010D | left                          |
| 0x010E | right                         |
| 0x010F | internal                      |
| 0x0110 | external                      |

## 2.5 PSMs and SPSMs

Referenced from the following:

- Bluetooth Core Specification [Vol 3] Part A, Section 4.2 [4].
- Bluetooth Core Specification [Vol 3] Part A, Section 4.22 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/psm.yaml](#)

| Value  | Name             | Reference                                       | Type        |
|--------|------------------|---|-------------|
| 0x0001 | SDP              | Bluetooth Core Specification [4]                | PSM         |
| 0x0003 | RFCOMM           | RFCOMM [21]                                     | PSM         |
| 0x0005 | TCS-BIN          | Telephony Control Protocol [23]                 | PSM         |
| 0x0007 | TCS-BIN-CORDLESS | Telephony Control Protocol [23]                 | PSM         |
| 0x000F | BNEP             | Bluetooth Network Encapsulation Protocol [5]    | PSM         |
| 0x0011 | HID_Control      | Human Interface Device Profile [11]             | PSM         |
| 0x0013 | HID_Interrupt    | Human Interface Device Profile [11]             | PSM         |
| 0x0015 | UPnP             | Extended Service Discovery Profile for UPnP [8] | PSM         |
| 0x0017 | AVCTP            | Audio/Video Control Transport Protocol [2]      | PSM         |
| 0x0019 | AVDTP            | Audio/Video Distribution Transport Protocol [3] | PSM         |
| 0x001B | AVCTP_Browsing   | Audio/Video Control Transport Protocol [2]      | PSM         |
| 0x001D | UDI_C-Plane      | Unrestricted Digital Information Profile [24]   | PSM         |
| 0x001F | ATT              | Bluetooth Core Specification [4]                | PSM         |
| 0x0021 | 3DSP             | 3D Synchronization Profile [1]                  | PSM         |
| 0x0023 | LE_PSM_IPSP      | Internet Protocol Support Profile [12]          | SPSM        |
| 0x0025 | OTS              | Object Transfer Service [19]                    | PSM or SPSM |
| 0x0027 | EATT             | Bluetooth Core Specification [4]                | PSM or SPSM |

## 2.6 Appearance Values

Referenced from the following:

- Bluetooth Core Specification [Vol 3] Part C, Section 12.2 [4].
- Supplement to the Bluetooth Core Specification Part A, Section 1.12.2 [22].

### 2.6.1 Definition



Figure 2.1: Appearance Value format

## 2.6.2 Appearance Category ranges

These are the assigned ranges of the appearance categories.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/appearance\\_values.yaml](#)

| Category (bits 15 to 6) | Value Ranges     | Name                   |
|-------------------------|------------------|------------------------|
| 0x000                   | 0x0000 to 0x003F | Unknown                |
| 0x001                   | 0x0040 to 0x007F | Phone                  |
| 0x002                   | 0x0080 to 0x00BF | Computer               |
| 0x003                   | 0x00C0 to 0x00FF | Watch                  |
| 0x004                   | 0x0100 to 0x013F | Clock                  |
| 0x005                   | 0x0140 to 0x017F | Display                |
| 0x006                   | 0x0180 to 0x01BF | Remote Control         |
| 0x007                   | 0x01C0 to 0x01FF | Eye-glasses            |
| 0x008                   | 0x0200 to 0x023F | Tag                    |
| 0x009                   | 0x0240 to 0x027F | Keyring                |
| 0x00A                   | 0x0280 to 0x02BF | Media Player           |
| 0x00B                   | 0x02C0 to 0x02FF | Barcode Scanner        |
| 0x00C                   | 0x0300 to 0x033F | Thermometer            |
| 0x00D                   | 0x0340 to 0x037F | Heart Rate Sensor      |
| 0x00E                   | 0x0380 to 0x03BF | Blood Pressure         |
| 0x00F                   | 0x03C0 to 0x03FF | Human Interface Device |
| 0x010                   | 0x0400 to 0x043F | Glucose Meter          |
| 0x011                   | 0x0440 to 0x047F | Running Walking Sensor |
| 0x012                   | 0x0480 to 0x04BF | Cycling                |
| 0x013                   | 0x04C0 to 0x04FF | Control Device         |
| 0x014                   | 0x0500 to 0x053F | Network Device         |
| 0x015                   | 0x0540 to 0x057F | Sensor                 |
| 0x016                   | 0x0580 to 0x05BF | Light Fixtures         |
| 0x017                   | 0x05C0 to 0x05FF | Fan                    |
| 0x018                   | 0x0600 to 0x063F | HVAC                   |
| 0x019                   | 0x0640 to 0x067F | Air Conditioning       |
| 0x01A                   | 0x0680 to 0x06BF | Humidifier             |
| 0x01B                   | 0x06C0 to 0x06FF | Heating                |
| 0x01C                   | 0x0700 to 0x073F | Access Control         |
| 0x01D                   | 0x0740 to 0x077F | Motorized Device       |

|       |                  |                            |
|-------|------------------|----------------------------|
| 0x01E | 0x0780 to 0x07BF | Power Device               |
| 0x01F | 0x07C0 to 0x07FF | Light Source               |
| 0x020 | 0x0800 to 0x083F | Window Covering            |
| 0x021 | 0x0840 to 0x087F | Audio Sink                 |
| 0x022 | 0x0880 to 0x08BF | Audio Source               |
| 0x023 | 0x08C0 to 0x08FF | Motorized Vehicle          |
| 0x024 | 0x0900 to 0x093F | Domestic Appliance         |
| 0x025 | 0x0940 to 0x097F | Wearable Audio Device      |
| 0x026 | 0x0980 to 0x09BF | Aircraft                   |
| 0x027 | 0x09C0 to 0x09FF | AV Equipment               |
| 0x028 | 0x0A00 to 0x0A3F | Display Equipment          |
| 0x029 | 0x0A40 to 0x0A7F | Hearing aid                |
| 0x02A | 0x0A80 to 0x0ABF | Gaming                     |
| 0x02B | 0x0AC0 to 0x0AFF | Signage                    |
| 0x031 | 0x0C40 to 0x0C7F | Pulse Oximeter             |
| 0x032 | 0x0C80 to 0x0CBF | Weight Scale               |
| 0x033 | 0x0CC0 to 0x0CFF | Personal Mobility Device   |
| 0x034 | 0x0D00 to 0x0D3F | Continuous Glucose Monitor |
| 0x035 | 0x0D40 to 0x0D7F | Insulin Pump               |
| 0x036 | 0x0D80 to 0x0DBF | Medication Delivery        |
| 0x037 | 0x0DC0 to 0x0DFF | Spirometer                 |
| 0x051 | 0x1440 to 0x147F | Outdoor Sports Activity    |

### 2.6.3 Appearance Sub-category values

These are the assigned values within the assigned ranges of appearance categories.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/appearance\\_values.yaml](#)

| Category<br>(bits 15 to 6) | Subcategory<br>(bits 5 to 0) | Value    | Name                           |
|----------------------------|------------------------------|----------|--------------------------------|
| 0x000                      | 0x00                         | 0x0000   | Generic Unknown                |
| 0x001                      | 0x00                         | 0x0040   | Generic Phone                  |
| 0x002                      | 0x00                         | 0x0080   | Generic Computer               |
|                            | 0x01                         | 0x0081   | Desktop Workstation            |
|                            | 0x02                         | 0x0082   | Server-class Computer          |
|                            | 0x03                         | 0x0083   | Laptop                         |
|                            | 0x04                         | 0x0084   | Handheld PC/PDA (clamshell)    |
|                            | 0x05                         | 0x0085   | Palm-size PC/PDA               |
|                            | 0x06                         | 0x0086   | Wearable computer (watch size) |
|                            | 0x07                         | 0x0087   | Tablet                         |
|                            | 0x08                         | 0x0088   | Docking Station                |
|                            | 0x09                         | 0x0089   | All in One                     |
|                            | 0x0A                         | 0x008A   | Blade Server                   |
|                            | 0x0B                         | 0x008B   | Convertible                    |
|                            | 0x0C                         | 0x008C   | Detachable                     |
|                            | 0x0D                         | 0x008D   | IoT Gateway                    |
|                            | 0x0E                         | 0x008E   | Mini PC                        |
| 0x0F                       | 0x008F                       | Stick PC |                                |
| 0x003                      | 0x00                         | 0x00C0   | Generic Watch                  |
|                            | 0x01                         | 0x00C1   | Sports Watch                   |
|                            | 0x02                         | 0x00C2   | Smartwatch                     |
| 0x004                      | 0x00                         | 0x0100   | Generic Clock                  |
| 0x005                      | 0x00                         | 0x0140   | Generic Display                |
| 0x006                      | 0x00                         | 0x0180   | Generic Remote Control         |
| 0x007                      | 0x00                         | 0x01C0   | Generic Eye-glasses            |
| 0x008                      | 0x00                         | 0x0200   | Generic Tag                    |
| 0x009                      | 0x00                         | 0x0240   | Generic Keyring                |
| 0x00A                      | 0x00                         | 0x0280   | Generic Media Player           |
| 0x00B                      | 0x00                         | 0x02C0   | Generic Barcode Scanner        |
| 0x00C                      | 0x00                         | 0x0300   | Generic Thermometer            |

|       |      |        |                                |
|-------|------|--------|--------------------------------|
|       | 0x01 | 0x0301 | Ear Thermometer                |
| 0x00D | 0x00 | 0x0340 | Generic Heart Rate Sensor      |
|       | 0x01 | 0x0341 | Heart Rate Belt                |
| 0x00E | 0x00 | 0x0380 | Generic Blood Pressure         |
|       | 0x01 | 0x0381 | Arm Blood Pressure             |
|       | 0x02 | 0x0382 | Wrist Blood Pressure           |
| 0x00F | 0x00 | 0x03C0 | Generic Human Interface Device |
|       | 0x01 | 0x03C1 | Keyboard                       |
|       | 0x02 | 0x03C2 | Mouse                          |
|       | 0x03 | 0x03C3 | Joystick                       |
|       | 0x04 | 0x03C4 | Gamepad                        |
|       | 0x05 | 0x03C5 | Digitizer Tablet               |
|       | 0x06 | 0x03C6 | Card Reader                    |
|       | 0x07 | 0x03C7 | Digital Pen                    |
|       | 0x08 | 0x03C8 | Barcode Scanner                |
|       | 0x09 | 0x03C9 | Touchpad                       |
|       | 0x0A | 0x03CA | Presentation Remote            |
| 0x010 | 0x00 | 0x0400 | Generic Glucose Meter          |
| 0x011 | 0x00 | 0x0440 | Generic Running Walking Sensor |
|       | 0x01 | 0x0441 | In-Shoe Running Walking Sensor |
|       | 0x02 | 0x0442 | On-Shoe Running Walking Sensor |
|       | 0x03 | 0x0443 | On-Hip Running Walking Sensor  |
| 0x012 | 0x00 | 0x0480 | Generic Cycling                |
|       | 0x01 | 0x0481 | Cycling Computer               |
|       | 0x02 | 0x0482 | Speed Sensor                   |
|       | 0x03 | 0x0483 | Cadence Sensor                 |
|       | 0x04 | 0x0484 | Power Sensor                   |
|       | 0x05 | 0x0485 | Speed and Cadence Sensor       |
| 0x013 | 0x00 | 0x04C0 | Generic Control Device         |
|       | 0x01 | 0x04C1 | Switch                         |
|       | 0x02 | 0x04C2 | Multi-switch                   |
|       | 0x03 | 0x04C3 | Button                         |
|       | 0x04 | 0x04C4 | Slider                         |
|       | 0x05 | 0x04C5 | Rotary Switch                  |
|       | 0x06 | 0x04C6 | Touch Panel                    |
|       | 0x07 | 0x04C7 | Single Switch                  |
|       | 0x08 | 0x04C8 | Double Switch                  |

|       |      |        |                              |
|-------|------|--------|------------------------------|
|       | 0x09 | 0x04C9 | Triple Switch                |
|       | 0x0A | 0x04CA | Battery Switch               |
|       | 0x0B | 0x04CB | Energy Harvesting Switch     |
|       | 0x0C | 0x04CC | Push Button                  |
|       | 0x0D | 0x04CD | Dial                         |
| 0x014 | 0x00 | 0x0500 | Generic Network Device       |
|       | 0x01 | 0x0501 | Access Point                 |
|       | 0x02 | 0x0502 | Mesh Device                  |
|       | 0x03 | 0x0503 | Mesh Network Proxy           |
| 0x015 | 0x00 | 0x0540 | Generic Sensor               |
|       | 0x01 | 0x0541 | Motion Sensor                |
|       | 0x02 | 0x0542 | Air quality Sensor           |
|       | 0x03 | 0x0543 | Temperature Sensor           |
|       | 0x04 | 0x0544 | Humidity Sensor              |
|       | 0x05 | 0x0545 | Leak Sensor                  |
|       | 0x06 | 0x0546 | Smoke Sensor                 |
|       | 0x07 | 0x0547 | Occupancy Sensor             |
|       | 0x08 | 0x0548 | Contact Sensor               |
|       | 0x09 | 0x0549 | Carbon Monoxide Sensor       |
|       | 0x0A | 0x054A | Carbon Dioxide Sensor        |
|       | 0x0B | 0x054B | Ambient Light Sensor         |
|       | 0x0C | 0x054C | Energy Sensor                |
|       | 0x0D | 0x054D | Color Light Sensor           |
|       | 0x0E | 0x054E | Rain Sensor                  |
|       | 0x0F | 0x054F | Fire Sensor                  |
|       | 0x10 | 0x0550 | Wind Sensor                  |
|       | 0x11 | 0x0551 | Proximity Sensor             |
|       | 0x12 | 0x0552 | Multi-Sensor                 |
|       | 0x13 | 0x0553 | Flush Mounted Sensor         |
|       | 0x14 | 0x0554 | Ceiling Mounted Sensor       |
|       | 0x15 | 0x0555 | Wall Mounted Sensor          |
|       | 0x16 | 0x0556 | Multisensor                  |
|       | 0x17 | 0x0557 | Energy Meter                 |
|       | 0x18 | 0x0558 | Flame Detector               |
|       | 0x19 | 0x0559 | Vehicle Tire Pressure Sensor |
| 0x016 | 0x00 | 0x0580 | Generic Light Fixtures       |
|       | 0x01 | 0x0581 | Wall Light                   |



|       |      |        |                      |
|-------|------|--------|----------------------|
|       | 0x02 | 0x0582 | Ceiling Light        |
|       | 0x03 | 0x0583 | Floor Light          |
|       | 0x04 | 0x0584 | Cabinet Light        |
|       | 0x05 | 0x0585 | Desk Light           |
|       | 0x06 | 0x0586 | Troffer Light        |
|       | 0x07 | 0x0587 | Pendant Light        |
|       | 0x08 | 0x0588 | In-ground Light      |
|       | 0x09 | 0x0589 | Flood Light          |
|       | 0x0A | 0x058A | Underwater Light     |
|       | 0x0B | 0x058B | Bollard with Light   |
|       | 0x0C | 0x058C | Pathway Light        |
|       | 0x0D | 0x058D | Garden Light         |
|       | 0x0E | 0x058E | Pole-top Light       |
|       | 0x0F | 0x058F | Spotlight            |
|       | 0x10 | 0x0590 | Linear Light         |
|       | 0x11 | 0x0591 | Street Light         |
|       | 0x12 | 0x0592 | Shelves Light        |
|       | 0x13 | 0x0593 | Bay Light            |
|       | 0x14 | 0x0594 | Emergency Exit Light |
|       | 0x15 | 0x0595 | Light Controller     |
|       | 0x16 | 0x0596 | Light Driver         |
|       | 0x17 | 0x0597 | Bulb                 |
|       | 0x18 | 0x0598 | Low-bay Light        |
|       | 0x19 | 0x0599 | High-bay Light       |
| 0x017 | 0x00 | 0x05C0 | Generic Fan          |
|       | 0x01 | 0x05C1 | Ceiling Fan          |
|       | 0x02 | 0x05C2 | Axial Fan            |
|       | 0x03 | 0x05C3 | Exhaust Fan          |
|       | 0x04 | 0x05C4 | Pedestal Fan         |
|       | 0x05 | 0x05C5 | Desk Fan             |
|       | 0x06 | 0x05C6 | Wall Fan             |
| 0x018 | 0x00 | 0x0600 | Generic HVAC         |
|       | 0x01 | 0x0601 | Thermostat           |
|       | 0x02 | 0x0602 | Humidifier           |
|       | 0x03 | 0x0603 | De-humidifier        |
|       | 0x04 | 0x0604 | Heater               |
|       | 0x05 | 0x0605 | Radiator             |

|       |      |        |                          |
|-------|------|--------|--------------------------|
|       | 0x06 | 0x0606 | Boiler                   |
|       | 0x07 | 0x0607 | Heat Pump                |
|       | 0x08 | 0x0608 | Infrared Heater          |
|       | 0x09 | 0x0609 | Radiant Panel Heater     |
|       | 0x0A | 0x060A | Fan Heater               |
|       | 0x0B | 0x060B | Air Curtain              |
| 0x019 | 0x00 | 0x0640 | Generic Air Conditioning |
| 0x01A | 0x00 | 0x0680 | Generic Humidifier       |
| 0x01B | 0x00 | 0x06C0 | Generic Heating          |
|       | 0x01 | 0x06C1 | Radiator                 |
|       | 0x02 | 0x06C2 | Boiler                   |
|       | 0x03 | 0x06C3 | Heat Pump                |
|       | 0x04 | 0x06C4 | Infrared Heater          |
|       | 0x05 | 0x06C5 | Radiant Panel Heater     |
|       | 0x06 | 0x06C6 | Fan Heater               |
|       | 0x07 | 0x06C7 | Air Curtain              |
| 0x01C | 0x00 | 0x0700 | Generic Access Control   |
|       | 0x01 | 0x0701 | Access Door              |
|       | 0x02 | 0x0702 | Garage Door              |
|       | 0x03 | 0x0703 | Emergency Exit Door      |
|       | 0x04 | 0x0704 | Access Lock              |
|       | 0x05 | 0x0705 | Elevator                 |
|       | 0x06 | 0x0706 | Window                   |
|       | 0x07 | 0x0707 | Entrance Gate            |
|       | 0x08 | 0x0708 | Door Lock                |
|       | 0x09 | 0x0709 | Locker                   |
| 0x01D | 0x00 | 0x0740 | Generic Motorized Device |
|       | 0x01 | 0x0741 | Motorized Gate           |
|       | 0x02 | 0x0742 | Awning                   |
|       | 0x03 | 0x0743 | Blinds or Shades         |
|       | 0x04 | 0x0744 | Curtains                 |
|       | 0x05 | 0x0745 | Screen                   |
| 0x01E | 0x00 | 0x0780 | Generic Power Device     |
|       | 0x01 | 0x0781 | Power Outlet             |
|       | 0x02 | 0x0782 | Power Strip              |
|       | 0x03 | 0x0783 | Plug                     |
|       | 0x04 | 0x0784 | Power Supply             |

|       |      |        |                                     |
|-------|------|--------|-------------------------------------|
|       | 0x05 | 0x0785 | LED Driver                          |
|       | 0x06 | 0x0786 | Fluorescent Lamp Gear               |
|       | 0x07 | 0x0787 | HID Lamp Gear                       |
|       | 0x08 | 0x0788 | Charge Case                         |
|       | 0x09 | 0x0789 | Power Bank                          |
| 0x01F | 0x00 | 0x07C0 | Generic Light Source                |
|       | 0x01 | 0x07C1 | Incandescent Light Bulb             |
|       | 0x02 | 0x07C2 | LED Lamp                            |
|       | 0x03 | 0x07C3 | HID Lamp                            |
|       | 0x04 | 0x07C4 | Fluorescent Lamp                    |
|       | 0x05 | 0x07C5 | LED Array                           |
|       | 0x06 | 0x07C6 | Multi-Color LED Array               |
|       | 0x07 | 0x07C7 | Low voltage halogen                 |
|       | 0x08 | 0x07C8 | Organic light emitting diode (OLED) |
| 0x020 | 0x00 | 0x0800 | Generic Window Covering             |
|       | 0x01 | 0x0801 | Window Shades                       |
|       | 0x02 | 0x0802 | Window Blinds                       |
|       | 0x03 | 0x0803 | Window Awning                       |
|       | 0x04 | 0x0804 | Window Curtain                      |
|       | 0x05 | 0x0805 | Exterior Shutter                    |
|       | 0x06 | 0x0806 | Exterior Screen                     |
| 0x021 | 0x00 | 0x0840 | Generic Audio Sink                  |
|       | 0x01 | 0x0841 | Standalone Speaker                  |
|       | 0x02 | 0x0842 | Soundbar                            |
|       | 0x03 | 0x0843 | Bookshelf Speaker                   |
|       | 0x04 | 0x0844 | Standmounted Speaker                |
|       | 0x05 | 0x0845 | Speakerphone                        |
| 0x022 | 0x00 | 0x0880 | Generic Audio Source                |
|       | 0x01 | 0x0881 | Microphone                          |
|       | 0x02 | 0x0882 | Alarm                               |
|       | 0x03 | 0x0883 | Bell                                |
|       | 0x04 | 0x0884 | Horn                                |
|       | 0x05 | 0x0885 | Broadcasting Device                 |
|       | 0x06 | 0x0886 | Service Desk                        |
|       | 0x07 | 0x0887 | Kiosk                               |
|       | 0x08 | 0x0888 | Broadcasting Room                   |

|       |      |        |                                   |
|-------|------|--------|-----------------------------------|
|       | 0x09 | 0x0889 | Auditorium                        |
| 0x023 | 0x00 | 0x08C0 | Generic Motorized Vehicle         |
|       | 0x01 | 0x08C1 | Car                               |
|       | 0x02 | 0x08C2 | Large Goods Vehicle               |
|       | 0x03 | 0x08C3 | 2-Wheeled Vehicle                 |
|       | 0x04 | 0x08C4 | Motorbike                         |
|       | 0x05 | 0x08C5 | Scooter                           |
|       | 0x06 | 0x08C6 | Moped                             |
|       | 0x07 | 0x08C7 | 3-Wheeled Vehicle                 |
|       | 0x08 | 0x08C8 | Light Vehicle                     |
|       | 0x09 | 0x08C9 | Quad Bike                         |
|       | 0x0A | 0x08CA | Minibus                           |
|       | 0x0B | 0x08CB | Bus                               |
|       | 0x0C | 0x08CC | Trolley                           |
|       | 0x0D | 0x08CD | Agricultural Vehicle              |
|       | 0x0E | 0x08CE | Camper / Caravan                  |
|       | 0x0F | 0x08CF | Recreational Vehicle / Motor Home |
| 0x024 | 0x00 | 0x0900 | Generic Domestic Appliance        |
|       | 0x01 | 0x0901 | Refrigerator                      |
|       | 0x02 | 0x0902 | Freezer                           |
|       | 0x03 | 0x0903 | Oven                              |
|       | 0x04 | 0x0904 | Microwave                         |
|       | 0x05 | 0x0905 | Toaster                           |
|       | 0x06 | 0x0906 | Washing Machine                   |
|       | 0x07 | 0x0907 | Dryer                             |
|       | 0x08 | 0x0908 | Coffee maker                      |
|       | 0x09 | 0x0909 | Clothes iron                      |
|       | 0x0A | 0x090A | Curling iron                      |
|       | 0x0B | 0x090B | Hair dryer                        |
|       | 0x0C | 0x090C | Vacuum cleaner                    |
|       | 0x0D | 0x090D | Robotic vacuum cleaner            |
|       | 0x0E | 0x090E | Rice cooker                       |
|       | 0x0F | 0x090F | Clothes steamer                   |
| 0x025 | 0x00 | 0x0940 | Generic Wearable Audio Device     |
|       | 0x01 | 0x0941 | Earbud                            |
|       | 0x02 | 0x0942 | Headset                           |
|       | 0x03 | 0x0943 | Headphones                        |

|       |      |        |                                  |
|-------|------|--------|----------------------------------|
|       | 0x04 | 0x0944 | Neck Band                        |
| 0x026 | 0x00 | 0x0980 | Generic Aircraft                 |
|       | 0x01 | 0x0981 | Light Aircraft                   |
|       | 0x02 | 0x0982 | Microlight                       |
|       | 0x03 | 0x0983 | Paraglider                       |
|       | 0x04 | 0x0984 | Large Passenger Aircraft         |
| 0x027 | 0x00 | 0x09C0 | Generic AV Equipment             |
|       | 0x01 | 0x09C1 | Amplifier                        |
|       | 0x02 | 0x09C2 | Receiver                         |
|       | 0x03 | 0x09C3 | Radio                            |
|       | 0x04 | 0x09C4 | Tuner                            |
|       | 0x05 | 0x09C5 | Turntable                        |
|       | 0x06 | 0x09C6 | CD Player                        |
|       | 0x07 | 0x09C7 | DVD Player                       |
|       | 0x08 | 0x09C8 | Bluray Player                    |
|       | 0x09 | 0x09C9 | Optical Disc Player              |
|       | 0x0A | 0x09CA | Set-Top Box                      |
| 0x028 | 0x00 | 0x0A00 | Generic Display Equipment        |
|       | 0x01 | 0x0A01 | Television                       |
|       | 0x02 | 0x0A02 | Monitor                          |
|       | 0x03 | 0x0A03 | Projector                        |
| 0x029 | 0x00 | 0x0A40 | Generic Hearing aid              |
|       | 0x01 | 0x0A41 | In-ear hearing aid               |
|       | 0x02 | 0x0A42 | Behind-ear hearing aid           |
|       | 0x03 | 0x0A43 | Cochlear Implant                 |
| 0x02A | 0x00 | 0x0A80 | Generic Gaming                   |
|       | 0x01 | 0x0A81 | Home Video Game Console          |
|       | 0x02 | 0x0A82 | Portable handheld console        |
| 0x02B | 0x00 | 0x0AC0 | Generic Signage                  |
|       | 0x01 | 0x0AC1 | Digital Signage                  |
|       | 0x02 | 0x0AC2 | Electronic Label                 |
| 0x031 | 0x00 | 0x0C40 | Generic Pulse Oximeter           |
|       | 0x01 | 0x0C41 | Fingertip Pulse Oximeter         |
|       | 0x02 | 0x0C42 | Wrist Worn Pulse Oximeter        |
| 0x032 | 0x00 | 0x0C80 | Generic Weight Scale             |
| 0x033 | 0x00 | 0x0CC0 | Generic Personal Mobility Device |
|       | 0x01 | 0x0CC1 | Powered Wheelchair               |

|       |      |        |                                    |
|-------|------|--------|------------------------------------|
|       | 0x02 | 0x0CC2 | Mobility Scooter                   |
| 0x034 | 0x00 | 0x0D00 | Generic Continuous Glucose Monitor |
| 0x035 | 0x00 | 0x0D40 | Generic Insulin Pump               |
|       | 0x01 | 0x0D41 | Insulin Pump, durable pump         |
|       | 0x04 | 0x0D44 | Insulin Pump, patch pump           |
|       | 0x08 | 0x0D48 | Insulin Pen                        |
| 0x036 | 0x00 | 0x0D80 | Generic Medication Delivery        |
| 0x037 | 0x00 | 0x0DC0 | Generic Spirometer                 |
|       | 0x01 | 0x0DC1 | Handheld Spirometer                |
| 0x051 | 0x00 | 0x1440 | Generic Outdoor Sports Activity    |
|       | 0x01 | 0x1441 | Location Display                   |
|       | 0x02 | 0x1442 | Location and Navigation Display    |
|       | 0x03 | 0x1443 | Location Pod                       |
|       | 0x04 | 0x1444 | Location and Navigation Pod        |

## 2.7 URI Scheme Name String Mapping

Referenced from Supplement to the Bluetooth Core Specification Part A, Section 1.18.1 [22].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/uri\\_schemes.yaml](#)

| Value  | URI Scheme        |
|--------|-------------------|
| U+0001 | empty scheme name |
| U+0002 | aaa:              |
| U+0003 | aaas:             |
| U+0004 | about:            |
| U+0005 | acap:             |
| U+0006 | acct:             |
| U+0007 | cap:              |
| U+0008 | cid:              |
| U+0009 | coap:             |
| U+000A | coaps:            |
| U+000B | crid:             |
| U+000C | data:             |
| U+000D | dav:              |
| U+000E | dict:             |
| U+000F | dns:              |
| U+0010 | file:             |
| U+0011 | ftp:              |
| U+0012 | geo:              |
| U+0013 | go:               |
| U+0014 | gopher:           |
| U+0015 | h323:             |
| U+0016 | http:             |
| U+0017 | https:            |
| U+0018 | iax:              |
| U+0019 | icap:             |
| U+001A | im:               |
| U+001B | imap:             |
| U+001C | info:             |
| U+001D | ipp:              |
| U+001E | ipps:             |
| U+001F | iris:             |



|        |                  |
|--------|------------------|
| U+0020 | iris.beep:       |
| U+0021 | iris.xpc:        |
| U+0022 | iris.xpcs:       |
| U+0023 | iris.lwz:        |
| U+0024 | jabber:          |
| U+0025 | ldap:            |
| U+0026 | mailto:          |
| U+0027 | mid:             |
| U+0028 | msrp:            |
| U+0029 | msrps:           |
| U+002A | mtqp:            |
| U+002B | mupdate:         |
| U+002C | news:            |
| U+002D | nfs:             |
| U+002E | ni:              |
| U+002F | nih:             |
| U+0030 | nntp:            |
| U+0031 | opaquelocktoken: |
| U+0032 | pop:             |
| U+0033 | pres:            |
| U+0034 | reload:          |
| U+0035 | rtsp:            |
| U+0036 | rtsp:            |
| U+0037 | rtspu:           |
| U+0038 | service:         |
| U+0039 | session:         |
| U+003A | shttp:           |
| U+003B | sieve:           |
| U+003C | sip:             |
| U+003D | sips:            |
| U+003E | sms:             |
| U+003F | snmp:            |
| U+0040 | soap.beep:       |
| U+0041 | soap.beeps:      |
| U+0042 | stun:            |
| U+0043 | stuns:           |



|        |                   |
|--------|-------------------|
| U+0044 | tag:              |
| U+0045 | tel:              |
| U+0046 | telnet:           |
| U+0047 | tftp:             |
| U+0048 | thismessage:      |
| U+0049 | tn3270:           |
| U+004A | tip:              |
| U+004B | turn:             |
| U+004C | turns:            |
| U+004D | tv:               |
| U+004E | urn:              |
| U+004F | vemmi:            |
| U+0050 | ws:               |
| U+0051 | wss:              |
| U+0052 | xcon:             |
| U+0053 | xcon-userid:      |
| U+0054 | xmlrpc.beep:      |
| U+0055 | xmlrpc.beeps:     |
| U+0056 | xmpp:             |
| U+0057 | z39.50r:          |
| U+0058 | z39.50s:          |
| U+0059 | acr:              |
| U+005A | adiumxtra:        |
| U+005B | afp:              |
| U+005C | afs:              |
| U+005D | aim:              |
| U+005E | apt:              |
| U+005F | attachment:       |
| U+0060 | aw:               |
| U+0061 | barion:           |
| U+0062 | beshare:          |
| U+0063 | bitcoin:          |
| U+0064 | bolo:             |
| U+0065 | callto:           |
| U+0066 | chrome:           |
| U+0067 | chrome-extension: |

|        |                          |
|--------|--------------------------|
| U+0068 | com-eventbrite-attendee: |
| U+0069 | content:                 |
| U+006A | cvs:                     |
| U+006B | dlna-playsingle:         |
| U+006C | dlna-playcontainer:      |
| U+006D | dtn:                     |
| U+006E | dvb:                     |
| U+006F | ed2k:                    |
| U+0070 | facetime:                |
| U+0071 | feed:                    |
| U+0072 | feedready:               |
| U+0073 | finger:                  |
| U+0074 | fish:                    |
| U+0075 | gg:                      |
| U+0076 | git:                     |
| U+0077 | gizmoproject:            |
| U+0078 | gtalk:                   |
| U+0079 | ham:                     |
| U+007A | hcp:                     |
| U+007B | icon:                    |
| U+007C | ipn:                     |
| U+007D | irc:                     |
| U+007E | irc6:                    |
| U+007F | ircs:                    |
| U+0080 | itms:                    |
| U+0081 | jar:                     |
| U+0082 | jms:                     |
| U+0083 | keyparc:                 |
| U+0084 | lastfm:                  |
| U+0085 | ldaps:                   |
| U+0086 | magnet:                  |
| U+0087 | maps:                    |
| U+0088 | market:                  |
| U+0089 | message:                 |
| U+008A | mms:                     |
| U+008B | ms-help:                 |

|        |                    |
|--------|--------------------|
| U+008C | ms-settings-power: |
| U+008D | msnim:             |
| U+008E | mumble:            |
| U+008F | mvn:               |
| U+0090 | notes:             |
| U+0091 | oid:               |
| U+0092 | palm:              |
| U+0093 | paparazzi:         |
| U+0094 | pkcs11:            |
| U+0095 | platform:          |
| U+0096 | proxy:             |
| U+0097 | psyc:              |
| U+0098 | query:             |
| U+0099 | res:               |
| U+009A | resource:          |
| U+009B | rmi:               |
| U+009C | rsync:             |
| U+009D | rtmfp:             |
| U+009E | rtmp:              |
| U+009F | secondlife:        |
| U+00A0 | sftp:              |
| U+00A1 | sgn:               |
| U+00A2 | skype:             |
| U+00A3 | smb:               |
| U+00A4 | smtp:              |
| U+00A5 | soldat:            |
| U+00A6 | spotify:           |
| U+00A7 | ssh:               |
| U+00A8 | steam:             |
| U+00A9 | submit:            |
| U+00AA | svn:               |
| U+00AB | teamspeak:         |
| U+00AC | teliaeid:          |
| U+00AD | things:            |
| U+00AE | udp:               |
| U+00AF | unreal:            |

---

|        |                           |
|--------|---------------------------|
| U+00B0 | ut2004:                   |
| U+00B1 | ventrilo:                 |
| U+00B2 | view-source:              |
| U+00B3 | webcal:                   |
| U+00B4 | wtai:                     |
| U+00B5 | wyciwyg:                  |
| U+00B6 | xfire:                    |
| U+00B7 | xri:                      |
| U+00B8 | ymsg:                     |
| U+00B9 | example:                  |
| U+00BA | ms-settings-cloudstorage: |

## 2.8 Class of Device

Referenced from the following:

- Bluetooth Core Specification [Vol 2] Part B, Section 6.5.1.4 [4].
- Supplement to the Bluetooth Core Specification Part A, Section 1.6.2 [22].

The Class of Device is composed of four fields: A Major Service Classes bitfield, a Major Device Class enumerated value, the Minor Device Class value, and a fixed value of 0b00 in the two least significant bits. The format of the Minor Device Class is determined by the Major Device Class value. The structure of the Class of Device is defined below:

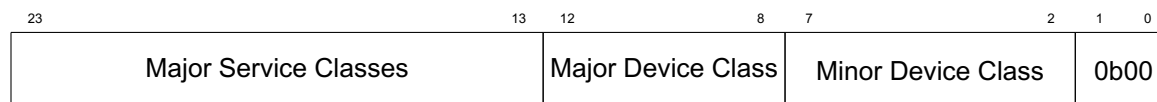


Figure 2.2: Class of Device format

### 2.8.1 Major Service Classes

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| Bit | Class of Device Major Service Class                         |
|-----|---|
| 13  | Limited Discoverable Mode                                   |
| 14  | LE audio  |
| 15  | Reserved for Future Use                                     |
| 16  | Positioning (Location identification)                       |
| 17  | Networking (LAN, Ad hoc, ...)                               |
| 18  | Rendering (Printing, Speakers, ...)                         |
| 19  | Capturing (Scanner, Microphone, ...)                        |
| 20  | Object Transfer (v-Inbox, v-Folder, ...)                    |
| 21  | Audio (Speaker, Microphone, Headset service, ...)           |
| 22  | Telephony (Cordless telephony, Modem, Headset service, ...) |
| 23  | Information (WEB-server, WAP-server, ...)                   |

## 2.8.2 Major Device Class

The "Miscellaneous" Major Device Class is used where a more specific Major Device Class code is not suitable. A device that does not have a Major Class Code assigned can use the "Uncategorized: device code not specified" code until classified.

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 12 | 11 | 10 | 9 | 8 | Major Device Class  |
|----|----|----|---|---|---|
| 0  | 0  | 0  | 0 | 0 | Miscellaneous   |
| 0  | 0  | 0  | 0 | 1 | Computer (desktop, notebook, PDA, organizer, ...)               |
| 0  | 0  | 0  | 1 | 0 | Phone (cellular, cordless, pay phone, modem, ...)               |
| 0  | 0  | 0  | 1 | 1 | LAN/Network Access Point  |
| 0  | 0  | 1  | 0 | 0 | Audio/Video (headset, speaker, stereo, video display, VCR, ...) |
| 0  | 0  | 1  | 0 | 1 | Peripheral (mouse, joystick, keyboard, ...)                     |
| 0  | 0  | 1  | 1 | 0 | Imaging (printer, scanner, camera, display, ...)                |
| 0  | 0  | 1  | 1 | 1 | Wearable  |
| 0  | 1  | 0  | 0 | 0 | Toy   |
| 0  | 1  | 0  | 0 | 1 | Health  |
| 1  | 1  | 1  | 1 | 1 | Uncategorized (device code not specified)                       |

### 2.8.2.1 Minor Device Class field – Computer Major Class

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 7 | 6 | 5 | 4 | 3 | 2 | Minor Device Class                           |
|---|---|---|---|---|---|--|
| 0 | 0 | 0 | 0 | 0 | 0 | Uncategorized (code for device not assigned) |
| 0 | 0 | 0 | 0 | 0 | 1 | Desktop Workstation                          |
| 0 | 0 | 0 | 0 | 1 | 0 | Server-class Computer                        |
| 0 | 0 | 0 | 0 | 1 | 1 | Laptop                                       |
| 0 | 0 | 0 | 1 | 0 | 0 | Handheld PC/PDA (clamshell)                  |
| 0 | 0 | 0 | 1 | 0 | 1 | Palm-size PC/PDA                             |
| 0 | 0 | 0 | 1 | 1 | 0 | Wearable Computer (watch size)               |
| 0 | 0 | 0 | 1 | 1 | 1 | Tablet                                       |

### 2.8.2.2 Minor Device Class field – Phone Major Class

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 7 | 6 | 5 | 4 | 3 | 2 | Minor Device Class                           |
|---|---|---|---|---|---|--|
| 0 | 0 | 0 | 0 | 0 | 0 | Uncategorized (code for device not assigned) |
| 0 | 0 | 0 | 0 | 0 | 1 | Cellular                                     |
| 0 | 0 | 0 | 0 | 1 | 0 | Cordless                                     |
| 0 | 0 | 0 | 0 | 1 | 1 | Smartphone                                   |
| 0 | 0 | 0 | 1 | 0 | 0 | Wired Modem or Voice Gateway                 |
| 0 | 0 | 0 | 1 | 0 | 1 | Common ISDN Access                           |



### 2.8.2.3 Minor Device Class field – LAN/Network Access Point Major Class

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 7 | 6 | 5 | Minor Device Class   |
|---|---|---|----------------------|
| 0 | 0 | 0 | Fully available      |
| 0 | 0 | 1 | 1% to 17% utilized   |
| 0 | 1 | 0 | 17% to 33% utilized  |
| 0 | 1 | 1 | 33% to 50% utilized  |
| 1 | 0 | 0 | 50% to 67% utilized  |
| 1 | 0 | 1 | 67% to 83% utilized  |
| 1 | 1 | 0 | 83% to 99% utilized  |
| 1 | 1 | 1 | No service available |

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 4 | 3 | 2 | Minor Device Class                                |
|---|---|---|---|
| 0 | 0 | 0 | Uncategorized (use this value if no others apply) |

### 2.8.2.4 Minor Device Class field – Audio/Video Major Class

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 7 | 6 | 5 | 4 | 3 | 2 | Minor Device Class                |
|---|---|---|---|---|---|-----------------------------------|
| 0 | 0 | 0 | 0 | 0 | 0 | Uncategorized (code not assigned) |
| 0 | 0 | 0 | 0 | 0 | 1 | Wearable Headset Device           |
| 0 | 0 | 0 | 0 | 1 | 0 | Hands-free Device                 |
| 0 | 0 | 0 | 0 | 1 | 1 | Reserved for Future Use           |
| 0 | 0 | 0 | 1 | 0 | 0 | Microphone                        |
| 0 | 0 | 0 | 1 | 0 | 1 | Loudspeaker                       |
| 0 | 0 | 0 | 1 | 1 | 0 | Headphones                        |
| 0 | 0 | 0 | 1 | 1 | 1 | Portable Audio                    |
| 0 | 0 | 1 | 0 | 0 | 0 | Car Audio                         |
| 0 | 0 | 1 | 0 | 0 | 1 | Set-top box                       |
| 0 | 0 | 1 | 0 | 1 | 0 | HiFi Audio Device                 |
| 0 | 0 | 1 | 0 | 1 | 1 | VCR                               |
| 0 | 0 | 1 | 1 | 0 | 0 | Video Camera                      |
| 0 | 0 | 1 | 1 | 0 | 1 | Camcorder                         |
| 0 | 0 | 1 | 1 | 1 | 0 | Video Monitor                     |
| 0 | 0 | 1 | 1 | 1 | 1 | Video Display and Loudspeaker     |
| 0 | 1 | 0 | 0 | 0 | 0 | Video Conferencing                |
| 0 | 1 | 0 | 0 | 0 | 1 | Reserved for Future Use           |
| 0 | 1 | 0 | 0 | 1 | 0 | Gaming/Toy                        |

### 2.8.2.5 Minor Device Class field – Peripheral Major Class

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 7 | 6 | Minor Device Class                |
|---|---|-----------------------------------|
| 0 | 0 | Uncategorized (code not assigned) |
| 0 | 1 | Keyboard                          |
| 1 | 0 | Pointing Device                   |
| 1 | 1 | Combo Keyboard/Pointing Device    |

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 5 | 4 | 3 | 2 | Minor Device Class  |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | Uncategorized (code not assigned)                         |
| 0 | 0 | 0 | 1 | Joystick  |
| 0 | 0 | 1 | 0 | Gamepad   |
| 0 | 0 | 1 | 1 | Remote Control  |
| 0 | 1 | 0 | 0 | Sensing Device  |
| 0 | 1 | 0 | 1 | Digitizer Tablet  |
| 0 | 1 | 1 | 0 | Card Reader (e.g., SIM Card Reader)                       |
| 0 | 1 | 1 | 1 | Digital Pen   |
| 1 | 0 | 0 | 0 | Handheld Scanner (e.g., barcodes, RFID)                   |
| 1 | 0 | 0 | 1 | Handheld Gestural Input Device (e.g., "wand" form factor) |

### 2.8.2.6 Minor Device Class field – Imaging Major Class

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 7 | 6 | 5 | 4 | Minor Device Class |
|---|---|---|---|--------------------|
| X | X | X | 1 | Display            |
| X | X | 1 | X | Camera             |
| X | 1 | X | X | Scanner            |
| 1 | X | X | X | Printer            |

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 3 | 2 | Minor Device Class      |
|---|---|-------------------------|
| 0 | 0 | Uncategorized (default) |

### 2.8.2.7 Minor Device Class field – Wearable Major Class

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 7 | 6 | 5 | 4 | 3 | 2 | Minor Device Class                   |
|---|---|---|---|---|---|--------------------------------------|
| 0 | 0 | 0 | 0 | 0 | 1 | Wristwatch                           |
| 0 | 0 | 0 | 0 | 1 | 0 | Pager                                |
| 0 | 0 | 0 | 0 | 1 | 1 | Jacket                               |
| 0 | 0 | 0 | 1 | 0 | 0 | Helmet                               |
| 0 | 0 | 0 | 1 | 0 | 1 | Glasses                              |
| 0 | 0 | 0 | 1 | 1 | 0 | Pin (e.g., lapel pin, broach, badge) |

### 2.8.2.8 Minor Device Class field – Toy Major Class

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 7 | 6 | 5 | 4 | 3 | 2 | Minor Device Class |
|---|---|---|---|---|---|--------------------|
| 0 | 0 | 0 | 0 | 0 | 1 | Robot              |
| 0 | 0 | 0 | 0 | 1 | 0 | Vehicle            |
| 0 | 0 | 0 | 0 | 1 | 1 | Doll/Action Figure |
| 0 | 0 | 0 | 1 | 0 | 0 | Controller         |
| 0 | 0 | 0 | 1 | 0 | 1 | Game               |

### 2.8.2.9 Minor Device Class field – Health Major Class

Last Modified: 2024-08-09

Filename: [assigned\\_numbers/core/class\\_of\\_device.yaml](#)

| 7 | 6 | 5 | 4 | 3 | 2 | Minor Device Class        |
|---|---|---|---|---|---|---------------------------|
| 0 | 0 | 0 | 0 | 0 | 0 | Undefined                 |
| 0 | 0 | 0 | 0 | 0 | 1 | Blood Pressure Monitor    |
| 0 | 0 | 0 | 0 | 1 | 0 | Thermometer               |
| 0 | 0 | 0 | 0 | 1 | 1 | Weighing Scale            |
| 0 | 0 | 0 | 1 | 0 | 0 | Glucose Meter             |
| 0 | 0 | 0 | 1 | 0 | 1 | Pulse Oximeter            |
| 0 | 0 | 0 | 1 | 1 | 0 | Heart/Pulse Rate Monitor  |
| 0 | 0 | 0 | 1 | 1 | 1 | Health Data Display       |
| 0 | 0 | 1 | 0 | 0 | 0 | Step Counter              |
| 0 | 0 | 1 | 0 | 0 | 1 | Body Composition Analyzer |
| 0 | 0 | 1 | 0 | 1 | 0 | Peak Flow Monitor         |
| 0 | 0 | 1 | 0 | 1 | 1 | Medication Monitor        |
| 0 | 0 | 1 | 1 | 0 | 0 | Knee Prosthesis           |
| 0 | 0 | 1 | 1 | 0 | 1 | Ankle Prosthesis          |
| 0 | 0 | 1 | 1 | 1 | 0 | Generic Health Manager    |
| 0 | 0 | 1 | 1 | 1 | 1 | Personal Mobility Device  |

## 2.9 LE-U CID

Referenced from Bluetooth Core Specification [Vol 3] Part A, Section 2.1 [4].

Last Modified: 2021-11-24

| CID              | Description             |
|------------------|-------------------------|
| 0x0020 to 0x003E | Reserved for future use |



## 2.10 PCM\_Data\_Format

Reference from Bluetooth Core Specification [Vol 4] Part E, Section 7.1.45 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/pcm\\_data\\_format.yaml](#)

| Value | Name           | Notes  |
|-------|----------------|--|
| 0x00  | N/A            | This value does not apply to the coding format in use. |
| 0x01  | 1's complement |  |
| 0x02  | 2's complement |  |
| 0x03  | Sign-magnitude |  |
| 0x04  | Unsigned       |  |

## 2.11 Coding\_Format and Codec\_ID (HCI)

Referenced from the following:

- Bluetooth Core Specification [Vol 4] Part E, Section 7.1.45 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.1.46 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.4.8 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.4.10 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.8.109 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/coding\\_format.yaml](#)

| Value | Name            | Notes   |
|-------|-----------------|---|
| 0x00  | μ-law log       |   |
| 0x01  | A-law log       |   |
| 0x02  | CVSD            |   |
| 0x03  | Transparent     | Indicates that the controller does not do any transcoding or resampling. See the command description for restrictions on the use of this value. This is also used for test mode |
| 0x04  | Linear PCM      |   |
| 0x05  | mSBC            |   |
| 0x06  | LC3             |   |
| 0x07  | G.729A          |   |
| 0xFF  | Vendor Specific | The codec is vendor-specific, as defined by the following 4 octets in the full coding format.   |

## 2.12 MWS

### 2.12.1 MWS Coexistence Transport Layer

Referenced from the following:

- Bluetooth Core Specification [Vol 4] Part E, Section 7.3.83 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.5.11 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/transport\\_layers.yaml](#)

| Value | Name            |
|-------|-----------------|
| 0x00  | Disabled        |
| 0x01  | WCI-1 Transport |
| 0x02  | WCI-2 Transport |

### 2.12.2 MWS Channel Type

Referenced from Bluetooth Core Specification [Vol 4] Part E, Section 7.3.80 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/mws\\_channel\\_type.yaml](#)

| Value | Name |
|-------|------|
| 0x00  | TDD  |
| 0x01  | FDD  |

## 2.13 AMP

The features utilizing the values in this section have been removed from the Core Specification v5.3 and later.

### 2.13.1 AMP Controller Type

These values are only used in the Bluetooth Core Specification version from v3.0+HS to v5.2.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/amp.yaml](#)

| Value | Controller                |
|-------|---------------------------|
| 0x00  | Primary BR/EDR Controller |
| 0x01  | 802.11 AMP Controller     |

### 2.13.2 AMP Security keyIDs

These values are only used in the Bluetooth Core Specification version from v3.0+HS to v5.2.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/amp.yaml](#)

| Key    | Name             |
|--------|------------------|
| '802b' | 802.11 PAL keyID |

### 2.13.3 AMP Security keyLength

These values are only used in the Bluetooth Core Specification version from v3.0+HS to v5.2.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/amp.yaml](#)

| keyLength | Name                 |
|-----------|----------------------|
| 32        | 802.11 PAL keyLength |

### 2.13.4 PAL Versions

These values are only used in the Bluetooth Core Specification version from v3.0+HS to v5.2.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/core/amp.yaml](#)

| Core Specification Name                         | PAL Version |
|---|-------------|
| Bluetooth Core Specification 3.0 + HS and later | 0x01        |



## 3 16-bit UUIDs

See Bluetooth Core Specification [Vol 3] Part B, Section 2.5.1 [4].

### 3.1 Protocol Identifiers

See Bluetooth Core Specification [Vol 3] Part B, Section 5.1.5 [4].

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/uuids/protocol\\_identifiers.yaml](#)

| UUID   | Protocol                    | Reference                                       |
|--------|-----------------------------|---|
| 0x0001 | SDP                         | Bluetooth Core Specification [4]                |
| 0x0002 | UDP                         | Personal Area Networking Profile [20]           |
| 0x0003 | RFCOMM                      | RFCOMM [21]                                     |
| 0x0004 | TCP                         | Personal Area Networking Profile [20]           |
| 0x0005 | TCS-BIN                     | Telephony Control Protocol [23]                 |
| 0x0006 | TCS-AT                      | Telephony Control Protocol [23]                 |
| 0x0007 | ATT                         | Bluetooth Core Specification [4]                |
| 0x0008 | OBEX                        | IrDA Interoperability [13]                      |
| 0x0009 | IP                          | Personal Area Networking Profile [20]           |
| 0x000A | FTP                         | Personal Area Networking Profile [20]           |
| 0x000C | HTTP                        | Personal Area Networking Profile [20]           |
| 0x000E | WSP                         | WAP Bearer [26]                                 |
| 0x000F | BNEP                        | Bluetooth Network Encapsulation Protocol [5]    |
| 0x0010 | UPNP                        | Extended Service Discovery Profile for UPnP [8] |
| 0x0011 | HID Protocol                | Human Interface Device Profile [11]             |
| 0x0012 | HardcopyControlChannel      | Hardcopy Cable Replacement Profile [9]          |
| 0x0014 | HardcopyDataChannel         | Hardcopy Cable Replacement Profile [9]          |
| 0x0016 | HardcopyNotificationChannel | Hardcopy Cable Replacement Profile [9]          |
| 0x0017 | AVCTP                       | Audio/Video Control Transport Protocol [2]      |
| 0x0019 | AVDTP                       | Audio/Video Distribution Transport Protocol [3] |
| 0x001B | CMTP                        | Common ISDN Access Profile [6]                  |
| 0x001E | MCAP Control Channel        | Health Device Profile [10]                      |
| 0x001F | MCAP Data Channel           | Health Device Profile [10]                      |
| 0x0100 | L2CAP                       | Bluetooth Core Specification [4]                |

## 3.2 Browse Group Identifiers

Referenced from Bluetooth Core Specification [Vol 3] Part B, Section 5.1.7 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/uuids/browse\\_group\\_identifiers.yaml](#)

| UUID   | Protocol         |
|--------|------------------|
| 0x1002 | PublicBrowseRoot |

### 3.3 SDP Service Class and Profile Identifiers

See Bluetooth Core Specification [Vol 3] Part B, Section 5.1.2 [4].

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/uuids/service\\_class.yaml](#)

| UUID   | Name                                 | Type                      |
|--------|--------------------------------------|---------------------------|
| 0x1000 | ServiceDiscoveryServerServiceClassID | Service Class             |
| 0x1001 | BrowseGroupDescriptorServiceClassID  | Service Class             |
| 0x1101 | SerialPort                           | Service Class and Profile |
| 0x1102 | LANAccessUsingPPP                    | Service Class and Profile |
| 0x1103 | Dial-Up Networking                   | Service Class and Profile |
| 0x1104 | IrMCSync                             | Service Class and Profile |
| 0x1105 | OBEXObjectPush                       | Service Class and Profile |
| 0x1106 | OBEX File Transfer                   | Service Class and Profile |
| 0x1107 | IrMCSyncCommand                      | Service Class             |
| 0x1108 | Headset                              | Service Class and Profile |
| 0x1109 | CordlessTelephony                    | Service Class and Profile |
| 0x110A | Audio Source                         | Service Class             |
| 0x110B | Audio Sink                           | Service Class             |
| 0x110C | A/V Remote Control Target            | Service Class             |
| 0x110D | Advanced Audio Distribution          | Profile                   |
| 0x110E | A/V Remote Control                   | Service Class and Profile |
| 0x110F | A/V Remote Control Controller        | Service Class             |
| 0x1110 | Intercom                             | Service Class             |
| 0x1111 | Fax                                  | Service Class             |
| 0x1112 | Headset Audio Gateway                | Service Class             |
| 0x1113 | WAP                                  | Service Class             |
| 0x1114 | WAP_CLIENT                           | Service Class             |
| 0x1115 | PANU                                 | Service Class and Profile |
| 0x1116 | NAP                                  | Service Class and Profile |
| 0x1117 | GN                                   | Service Class and Profile |
| 0x1118 | DirectPrinting                       | Service Class             |
| 0x1119 | ReferencePrinting                    | Service Class             |
| 0x111A | Imaging                              | Profile                   |
| 0x111B | Imaging Responder                    | Service Class             |
| 0x111C | Imaging Automatic Archive            | Service Class             |
| 0x111D | Imaging Referenced Objects           | Service Class             |

|        |  |                           |
|--------|--|---------------------------|
| 0x111E | Hands-Free                             | Service Class and Profile |
| 0x111F | AG Hands-Free                          | Service Class             |
| 0x1120 | DirectPrintingReferencedObjectsService | Service Class             |
| 0x1121 | ReflectedUI                            | Service Class             |
| 0x1122 | BasicPrinting                          | Profile                   |
| 0x1123 | PrintingStatus                         | Service Class             |
| 0x1124 | HID                                    | Service Class and Profile |
| 0x1125 | HardcopyCableReplacement               | Profile                   |
| 0x1126 | HCR_Print                              | Service Class             |
| 0x1127 | HCR_Scan                               | Service Class             |
| 0x1128 | Common_ISDN_Access                     | Service Class and Profile |
| 0x112D | SIM Access                             | Service Class and Profile |
| 0x112E | Phonebook Access Client                | Service Class             |
| 0x112F | Phonebook Access Server                | Service Class             |
| 0x1130 | Phonebook Access Profile               | Profile                   |
| 0x1131 | Headset - HS                           | Service Class             |
| 0x1132 | Message Access Server                  | Service Class             |
| 0x1133 | Message Notification Server            | Service Class             |
| 0x1134 | Message Access Profile                 | Profile                   |
| 0x1135 | GNSS                                   | Profile                   |
| 0x1136 | GNSS_Server                            | Service Class             |
| 0x1137 | 3D Display                             | Service Class             |
| 0x1138 | 3D Glasses                             | Service Class             |
| 0x1139 | 3D Synch Profile                       | Profile                   |
| 0x113A | Multi Profile Specification            | Profile                   |
| 0x113B | MPS                                    | Service Class             |
| 0x113C | CTN Access Service                     | Service Class             |
| 0x113D | CTN Notification Service               | Service Class             |
| 0x113E | Calendar Tasks and Notes Profile       | Profile                   |
| 0x1200 | PnPInformation                         | Service Class and Profile |
| 0x1201 | Generic Networking                     | Service Class             |
| 0x1202 | GenericFileTransfer                    | Service Class             |
| 0x1203 | Generic Audio                          | Service Class             |
| 0x1204 | GenericTelephony                       | Service Class             |
| 0x1205 | UPNP_Service                           | Service Class             |
| 0x1206 | UPNP_IP_Service                        | Service Class             |



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|        |                    |               |
|--------|--------------------|---------------|
| 0x1300 | ESDP_UPNP_IP_PAN   | Service Class |
| 0x1301 | ESDP_UPNP_IP_LAP   | Service Class |
| 0x1302 | ESDP_UPNP_L2CAP    | Service Class |
| 0x1303 | Video Source       | Service Class |
| 0x1304 | Video Sink         | Service Class |
| 0x1305 | Video Distribution | Profile       |
| 0x1400 | HDP                | Profile       |
| 0x1401 | HDP Source         | Service Class |
| 0x1402 | HDP Sink           | Service Class |

## 3.4 GATT Services

See Bluetooth Core Specification [Vol 3] Part G, Section 3.3.1 [4].

### 3.4.1 Services by Name

Last Modified: 2024-03-13

Filename: [assigned\\_numbers/uuids/service\\_uuids.yaml](#)

| Name                                   | UUID   |
|--|--------|
| Alert Notification Service             | 0x1811 |
| Audio Input Control Service            | 0x1843 |
| Audio Stream Control Service           | 0x184E |
| Authorization Control Service          | 0x183D |
| Automation IO Service                  | 0x1815 |
| Basic Audio Announcement Service       | 0x1851 |
| Battery Service                        | 0x180F |
| Binary Sensor Service                  | 0x183B |
| Blood Pressure Service                 | 0x1810 |
| Body Composition Service               | 0x181B |
| Bond Management Service                | 0x181E |
| Broadcast Audio Announcement Service   | 0x1852 |
| Broadcast Audio Scan Service           | 0x184F |
| Common Audio Service                   | 0x1853 |
| Constant Tone Extension Service        | 0x184A |
| Continuous Glucose Monitoring Service  | 0x181F |
| Coordinated Set Identification Service | 0x1846 |
| Current Time Service                   | 0x1805 |
| Cycling Power Service                  | 0x1818 |
| Cycling Speed and Cadence Service      | 0x1816 |
| Device Information Service             | 0x180A |
| Device Time Service                    | 0x1847 |
| Elapsed Time Service                   | 0x183F |
| Electronic Shelf Label Service         | 0x1857 |
| Emergency Configuration Service        | 0x183C |
| Environmental Sensing Service          | 0x181A |
| Fitness Machine Service                | 0x1826 |
| Gaming Audio Service                   | 0x1858 |

|                                       |        |
|---------------------------------------|--------|
| GAP Service                           | 0x1800 |
| GATT Service                          | 0x1801 |
| Generic Health Sensor Service         | 0x1840 |
| Generic Media Control Service         | 0x1849 |
| Generic Telephone Bearer Service      | 0x184C |
| Glucose Service                       | 0x1808 |
| Health Thermometer Service            | 0x1809 |
| Hearing Access Service                | 0x1854 |
| Heart Rate Service                    | 0x180D |
| HTTP Proxy Service                    | 0x1823 |
| Human Interface Device Service        | 0x1812 |
| Immediate Alert Service               | 0x1802 |
| Indoor Positioning Service            | 0x1821 |
| Insulin Delivery Service              | 0x183A |
| Internet Protocol Support Service     | 0x1820 |
| Link Loss Service                     | 0x1803 |
| Location and Navigation Service       | 0x1819 |
| Media Control Service                 | 0x1848 |
| Mesh Provisioning Service             | 0x1827 |
| Mesh Proxy Service                    | 0x1828 |
| Mesh Proxy Solicitation Service       | 0x1859 |
| Microphone Control Service            | 0x184D |
| Next DST Change Service               | 0x1807 |
| Object Transfer Service               | 0x1825 |
| Phone Alert Status Service            | 0x180E |
| Physical Activity Monitor Service     | 0x183E |
| Public Broadcast Announcement Service | 0x1856 |
| Published Audio Capabilities Service  | 0x1850 |
| Pulse Oximeter Service                | 0x1822 |
| Reconnection Configuration Service    | 0x1829 |
| Reference Time Update Service         | 0x1806 |
| Running Speed and Cadence Service     | 0x1814 |
| Scan Parameters Service               | 0x1813 |
| Telephone Bearer Service              | 0x184B |
| Telephony and Media Audio Service     | 0x1855 |
| Transport Discovery Service           | 0x1824 |



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|                               |        |
|-------------------------------|--------|
| Tx Power Service              | 0x1804 |
| User Data Service             | 0x181C |
| Volume Control Service        | 0x1844 |
| Volume Offset Control Service | 0x1845 |
| Weight Scale Service          | 0x181D |

### 3.4.2 Services by UUID

Last Modified: 2024-03-13

Filename: [assigned\\_numbers/uuids/service\\_uuids.yaml](#)

| UUID   | Name                                  |
|--------|---------------------------------------|
| 0x1800 | GAP Service                           |
| 0x1801 | GATT Service                          |
| 0x1802 | Immediate Alert Service               |
| 0x1803 | Link Loss Service                     |
| 0x1804 | Tx Power Service                      |
| 0x1805 | Current Time Service                  |
| 0x1806 | Reference Time Update Service         |
| 0x1807 | Next DST Change Service               |
| 0x1808 | Glucose Service                       |
| 0x1809 | Health Thermometer Service            |
| 0x180A | Device Information Service            |
| 0x180D | Heart Rate Service                    |
| 0x180E | Phone Alert Status Service            |
| 0x180F | Battery Service                       |
| 0x1810 | Blood Pressure Service                |
| 0x1811 | Alert Notification Service            |
| 0x1812 | Human Interface Device Service        |
| 0x1813 | Scan Parameters Service               |
| 0x1814 | Running Speed and Cadence Service     |
| 0x1815 | Automation IO Service                 |
| 0x1816 | Cycling Speed and Cadence Service     |
| 0x1818 | Cycling Power Service                 |
| 0x1819 | Location and Navigation Service       |
| 0x181A | Environmental Sensing Service         |
| 0x181B | Body Composition Service              |
| 0x181C | User Data Service                     |
| 0x181D | Weight Scale Service                  |
| 0x181E | Bond Management Service               |
| 0x181F | Continuous Glucose Monitoring Service |
| 0x1820 | Internet Protocol Support Service     |
| 0x1821 | Indoor Positioning Service            |

|        |  |
|--------|--|
| 0x1822 | Pulse Oximeter Service                 |
| 0x1823 | HTTP Proxy Service                     |
| 0x1824 | Transport Discovery Service            |
| 0x1825 | Object Transfer Service                |
| 0x1826 | Fitness Machine Service                |
| 0x1827 | Mesh Provisioning Service              |
| 0x1828 | Mesh Proxy Service                     |
| 0x1829 | Reconnection Configuration Service     |
| 0x183A | Insulin Delivery Service               |
| 0x183B | Binary Sensor Service                  |
| 0x183C | Emergency Configuration Service        |
| 0x183D | Authorization Control Service          |
| 0x183E | Physical Activity Monitor Service      |
| 0x183F | Elapsed Time Service                   |
| 0x1840 | Generic Health Sensor Service          |
| 0x1843 | Audio Input Control Service            |
| 0x1844 | Volume Control Service                 |
| 0x1845 | Volume Offset Control Service          |
| 0x1846 | Coordinated Set Identification Service |
| 0x1847 | Device Time Service                    |
| 0x1848 | Media Control Service                  |
| 0x1849 | Generic Media Control Service          |
| 0x184A | Constant Tone Extension Service        |
| 0x184B | Telephone Bearer Service               |
| 0x184C | Generic Telephone Bearer Service       |
| 0x184D | Microphone Control Service             |
| 0x184E | Audio Stream Control Service           |
| 0x184F | Broadcast Audio Scan Service           |
| 0x1850 | Published Audio Capabilities Service   |
| 0x1851 | Basic Audio Announcement Service       |
| 0x1852 | Broadcast Audio Announcement Service   |
| 0x1853 | Common Audio Service                   |
| 0x1854 | Hearing Access Service                 |
| 0x1855 | Telephony and Media Audio Service      |
| 0x1856 | Public Broadcast Announcement Service  |
| 0x1857 | Electronic Shelf Label Service         |

|        |                                 |
|--------|---------------------------------|
| 0x1858 | Gaming Audio Service            |
| 0x1859 | Mesh Proxy Solicitation Service |

## 3.5 Units

Referenced from Bluetooth Core Specification [Vol 3] Part G, Section 3.3.3.5.4 [4].

### 3.5.1 Units by Name

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/uuids/units.yaml](#)

| Unit Name  | UUID   |
|--|--------|
| absorbed dose (gray)                                     | 0x2733 |
| absorbed dose rate (gray per second)                     | 0x2754 |
| acceleration (metres per second squared)                 | 0x2713 |
| activity referred to a radionuclide (becquerel)          | 0x2732 |
| amount concentration (mole per cubic metre)              | 0x271A |
| amount of substance (mole)                               | 0x2706 |
| angular acceleration (radian per second squared)         | 0x2744 |
| angular velocity (radian per second)                     | 0x2743 |
| angular velocity (revolution per minute)                 | 0x27A8 |
| area (barn)  | 0x2784 |
| area (hectare)   | 0x2766 |
| area (square metres)                                     | 0x2710 |
| capacitance (farad)                                      | 0x2729 |
| catalytic activity (katal)                               | 0x2735 |
| catalytic activity concentration (katal per cubic metre) | 0x2757 |
| Celsius temperature (degree Celsius)                     | 0x272F |
| concentration (count per cubic metre)                    | 0x27B5 |
| current density (ampere per square metre)                | 0x2718 |
| density (kilogram per cubic metre)                       | 0x2715 |
| dose equivalent (sievert)                                | 0x2734 |
| dynamic viscosity (pascal second)                        | 0x2740 |
| electric charge (ampere hours)                           | 0x27B0 |
| electric charge (coulomb)                                | 0x2727 |
| electric charge density (coulomb per cubic metre)        | 0x274C |
| electric conductance (siemens)                           | 0x272B |
| electric current (ampere)                                | 0x2704 |
| electric field strength (volt per metre)                 | 0x274B |
| electric flux density (coulomb per square metre)         | 0x274E |





|   |        |
|---|--------|
| electric potential difference (volt)              | 0x2728 |
| electric resistance (ohm)                         | 0x272A |
| Electrical Apparent Energy (kilovolt ampere hour) | 0x27C7 |
| Electrical Apparent Power (volt ampere)           | 0x27C8 |
| energy (gram calorie)                             | 0x27A9 |
| energy (joule)                                    | 0x2725 |
| energy (kilogram calorie)                         | 0x27AA |
| energy (kilowatt hour)                            | 0x27AB |
| energy density (joule per cubic metre)            | 0x274A |
| exposure (coulomb per kilogram)                   | 0x2753 |
| force (newton)                                    | 0x2723 |
| frequency (hertz)                                 | 0x2722 |
| heat capacity (joule per kelvin)                  | 0x2746 |
| heat flux density (watt per square metre)         | 0x2745 |
| illuminance (lux)                                 | 0x2731 |
| inductance (henry)                                | 0x272E |
| irradiance (watt per square metre)                | 0x27B6 |
| length (foot)                                     | 0x27A3 |
| length (inch)                                     | 0x27A2 |
| length (metre)                                    | 0x2701 |
| length (mile)                                     | 0x27A4 |
| length (nautical mile)                            | 0x2783 |
| length (parsec)                                   | 0x27A1 |
| length (yard)                                     | 0x27A0 |
| length (ångström)                                 | 0x2782 |
| logarithmic radio quantity (bel)                  | 0x2787 |
| logarithmic radio quantity (neper)                | 0x2786 |
| luminance (candela per square metre)              | 0x271C |
| luminous efficacy (lumen per watt)                | 0x27BE |
| luminous energy (lumen hour)                      | 0x27BF |
| luminous exposure (lux hour)                      | 0x27C0 |
| luminous flux (lumen)                             | 0x2730 |
| luminous intensity (candela)                      | 0x2707 |
| magnetic field strength (ampere per metre)        | 0x2719 |
| magnetic flux (weber)                             | 0x272C |
| magnetic flux density (tesla)                     | 0x272D |

|  |        |
|--|--------|
| mass (kilogram)  | 0x2702 |
| mass (pound)   | 0x27B8 |
| mass (tonne)   | 0x2768 |
| mass concentration (kilogram per cubic metre)            | 0x271B |
| mass density (milligram per decilitre)                   | 0x27B1 |
| mass density (millimole per litre)                       | 0x27B2 |
| mass density rate ((milligram per decilitre) per minute) | 0x27C6 |
| mass flow (gram per second)                              | 0x27C1 |
| metabolic equivalent                                     | 0x27B9 |
| milliliter (per kilogram per minute)                     | 0x27B7 |
| molar energy (joule per mole)                            | 0x2751 |
| molar entropy (joule per mole kelvin)                    | 0x2752 |
| moment of force (newton metre)                           | 0x2741 |
| pace (kilometre per minute)                              | 0x27BD |
| parts per billion  | 0x27C5 |
| parts per million  | 0x27C4 |
| per mille  | 0x27AE |
| percentage   | 0x27AD |
| period (beats per minute)                                | 0x27AF |
| permeability (henry per metre)                           | 0x2750 |
| permittivity (farad per metre)                           | 0x274F |
| plane angle (degree)                                     | 0x2763 |
| plane angle (minute)                                     | 0x2764 |
| plane angle (radian)                                     | 0x2720 |
| plane angle (second)                                     | 0x2765 |
| power (watt)   | 0x2726 |
| pressure (bar)   | 0x2780 |
| pressure (millimetre of mercury)                         | 0x2781 |
| pressure (pascal)  | 0x2724 |
| pressure (pound-force per square inch)                   | 0x27A5 |
| radiance (watt per square metre steradian)               | 0x2756 |
| radiant intensity (watt per steradian)                   | 0x2755 |
| refractive index   | 0x271D |
| relative permeability                                    | 0x271E |
| solid angle (steradian)                                  | 0x2721 |
| sound pressure (decibel)                                 | 0x27C3 |

|  |        |
|--|--------|
| specific energy (joule per kilogram)               | 0x2748 |
| specific heat capacity (joule per kilogram kelvin) | 0x2747 |
| specific volume (cubic metre per kilogram)         | 0x2717 |
| step (per minute)                                  | 0x27BA |
| stroke (per minute)                                | 0x27BC |
| surface charge density (coulomb per square metre)  | 0x274D |
| surface density (kilogram per square metre)        | 0x2716 |
| surface tension (newton per metre)                 | 0x2742 |
| thermal conductivity (watt per metre kelvin)       | 0x2749 |
| thermodynamic temperature (degree Fahrenheit)      | 0x27AC |
| thermodynamic temperature (kelvin)                 | 0x2705 |
| time (day)   | 0x2762 |
| time (hour)  | 0x2761 |
| time (minute)                                      | 0x2760 |
| time (month)                                       | 0x27B4 |
| time (second)                                      | 0x2703 |
| time (year)  | 0x27B3 |
| unitless   | 0x2700 |
| velocity (kilometre per hour)                      | 0x27A6 |
| velocity (knot)                                    | 0x2785 |
| velocity (metres per second)                       | 0x2712 |
| velocity (mile per hour)                           | 0x27A7 |
| volume (cubic metres)                              | 0x2711 |
| volume (litre)                                     | 0x2767 |
| volume flow (litre per second)                     | 0x27C2 |
| wavenumber (reciprocal metre)                      | 0x2714 |

### 3.5.2 Units by UUID

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/uuids/units.yaml](#)

| UUID   | Unit Name                                     |
|--------|---|
| 0x2700 | unitless                                      |
| 0x2701 | length (metre)                                |
| 0x2702 | mass (kilogram)                               |
| 0x2703 | time (second)                                 |
| 0x2704 | electric current (ampere)                     |
| 0x2705 | thermodynamic temperature (kelvin)            |
| 0x2706 | amount of substance (mole)                    |
| 0x2707 | luminous intensity (candela)                  |
| 0x2710 | area (square metres)                          |
| 0x2711 | volume (cubic metres)                         |
| 0x2712 | velocity (metres per second)                  |
| 0x2713 | acceleration (metres per second squared)      |
| 0x2714 | wavenumber (reciprocal metre)                 |
| 0x2715 | density (kilogram per cubic metre)            |
| 0x2716 | surface density (kilogram per square metre)   |
| 0x2717 | specific volume (cubic metre per kilogram)    |
| 0x2718 | current density (ampere per square metre)     |
| 0x2719 | magnetic field strength (ampere per metre)    |
| 0x271A | amount concentration (mole per cubic metre)   |
| 0x271B | mass concentration (kilogram per cubic metre) |
| 0x271C | luminance (candela per square metre)          |
| 0x271D | refractive index                              |
| 0x271E | relative permeability                         |
| 0x2720 | plane angle (radian)                          |
| 0x2721 | solid angle (steradian)                       |
| 0x2722 | frequency (hertz)                             |
| 0x2723 | force (newton)                                |
| 0x2724 | pressure (pascal)                             |
| 0x2725 | energy (joule)                                |
| 0x2726 | power (watt)                                  |
| 0x2727 | electric charge (coulomb)                     |

|        |  |
|--------|--|
| 0x2728 | electric potential difference (volt)               |
| 0x2729 | capacitance (farad)                                |
| 0x272A | electric resistance (ohm)                          |
| 0x272B | electric conductance (siemens)                     |
| 0x272C | magnetic flux (weber)                              |
| 0x272D | magnetic flux density (tesla)                      |
| 0x272E | inductance (henry)                                 |
| 0x272F | Celsius temperature (degree Celsius)               |
| 0x2730 | luminous flux (lumen)                              |
| 0x2731 | illuminance (lux)                                  |
| 0x2732 | activity referred to a radionuclide (becquerel)    |
| 0x2733 | absorbed dose (gray)                               |
| 0x2734 | dose equivalent (sievert)                          |
| 0x2735 | catalytic activity (katal)                         |
| 0x2740 | dynamic viscosity (pascal second)                  |
| 0x2741 | moment of force (newton metre)                     |
| 0x2742 | surface tension (newton per metre)                 |
| 0x2743 | angular velocity (radian per second)               |
| 0x2744 | angular acceleration (radian per second squared)   |
| 0x2745 | heat flux density (watt per square metre)          |
| 0x2746 | heat capacity (joule per kelvin)                   |
| 0x2747 | specific heat capacity (joule per kilogram kelvin) |
| 0x2748 | specific energy (joule per kilogram)               |
| 0x2749 | thermal conductivity (watt per metre kelvin)       |
| 0x274A | energy density (joule per cubic metre)             |
| 0x274B | electric field strength (volt per metre)           |
| 0x274C | electric charge density (coulomb per cubic metre)  |
| 0x274D | surface charge density (coulomb per square metre)  |
| 0x274E | electric flux density (coulomb per square metre)   |
| 0x274F | permittivity (farad per metre)                     |
| 0x2750 | permeability (henry per metre)                     |
| 0x2751 | molar energy (joule per mole)                      |
| 0x2752 | molar entropy (joule per mole kelvin)              |
| 0x2753 | exposure (coulomb per kilogram)                    |
| 0x2754 | absorbed dose rate (gray per second)               |
| 0x2755 | radiant intensity (watt per steradian)             |

|        |  |
|--------|--|
| 0x2756 | radiance (watt per square metre steradian)               |
| 0x2757 | catalytic activity concentration (katal per cubic metre) |
| 0x2760 | time (minute)  |
| 0x2761 | time (hour)  |
| 0x2762 | time (day)   |
| 0x2763 | plane angle (degree)                                     |
| 0x2764 | plane angle (minute)                                     |
| 0x2765 | plane angle (second)                                     |
| 0x2766 | area (hectare)   |
| 0x2767 | volume (litre)   |
| 0x2768 | mass (tonne)   |
| 0x2780 | pressure (bar)   |
| 0x2781 | pressure (millimetre of mercury)                         |
| 0x2782 | length (ångström)  |
| 0x2783 | length (nautical mile)                                   |
| 0x2784 | area (barn)  |
| 0x2785 | velocity (knot)  |
| 0x2786 | logarithmic radio quantity (neper)                       |
| 0x2787 | logarithmic radio quantity (bel)                         |
| 0x27A0 | length (yard)  |
| 0x27A1 | length (parsec)  |
| 0x27A2 | length (inch)  |
| 0x27A3 | length (foot)  |
| 0x27A4 | length (mile)  |
| 0x27A5 | pressure (pound-force per square inch)                   |
| 0x27A6 | velocity (kilometre per hour)                            |
| 0x27A7 | velocity (mile per hour)                                 |
| 0x27A8 | angular velocity (revolution per minute)                 |
| 0x27A9 | energy (gram calorie)                                    |
| 0x27AA | energy (kilogram calorie)                                |
| 0x27AB | energy (kilowatt hour)                                   |
| 0x27AC | thermodynamic temperature (degree Fahrenheit)            |
| 0x27AD | percentage   |
| 0x27AE | per mille  |
| 0x27AF | period (beats per minute)                                |
| 0x27B0 | electric charge (ampere hours)                           |

|        |  |
|--------|--|
| 0x27B1 | mass density (milligram per decilitre)                   |
| 0x27B2 | mass density (millimole per litre)                       |
| 0x27B3 | time (year)  |
| 0x27B4 | time (month)   |
| 0x27B5 | concentration (count per cubic metre)                    |
| 0x27B6 | irradiance (watt per square metre)                       |
| 0x27B7 | milliliter (per kilogram per minute)                     |
| 0x27B8 | mass (pound)   |
| 0x27B9 | metabolic equivalent                                     |
| 0x27BA | step (per minute)  |
| 0x27BC | stroke (per minute)                                      |
| 0x27BD | pace (kilometre per minute)                              |
| 0x27BE | luminous efficacy (lumen per watt)                       |
| 0x27BF | luminous energy (lumen hour)                             |
| 0x27C0 | luminous exposure (lux hour)                             |
| 0x27C1 | mass flow (gram per second)                              |
| 0x27C2 | volume flow (litre per second)                           |
| 0x27C3 | sound pressure (decibel)                                 |
| 0x27C4 | parts per million  |
| 0x27C5 | parts per billion  |
| 0x27C6 | mass density rate ((milligram per decilitre) per minute) |
| 0x27C7 | Electrical Apparent Energy (kilovolt ampere hour)        |
| 0x27C8 | Electrical Apparent Power (volt ampere)                  |

## 3.6 Declarations

See Bluetooth Core Specification [Vol 3] Part G, Section 3.1 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/uuids/declarations.yaml](#)

| UUID   | Declaration Name  |
|--------|-------------------|
| 0x2800 | Primary Service   |
| 0x2801 | Secondary Service |
| 0x2802 | Include           |
| 0x2803 | Characteristic    |



### 3.7 Descriptors

Referenced from Bluetooth Core Specification [Vol 3] Part F, Section 2 [4].

See Bluetooth Core Specification [Vol 3] Part G, Section 3.3.3 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/uuids/descriptors.yaml](#)

| UUID   | Descriptor Name                       |
|--------|---------------------------------------|
| 0x2900 | Characteristic Extended Properties    |
| 0x2901 | Characteristic User Description       |
| 0x2902 | Client Characteristic Configuration   |
| 0x2903 | Server Characteristic Configuration   |
| 0x2904 | Characteristic Presentation Format    |
| 0x2905 | Characteristic Aggregate Format       |
| 0x2906 | Valid Range                           |
| 0x2907 | External Report Reference             |
| 0x2908 | Report Reference                      |
| 0x2909 | Number of Digitals                    |
| 0x290A | Value Trigger Setting                 |
| 0x290B | Environmental Sensing Configuration   |
| 0x290C | Environmental Sensing Measurement     |
| 0x290D | Environmental Sensing Trigger Setting |
| 0x290E | Time Trigger Setting                  |
| 0x290F | Complete BR-EDR Transport Block Data  |
| 0x2910 | Observation Schedule                  |
| 0x2911 | Valid Range and Accuracy              |

## 3.8 Characteristics

Referenced from the following:

- Bluetooth Core Specification [Vol 3] Part C, Section 12 [4].
- Bluetooth Core Specification [Vol 3] Part F, Section 2 [4].

See Bluetooth Core Specification [Vol 3] Part G, Section 3.3 [4].

### 3.8.1 Characteristics by Name

Last Modified: 2024-05-08

Filename: [assigned\\_numbers/uuids/characteristic\\_uuids.yaml](#)

| Characteristic Name  | UUID   |
|--|--------|
| ACS Control Point  | 0x2B33 |
| ACS Data In  | 0x2B30 |
| ACS Data Out Indicate                                      | 0x2B32 |
| ACS Data Out Notify  | 0x2B31 |
| ACS Status   | 0x2B2F |
| Active Preset Index  | 0x2BDC |
| Activity Goal  | 0x2B4E |
| Advertising Constant Tone Extension Interval               | 0x2BB1 |
| Advertising Constant Tone Extension Minimum Length         | 0x2BAE |
| Advertising Constant Tone Extension Minimum Transmit Count | 0x2BAF |
| Advertising Constant Tone Extension PHY                    | 0x2BB2 |
| Advertising Constant Tone Extension Transmit Duration      | 0x2BB0 |
| Aerobic Heart Rate Lower Limit                             | 0x2A7E |
| Aerobic Heart Rate Upper Limit                             | 0x2A84 |
| Aerobic Threshold  | 0x2A7F |
| Age  | 0x2A80 |
| Aggregate  | 0x2A5A |
| Alert Category ID  | 0x2A43 |
| Alert Category ID Bit Mask                                 | 0x2A42 |
| Alert Level  | 0x2A06 |
| Alert Notification Control Point                           | 0x2A44 |
| Alert Status   | 0x2A3F |
| Altitude   | 0x2AB3 |
| Ammonia Concentration                                      | 0x2BCF |
| Anaerobic Heart Rate Lower Limit                           | 0x2A81 |

|   |        |
|---|--------|
| Anaerobic Heart Rate Upper Limit          | 0x2A82 |
| Anaerobic Threshold                       | 0x2A83 |
| AP Sync Key Material                      | 0x2BF7 |
| Apparent Energy 32                        | 0x2B89 |
| Apparent Power                            | 0x2B8A |
| Apparent Wind Direction                   | 0x2A73 |
| Apparent Wind Speed                       | 0x2A72 |
| Appearance                                | 0x2A01 |
| ASE Control Point                         | 0x2BC6 |
| Audio Input Control Point                 | 0x2B7B |
| Audio Input Description                   | 0x2B7C |
| Audio Input State                         | 0x2B77 |
| Audio Input Status                        | 0x2B7A |
| Audio Input Type                          | 0x2B79 |
| Audio Location                            | 0x2B81 |
| Audio Output Description                  | 0x2B83 |
| Available Audio Contexts                  | 0x2BCD |
| Average Current                           | 0x2AE0 |
| Average Voltage                           | 0x2AE1 |
| Barometric Pressure Trend                 | 0x2AA3 |
| Battery Critical Status                   | 0x2BE9 |
| Battery Energy Status                     | 0x2BF0 |
| Battery Health Information                | 0x2BEB |
| Battery Health Status                     | 0x2BEA |
| Battery Information                       | 0x2BEC |
| Battery Level                             | 0x2A19 |
| Battery Level Status                      | 0x2BED |
| Battery Time Status                       | 0x2BEE |
| Bearer List Current Calls                 | 0x2BB9 |
| Bearer Provider Name                      | 0x2BB3 |
| Bearer Signal Strength                    | 0x2BB7 |
| Bearer Signal Strength Reporting Interval | 0x2BB8 |
| Bearer Technology                         | 0x2BB5 |
| Bearer UCI                                | 0x2BB4 |
| Bearer URI Schemes Supported List         | 0x2BB6 |
| BGR Features                              | 0x2C04 |

|   |        |
|---|--------|
| BGS Features                                  | 0x2C03 |
| Blood Pressure Feature                        | 0x2A49 |
| Blood Pressure Measurement                    | 0x2A35 |
| Blood Pressure Record                         | 0x2B36 |
| Bluetooth SIG Data                            | 0x2B39 |
| Body Composition Feature                      | 0x2A9B |
| Body Composition Measurement                  | 0x2A9C |
| Body Sensor Location                          | 0x2A38 |
| Bond Management Control Point                 | 0x2AA4 |
| Bond Management Feature                       | 0x2AA5 |
| Boolean                                       | 0x2AE2 |
| Boot Keyboard Input Report                    | 0x2A22 |
| Boot Keyboard Output Report                   | 0x2A32 |
| Boot Mouse Input Report                       | 0x2A33 |
| BR-EDR Handover Data                          | 0x2B38 |
| Broadcast Audio Scan Control Point            | 0x2BC7 |
| Broadcast Receive State                       | 0x2BC8 |
| BSS Control Point                             | 0x2B2B |
| BSS Response                                  | 0x2B2C |
| Call Control Point                            | 0x2BBE |
| Call Control Point Optional Opcodes           | 0x2BBF |
| Call Friendly Name                            | 0x2BC2 |
| Call State                                    | 0x2BBD |
| Caloric Intake                                | 0x2B50 |
| Carbon Monoxide Concentration                 | 0x2BD0 |
| CardioRespiratory Activity Instantaneous Data | 0x2B3E |
| CardioRespiratory Activity Summary Data       | 0x2B3F |
| Central Address Resolution                    | 0x2AA6 |
| CGM Feature                                   | 0x2AA8 |
| CGM Measurement                               | 0x2AA7 |
| CGM Session Run Time                          | 0x2AAB |
| CGM Session Start Time                        | 0x2AAA |
| CGM Specific Ops Control Point                | 0x2AAC |
| CGM Status                                    | 0x2AA9 |
| Chromatic Distance from Planckian             | 0x2AE3 |
| Chromaticity Coordinate                       | 0x2B1C |



|                                     |        |
|-------------------------------------|--------|
| Chromaticity Coordinates            | 0x2AE4 |
| Chromaticity in CCT and Duv Values  | 0x2AE5 |
| Chromaticity Tolerance              | 0x2AE6 |
| CIE 13.3-1995 Color Rendering Index | 0x2AE7 |
| Client Supported Features           | 0x2B29 |
| CO <sub>2</sub> Concentration       | 0x2B8C |
| Coefficient                         | 0x2AE8 |
| Constant Tone Extension Enable      | 0x2BAD |
| Content Control ID                  | 0x2BBA |
| Coordinated Set Size                | 0x2B85 |
| Correlated Color Temperature        | 0x2AE9 |
| Cosine of the Angle                 | 0x2B8D |
| Count 16                            | 0x2AEA |
| Count 24                            | 0x2AEB |
| Country Code                        | 0x2AEC |
| Cross Trainer Data                  | 0x2ACE |
| CSC Feature                         | 0x2A5C |
| CSC Measurement                     | 0x2A5B |
| Current Elapsed Time                | 0x2BF2 |
| Current Group Object ID             | 0x2BA0 |
| Current Time                        | 0x2A2B |
| Current Track Object ID             | 0x2B9D |
| Current Track Segments Object ID    | 0x2B9C |
| Cycling Power Control Point         | 0x2A66 |
| Cycling Power Feature               | 0x2A65 |
| Cycling Power Measurement           | 0x2A63 |
| Cycling Power Vector                | 0x2A64 |
| Database Change Increment           | 0x2A99 |
| Database Hash                       | 0x2B2A |
| Date of Birth                       | 0x2A85 |
| Date of Threshold Assessment        | 0x2A86 |
| Date Time                           | 0x2A08 |
| Date UTC                            | 0x2AED |
| Day Date Time                       | 0x2A0A |
| Day of Week                         | 0x2A09 |
| Descriptor Value Changed            | 0x2A7D |

|                                     |        |
|-------------------------------------|--------|
| Device Name                         | 0x2A00 |
| Device Time                         | 0x2B90 |
| Device Time Control Point           | 0x2B91 |
| Device Time Feature                 | 0x2B8E |
| Device Time Parameters              | 0x2B8F |
| Device Wearing Position             | 0x2B4B |
| Dew Point                           | 0x2A7B |
| DST Offset                          | 0x2A0D |
| Electric Current                    | 0x2AEE |
| Electric Current Range              | 0x2AEF |
| Electric Current Specification      | 0x2AF0 |
| Electric Current Statistics         | 0x2AF1 |
| Elevation                           | 0x2A6C |
| Email Address                       | 0x2A87 |
| Emergency ID                        | 0x2B2D |
| Emergency Text                      | 0x2B2E |
| Encrypted Data Key Material         | 0x2B88 |
| Energy                              | 0x2AF2 |
| Energy 32                           | 0x2BA8 |
| Energy in a Period of Day           | 0x2AF3 |
| Enhanced Blood Pressure Measurement | 0x2B34 |
| Enhanced Intermediate Cuff Pressure | 0x2B35 |
| ESL Address                         | 0x2BF6 |
| ESL Control Point                   | 0x2BFE |
| ESL Current Absolute Time           | 0x2BF9 |
| ESL Display Information             | 0x2BFA |
| ESL Image Information               | 0x2BFB |
| ESL LED Information                 | 0x2BFD |
| ESL Response Key Material           | 0x2BF8 |
| ESL Sensor Information              | 0x2BFC |
| Estimated Service Date              | 0x2BEF |
| Event Statistics                    | 0x2AF4 |
| Exact Time 256                      | 0x2A0C |
| Fat Burn Heart Rate Lower Limit     | 0x2A88 |
| Fat Burn Heart Rate Upper Limit     | 0x2A89 |
| Firmware Revision String            | 0x2A26 |

|                                     |        |
|-------------------------------------|--------|
| First Name                          | 0x2A8A |
| Fitness Machine Control Point       | 0x2AD9 |
| Fitness Machine Feature             | 0x2ACC |
| Fitness Machine Status              | 0x2ADA |
| Five Zone Heart Rate Limits         | 0x2A8B |
| Fixed String 16                     | 0x2AF5 |
| Fixed String 24                     | 0x2AF6 |
| Fixed String 36                     | 0x2AF7 |
| Fixed String 64                     | 0x2BDE |
| Fixed String 8                      | 0x2AF8 |
| Floor Number                        | 0x2AB2 |
| Four Zone Heart Rate Limits         | 0x2B4C |
| Gain Settings Attribute             | 0x2B78 |
| Gender                              | 0x2A8C |
| General Activity Instantaneous Data | 0x2B3C |
| General Activity Summary Data       | 0x2B3D |
| Generic Level                       | 0x2AF9 |
| GHS Control Point                   | 0x2BF4 |
| Global Trade Item Number            | 0x2AFA |
| Glucose Feature                     | 0x2A51 |
| Glucose Measurement                 | 0x2A18 |
| Glucose Measurement Context         | 0x2A34 |
| GMAP Role                           | 0x2C00 |
| Gust Factor                         | 0x2A74 |
| Handedness                          | 0x2B4A |
| Hardware Revision String            | 0x2A27 |
| Health Sensor Features              | 0x2BF3 |
| Hearing Aid Features                | 0x2BDA |
| Hearing Aid Preset Control Point    | 0x2BDB |
| Heart Rate Control Point            | 0x2A39 |
| Heart Rate Max                      | 0x2A8D |
| Heart Rate Measurement              | 0x2A37 |
| Heat Index                          | 0x2A7A |
| Height                              | 0x2A8E |
| HID Control Point                   | 0x2A4C |
| HID Information                     | 0x2A4A |

|   |        |
|---|--------|
| High Intensity Exercise Threshold                   | 0x2B4D |
| High Resolution Height                              | 0x2B47 |
| High Temperature                                    | 0x2BDF |
| High Voltage  | 0x2BE0 |
| Hip Circumference                                   | 0x2A8F |
| HTTP Control Point                                  | 0x2ABA |
| HTTP Entity Body                                    | 0x2AB9 |
| HTTP Headers  | 0x2AB7 |
| HTTP Status Code                                    | 0x2AB8 |
| HTTPS Security                                      | 0x2ABB |
| Humidity  | 0x2A6F |
| IDD Annunciation Status                             | 0x2B22 |
| IDD Command Control Point                           | 0x2B25 |
| IDD Command Data                                    | 0x2B26 |
| IDD Features  | 0x2B23 |
| IDD History Data                                    | 0x2B28 |
| IDD Record Access Control Point                     | 0x2B27 |
| IDD Status  | 0x2B21 |
| IDD Status Changed                                  | 0x2B20 |
| IDD Status Reader Control Point                     | 0x2B24 |
| IEEE 11073-20601 Regulatory Certification Data List | 0x2A2A |
| Illuminance   | 0x2AFB |
| Incoming Call                                       | 0x2BC1 |
| Incoming Call Target Bearer URI                     | 0x2BBC |
| Indoor Bike Data                                    | 0x2AD2 |
| Indoor Positioning Configuration                    | 0x2AAD |
| Intermediate Cuff Pressure                          | 0x2A36 |
| Intermediate Temperature                            | 0x2A1E |
| Irradiance  | 0x2A77 |
| Language  | 0x2AA2 |
| Last Name   | 0x2A90 |
| Latitude  | 0x2AAE |
| LE GATT Security Levels                             | 0x2BF5 |
| Light Distribution                                  | 0x2BE1 |
| Light Output  | 0x2BE2 |
| Light Source Type                                   | 0x2BE3 |



|                                       |        |
|---------------------------------------|--------|
| Live Health Observations              | 0x2B8B |
| LN Control Point                      | 0x2A6B |
| LN Feature                            | 0x2A6A |
| Local East Coordinate                 | 0x2AB1 |
| Local North Coordinate                | 0x2AB0 |
| Local Time Information                | 0x2A0F |
| Location and Speed                    | 0x2A67 |
| Location Name                         | 0x2AB5 |
| Longitude                             | 0x2AAF |
| Luminous Efficacy                     | 0x2AFC |
| Luminous Energy                       | 0x2AFD |
| Luminous Exposure                     | 0x2AFE |
| Luminous Flux                         | 0x2AFF |
| Luminous Flux Range                   | 0x2B00 |
| Luminous Intensity                    | 0x2B01 |
| Magnetic Declination                  | 0x2A2C |
| Magnetic Flux Density - 2D            | 0x2AA0 |
| Magnetic Flux Density - 3D            | 0x2AA1 |
| Manufacturer Name String              | 0x2A29 |
| Mass Flow                             | 0x2B02 |
| Maximum Recommended Heart Rate        | 0x2A91 |
| Measurement Interval                  | 0x2A21 |
| Media Control Point                   | 0x2BA4 |
| Media Control Point Opcodes Supported | 0x2BA5 |
| Media Player Icon Object ID           | 0x2B94 |
| Media Player Icon URL                 | 0x2B95 |
| Media Player Name                     | 0x2B93 |
| Media State                           | 0x2BA3 |
| Mesh Provisioning Data In             | 0x2ADB |
| Mesh Provisioning Data Out            | 0x2ADC |
| Mesh Proxy Data In                    | 0x2ADD |
| Mesh Proxy Data Out                   | 0x2ADE |
| Methane Concentration                 | 0x2BD1 |
| Middle Name                           | 0x2B48 |
| Model Number String                   | 0x2A24 |
| Mute                                  | 0x2BC3 |

|  |        |
|--|--------|
| Navigation   | 0x2A68 |
| New Alert  | 0x2A46 |
| Next Track Object ID                                 | 0x2B9E |
| Nitrogen Dioxide Concentration                       | 0x2BD2 |
| Noise  | 0x2BE4 |
| Non-Methane Volatile Organic Compounds Concentration | 0x2BD3 |
| Object Action Control Point                          | 0x2AC5 |
| Object Changed                                       | 0x2AC8 |
| Object First-Created                                 | 0x2AC1 |
| Object ID  | 0x2AC3 |
| Object Last-Modified                                 | 0x2AC2 |
| Object List Control Point                            | 0x2AC6 |
| Object List Filter                                   | 0x2AC7 |
| Object Name  | 0x2ABE |
| Object Properties                                    | 0x2AC4 |
| Object Size  | 0x2AC0 |
| Object Type  | 0x2ABF |
| Observation Schedule Changed                         | 0x2BF1 |
| OTS Feature  | 0x2ABD |
| Ozone Concentration                                  | 0x2BD4 |
| Parent Group Object ID                               | 0x2B9F |
| Particulate Matter - PM1 Concentration               | 0x2BD5 |
| Particulate Matter - PM10 Concentration              | 0x2BD7 |
| Particulate Matter - PM2.5 Concentration             | 0x2BD6 |
| Perceived Lightness                                  | 0x2B03 |
| Percentage 8   | 0x2B04 |
| Percentage 8 Steps                                   | 0x2C05 |
| Peripheral Preferred Connection Parameters           | 0x2A04 |
| Peripheral Privacy Flag                              | 0x2A02 |
| Physical Activity Current Session                    | 0x2B44 |
| Physical Activity Monitor Control Point              | 0x2B43 |
| Physical Activity Monitor Features                   | 0x2B3B |
| Physical Activity Session Descriptor                 | 0x2B45 |
| Playback Speed                                       | 0x2B9A |
| Playing Order  | 0x2BA1 |
| Playing Orders Supported                             | 0x2BA2 |

|  |        |
|--|--------|
| PLX Continuous Measurement                               | 0x2A5F |
| PLX Features   | 0x2A60 |
| PLX Spot-Check Measurement                               | 0x2A5E |
| PnP ID   | 0x2A50 |
| Pollen Concentration                                     | 0x2A75 |
| Position Quality   | 0x2A69 |
| Power  | 0x2B05 |
| Power Specification                                      | 0x2B06 |
| Preferred Units  | 0x2B46 |
| Pressure   | 0x2A6D |
| Protocol Mode  | 0x2A4E |
| Rainfall   | 0x2A78 |
| RC Feature   | 0x2B1D |
| RC Settings  | 0x2B1E |
| Reconnection Address                                     | 0x2A03 |
| Reconnection Configuration Control Point                 | 0x2B1F |
| Record Access Control Point                              | 0x2A52 |
| Reference Time Information                               | 0x2A14 |
| Registered User  | 0x2B37 |
| Relative Runtime in a Correlated Color Temperature Range | 0x2BE5 |
| Relative Runtime in a Current Range                      | 0x2B07 |
| Relative Runtime in a Generic Level Range                | 0x2B08 |
| Relative Value in a Period of Day                        | 0x2B0B |
| Relative Value in a Temperature Range                    | 0x2B0C |
| Relative Value in a Voltage Range                        | 0x2B09 |
| Relative Value in an Illuminance Range                   | 0x2B0A |
| Report   | 0x2A4D |
| Report Map   | 0x2A4B |
| Resolvable Private Address Only                          | 0x2AC9 |
| Resting Heart Rate                                       | 0x2A92 |
| Ringer Control Point                                     | 0x2A40 |
| Ringer Setting   | 0x2A41 |
| Rower Data   | 0x2AD1 |
| RSC Feature  | 0x2A54 |
| RSC Measurement  | 0x2A53 |
| SC Control Point   | 0x2A55 |

|   |        |
|---|--------|
| Scan Interval Window                            | 0x2A4F |
| Scan Refresh                                    | 0x2A31 |
| Search Control Point                            | 0x2BA7 |
| Search Results Object ID                        | 0x2BA6 |
| Sedentary Interval Notification                 | 0x2B4F |
| Seeking Speed                                   | 0x2B9B |
| Sensor Location                                 | 0x2A5D |
| Serial Number String                            | 0x2A25 |
| Server Supported Features                       | 0x2B3A |
| Service Changed                                 | 0x2A05 |
| Set Identity Resolving Key                      | 0x2B84 |
| Set Member Lock                                 | 0x2B86 |
| Set Member Rank                                 | 0x2B87 |
| Sink ASE  | 0x2BC4 |
| Sink Audio Locations                            | 0x2BCA |
| Sink PAC  | 0x2BC9 |
| Sleep Activity Instantaneous Data               | 0x2B41 |
| Sleep Activity Summary Data                     | 0x2B42 |
| Software Revision String                        | 0x2A28 |
| Source ASE                                      | 0x2BC5 |
| Source Audio Locations                          | 0x2BCC |
| Source PAC                                      | 0x2BCB |
| Sport Type for Aerobic and Anaerobic Thresholds | 0x2A93 |
| Stair Climber Data                              | 0x2AD0 |
| Status Flags                                    | 0x2BBB |
| Step Climber Data                               | 0x2ACF |
| Step Counter Activity Summary Data              | 0x2B40 |
| Stored Health Observations                      | 0x2BDD |
| Stride Length                                   | 0x2B49 |
| Sulfur Dioxide Concentration                    | 0x2BD8 |
| Sulfur Hexafluoride Concentration               | 0x2BD9 |
| Supported Audio Contexts                        | 0x2BCE |
| Supported Heart Rate Range                      | 0x2AD7 |
| Supported Inclination Range                     | 0x2AD5 |
| Supported New Alert Category                    | 0x2A47 |
| Supported Power Range                           | 0x2AD8 |

|                                  |        |
|----------------------------------|--------|
| Supported Resistance Level Range | 0x2AD6 |
| Supported Speed Range            | 0x2AD4 |
| Supported Unread Alert Category  | 0x2A48 |
| System ID                        | 0x2A23 |
| TDS Control Point                | 0x2ABC |
| Temperature                      | 0x2A6E |
| Temperature 8                    | 0x2B0D |
| Temperature 8 in a Period of Day | 0x2B0E |
| Temperature 8 Statistics         | 0x2B0F |
| Temperature Measurement          | 0x2A1C |
| Temperature Range                | 0x2B10 |
| Temperature Statistics           | 0x2B11 |
| Temperature Type                 | 0x2A1D |
| Termination Reason               | 0x2BC0 |
| Three Zone Heart Rate Limits     | 0x2A94 |
| Time Accuracy                    | 0x2A12 |
| Time Change Log Data             | 0x2B92 |
| Time Decihour 8                  | 0x2B12 |
| Time Exponential 8               | 0x2B13 |
| Time Hour 24                     | 0x2B14 |
| Time Millisecond 24              | 0x2B15 |
| Time Second 16                   | 0x2B16 |
| Time Second 32                   | 0x2BE6 |
| Time Second 8                    | 0x2B17 |
| Time Source                      | 0x2A13 |
| Time Update Control Point        | 0x2A16 |
| Time Update State                | 0x2A17 |
| Time with DST                    | 0x2A11 |
| Time Zone                        | 0x2A0E |
| TMAP Role                        | 0x2B51 |
| Track Changed                    | 0x2B96 |
| Track Duration                   | 0x2B98 |
| Track Position                   | 0x2B99 |
| Track Title                      | 0x2B97 |
| Training Status                  | 0x2AD3 |
| Treadmill Data                   | 0x2ACD |

|                             |        |
|-----------------------------|--------|
| True Wind Direction         | 0x2A71 |
| True Wind Speed             | 0x2A70 |
| Two Zone Heart Rate Limits  | 0x2A95 |
| Tx Power Level              | 0x2A07 |
| UDI for Medical Devices     | 0x2BFF |
| UGG Features                | 0x2C01 |
| UGT Features                | 0x2C02 |
| Uncertainty                 | 0x2AB4 |
| Unread Alert Status         | 0x2A45 |
| URI                         | 0x2AB6 |
| User Control Point          | 0x2A9F |
| User Index                  | 0x2A9A |
| UV Index                    | 0x2A76 |
| VO2 Max                     | 0x2A96 |
| VOC Concentration           | 0x2BE7 |
| Voltage                     | 0x2B18 |
| Voltage Frequency           | 0x2BE8 |
| Voltage Specification       | 0x2B19 |
| Voltage Statistics          | 0x2B1A |
| Volume Control Point        | 0x2B7E |
| Volume Flags                | 0x2B7F |
| Volume Flow                 | 0x2B1B |
| Volume Offset Control Point | 0x2B82 |
| Volume Offset State         | 0x2B80 |
| Volume State                | 0x2B7D |
| Waist Circumference         | 0x2A97 |
| Weight                      | 0x2A98 |
| Weight Measurement          | 0x2A9D |
| Weight Scale Feature        | 0x2A9E |
| Wind Chill                  | 0x2A79 |

### 3.8.2 Characteristics by UUID

Last Modified: 2024-05-08

Filename: [assigned\\_numbers/uuids/characteristic\\_uuids.yaml](#)

| UUID   | Characteristic Name                        |
|--------|--|
| 0x2A00 | Device Name                                |
| 0x2A01 | Appearance                                 |
| 0x2A02 | Peripheral Privacy Flag                    |
| 0x2A03 | Reconnection Address                       |
| 0x2A04 | Peripheral Preferred Connection Parameters |
| 0x2A05 | Service Changed                            |
| 0x2A06 | Alert Level                                |
| 0x2A07 | Tx Power Level                             |
| 0x2A08 | Date Time                                  |
| 0x2A09 | Day of Week                                |
| 0x2A0A | Day Date Time                              |
| 0x2A0C | Exact Time 256                             |
| 0x2A0D | DST Offset                                 |
| 0x2A0E | Time Zone                                  |
| 0x2A0F | Local Time Information                     |
| 0x2A11 | Time with DST                              |
| 0x2A12 | Time Accuracy                              |
| 0x2A13 | Time Source                                |
| 0x2A14 | Reference Time Information                 |
| 0x2A16 | Time Update Control Point                  |
| 0x2A17 | Time Update State                          |
| 0x2A18 | Glucose Measurement                        |
| 0x2A19 | Battery Level                              |
| 0x2A1C | Temperature Measurement                    |
| 0x2A1D | Temperature Type                           |
| 0x2A1E | Intermediate Temperature                   |
| 0x2A21 | Measurement Interval                       |
| 0x2A22 | Boot Keyboard Input Report                 |
| 0x2A23 | System ID                                  |
| 0x2A24 | Model Number String                        |
| 0x2A25 | Serial Number String                       |

|        |   |
|--------|---|
| 0x2A26 | Firmware Revision String                            |
| 0x2A27 | Hardware Revision String                            |
| 0x2A28 | Software Revision String                            |
| 0x2A29 | Manufacturer Name String                            |
| 0x2A2A | IEEE 11073-20601 Regulatory Certification Data List |
| 0x2A2B | Current Time  |
| 0x2A2C | Magnetic Declination                                |
| 0x2A31 | Scan Refresh  |
| 0x2A32 | Boot Keyboard Output Report                         |
| 0x2A33 | Boot Mouse Input Report                             |
| 0x2A34 | Glucose Measurement Context                         |
| 0x2A35 | Blood Pressure Measurement                          |
| 0x2A36 | Intermediate Cuff Pressure                          |
| 0x2A37 | Heart Rate Measurement                              |
| 0x2A38 | Body Sensor Location                                |
| 0x2A39 | Heart Rate Control Point                            |
| 0x2A3F | Alert Status  |
| 0x2A40 | Ringer Control Point                                |
| 0x2A41 | Ringer Setting                                      |
| 0x2A42 | Alert Category ID Bit Mask                          |
| 0x2A43 | Alert Category ID                                   |
| 0x2A44 | Alert Notification Control Point                    |
| 0x2A45 | Unread Alert Status                                 |
| 0x2A46 | New Alert   |
| 0x2A47 | Supported New Alert Category                        |
| 0x2A48 | Supported Unread Alert Category                     |
| 0x2A49 | Blood Pressure Feature                              |
| 0x2A4A | HID Information                                     |
| 0x2A4B | Report Map  |
| 0x2A4C | HID Control Point                                   |
| 0x2A4D | Report  |
| 0x2A4E | Protocol Mode                                       |
| 0x2A4F | Scan Interval Window                                |
| 0x2A50 | PnP ID  |
| 0x2A51 | Glucose Feature                                     |
| 0x2A52 | Record Access Control Point                         |



|        |                             |
|--------|-----------------------------|
| 0x2A53 | RSC Measurement             |
| 0x2A54 | RSC Feature                 |
| 0x2A55 | SC Control Point            |
| 0x2A5A | Aggregate                   |
| 0x2A5B | CSC Measurement             |
| 0x2A5C | CSC Feature                 |
| 0x2A5D | Sensor Location             |
| 0x2A5E | PLX Spot-Check Measurement  |
| 0x2A5F | PLX Continuous Measurement  |
| 0x2A60 | PLX Features                |
| 0x2A63 | Cycling Power Measurement   |
| 0x2A64 | Cycling Power Vector        |
| 0x2A65 | Cycling Power Feature       |
| 0x2A66 | Cycling Power Control Point |
| 0x2A67 | Location and Speed          |
| 0x2A68 | Navigation                  |
| 0x2A69 | Position Quality            |
| 0x2A6A | LN Feature                  |
| 0x2A6B | LN Control Point            |
| 0x2A6C | Elevation                   |
| 0x2A6D | Pressure                    |
| 0x2A6E | Temperature                 |
| 0x2A6F | Humidity                    |
| 0x2A70 | True Wind Speed             |
| 0x2A71 | True Wind Direction         |
| 0x2A72 | Apparent Wind Speed         |
| 0x2A73 | Apparent Wind Direction     |
| 0x2A74 | Gust Factor                 |
| 0x2A75 | Pollen Concentration        |
| 0x2A76 | UV Index                    |
| 0x2A77 | Irradiance                  |
| 0x2A78 | Rainfall                    |
| 0x2A79 | Wind Chill                  |
| 0x2A7A | Heat Index                  |
| 0x2A7B | Dew Point                   |
| 0x2A7D | Descriptor Value Changed    |

|        |   |
|--------|---|
| 0x2A7E | Aerobic Heart Rate Lower Limit                  |
| 0x2A7F | Aerobic Threshold                               |
| 0x2A80 | Age   |
| 0x2A81 | Anaerobic Heart Rate Lower Limit                |
| 0x2A82 | Anaerobic Heart Rate Upper Limit                |
| 0x2A83 | Anaerobic Threshold                             |
| 0x2A84 | Aerobic Heart Rate Upper Limit                  |
| 0x2A85 | Date of Birth                                   |
| 0x2A86 | Date of Threshold Assessment                    |
| 0x2A87 | Email Address                                   |
| 0x2A88 | Fat Burn Heart Rate Lower Limit                 |
| 0x2A89 | Fat Burn Heart Rate Upper Limit                 |
| 0x2A8A | First Name                                      |
| 0x2A8B | Five Zone Heart Rate Limits                     |
| 0x2A8C | Gender  |
| 0x2A8D | Heart Rate Max                                  |
| 0x2A8E | Height  |
| 0x2A8F | Hip Circumference                               |
| 0x2A90 | Last Name                                       |
| 0x2A91 | Maximum Recommended Heart Rate                  |
| 0x2A92 | Resting Heart Rate                              |
| 0x2A93 | Sport Type for Aerobic and Anaerobic Thresholds |
| 0x2A94 | Three Zone Heart Rate Limits                    |
| 0x2A95 | Two Zone Heart Rate Limits                      |
| 0x2A96 | VO2 Max   |
| 0x2A97 | Waist Circumference                             |
| 0x2A98 | Weight  |
| 0x2A99 | Database Change Increment                       |
| 0x2A9A | User Index                                      |
| 0x2A9B | Body Composition Feature                        |
| 0x2A9C | Body Composition Measurement                    |
| 0x2A9D | Weight Measurement                              |
| 0x2A9E | Weight Scale Feature                            |
| 0x2A9F | User Control Point                              |
| 0x2AA0 | Magnetic Flux Density - 2D                      |
| 0x2AA1 | Magnetic Flux Density - 3D                      |

|        |                                  |
|--------|----------------------------------|
| 0x2AA2 | Language                         |
| 0x2AA3 | Barometric Pressure Trend        |
| 0x2AA4 | Bond Management Control Point    |
| 0x2AA5 | Bond Management Feature          |
| 0x2AA6 | Central Address Resolution       |
| 0x2AA7 | CGM Measurement                  |
| 0x2AA8 | CGM Feature                      |
| 0x2AA9 | CGM Status                       |
| 0x2AAA | CGM Session Start Time           |
| 0x2AAB | CGM Session Run Time             |
| 0x2AAC | CGM Specific Ops Control Point   |
| 0x2AAD | Indoor Positioning Configuration |
| 0x2AAE | Latitude                         |
| 0x2AAF | Longitude                        |
| 0x2AB0 | Local North Coordinate           |
| 0x2AB1 | Local East Coordinate            |
| 0x2AB2 | Floor Number                     |
| 0x2AB3 | Altitude                         |
| 0x2AB4 | Uncertainty                      |
| 0x2AB5 | Location Name                    |
| 0x2AB6 | URI                              |
| 0x2AB7 | HTTP Headers                     |
| 0x2AB8 | HTTP Status Code                 |
| 0x2AB9 | HTTP Entity Body                 |
| 0x2ABA | HTTP Control Point               |
| 0x2ABB | HTTPS Security                   |
| 0x2ABC | TDS Control Point                |
| 0x2ABD | OTS Feature                      |
| 0x2ABE | Object Name                      |
| 0x2ABF | Object Type                      |
| 0x2AC0 | Object Size                      |
| 0x2AC1 | Object First-Created             |
| 0x2AC2 | Object Last-Modified             |
| 0x2AC3 | Object ID                        |
| 0x2AC4 | Object Properties                |
| 0x2AC5 | Object Action Control Point      |

|        |                                     |
|--------|-------------------------------------|
| 0x2AC6 | Object List Control Point           |
| 0x2AC7 | Object List Filter                  |
| 0x2AC8 | Object Changed                      |
| 0x2AC9 | Resolvable Private Address Only     |
| 0x2ACC | Fitness Machine Feature             |
| 0x2ACD | Treadmill Data                      |
| 0x2ACE | Cross Trainer Data                  |
| 0x2ACF | Step Climber Data                   |
| 0x2AD0 | Stair Climber Data                  |
| 0x2AD1 | Rower Data                          |
| 0x2AD2 | Indoor Bike Data                    |
| 0x2AD3 | Training Status                     |
| 0x2AD4 | Supported Speed Range               |
| 0x2AD5 | Supported Inclination Range         |
| 0x2AD6 | Supported Resistance Level Range    |
| 0x2AD7 | Supported Heart Rate Range          |
| 0x2AD8 | Supported Power Range               |
| 0x2AD9 | Fitness Machine Control Point       |
| 0x2ADA | Fitness Machine Status              |
| 0x2ADB | Mesh Provisioning Data In           |
| 0x2ADC | Mesh Provisioning Data Out          |
| 0x2ADD | Mesh Proxy Data In                  |
| 0x2ADE | Mesh Proxy Data Out                 |
| 0x2AE0 | Average Current                     |
| 0x2AE1 | Average Voltage                     |
| 0x2AE2 | Boolean                             |
| 0x2AE3 | Chromatic Distance from Planckian   |
| 0x2AE4 | Chromaticity Coordinates            |
| 0x2AE5 | Chromaticity in CCT and Duv Values  |
| 0x2AE6 | Chromaticity Tolerance              |
| 0x2AE7 | CIE 13.3-1995 Color Rendering Index |
| 0x2AE8 | Coefficient                         |
| 0x2AE9 | Correlated Color Temperature        |
| 0x2AEA | Count 16                            |
| 0x2AEB | Count 24                            |
| 0x2AEC | Country Code                        |

|        |   |
|--------|---|
| 0x2AED | Date UTC                                  |
| 0x2AEE | Electric Current                          |
| 0x2AEF | Electric Current Range                    |
| 0x2AF0 | Electric Current Specification            |
| 0x2AF1 | Electric Current Statistics               |
| 0x2AF2 | Energy                                    |
| 0x2AF3 | Energy in a Period of Day                 |
| 0x2AF4 | Event Statistics                          |
| 0x2AF5 | Fixed String 16                           |
| 0x2AF6 | Fixed String 24                           |
| 0x2AF7 | Fixed String 36                           |
| 0x2AF8 | Fixed String 8                            |
| 0x2AF9 | Generic Level                             |
| 0x2AFA | Global Trade Item Number                  |
| 0x2AFB | Illuminance                               |
| 0x2AFC | Luminous Efficacy                         |
| 0x2AFD | Luminous Energy                           |
| 0x2AFE | Luminous Exposure                         |
| 0x2AFF | Luminous Flux                             |
| 0x2B00 | Luminous Flux Range                       |
| 0x2B01 | Luminous Intensity                        |
| 0x2B02 | Mass Flow                                 |
| 0x2B03 | Perceived Lightness                       |
| 0x2B04 | Percentage 8                              |
| 0x2B05 | Power                                     |
| 0x2B06 | Power Specification                       |
| 0x2B07 | Relative Runtime in a Current Range       |
| 0x2B08 | Relative Runtime in a Generic Level Range |
| 0x2B09 | Relative Value in a Voltage Range         |
| 0x2B0A | Relative Value in an Illuminance Range    |
| 0x2B0B | Relative Value in a Period of Day         |
| 0x2B0C | Relative Value in a Temperature Range     |
| 0x2B0D | Temperature 8                             |
| 0x2B0E | Temperature 8 in a Period of Day          |
| 0x2B0F | Temperature 8 Statistics                  |
| 0x2B10 | Temperature Range                         |

|        |  |
|--------|--|
| 0x2B11 | Temperature Statistics                   |
| 0x2B12 | Time Decihour 8                          |
| 0x2B13 | Time Exponential 8                       |
| 0x2B14 | Time Hour 24                             |
| 0x2B15 | Time Millisecond 24                      |
| 0x2B16 | Time Second 16                           |
| 0x2B17 | Time Second 8                            |
| 0x2B18 | Voltage                                  |
| 0x2B19 | Voltage Specification                    |
| 0x2B1A | Voltage Statistics                       |
| 0x2B1B | Volume Flow                              |
| 0x2B1C | Chromaticity Coordinate                  |
| 0x2B1D | RC Feature                               |
| 0x2B1E | RC Settings                              |
| 0x2B1F | Reconnection Configuration Control Point |
| 0x2B20 | IDD Status Changed                       |
| 0x2B21 | IDD Status                               |
| 0x2B22 | IDD Annunciation Status                  |
| 0x2B23 | IDD Features                             |
| 0x2B24 | IDD Status Reader Control Point          |
| 0x2B25 | IDD Command Control Point                |
| 0x2B26 | IDD Command Data                         |
| 0x2B27 | IDD Record Access Control Point          |
| 0x2B28 | IDD History Data                         |
| 0x2B29 | Client Supported Features                |
| 0x2B2A | Database Hash                            |
| 0x2B2B | BSS Control Point                        |
| 0x2B2C | BSS Response                             |
| 0x2B2D | Emergency ID                             |
| 0x2B2E | Emergency Text                           |
| 0x2B2F | ACS Status                               |
| 0x2B30 | ACS Data In                              |
| 0x2B31 | ACS Data Out Notify                      |
| 0x2B32 | ACS Data Out Indicate                    |
| 0x2B33 | ACS Control Point                        |
| 0x2B34 | Enhanced Blood Pressure Measurement      |

|        |   |
|--------|---|
| 0x2B35 | Enhanced Intermediate Cuff Pressure           |
| 0x2B36 | Blood Pressure Record                         |
| 0x2B37 | Registered User                               |
| 0x2B38 | BR-EDR Handover Data                          |
| 0x2B39 | Bluetooth SIG Data                            |
| 0x2B3A | Server Supported Features                     |
| 0x2B3B | Physical Activity Monitor Features            |
| 0x2B3C | General Activity Instantaneous Data           |
| 0x2B3D | General Activity Summary Data                 |
| 0x2B3E | CardioRespiratory Activity Instantaneous Data |
| 0x2B3F | CardioRespiratory Activity Summary Data       |
| 0x2B40 | Step Counter Activity Summary Data            |
| 0x2B41 | Sleep Activity Instantaneous Data             |
| 0x2B42 | Sleep Activity Summary Data                   |
| 0x2B43 | Physical Activity Monitor Control Point       |
| 0x2B44 | Physical Activity Current Session             |
| 0x2B45 | Physical Activity Session Descriptor          |
| 0x2B46 | Preferred Units                               |
| 0x2B47 | High Resolution Height                        |
| 0x2B48 | Middle Name                                   |
| 0x2B49 | Stride Length                                 |
| 0x2B4A | Handedness                                    |
| 0x2B4B | Device Wearing Position                       |
| 0x2B4C | Four Zone Heart Rate Limits                   |
| 0x2B4D | High Intensity Exercise Threshold             |
| 0x2B4E | Activity Goal                                 |
| 0x2B4F | Sedentary Interval Notification               |
| 0x2B50 | Caloric Intake                                |
| 0x2B51 | TMAP Role                                     |
| 0x2B77 | Audio Input State                             |
| 0x2B78 | Gain Settings Attribute                       |
| 0x2B79 | Audio Input Type                              |
| 0x2B7A | Audio Input Status                            |
| 0x2B7B | Audio Input Control Point                     |
| 0x2B7C | Audio Input Description                       |
| 0x2B7D | Volume State                                  |

|        |                                  |
|--------|----------------------------------|
| 0x2B7E | Volume Control Point             |
| 0x2B7F | Volume Flags                     |
| 0x2B80 | Volume Offset State              |
| 0x2B81 | Audio Location                   |
| 0x2B82 | Volume Offset Control Point      |
| 0x2B83 | Audio Output Description         |
| 0x2B84 | Set Identity Resolving Key       |
| 0x2B85 | Coordinated Set Size             |
| 0x2B86 | Set Member Lock                  |
| 0x2B87 | Set Member Rank                  |
| 0x2B88 | Encrypted Data Key Material      |
| 0x2B89 | Apparent Energy 32               |
| 0x2B8A | Apparent Power                   |
| 0x2B8B | Live Health Observations         |
| 0x2B8C | CO <sub>2</sub> Concentration    |
| 0x2B8D | Cosine of the Angle              |
| 0x2B8E | Device Time Feature              |
| 0x2B8F | Device Time Parameters           |
| 0x2B90 | Device Time                      |
| 0x2B91 | Device Time Control Point        |
| 0x2B92 | Time Change Log Data             |
| 0x2B93 | Media Player Name                |
| 0x2B94 | Media Player Icon Object ID      |
| 0x2B95 | Media Player Icon URL            |
| 0x2B96 | Track Changed                    |
| 0x2B97 | Track Title                      |
| 0x2B98 | Track Duration                   |
| 0x2B99 | Track Position                   |
| 0x2B9A | Playback Speed                   |
| 0x2B9B | Seeking Speed                    |
| 0x2B9C | Current Track Segments Object ID |
| 0x2B9D | Current Track Object ID          |
| 0x2B9E | Next Track Object ID             |
| 0x2B9F | Parent Group Object ID           |
| 0x2BA0 | Current Group Object ID          |
| 0x2BA1 | Playing Order                    |



|        |  |
|--------|--|
| 0x2BA2 | Playing Orders Supported                                   |
| 0x2BA3 | Media State  |
| 0x2BA4 | Media Control Point  |
| 0x2BA5 | Media Control Point Opcodes Supported                      |
| 0x2BA6 | Search Results Object ID                                   |
| 0x2BA7 | Search Control Point                                       |
| 0x2BA8 | Energy 32  |
| 0x2BAD | Constant Tone Extension Enable                             |
| 0x2BAE | Advertising Constant Tone Extension Minimum Length         |
| 0x2BAF | Advertising Constant Tone Extension Minimum Transmit Count |
| 0x2BB0 | Advertising Constant Tone Extension Transmit Duration      |
| 0x2BB1 | Advertising Constant Tone Extension Interval               |
| 0x2BB2 | Advertising Constant Tone Extension PHY                    |
| 0x2BB3 | Bearer Provider Name                                       |
| 0x2BB4 | Bearer UCI   |
| 0x2BB5 | Bearer Technology  |
| 0x2BB6 | Bearer URI Schemes Supported List                          |
| 0x2BB7 | Bearer Signal Strength                                     |
| 0x2BB8 | Bearer Signal Strength Reporting Interval                  |
| 0x2BB9 | Bearer List Current Calls                                  |
| 0x2BBA | Content Control ID   |
| 0x2BBB | Status Flags   |
| 0x2BBC | Incoming Call Target Bearer URI                            |
| 0x2BBD | Call State   |
| 0x2BBE | Call Control Point   |
| 0x2BBF | Call Control Point Optional Opcodes                        |
| 0x2BC0 | Termination Reason   |
| 0x2BC1 | Incoming Call  |
| 0x2BC2 | Call Friendly Name   |
| 0x2BC3 | Mute   |
| 0x2BC4 | Sink ASE   |
| 0x2BC5 | Source ASE   |
| 0x2BC6 | ASE Control Point  |
| 0x2BC7 | Broadcast Audio Scan Control Point                         |
| 0x2BC8 | Broadcast Receive State                                    |
| 0x2BC9 | Sink PAC   |

|        |  |
|--------|--|
| 0x2BCA | Sink Audio Locations                                     |
| 0x2BCB | Source PAC   |
| 0x2BCC | Source Audio Locations                                   |
| 0x2BCD | Available Audio Contexts                                 |
| 0x2BCE | Supported Audio Contexts                                 |
| 0x2BCF | Ammonia Concentration                                    |
| 0x2BD0 | Carbon Monoxide Concentration                            |
| 0x2BD1 | Methane Concentration                                    |
| 0x2BD2 | Nitrogen Dioxide Concentration                           |
| 0x2BD3 | Non-Methane Volatile Organic Compounds Concentration     |
| 0x2BD4 | Ozone Concentration                                      |
| 0x2BD5 | Particulate Matter - PM1 Concentration                   |
| 0x2BD6 | Particulate Matter - PM2.5 Concentration                 |
| 0x2BD7 | Particulate Matter - PM10 Concentration                  |
| 0x2BD8 | Sulfur Dioxide Concentration                             |
| 0x2BD9 | Sulfur Hexafluoride Concentration                        |
| 0x2BDA | Hearing Aid Features                                     |
| 0x2BDB | Hearing Aid Preset Control Point                         |
| 0x2BDC | Active Preset Index                                      |
| 0x2BDD | Stored Health Observations                               |
| 0x2BDE | Fixed String 64  |
| 0x2BDF | High Temperature   |
| 0x2BE0 | High Voltage   |
| 0x2BE1 | Light Distribution                                       |
| 0x2BE2 | Light Output   |
| 0x2BE3 | Light Source Type  |
| 0x2BE4 | Noise  |
| 0x2BE5 | Relative Runtime in a Correlated Color Temperature Range |
| 0x2BE6 | Time Second 32   |
| 0x2BE7 | VOC Concentration  |
| 0x2BE8 | Voltage Frequency  |
| 0x2BE9 | Battery Critical Status                                  |
| 0x2BEA | Battery Health Status                                    |
| 0x2BEB | Battery Health Information                               |
| 0x2BEC | Battery Information                                      |
| 0x2BED | Battery Level Status                                     |

|        |                              |
|--------|------------------------------|
| 0x2BEE | Battery Time Status          |
| 0x2BEF | Estimated Service Date       |
| 0x2BF0 | Battery Energy Status        |
| 0x2BF1 | Observation Schedule Changed |
| 0x2BF2 | Current Elapsed Time         |
| 0x2BF3 | Health Sensor Features       |
| 0x2BF4 | GHS Control Point            |
| 0x2BF5 | LE GATT Security Levels      |
| 0x2BF6 | ESL Address                  |
| 0x2BF7 | AP Sync Key Material         |
| 0x2BF8 | ESL Response Key Material    |
| 0x2BF9 | ESL Current Absolute Time    |
| 0x2BFA | ESL Display Information      |
| 0x2BFB | ESL Image Information        |
| 0x2BFC | ESL Sensor Information       |
| 0x2BFD | ESL LED Information          |
| 0x2BFE | ESL Control Point            |
| 0x2BFF | UDI for Medical Devices      |
| 0x2C00 | GMAP Role                    |
| 0x2C01 | UGG Features                 |
| 0x2C02 | UGT Features                 |
| 0x2C03 | BGS Features                 |
| 0x2C04 | BGR Features                 |
| 0x2C05 | Percentage 8 Steps           |

## 3.9 Object Types

### 3.9.1 Object Types by Name

Last Modified: 2024-03-11

Filename: [assigned\\_numbers/uuids/object\\_types.yaml](#)

| Object Type Name  | UUID   |
|-------------------|--------|
| Directory Listing | 0x2ACB |
| Group             | 0x2BAC |
| Media Player Icon | 0x2BA9 |
| Track             | 0x2BAB |
| Track Segment     | 0x2BAA |
| Unspecified       | 0x2ACA |

### 3.9.2 Object Types by UUID

Last Modified: 2024-03-11

Filename: [assigned\\_numbers/uuids/object\\_types.yaml](#)

| UUID   | Object Type Name  |
|--------|-------------------|
| 0x2ACA | Unspecified       |
| 0x2ACB | Directory Listing |
| 0x2BA9 | Media Player Icon |
| 0x2BAA | Track Segment     |
| 0x2BAB | Track             |
| 0x2BAC | Group             |

### 3.10 SDO Services

Last Modified: 2024-05-30

Filename: [assigned\\_numbers/uuids/sdo\\_uuids.yaml](#)

| UUID    | Name   | SDO Name  |
|---------|--|---|
| 0xFCCC  | Wi-Fi Easy Connect Specification Service               | Wi-Fi Alliance  |
| 0xFFEF  | Wi-Fi Direct Specification Service                     | Wi-Fi Alliance  |
| 0xFFFF0 | Public Key Open Credential (PKOC) Service              | Physical Security Interoperability Alliance             |
| 0xFFFF1 | ICCE Digital Key Service                               | China Association of Automobile Manufactures            |
| 0xFFFF2 | Aliro Service  | Connectivity Standards Alliance                         |
| 0xFFFF3 | FiRa Consortium Service                                | FiRa Consortium   |
| 0xFFFF4 | FiRa Consortium Service                                | FiRa Consortium   |
| 0xFFFF5 | Car Connectivity Consortium, LLC Service               | Car Connectivity Consortium, LLC                        |
| 0xFFFF6 | Matter Profile ID Service                              | Connectivity Standards Alliance                         |
| 0xFFFF7 | Zigbee Direct Service                                  | Connectivity Standards Alliance                         |
| 0xFFFF8 | Mopria Alliance BLE Service                            | Mopria Alliance   |
| 0xFFFF9 | FIDO2 secure client-to-authenticator transport Service | Fast IDentity Online Alliance (FIDO)                    |
| 0xFFFFA | ASTM Remote ID Service                                 | ASTM International                                      |
| 0xFFFFB | Direct Thread Commissioning Service                    | Thread Group, Inc.                                      |
| 0xFFFFC | Wireless Power Transfer (WPT) Service                  | AirFuel Alliance  |
| 0xFFFFD | Universal Second Factor Authenticator Service          | Fast IDentity Online Alliance (FIDO)                    |
| 0xFFFFE | Wireless Power Transfer Service                        | AirFuel Alliance (formerly Alliance for Wireless Power) |

### 3.11 Member Services

The table lists the Member Service UUIDs allocated to member companies. The table lists only the name of the member company that requested the UUID and not the name of the service.

To request a new Member Service UUID, please submit a ticket to [Bluetooth Support](#) and select the Assigned Numbers category (login required). For those not familiar with the assignment process, please refer to Section 2.3 of the Assigned Numbers Process Document which is available on the [Templates and Documents](#) page.

Please allow five business days for your request to be fulfilled, and another five business days from the time your request is fulfilled to view your Member Service UUID on this page.

Last Modified: 2024-08-26

Filename: [assigned\\_numbers/uuids/member\\_uuids.yaml](#)

| UUID   | Member Company                              |
|--------|---|
| 0xFC71 | Hive-Zox International SA                   |
| 0xFC72 | iodyne, LLC                                 |
| 0xFC73 | Google LLC                                  |
| 0xFC74 | EMBEINT INC                                 |
| 0xFC75 | Xiaomi Inc.                                 |
| 0xFC76 | Weber-Stephen Products LLC                  |
| 0xFC77 | SING SUN TECHNOLOGY (INTERNATIONAL) LIMITED |
| 0xFC78 | DHL   |
| 0xFC79 | LG Electronics Inc.                         |
| 0xFC7A | Outshiny India Private Limited              |
| 0xFC7B | Testo SE & Co. KGaA                         |
| 0xFC7C | Motorola Mobility, LLC                      |
| 0xFC7D | MML US, Inc                                 |
| 0xFC7E | Harman International                        |
| 0xFC7F | Southco                                     |
| 0xFC80 | TELE System Communications Pte. Ltd.        |
| 0xFC81 | Axon Enterprise, Inc.                       |
| 0xFC82 | Zwift, Inc.                                 |
| 0xFC83 | iHealth Labs, Inc.                          |
| 0xFC84 | NINGBO FOTILE KITCHENWARE CO., LTD.         |
| 0xFC85 | Zhejiang Huanfu Technology Co., LTD         |
| 0xFC86 | Samsara Networks, Inc                       |
| 0xFC87 | Samsara Networks, Inc                       |
| 0xFC88 | CCC del Uruguay                             |
| 0xFC89 | Intel Corporation                           |



|        |   |
|--------|---|
| 0xFC8A | Intel Corporation                         |
| 0xFC8B | Kaspersky Lab Middle East FZ-LLC          |
| 0xFC8C | SES-Imagotag                              |
| 0xFC8D | Caire Inc.                                |
| 0xFC8E | Blue Iris Labs, Inc.                      |
| 0xFC8F | Bose Corporation                          |
| 0xFC90 | Wiliot LTD.                               |
| 0xFC91 | Samsung Electronics Co., Ltd.             |
| 0xFC92 | Furuno Electric Co., Ltd.                 |
| 0xFC93 | Komatsu Ltd.                              |
| 0xFC94 | Apple Inc.                                |
| 0xFC95 | Hippo Camp Software Ltd.                  |
| 0xFC96 | LEGO System A/S                           |
| 0xFC97 | Japan Display Inc.                        |
| 0xFC98 | Ruuvi Innovations Ltd.                    |
| 0xFC99 | Badger Meter                              |
| 0xFC9A | Plockat Solutions AB                      |
| 0xFC9B | Merry Electronics (S) Pte Ltd             |
| 0xFC9C | Binary Power, Inc.                        |
| 0xFC9D | Lenovo (Singapore) Pte Ltd.               |
| 0xFC9E | Dell Computer Corporation                 |
| 0xFC9F | Delta Development Team, Inc               |
| 0xFCA0 | Apple Inc.                                |
| 0xFCA1 | PF SCHWEISSTECHNOLOGIE GMBH               |
| 0xFCA2 | Meizu Technology Co., Ltd.                |
| 0xFCA3 | Gunnebo Aktiebolag                        |
| 0xFCA4 | HP Inc.                                   |
| 0xFCA5 | HAYWARD INDUSTRIES, INC.                  |
| 0xFCA6 | Hubble Network Inc.                       |
| 0xFCA7 | Hubble Network Inc.                       |
| 0xFCA8 | Medtronic Inc.                            |
| 0xFCA9 | Medtronic Inc.                            |
| 0xFCAA | Spintly, Inc.                             |
| 0xFCAB | IRISS INC.                                |
| 0xFCAC | IRISS INC.                                |
| 0xFCAD | Beijing 99help Safety Technology Co., Ltd |



|        |  |
|--------|--|
| 0xFCAE | Imagine Marketing Limited              |
| 0xFCAF | AltoBeam Inc.                          |
| 0xFCB0 | Ford Motor Company                     |
| 0xFCB1 | Google LLC                             |
| 0xFCB2 | Apple Inc.                             |
| 0xFCB3 | SWEEN                                  |
| 0xFCB4 | OMRON HEALTHCARE Co., Ltd.             |
| 0xFCB5 | OMRON HEALTHCARE Co., Ltd.             |
| 0xFCB6 | OMRON HEALTHCARE Co., Ltd.             |
| 0xFCB7 | T-Mobile USA                           |
| 0xFCB8 | Ribbiot, INC.                          |
| 0xFCB9 | Lumi United Technology Co., Ltd        |
| 0xFCBA | BlueID GmbH                            |
| 0xFCBB | SharkNinja Operating LLC               |
| 0xFCBC | Drowsy Digital, Inc.                   |
| 0xFCBD | Toshiba Corporation                    |
| 0xFCBE | Musen Connect, Inc.                    |
| 0xFCBF | ASSA ABLOY Opening Solutions Sweden AB |
| 0xFCC0 | Xiaomi Inc.                            |
| 0xFCC1 | TIMECODE SYSTEMS LIMITED               |
| 0xFCC2 | Qualcomm Technologies, Inc.            |
| 0xFCC3 | HP Inc.                                |
| 0xFCC4 | OMRON(DALIAN) CO.,LTD.                 |
| 0xFCC5 | OMRON(DALIAN) CO.,LTD.                 |
| 0xFCC6 | Wiliot LTD.                            |
| 0xFCC7 | PB INC.                                |
| 0xFCC8 | Allthenticate, Inc.                    |
| 0xFCC9 | SkyHawke Technologies                  |
| 0xFCCA | Cosmed s.r.l.                          |
| 0xFCCB | TOTO LTD.                              |
| 0xFCCD | Zound Industries International AB      |
| 0xFCCE | Luna Health, Inc.                      |
| 0xFCCF | Google LLC                             |
| 0xFCD0 | Laerdal Medical AS                     |
| 0xFCD1 | Shenzhen Benwei Media Co.,Ltd.         |
| 0xFCD2 | Allterco Robotics ltd                  |

|        |                                       |
|--------|---------------------------------------|
| 0xFCD3 | Fisher & Paykel Healthcare            |
| 0xFCD4 | OMRON HEALTHCARE                      |
| 0xFCD5 | Nortek Security & Control             |
| 0xFCD6 | SWISSINNO SOLUTIONS AG                |
| 0xFCD7 | PowerPal Pty Ltd                      |
| 0xFCD8 | Appex Factory S.L.                    |
| 0xFCD9 | Huso, INC                             |
| 0xFCDA | Draeger                               |
| 0xFCDB | aconno GmbH                           |
| 0xFCDC | Amazon.com Services, LLC              |
| 0xFCDD | Mobilaris AB                          |
| 0xFCDE | ARCTOP, INC.                          |
| 0xFCDF | NIO USA, Inc.                         |
| 0xFCE0 | Akciju sabiedriba "SAF TEHNIKA"       |
| 0xFCE1 | Sony Group Corporation                |
| 0xFCE2 | Baracoda Daily Healthtech             |
| 0xFCE3 | Smith & Nephew Medical Limited        |
| 0xFCE4 | Samsara Networks, Inc                 |
| 0xFCE5 | Samsara Networks, Inc                 |
| 0xFCE6 | Guard RFID Solutions Inc.             |
| 0xFCE7 | TKH Security B.V.                     |
| 0xFCE8 | ITT Industries                        |
| 0xFCE9 | MindRhythm, Inc.                      |
| 0xFCEA | Chess Wise B.V.                       |
| 0xFCEB | Avi-On                                |
| 0xFCEC | Griffwerk GmbH                        |
| 0xFCED | Workaround GmbH                       |
| 0xFCEE | Velentium, LLC                        |
| 0xFCEF | Divesoft s.r.o.                       |
| 0xFCF0 | Security Enhancement Systems, LLC     |
| 0xFCF1 | Google LLC                            |
| 0xFCF2 | Bitwards Oy                           |
| 0xFCF3 | Armatura LLC                          |
| 0xFCF4 | Allegion                              |
| 0xFCF5 | Trident Communication Technology, LLC |
| 0xFCF6 | The Linux Foundation                  |

|        |  |
|--------|--|
| 0xFCF7 | Honor Device Co., Ltd.                 |
| 0xFCF8 | Honor Device Co., Ltd.                 |
| 0xFCF9 | Leupold & Stevens, Inc.                |
| 0xFCFA | Leupold & Stevens, Inc.                |
| 0xFCFB | Shenzhen Benwei Media Co., Ltd.        |
| 0xFCFC | Barrot Technology Co.,Ltd.             |
| 0xFCFD | Barrot Technology Co.,Ltd.             |
| 0xFCFE | Sonova Consumer Hearing GmbH           |
| 0xFCFF | 701x                                   |
| 0xFD00 | FUTEK Advanced Sensor Technology, Inc. |
| 0xFD01 | Sanvita Medical Corporation            |
| 0xFD02 | LEGO System A/S                        |
| 0xFD03 | Quuppa Oy                              |
| 0xFD04 | Shure Inc.                             |
| 0xFD05 | Qualcomm Technologies, Inc.            |
| 0xFD06 | RACE-AI LLC                            |
| 0xFD07 | Swedlock AB                            |
| 0xFD08 | Bull Group Incorporated Company        |
| 0xFD09 | Cousins and Sears LLC                  |
| 0xFD0A | Luminostics, Inc.                      |
| 0xFD0B | Luminostics, Inc.                      |
| 0xFD0C | OSM HK Limited                         |
| 0xFD0D | Blecon Ltd                             |
| 0xFD0E | HerdDogg, Inc                          |
| 0xFD0F | AEON MOTOR CO.,LTD.                    |
| 0xFD10 | AEON MOTOR CO.,LTD.                    |
| 0xFD11 | AEON MOTOR CO.,LTD.                    |
| 0xFD12 | AEON MOTOR CO.,LTD.                    |
| 0xFD13 | BRG Sports, Inc.                       |
| 0xFD14 | BRG Sports, Inc.                       |
| 0xFD15 | Panasonic Corporation                  |
| 0xFD16 | Sensitech, Inc.                        |
| 0xFD17 | LEGIC Identsystems AG                  |
| 0xFD18 | LEGIC Identsystems AG                  |
| 0xFD19 | Smith & Nephew Medical Limited         |
| 0xFD1A | CSIRO                                  |

|        |   |
|--------|---|
| 0xFD1B | Helios Sports, Inc.                           |
| 0xFD1C | Brady Worldwide Inc.                          |
| 0xFD1D | Samsung Electronics Co., Ltd                  |
| 0xFD1E | Plume Design Inc.                             |
| 0xFD1F | 3M  |
| 0xFD20 | GN Hearing A/S                                |
| 0xFD21 | Huawei Technologies Co., Ltd.                 |
| 0xFD22 | Huawei Technologies Co., Ltd.                 |
| 0xFD23 | DOM Sicherheitstechnik GmbH & Co. KG          |
| 0xFD24 | GD Midea Air-Conditioning Equipment Co., Ltd. |
| 0xFD25 | GD Midea Air-Conditioning Equipment Co., Ltd. |
| 0xFD26 | Novo Nordisk A/S                              |
| 0xFD27 | Integrated Illumination Systems, Inc.         |
| 0xFD28 | Julius Blum GmbH                              |
| 0xFD29 | Asahi Kasei Corporation                       |
| 0xFD2A | Sony Corporation                              |
| 0xFD2B | The Access Technologies                       |
| 0xFD2C | The Access Technologies                       |
| 0xFD2D | Xiaomi Inc.                                   |
| 0xFD2E | Bitstrata Systems Inc.                        |
| 0xFD2F | Bitstrata Systems Inc.                        |
| 0xFD30 | Sesam Solutions BV                            |
| 0xFD31 | LG Electronics Inc.                           |
| 0xFD32 | Gemalto Holding BV                            |
| 0xFD33 | DashLogic, Inc.                               |
| 0xFD34 | Aerosens LLC.                                 |
| 0xFD35 | Transsion Holdings Limited                    |
| 0xFD36 | Google LLC                                    |
| 0xFD37 | TireCheck GmbH                                |
| 0xFD38 | Danfoss A/S                                   |
| 0xFD39 | PREDIKTAS                                     |
| 0xFD3A | Verkada Inc.                                  |
| 0xFD3B | Verkada Inc.                                  |
| 0xFD3C | Redline Communications Inc.                   |
| 0xFD3D | Woan Technology (Shenzhen) Co., Ltd.          |
| 0xFD3E | Pure Watercraft, inc.                         |

|        |   |
|--------|---|
| 0xFD3F | Cognosos, Inc                                 |
| 0xFD40 | Beflex Inc.                                   |
| 0xFD41 | Amazon Lab126                                 |
| 0xFD42 | Globe (Jiangsu) Co.,Ltd                       |
| 0xFD43 | Apple Inc.                                    |
| 0xFD44 | Apple Inc.                                    |
| 0xFD45 | GB Solution co.,Ltd                           |
| 0xFD46 | Lemco IKE                                     |
| 0xFD47 | Liberty Global Inc.                           |
| 0xFD48 | Geberit International AG                      |
| 0xFD49 | Panasonic Corporation                         |
| 0xFD4A | Sigma Elektro GmbH                            |
| 0xFD4B | Samsung Electronics Co., Ltd.                 |
| 0xFD4C | Adolf Wuerth GmbH & Co KG                     |
| 0xFD4D | 70mai Co.,Ltd.                                |
| 0xFD4E | 70mai Co.,Ltd.                                |
| 0xFD4F | SONITOR TECHNOLOGIES AS                       |
| 0xFD50 | Hangzhou Tuya Information Technology Co., Ltd |
| 0xFD51 | UTC Fire and Security                         |
| 0xFD52 | UTC Fire and Security                         |
| 0xFD53 | PCI Private Limited                           |
| 0xFD54 | Qingdao Haier Technology Co., Ltd.            |
| 0xFD55 | Braveheart Wireless, Inc.                     |
| 0xFD56 | Resmed Ltd                                    |
| 0xFD57 | Volvo Car Corporation                         |
| 0xFD58 | Volvo Car Corporation                         |
| 0xFD59 | Samsung Electronics Co., Ltd.                 |
| 0xFD5A | Samsung Electronics Co., Ltd.                 |
| 0xFD5B | V2SOFT INC.                                   |
| 0xFD5C | React Mobile                                  |
| 0xFD5D | maxon motor ltd.                              |
| 0xFD5E | Tapkey GmbH                                   |
| 0xFD5F | Meta Platforms Technologies, LLC              |
| 0xFD60 | Sercomm Corporation                           |
| 0xFD61 | Arendi AG                                     |
| 0xFD62 | Google LLC                                    |

|        |   |
|--------|---|
| 0xFD63 | Google LLC  |
| 0xFD64 | INRIA   |
| 0xFD65 | Razer Inc.  |
| 0xFD66 | Zebra Technologies Corporation                      |
| 0xFD67 | Montblanc Simplo GmbH                               |
| 0xFD68 | Ubique Innovation AG                                |
| 0xFD69 | Samsung Electronics Co., Ltd                        |
| 0xFD6A | Emerson   |
| 0xFD6B | rapitag GmbH  |
| 0xFD6C | Samsung Electronics Co., Ltd.                       |
| 0xFD6D | Sigma Elektro GmbH                                  |
| 0xFD6E | Polidea sp. z o.o.                                  |
| 0xFD6F | Apple, Inc.   |
| 0xFD70 | GuangDong Oppo Mobile Telecommunications Corp., Ltd |
| 0xFD71 | GN Hearing A/S                                      |
| 0xFD72 | Logitech International SA                           |
| 0xFD73 | BRControls Products BV                              |
| 0xFD74 | BRControls Products BV                              |
| 0xFD75 | Insulet Corporation                                 |
| 0xFD76 | Insulet Corporation                                 |
| 0xFD77 | Withings  |
| 0xFD78 | Withings  |
| 0xFD79 | Withings  |
| 0xFD7A | Withings  |
| 0xFD7B | WYZE LABS, INC.                                     |
| 0xFD7C | Toshiba Information Systems(Japan) Corporation      |
| 0xFD7D | Center for Advanced Research Wernher Von Braun      |
| 0xFD7E | Samsung Electronics Co., Ltd.                       |
| 0xFD7F | Husqvarna AB  |
| 0xFD80 | Phindex Technologies, Inc                           |
| 0xFD81 | CANDY HOUSE, Inc.                                   |
| 0xFD82 | Sony Corporation                                    |
| 0xFD83 | iNFORM Technology GmbH                              |
| 0xFD84 | Tile, Inc.  |
| 0xFD85 | Husqvarna AB  |
| 0xFD86 | Abbott  |

|        |   |
|--------|---|
| 0xFD87 | Google LLC  |
| 0xFD88 | Urbanminded LTD                                     |
| 0xFD89 | Urbanminded LTD                                     |
| 0xFD8A | Signify Netherlands B.V.                            |
| 0xFD8B | Jigowatts Inc.                                      |
| 0xFD8C | Google LLC  |
| 0xFD8D | quip NYC Inc.                                       |
| 0xFD8E | Motorola Solutions                                  |
| 0xFD8F | Matrix ComSec Pvt. Ltd.                             |
| 0xFD90 | Guangzhou SuperSound Information Technology Co.,Ltd |
| 0xFD91 | Groove X, Inc.                                      |
| 0xFD92 | Qualcomm Technologies International, Ltd. (QTIL)    |
| 0xFD93 | Bayerische Motoren Werke AG                         |
| 0xFD94 | Hewlett Packard Enterprise                          |
| 0xFD95 | Rigado  |
| 0xFD96 | Google LLC  |
| 0xFD97 | June Life, Inc.                                     |
| 0xFD98 | Disney Worldwide Services, Inc.                     |
| 0xFD99 | ABB Oy  |
| 0xFD9A | Huawei Technologies Co., Ltd.                       |
| 0xFD9B | Huawei Technologies Co., Ltd.                       |
| 0xFD9C | Huawei Technologies Co., Ltd.                       |
| 0xFD9D | Gastec Corporation                                  |
| 0xFD9E | The Coca-Cola Company                               |
| 0xFD9F | VitalTech Affiliates LLC                            |
| 0xFDA0 | Secugen Corporation                                 |
| 0xFDA1 | Groove X, Inc                                       |
| 0xFDA2 | Groove X, Inc                                       |
| 0xFDA3 | Inseego Corp.                                       |
| 0xFDA4 | Inseego Corp.                                       |
| 0xFDA5 | Neurostim OAB, Inc.                                 |
| 0xFDA6 | WWZN Information Technology Company Limited         |
| 0xFDA7 | WWZN Information Technology Company Limited         |
| 0xFDA8 | PSA Peugeot Citroën                                 |
| 0xFDA9 | Rhombus Systems, Inc.                               |
| 0xFDAA | Xiaomi Inc.   |

|        |  |
|--------|--|
| 0xFDAB | Xiaomi Inc.  |
| 0xFDAC | Tentacle Sync GmbH                                 |
| 0xFDAD | Houwa System Design, k.k.                          |
| 0xFDAE | Houwa System Design, k.k.                          |
| 0xFDAF | Wiliot LTD   |
| 0xFDB0 | Oura Health Ltd                                    |
| 0xFDB1 | Oura Health Ltd                                    |
| 0xFDB2 | Portable Multimedia Ltd                            |
| 0xFDB3 | Audiodo AB   |
| 0xFDB4 | HP Inc   |
| 0xFDB5 | ECSG   |
| 0xFDB6 | GWA Hygiene GmbH                                   |
| 0xFDB7 | LivaNova USA Inc.                                  |
| 0xFDB8 | LivaNova USA Inc.                                  |
| 0xFDB9 | Comcast Cable Corporation                          |
| 0xFDBA | Comcast Cable Corporation                          |
| 0xFDBB | Profoto  |
| 0xFDBC | Emerson  |
| 0xFDBD | Clover Network, Inc.                               |
| 0xFDBE | California Things Inc.                             |
| 0xFDBF | California Things Inc.                             |
| 0xFDC0 | Hunter Douglas                                     |
| 0xFDC1 | Hunter Douglas                                     |
| 0xFDC2 | Baidu Online Network Technology (Beijing) Co., Ltd |
| 0xFDC3 | Baidu Online Network Technology (Beijing) Co., Ltd |
| 0xFDC4 | Simavita (Aust) Pty Ltd                            |
| 0xFDC5 | Automatic Labs                                     |
| 0xFDC6 | Eli Lilly and Company                              |
| 0xFDC7 | Eli Lilly and Company                              |
| 0xFDC8 | Hach – Danaher                                     |
| 0xFDC9 | Busch-Jaeger Elektro GmbH                          |
| 0xFDCA | Fortin Electronic Systems                          |
| 0xFDCB | Meggitt SA   |
| 0xFDCC | Shoof Technologies                                 |
| 0xFDCD | Qingping Technology (Beijing) Co., Ltd.            |
| 0xFDCE | SENNHEISER electronic GmbH & Co. KG                |



|        |                                  |
|--------|----------------------------------|
| 0xFDCF | Nalu Medical, Inc                |
| 0xFDD0 | Huawei Technologies Co., Ltd     |
| 0xFDD1 | Huawei Technologies Co., Ltd     |
| 0xFDD2 | Bose Corporation                 |
| 0xFDD3 | FUBA Automotive Electronics GmbH |
| 0xFDD4 | LX Solutions Pty Limited         |
| 0xFDD5 | Brompton Bicycle Ltd             |
| 0xFDD6 | Ministry of Supply               |
| 0xFDD7 | Emerson                          |
| 0xFDD8 | Jiangsu Teranovo Tech Co., Ltd.  |
| 0xFDD9 | Jiangsu Teranovo Tech Co., Ltd.  |
| 0xFDDA | MHCS                             |
| 0xFddb | Samsung Electronics Co., Ltd.    |
| 0xFDDC | 4iiii Innovations Inc.           |
| 0xFDDD | Arch Systems Inc                 |
| 0xFDDE | Noodle Technology Inc.           |
| 0xFDDF | Harman International             |
| 0xFDE0 | John Deere                       |
| 0xFDE1 | Fortin Electronic Systems        |
| 0xFDE2 | Google LLC                       |
| 0xFDE3 | Abbott Diabetes Care             |
| 0xFDE4 | JUUL Labs, Inc.                  |
| 0xFDE5 | SMK Corporation                  |
| 0xFDE6 | Intelletto Technologies Inc      |
| 0xFDE7 | SECOM Co., LTD                   |
| 0xFDE8 | Robert Bosch GmbH                |
| 0xFDE9 | Spacesaver Corporation           |
| 0xFDEA | SeeScan, Inc                     |
| 0xFDEB | Syntronix Corporation            |
| 0xFDEC | Mannkind Corporation             |
| 0xFDED | Pole Star                        |
| 0xFDEE | Huawei Technologies Co., Ltd.    |
| 0xFDEF | ART AND PROGRAM, INC.            |
| 0xFDF0 | Google LLC                       |
| 0xFDF1 | LAMPLIGHT Co.,Ltd                |
| 0xFDF2 | AMICCOM Electronics Corporation  |

|        |   |
|--------|---|
| 0xFDF3 | Amersports  |
| 0xFDF4 | O. E. M. Controls, Inc.                                   |
| 0xFDF5 | Milwaukee Electric Tools                                  |
| 0xFDF6 | AIAIAI ApS  |
| 0xFDF7 | HP Inc.   |
| 0xFDF8 | Onvocal   |
| 0xFDF9 | INIA  |
| 0xFDFA | Tandem Diabetes Care                                      |
| 0xFDFB | Tandem Diabetes Care                                      |
| 0xFDFC | Optrel AG   |
| 0xFDFD | RecursiveSoft Inc.  |
| 0xFDFE | ADHERIUM(NZ) LIMITED                                      |
| 0xFDFE | OSRAM GmbH  |
| 0xFE00 | Amazon.com Services, Inc.                                 |
| 0xFE01 | Duracell U.S. Operations Inc.                             |
| 0xFE02 | Robert Bosch GmbH   |
| 0xFE03 | Amazon.com Services, Inc.                                 |
| 0xFE04 | Motorola Solutions, Inc.                                  |
| 0xFE05 | CORE Transport Technologies NZ Limited                    |
| 0xFE06 | Qualcomm Technologies, Inc.                               |
| 0xFE07 | Sonos, Inc.   |
| 0xFE08 | Microsoft   |
| 0xFE09 | Pillsy, Inc.  |
| 0xFE0A | ruwido austria gmbh                                       |
| 0xFE0B | ruwido austria gmbh                                       |
| 0xFE0C | Procter & Gamble  |
| 0xFE0D | Procter & Gamble  |
| 0xFE0E | Setec Pty Ltd   |
| 0xFE0F | Signify Netherlands B.V. (formerly Philips Lighting B.V.) |
| 0xFE10 | LAPIS Technology Co., Ltd.                                |
| 0xFE11 | GMC-I Messtechnik GmbH                                    |
| 0xFE12 | M-Way Solutions GmbH                                      |
| 0xFE13 | Apple Inc.  |
| 0xFE14 | Flextronics International USA Inc.                        |
| 0xFE15 | Amazon.com Services, Inc..                                |
| 0xFE16 | Footmarks, Inc.   |

|        |                                     |
|--------|-------------------------------------|
| 0xFE17 | Telit Wireless Solutions GmbH       |
| 0xFE18 | Runtime, Inc.                       |
| 0xFE19 | Google LLC                          |
| 0xFE1A | Tyto Life LLC                       |
| 0xFE1B | Tyto Life LLC                       |
| 0xFE1C | NetMedia, Inc.                      |
| 0xFE1D | Illuminati Instrument Corporation   |
| 0xFE1E | LAMPLIGHT Co., Ltd.                 |
| 0xFE1F | Garmin International, Inc.          |
| 0xFE20 | Emerson                             |
| 0xFE21 | Bose Corporation                    |
| 0xFE22 | Zoll Medical Corporation            |
| 0xFE23 | Zoll Medical Corporation            |
| 0xFE24 | August Home Inc                     |
| 0xFE25 | Apple, Inc.                         |
| 0xFE26 | Google LLC                          |
| 0xFE27 | Google LLC                          |
| 0xFE28 | Ayla Networks                       |
| 0xFE29 | Gibson Innovations                  |
| 0xFE2A | DaisyWorks, Inc.                    |
| 0xFE2B | ITT Industries                      |
| 0xFE2C | Google LLC                          |
| 0xFE2D | LAMPLIGHT Co., Ltd.                 |
| 0xFE2E | ERi, Inc.                           |
| 0xFE2F | CRESCO Wireless, Inc                |
| 0xFE30 | Volkswagen AG                       |
| 0xFE31 | Volkswagen AG                       |
| 0xFE32 | Pro-Mark, Inc.                      |
| 0xFE33 | CHIPOLO d.o.o.                      |
| 0xFE34 | SmallLoop LLC                       |
| 0xFE35 | HUAWEI Technologies Co., Ltd        |
| 0xFE36 | HUAWEI Technologies Co., Ltd        |
| 0xFE37 | Spaceek LTD                         |
| 0xFE38 | Spaceek LTD                         |
| 0xFE39 | TTS Tooltechnic Systems AG & Co. KG |
| 0xFE3A | TTS Tooltechnic Systems AG & Co. KG |

|        |   |
|--------|---|
| 0xFE3B | Dolby Laboratories  |
| 0xFE3C | alibaba   |
| 0xFE3D | BD Medical  |
| 0xFE3E | BD Medical  |
| 0xFE3F | Friday Labs Limited                                       |
| 0xFE40 | Inugo Systems Limited                                     |
| 0xFE41 | Inugo Systems Limited                                     |
| 0xFE42 | Nets A/S  |
| 0xFE43 | Andreas Stihl AG & Co. KG                                 |
| 0xFE44 | SK Telecom  |
| 0xFE45 | Snapchat Inc  |
| 0xFE46 | B&O Play A/S  |
| 0xFE47 | General Motors  |
| 0xFE48 | General Motors  |
| 0xFE49 | SenionLab AB  |
| 0xFE4A | OMRON HEALTHCARE Co., Ltd.                                |
| 0xFE4B | Signify Netherlands B.V. (formerly Philips Lighting B.V.) |
| 0xFE4C | Volkswagen AG   |
| 0xFE4D | Casambi Technologies Oy                                   |
| 0xFE4E | NTT docomo  |
| 0xFE4F | Molekule, Inc.  |
| 0xFE50 | Google LLC  |
| 0xFE51 | SRAM  |
| 0xFE52 | SetPoint Medical  |
| 0xFE53 | 3M  |
| 0xFE54 | Motiv, Inc.   |
| 0xFE55 | Google LLC  |
| 0xFE56 | Google LLC  |
| 0xFE57 | Dotted Labs   |
| 0xFE58 | Nordic Semiconductor ASA                                  |
| 0xFE59 | Nordic Semiconductor ASA                                  |
| 0xFE5A | Cronologics Corporation                                   |
| 0xFE5B | GT-tronics HK Ltd   |
| 0xFE5C | million hunters GmbH                                      |
| 0xFE5D | Grundfos A/S  |
| 0xFE5E | Plastc Corporation  |

|        |  |
|--------|--|
| 0xFE5F | Eyefi, Inc.  |
| 0xFE60 | Lierda Science & Technology Group Co., Ltd.            |
| 0xFE61 | Logitech International SA                              |
| 0xFE62 | Indagem Tech LLC                                       |
| 0xFE63 | Connected Yard, Inc.                                   |
| 0xFE64 | Siemens AG   |
| 0xFE65 | CHIPOLO d.o.o.   |
| 0xFE66 | Intel Corporation                                      |
| 0xFE67 | Lab Sensor Solutions                                   |
| 0xFE68 | Capsle Technologies Inc.                               |
| 0xFE69 | Capsle Technologies Inc.                               |
| 0xFE6A | Kontakt Micro-Location Sp. z o.o.                      |
| 0xFE6B | TASER International, Inc.                              |
| 0xFE6C | TASER International, Inc.                              |
| 0xFE6D | The University of Tokyo                                |
| 0xFE6E | The University of Tokyo                                |
| 0xFE6F | LINE Corporation                                       |
| 0xFE70 | Beijing Jingdong Century Trading Co., Ltd.             |
| 0xFE71 | Plume Design Inc                                       |
| 0xFE72 | Abbott (formerly St. Jude Medical, Inc.)               |
| 0xFE73 | Abbott (formerly St. Jude Medical, Inc.)               |
| 0xFE74 | unwire   |
| 0xFE75 | TangoMe  |
| 0xFE76 | TangoMe  |
| 0xFE77 | Hewlett-Packard Company                                |
| 0xFE78 | Hewlett-Packard Company                                |
| 0xFE79 | Zebra Technologies                                     |
| 0xFE7A | Bragi GmbH   |
| 0xFE7B | Orion Labs, Inc.                                       |
| 0xFE7C | Telit Wireless Solutions (Formerly Stollmann E+V GmbH) |
| 0xFE7D | Aterica Health Inc.                                    |
| 0xFE7E | Awear Solutions Ltd                                    |
| 0xFE7F | Doppler Lab  |
| 0xFE80 | Doppler Lab  |
| 0xFE81 | Medtronic Inc.   |
| 0xFE82 | Medtronic Inc.   |

|         |  |
|---------|--|
| 0xFE83  | Blue Bite  |
| 0xFE84  | RF Digital Corp  |
| 0xFE85  | RF Digital Corp  |
| 0xFE86  | HUAWEI Technologies Co., Ltd                                     |
| 0xFE87  | Qingdao Yeelink Information Technology Co., Ltd. (青岛亿联客信息技术有限公司) |
| 0xFE88  | SALTO SYSTEMS S.L.   |
| 0xFE89  | B&O Play A/S   |
| 0xFE8A  | Apple, Inc.  |
| 0xFE8B  | Apple, Inc.  |
| 0xFE8C  | TRON Forum   |
| 0xFE8D  | Interaxon Inc.   |
| 0xFE8E  | ARM Ltd  |
| 0xFE8F  | CSR  |
| 0xFE90  | JUMA   |
| 0xFE91  | Shanghai Imilab Technology Co.,Ltd                               |
| 0xFE92  | Jarden Safety & Security   |
| 0xFE93  | OttoQ In   |
| 0xFE94  | OttoQ In   |
| 0xFE95  | Xiaomi Inc.  |
| 0xFE96  | Tesla Motors Inc.  |
| 0xFE97  | Tesla Motors Inc.  |
| 0xFE98  | Currant Inc  |
| 0xFE99  | Currant Inc  |
| 0xFE9A  | Estimote   |
| 0xFE9B  | Samsara Networks, Inc  |
| 0xFE9C  | GSI Laboratories, Inc.   |
| 0xFE9D  | Mobiquity Networks Inc   |
| 0xFE9E  | Dialog Semiconductor B.V.  |
| 0xFE9F  | Google LLC   |
| 0xFEAA0 | Google LLC   |
| 0xFEAA1 | Intrepid Control Systems, Inc.                                   |
| 0xFEAA2 | Intrepid Control Systems, Inc.                                   |
| 0xFEAA3 | ITT Industries   |
| 0xFEAA4 | Paxton Access Ltd  |
| 0xFEAA5 | GoPro, Inc.  |

|         |                               |
|---------|-------------------------------|
| 0xFE A6 | GoPro, Inc.                   |
| 0xFE A7 | UTC Fire and Security         |
| 0xFE A8 | Savant Systems LLC            |
| 0xFE A9 | Savant Systems LLC            |
| 0xFE AA | Google LLC                    |
| 0xFE AB | Nokia                         |
| 0xFE AC | Nokia                         |
| 0xFE AD | Nokia                         |
| 0xFE AE | Nokia                         |
| 0xFE AF | Nest Labs Inc                 |
| 0xFEB0  | Nest Labs Inc                 |
| 0xFEB1  | Electronics Tomorrow Limited  |
| 0xFEB2  | Microsoft Corporation         |
| 0xFEB3  | Taobao                        |
| 0xFEB4  | WiSilica Inc.                 |
| 0xFEB5  | WiSilica Inc.                 |
| 0xFEB6  | Vencer Co., Ltd               |
| 0xFEB7  | Meta Platforms, Inc.          |
| 0xFEB8  | Meta Platforms, Inc.          |
| 0xFEB9  | LG Electronics                |
| 0xFE BA | Tencent Holdings Limited      |
| 0xFE BB | adafruit industries           |
| 0xFE BC | Dexcom Inc                    |
| 0xFE BD | Clover Network, Inc           |
| 0xFE BE | Bose Corporation              |
| 0xFE BF | Nod, Inc.                     |
| 0xFEC0  | KDDI Corporation              |
| 0xFEC1  | KDDI Corporation              |
| 0xFEC2  | Blue Spark Technologies, Inc. |
| 0xFEC3  | 360fly, Inc.                  |
| 0xFEC4  | PLUS Location Systems         |
| 0xFEC5  | Realtek Semiconductor Corp.   |
| 0xFEC6  | Kocomojo, LLC                 |
| 0xFEC7  | Apple, Inc.                   |
| 0xFEC8  | Apple, Inc.                   |
| 0xFEC9  | Apple, Inc.                   |

|        |  |
|--------|--|
| 0xFECA | Apple, Inc.                                  |
| 0xFECB | Apple, Inc.                                  |
| 0xFECC | Apple, Inc.                                  |
| 0xFECD | Apple, Inc.                                  |
| 0xFECE | Apple, Inc.                                  |
| 0xFECF | Apple, Inc.                                  |
| 0xFED0 | Apple, Inc.                                  |
| 0xFED1 | Apple, Inc.                                  |
| 0xFED2 | Apple, Inc.                                  |
| 0xFED3 | Apple, Inc.                                  |
| 0xFED4 | Apple, Inc.                                  |
| 0xFED5 | Plantronics Inc.                             |
| 0xFED6 | Broadcom                                     |
| 0xFED7 | Broadcom                                     |
| 0xFED8 | Google LLC                                   |
| 0xFED9 | Pebble Technology Corporation                |
| 0xFEDA | ISSC Technologies Corp.                      |
| 0xFEDB | Perka, Inc.                                  |
| 0xFEDC | Jawbone                                      |
| 0xFEDD | Jawbone                                      |
| 0xFEDE | Coin, Inc.                                   |
| 0xFEDF | Design SHIFT                                 |
| 0xFEE0 | Anhui Huami Information Technology Co., Ltd. |
| 0xFEE1 | Anhui Huami Information Technology Co., Ltd. |
| 0xFEE2 | Anki, Inc.                                   |
| 0xFEE3 | Anki, Inc.                                   |
| 0xFEE4 | Nordic Semiconductor ASA                     |
| 0xFEE5 | Nordic Semiconductor ASA                     |
| 0xFEE6 | Silvair, Inc.                                |
| 0xFEE7 | Tencent Holdings Limited.                    |
| 0xFEE8 | Quintic Corp.                                |
| 0xFEE9 | Quintic Corp.                                |
| 0xFEEA | Swirl Networks, Inc.                         |
| 0xFEEB | Swirl Networks, Inc.                         |
| 0xFEEC | Tile, Inc.                                   |
| 0xFEED | Tile, Inc.                                   |



|          |  |
|----------|--|
| 0xFEEE   | Polar Electro Oy                                       |
| 0xFEEF   | Polar Electro Oy                                       |
| 0xFEFE0  | Intel  |
| 0xFEFE1  | CSR  |
| 0xFEFE2  | CSR  |
| 0xFEFE3  | Google LLC   |
| 0xFEFE4  | Google LLC   |
| 0xFEFE5  | Dialog Semiconductor GmbH                              |
| 0xFEFE6  | Wicentric, Inc.  |
| 0xFEFE7  | Aplix Corporation                                      |
| 0xFEFE8  | Aplix Corporation                                      |
| 0xFEFE9  | PayPal, Inc.   |
| 0xFEFEA  | PayPal, Inc.   |
| 0xFEFEB  | Telit Wireless Solutions (Formerly Stollmann E+V GmbH) |
| 0xFEFE C | Gimbal, Inc.   |
| 0xFEFE D | Gimbal, Inc.   |
| 0xFEFE E | GN Hearing A/S   |
| 0xFEFE F | GN Netcom  |

## 3.12 Mesh Profiles

Note: The allocations in this section are associated with draft specifications and are subject to change.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/uuids/mesh\\_profile\\_uuids.yaml](#)

| UUID   | Mesh Profile Name                          |
|--------|--|
| 0x1600 | Ambient Light Sensor NLC Profile 1.0       |
| 0x1601 | Basic Lightness Controller NLC Profile 1.0 |
| 0x1602 | Basic Scene Selector NLC Profile 1.0       |
| 0x1603 | Dimming Control NLC Profile 1.0            |
| 0x1604 | Energy Monitor NLC Profile 1.0             |
| 0x1605 | Occupancy Sensor NLC Profile 1.0           |

## 4 Mesh

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The following section includes the assigned numbers used by the set of Mesh specifications [17] [18] [16] [14] [15].

Note: The allocations in this section are associated with draft specifications and are subject to change.

## 4.1 Mesh Model Identifiers

The following section lists the model identifiers assigned to models in the set of Mesh specifications [17] [18] [16] [14] [15].

### 4.1.1 Mesh Model Identifiers by Value

The table below lists the assigned model identifiers organized by model identifier value.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mesh\\_model\\_uuids.yaml](#)

| Mesh Model Identifier | Mesh Model Name                           |
|-----------------------|---|
| 0x0000                | Configuration Server                      |
| 0x0001                | Configuration Client                      |
| 0x0002                | Health Server                             |
| 0x0003                | Health Client                             |
| 0x0004                | Remote Provisioning Server                |
| 0x0005                | Remote Provisioning Client                |
| 0x0006                | Directed Forwarding Configuration Server  |
| 0x0007                | Directed Forwarding Configuration Client  |
| 0x0008                | Bridge Configuration Server               |
| 0x0009                | Bridge Configuration Client               |
| 0x000A                | Mesh Private Beacon Server                |
| 0x000B                | Mesh Private Beacon Client                |
| 0x000C                | On-Demand Private Proxy Server            |
| 0x000D                | On-Demand Private Proxy Client            |
| 0x000E                | SAR Configuration Server                  |
| 0x000F                | SAR Configuration Client                  |
| 0x0010                | Opcodes Aggregator Server                 |
| 0x0011                | Opcodes Aggregator Client                 |
| 0x0012                | Large Composition Data Server             |
| 0x0013                | Large Composition Data Client             |
| 0x0014                | Solicitation PDU RPL Configuration Server |
| 0x0015                | Solicitation PDU RPL Configuration Client |
| 0x1000                | Generic OnOff Server                      |
| 0x1001                | Generic OnOff Client                      |
| 0x1002                | Generic Level Server                      |
| 0x1003                | Generic Level Client                      |

|        |  |
|--------|--|
| 0x1004 | Generic Default Transition Time Server |
| 0x1005 | Generic Default Transition Time Client |
| 0x1006 | Generic Power OnOff Server             |
| 0x1007 | Generic Power OnOff Setup Server       |
| 0x1008 | Generic Power OnOff Client             |
| 0x1009 | Generic Power Level Server             |
| 0x100A | Generic Power Level Setup Server       |
| 0x100B | Generic Power Level Client             |
| 0x100C | Generic Battery Server                 |
| 0x100D | Generic Battery Client                 |
| 0x100E | Generic Location Server                |
| 0x100F | Generic Location Setup Server          |
| 0x1010 | Generic Location Client                |
| 0x1011 | Generic Admin Property Server          |
| 0x1012 | Generic Manufacturer Property Server   |
| 0x1013 | Generic User Property Server           |
| 0x1014 | Generic Client Property Server         |
| 0x1015 | Generic Property Client                |
| 0x1100 | Sensor Server                          |
| 0x1101 | Sensor Setup Server                    |
| 0x1102 | Sensor Client                          |
| 0x1200 | Time Server                            |
| 0x1201 | Time Setup Server                      |
| 0x1202 | Time Client                            |
| 0x1203 | Scene Server                           |
| 0x1204 | Scene Setup Server                     |
| 0x1205 | Scene Client                           |
| 0x1206 | Scheduler Server                       |
| 0x1207 | Scheduler Setup Server                 |
| 0x1208 | Scheduler Client                       |
| 0x1300 | Light Lightness Server                 |
| 0x1301 | Light Lightness Setup Server           |
| 0x1302 | Light Lightness Client                 |
| 0x1303 | Light CTL Server                       |
| 0x1304 | Light CTL Setup Server                 |
| 0x1305 | Light CTL Client                       |

|        |                              |
|--------|------------------------------|
| 0x1306 | Light CTL Temperature Server |
| 0x1307 | Light HSL Server             |
| 0x1308 | Light HSL Setup Server       |
| 0x1309 | Light HSL Client             |
| 0x130A | Light HSL Hue Server         |
| 0x130B | Light HSL Saturation Server  |
| 0x130C | Light xyL Server             |
| 0x130D | Light xyL Setup Server       |
| 0x130E | Light xyL Client             |
| 0x130F | Light LC Server              |
| 0x1310 | Light LC Setup Server        |
| 0x1311 | Light LC Client              |
| 0x1312 | IEC 62386-104 Model          |
| 0x1400 | BLOB Transfer Server         |
| 0x1401 | BLOB Transfer Client         |
| 0x1402 | Firmware Update Server       |
| 0x1403 | Firmware Update Client       |
| 0x1404 | Firmware Distribution Server |
| 0x1405 | Firmware Distribution Client |

#### 4.1.2 Mesh Model Identifiers by Name

The table below lists the assigned model identifiers organized by model name.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mesh\\_model\\_uuids.yaml](#)

| Mesh Model Name                          | Mesh Model Identifier |
|--|-----------------------|
| BLOB Transfer Client                     | 0x1401                |
| BLOB Transfer Server                     | 0x1400                |
| Bridge Configuration Client              | 0x0009                |
| Bridge Configuration Server              | 0x0008                |
| Configuration Client                     | 0x0001                |
| Configuration Server                     | 0x0000                |
| Directed Forwarding Configuration Client | 0x0007                |
| Directed Forwarding Configuration Server | 0x0006                |
| Firmware Distribution Client             | 0x1405                |



|  |        |
|--|--------|
| Firmware Distribution Server           | 0x1404 |
| Firmware Update Client                 | 0x1403 |
| Firmware Update Server                 | 0x1402 |
| Generic Admin Property Server          | 0x1011 |
| Generic Battery Client                 | 0x100D |
| Generic Battery Server                 | 0x100C |
| Generic Client Property Server         | 0x1014 |
| Generic Default Transition Time Client | 0x1005 |
| Generic Default Transition Time Server | 0x1004 |
| Generic Level Client                   | 0x1003 |
| Generic Level Server                   | 0x1002 |
| Generic Location Client                | 0x1010 |
| Generic Location Server                | 0x100E |
| Generic Location Setup Server          | 0x100F |
| Generic Manufacturer Property Server   | 0x1012 |
| Generic OnOff Client                   | 0x1001 |
| Generic OnOff Server                   | 0x1000 |
| Generic Power Level Client             | 0x100B |
| Generic Power Level Server             | 0x1009 |
| Generic Power Level Setup Server       | 0x100A |
| Generic Power OnOff Client             | 0x1008 |
| Generic Power OnOff Server             | 0x1006 |
| Generic Power OnOff Setup Server       | 0x1007 |
| Generic Property Client                | 0x1015 |
| Generic User Property Server           | 0x1013 |
| Health Client                          | 0x0003 |
| Health Server                          | 0x0002 |
| IEC 62386-104 Model                    | 0x1312 |
| Large Composition Data Client          | 0x0013 |
| Large Composition Data Server          | 0x0012 |
| Light CTL Client                       | 0x1305 |
| Light CTL Server                       | 0x1303 |
| Light CTL Setup Server                 | 0x1304 |
| Light CTL Temperature Server           | 0x1306 |
| Light HSL Client                       | 0x1309 |
| Light HSL Hue Server                   | 0x130A |



|   |        |
|---|--------|
| Light HSL Saturation Server               | 0x130B |
| Light HSL Server                          | 0x1307 |
| Light HSL Setup Server                    | 0x1308 |
| Light LC Client                           | 0x1311 |
| Light LC Server                           | 0x130F |
| Light LC Setup Server                     | 0x1310 |
| Light Lightness Client                    | 0x1302 |
| Light Lightness Server                    | 0x1300 |
| Light Lightness Setup Server              | 0x1301 |
| Light xyL Client                          | 0x130E |
| Light xyL Server                          | 0x130C |
| Light xyL Setup Server                    | 0x130D |
| Mesh Private Beacon Client                | 0x000B |
| Mesh Private Beacon Server                | 0x000A |
| On-Demand Private Proxy Client            | 0x000D |
| On-Demand Private Proxy Server            | 0x000C |
| Opcodes Aggregator Client                 | 0x0011 |
| Opcodes Aggregator Server                 | 0x0010 |
| Remote Provisioning Client                | 0x0005 |
| Remote Provisioning Server                | 0x0004 |
| SAR Configuration Client                  | 0x000F |
| SAR Configuration Server                  | 0x000E |
| Scene Client                              | 0x1205 |
| Scene Server                              | 0x1203 |
| Scene Setup Server                        | 0x1204 |
| Scheduler Client                          | 0x1208 |
| Scheduler Server                          | 0x1206 |
| Scheduler Setup Server                    | 0x1207 |
| Sensor Client                             | 0x1102 |
| Sensor Server                             | 0x1100 |
| Sensor Setup Server                       | 0x1101 |
| Solicitation PDU RPL Configuration Client | 0x0015 |
| Solicitation PDU RPL Configuration Server | 0x0014 |
| Time Client                               | 0x1202 |
| Time Server                               | 0x1200 |
| Time Setup Server                         | 0x1201 |



## 4.2 Mesh Model Message Opcodes

The following section lists the assigned values for model message opcodes in the set of Mesh specifications [17] [18] [16] [14] [15].

### 4.2.1 Mesh Model Message Opcodes by Value

The table below lists the assigned numbers for model message opcodes organized by message opcode value.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mmdl\\_opcodes.yaml](#)

| Message Opcode | Message Name                                     |
|----------------|--|
| 0x00           | Config AppKey Add                                |
| 0x01           | Config AppKey Update                             |
| 0x02           | Config Composition Data Status                   |
| 0x03           | Config Model Publication Set                     |
| 0x04           | Health Current Status                            |
| 0x05           | Health Fault Status                              |
| 0x06           | Config Heartbeat Publication Status              |
| 0x40           | Generic Location Global Status                   |
| 0x41           | Generic Location Global Set                      |
| 0x42           | Generic Location Global Set Unacknowledged       |
| 0x43           | Generic Manufacturer Properties Status           |
| 0x44           | Generic Manufacturer Property Set                |
| 0x45           | Generic Manufacturer Property Set Unacknowledged |
| 0x46           | Generic Manufacturer Property Status             |
| 0x47           | Generic Admin Properties Status                  |
| 0x48           | Generic Admin Property Set                       |
| 0x49           | Generic Admin Property Set Unacknowledged        |
| 0x4A           | Generic Admin Property Status                    |
| 0x4B           | Generic User Properties Status                   |
| 0x4C           | Generic User Property Set                        |
| 0x4D           | Generic User Property Set Unacknowledged         |
| 0x4E           | Generic User Property Status                     |
| 0x4F           | Generic Client Properties Get                    |
| 0x50           | Generic Client Properties Status                 |
| 0x51           | Sensor Descriptor Status                         |
| 0x52           | Sensor Status                                    |

|           |                                      |
|-----------|--------------------------------------|
| 0x53      | Sensor Column Status                 |
| 0x54      | Sensor Series Status                 |
| 0x55      | Sensor Cadence Set                   |
| 0x56      | Sensor Cadence Set Unacknowledged    |
| 0x57      | Sensor Cadence Status                |
| 0x58      | Sensor Settings Status               |
| 0x59      | Sensor Setting Set                   |
| 0x5A      | Sensor Setting Set Unacknowledged    |
| 0x5B      | Sensor Setting Status                |
| 0x5C      | Time Set                             |
| 0x5D      | Time Status                          |
| 0x5E      | Scene Status                         |
| 0x5F      | Scheduler Action Status              |
| 0x60      | Scheduler Action Set                 |
| 0x61      | Scheduler Action Set Unacknowledged  |
| 0x62      | Light LC Property Set                |
| 0x63      | Light LC Property Set Unacknowledged |
| 0x64      | Light LC Property Status             |
| 0x65      | IEC 62386-104 Frame                  |
| 0x66      | BLOB Chunk Transfer                  |
| 0x67      | BLOB Block Status                    |
| 0x68      | BLOB Partial Block Report            |
| 0x80 0x00 | Config AppKey Delete                 |
| 0x80 0x01 | Config AppKey Get                    |
| 0x80 0x02 | Config AppKey List                   |
| 0x80 0x03 | Config AppKey Status                 |
| 0x80 0x04 | Health Attention Get                 |
| 0x80 0x05 | Health Attention Set                 |
| 0x80 0x06 | Health Attention Set Unacknowledged  |
| 0x80 0x07 | Health Attention Status              |
| 0x80 0x08 | Config Composition Data Get          |
| 0x80 0x09 | Config Beacon Get                    |
| 0x80 0x0A | Config Beacon Set                    |
| 0x80 0x0B | Config Beacon Status                 |
| 0x80 0x0C | Config Default TTL Get               |
| 0x80 0x0D | Config Default TTL Set               |

|           |   |
|-----------|---|
| 0x80 0x0E | Config Default TTL Status                           |
| 0x80 0x0F | Config Friend Get                                   |
| 0x80 0x10 | Config Friend Set                                   |
| 0x80 0x11 | Config Friend Status                                |
| 0x80 0x12 | Config GATT Proxy Get                               |
| 0x80 0x13 | Config GATT Proxy Set                               |
| 0x80 0x14 | Config GATT Proxy Status                            |
| 0x80 0x15 | Config Key Refresh Phase Get                        |
| 0x80 0x16 | Config Key Refresh Phase Set                        |
| 0x80 0x17 | Config Key Refresh Phase Status                     |
| 0x80 0x18 | Config Model Publication Get                        |
| 0x80 0x19 | Config Model Publication Status                     |
| 0x80 0x1A | Config Model Publication Virtual Address Set        |
| 0x80 0x1B | Config Model Subscription Add                       |
| 0x80 0x1C | Config Model Subscription Delete                    |
| 0x80 0x1D | Config Model Subscription Delete All                |
| 0x80 0x1E | Config Model Subscription Overwrite                 |
| 0x80 0x1F | Config Model Subscription Status                    |
| 0x80 0x20 | Config Model Subscription Virtual Address Add       |
| 0x80 0x21 | Config Model Subscription Virtual Address Delete    |
| 0x80 0x22 | Config Model Subscription Virtual Address Overwrite |
| 0x80 0x23 | Config Network Transmit Get                         |
| 0x80 0x24 | Config Network Transmit Set                         |
| 0x80 0x25 | Config Network Transmit Status                      |
| 0x80 0x26 | Config Relay Get                                    |
| 0x80 0x27 | Config Relay Set                                    |
| 0x80 0x28 | Config Relay Status                                 |
| 0x80 0x29 | Config SIG Model Subscription Get                   |
| 0x80 0x2A | Config SIG Model Subscription List                  |
| 0x80 0x2B | Config Vendor Model Subscription Get                |
| 0x80 0x2C | Config Vendor Model Subscription List               |
| 0x80 0x2D | Config Low Power Node PollTimeout Get               |
| 0x80 0x2E | Config Low Power Node PollTimeout Status            |
| 0x80 0x2F | Health Fault Clear                                  |
| 0x80 0x30 | Health Fault Clear Unacknowledged                   |
| 0x80 0x31 | Health Fault Get                                    |

|           |  |
|-----------|--|
| 0x80 0x32 | Health Fault Test                            |
| 0x80 0x33 | Health Fault Test Unacknowledged             |
| 0x80 0x34 | Health Period Get                            |
| 0x80 0x35 | Health Period Set                            |
| 0x80 0x36 | Health Period Set Unacknowledged             |
| 0x80 0x37 | Health Period Status                         |
| 0x80 0x38 | Config Heartbeat Publication Get             |
| 0x80 0x39 | Config Heartbeat Publication Set             |
| 0x80 0x3A | Config Heartbeat Subscription Get            |
| 0x80 0x3B | Config Heartbeat Subscription Set            |
| 0x80 0x3C | Config Heartbeat Subscription Status         |
| 0x80 0x3D | Config Model App Bind                        |
| 0x80 0x3E | Config Model App Status                      |
| 0x80 0x3F | Config Model App Unbind                      |
| 0x80 0x40 | Config NetKey Add                            |
| 0x80 0x41 | Config NetKey Delete                         |
| 0x80 0x42 | Config NetKey Get                            |
| 0x80 0x43 | Config NetKey List                           |
| 0x80 0x44 | Config NetKey Status                         |
| 0x80 0x45 | Config NetKey Update                         |
| 0x80 0x46 | Config Node Identity Get                     |
| 0x80 0x47 | Config Node Identity Set                     |
| 0x80 0x48 | Config Node Identity Status                  |
| 0x80 0x49 | Config Node Reset                            |
| 0x80 0x4A | Config Node Reset Status                     |
| 0x80 0x4B | Config SIG Model App Get                     |
| 0x80 0x4C | Config SIG Model App List                    |
| 0x80 0x4D | Config Vendor Model App Get                  |
| 0x80 0x4E | Config Vendor Model App List                 |
| 0x80 0x4F | Remote Provisioning Scan Capabilities Get    |
| 0x80 0x50 | Remote Provisioning Scan Capabilities Status |
| 0x80 0x51 | Remote Provisioning Scan Get                 |
| 0x80 0x52 | Remote Provisioning Scan Start               |
| 0x80 0x53 | Remote Provisioning Scan Stop                |
| 0x80 0x54 | Remote Provisioning Scan Status              |
| 0x80 0x55 | Remote Provisioning Scan Report              |

|           |  |
|-----------|--|
| 0x80 0x56 | Remote Provisioning Extended Scan Start        |
| 0x80 0x57 | Remote Provisioning Extended Scan Report       |
| 0x80 0x58 | Remote Provisioning Link Get                   |
| 0x80 0x59 | Remote Provisioning Link Open                  |
| 0x80 0x5A | Remote Provisioning Link Close                 |
| 0x80 0x5B | Remote Provisioning Link Status                |
| 0x80 0x5C | Remote Provisioning Link Report                |
| 0x80 0x5D | Remote Provisioning PDU Send                   |
| 0x80 0x5E | Remote Provisioning PDU Outbound Report        |
| 0x80 0x5F | Remote Provisioning PDU Report                 |
| 0x80 0x60 | PRIVATE_BEACON_GET                             |
| 0x80 0x61 | PRIVATE_BEACON_SET                             |
| 0x80 0x62 | PRIVATE_BEACON_STATUS                          |
| 0x80 0x63 | PRIVATE_GATT_PROXY_GET                         |
| 0x80 0x64 | PRIVATE_GATT_PROXY_SET                         |
| 0x80 0x65 | PRIVATE_GATT_PROXY_STATUS                      |
| 0x80 0x66 | PRIVATE_NODE_IDENTITY_GET                      |
| 0x80 0x67 | PRIVATE_NODE_IDENTITY_SET                      |
| 0x80 0x68 | PRIVATE_NODE_IDENTITY_STATUS                   |
| 0x80 0x69 | ON_DEMAND_PRIVATE_PROXY_GET                    |
| 0x80 0x6A | ON_DEMAND_PRIVATE_PROXY_SET                    |
| 0x80 0x6B | ON_DEMAND_PRIVATE_PROXY_STATUS                 |
| 0x80 0x6C | SAR_TRANSMITTER_GET                            |
| 0x80 0x6D | SAR_TRANSMITTER_SET                            |
| 0x80 0x6E | SAR_TRANSMITTER_STATUS                         |
| 0x80 0x6F | SAR_RECEIVER_GET                               |
| 0x80 0x70 | SAR_RECEIVER_SET                               |
| 0x80 0x71 | SAR_RECEIVER_STATUS                            |
| 0x80 0x72 | OPCODES_AGGREGATOR_SEQUENCE                    |
| 0x80 0x73 | OPCODES_AGGREGATOR_STATUS                      |
| 0x80 0x74 | LARGE_COMPOSITION_DATA_GET                     |
| 0x80 0x75 | LARGE_COMPOSITION_DATA_STATUS                  |
| 0x80 0x76 | MODELS_METADATA_GET                            |
| 0x80 0x77 | MODELS_METADATA_STATUS                         |
| 0x80 0x78 | SOLICITATION_PDU_RPL_ITEM_CLEAR                |
| 0x80 0x79 | SOLICITATION_PDU_RPL_ITEM_CLEAR_UNACKNOWLEDGED |

|           |  |
|-----------|--|
| 0x80 0x7A | SOLICITATION_PDU_RPL_ITEM_STATUS       |
| 0x80 0x7B | DIRECTED_CONTROL_GET                   |
| 0x80 0x7C | DIRECTED_CONTROL_SET                   |
| 0x80 0x7D | DIRECTED_CONTROL_STATUS                |
| 0x80 0x7E | PATH_METRIC_GET                        |
| 0x80 0x7F | PATH_METRIC_SET                        |
| 0x80 0x80 | PATH_METRIC_STATUS                     |
| 0x80 0x81 | DISCOVERY_TABLE_CAPABILITIES_GET       |
| 0x80 0x82 | DISCOVERY_TABLE_CAPABILITIES_SET       |
| 0x80 0x83 | DISCOVERY_TABLE_CAPABILITIES_STATUS    |
| 0x80 0x84 | FORWARDING_TABLE_ADD                   |
| 0x80 0x85 | FORWARDING_TABLE_DELETE                |
| 0x80 0x86 | FORWARDING_TABLE_STATUS                |
| 0x80 0x87 | FORWARDING_TABLE_DEPENDENTS_ADD        |
| 0x80 0x88 | FORWARDING_TABLE_DEPENDENTS_DELETE     |
| 0x80 0x89 | FORWARDING_TABLE_DEPENDENTS_STATUS     |
| 0x80 0x8A | FORWARDING_TABLE_DEPENDENTS_GET        |
| 0x80 0x8B | FORWARDING_TABLE_DEPENDENTS_GET_STATUS |
| 0x80 0x8C | FORWARDING_TABLE_ENTRIES_COUNT_GET     |
| 0x80 0x8D | FORWARDING_TABLE_ENTRIES_COUNT_STATUS  |
| 0x80 0x8E | FORWARDING_TABLE_ENTRIES_GET           |
| 0x80 0x8F | FORWARDING_TABLE_ENTRIES_STATUS        |
| 0x80 0x90 | WANTED_LANES_GET                       |
| 0x80 0x91 | WANTED_LANES_SET                       |
| 0x80 0x92 | WANTED_LANES_STATUS                    |
| 0x80 0x93 | TWO_WAY_PATH_GET                       |
| 0x80 0x94 | TWO_WAY_PATH_SET                       |
| 0x80 0x95 | TWO_WAY_PATH_STATUS                    |
| 0x80 0x96 | PATH_ECHO_INTERVAL_GET                 |
| 0x80 0x97 | PATH_ECHO_INTERVAL_SET                 |
| 0x80 0x98 | PATH_ECHO_INTERVAL_STATUS              |
| 0x80 0x99 | DIRECTED_NETWORK_TRANSMIT_GET          |
| 0x80 0x9A | DIRECTED_NETWORK_TRANSMIT_SET          |
| 0x80 0x9B | DIRECTED_NETWORK_TRANSMIT_STATUS       |
| 0x80 0x9C | DIRECTED_RELAY_RETRANSMIT_GET          |
| 0x80 0x9D | DIRECTED_RELAY_RETRANSMIT_SET          |

|           |  |
|-----------|--|
| 0x80 0x9E | DIRECTED_RELAY_RETRANSMIT_STATUS         |
| 0x80 0x9F | RSSI_THRESHOLD_GET                       |
| 0x80 0xA0 | RSSI_THRESHOLD_SET                       |
| 0x80 0xA1 | RSSI_THRESHOLD_STATUS                    |
| 0x80 0xA2 | DIRECTED_PATHS_GET                       |
| 0x80 0xA3 | DIRECTED_PATHS_STATUS                    |
| 0x80 0xA4 | DIRECTED_PUBLISH_POLICY_GET              |
| 0x80 0xA5 | DIRECTED_PUBLISH_POLICY_SET              |
| 0x80 0xA6 | DIRECTED_PUBLISH_POLICY_STATUS           |
| 0x80 0xA7 | PATH_DISCOVERY_TIMING_CONTROL_GET        |
| 0x80 0xA8 | PATH_DISCOVERY_TIMING_CONTROL_SET        |
| 0x80 0xA9 | PATH_DISCOVERY_TIMING_CONTROL_STATUS     |
| 0x80 0xAA | this opcode is not used                  |
| 0x80 0xAB | DIRECTED_CONTROL_NETWORK_TRANSMIT_GET    |
| 0x80 0xAC | DIRECTED_CONTROL_NETWORK_TRANSMIT_SET    |
| 0x80 0xAD | DIRECTED_CONTROL_NETWORK_TRANSMIT_STATUS |
| 0x80 0xAE | DIRECTED_CONTROL_RELAY_RETRANSMIT_GET    |
| 0x80 0xAF | DIRECTED_CONTROL_RELAY_RETRANSMIT_SET    |
| 0x80 0xB0 | DIRECTED_CONTROL_RELAY_RETRANSMIT_STATUS |
| 0x80 0xB1 | SUBNET_BRIDGE_GET                        |
| 0x80 0xB2 | SUBNET_BRIDGE_SET                        |
| 0x80 0xB3 | SUBNET_BRIDGE_STATUS                     |
| 0x80 0xB4 | BRIDGING_TABLE_ADD                       |
| 0x80 0xB5 | BRIDGING_TABLE_REMOVE                    |
| 0x80 0xB6 | BRIDGING_TABLE_STATUS                    |
| 0x80 0xB7 | BRIDGED_SUBNETS_GET                      |
| 0x80 0xB8 | BRIDGED_SUBNETS_LIST                     |
| 0x80 0xB9 | BRIDGING_TABLE_GET                       |
| 0x80 0xBA | BRIDGING_TABLE_LIST                      |
| 0x80 0xBB | BRIDGING_TABLE_SIZE_GET                  |
| 0x80 0xBC | BRIDGING_TABLE_SIZE_STATUS               |
| 0x82 0x01 | Generic OnOff Get                        |
| 0x82 0x02 | Generic OnOff Set                        |
| 0x82 0x03 | Generic OnOff Set Unacknowledged         |
| 0x82 0x04 | Generic OnOff Status                     |
| 0x82 0x05 | Generic Level Get                        |

|           |  |
|-----------|--|
| 0x82 0x06 | Generic Level Set                                  |
| 0x82 0x07 | Generic Level Set Unacknowledged                   |
| 0x82 0x08 | Generic Level Status                               |
| 0x82 0x09 | Generic Delta Set                                  |
| 0x82 0x0A | Generic Delta Set Unacknowledged                   |
| 0x82 0x0B | Generic Move Set                                   |
| 0x82 0x0C | Generic Move Set Unacknowledged                    |
| 0x82 0x0D | Generic Default Transition Time Get                |
| 0x82 0x0E | Generic Default Transition Time Set                |
| 0x82 0x0F | Generic Default Transition Time Set Unacknowledged |
| 0x82 0x10 | Generic Default Transition Time Status             |
| 0x82 0x11 | Generic OnPowerUp Get                              |
| 0x82 0x12 | Generic OnPowerUp Status                           |
| 0x82 0x13 | Generic OnPowerUp Set                              |
| 0x82 0x14 | Generic OnPowerUp Set Unacknowledged               |
| 0x82 0x15 | Generic Power Level Get                            |
| 0x82 0x16 | Generic Power Level Set                            |
| 0x82 0x17 | Generic Power Level Set Unacknowledged             |
| 0x82 0x18 | Generic Power Level Status                         |
| 0x82 0x19 | Generic Power Last Get                             |
| 0x82 0x1A | Generic Power Last Status                          |
| 0x82 0x1B | Generic Power Default Get                          |
| 0x82 0x1C | Generic Power Default Status                       |
| 0x82 0x1D | Generic Power Range Get                            |
| 0x82 0x1E | Generic Power Range Status                         |
| 0x82 0x1F | Generic Power Default Set                          |
| 0x82 0x20 | Generic Power Default Set Unacknowledged           |
| 0x82 0x21 | Generic Power Range Set                            |
| 0x82 0x22 | Generic Power Range Set Unacknowledged             |
| 0x82 0x23 | Generic Battery Get                                |
| 0x82 0x24 | Generic Battery Status                             |
| 0x82 0x25 | Generic Location Global Get                        |
| 0x82 0x26 | Generic Location Local Get                         |
| 0x82 0x27 | Generic Location Local Status                      |
| 0x82 0x28 | Generic Location Local Set                         |
| 0x82 0x29 | Generic Location Local Set Unacknowledged          |



|           |                                     |
|-----------|-------------------------------------|
| 0x82 0x2A | Generic Manufacturer Properties Get |
| 0x82 0x2B | Generic Manufacturer Property Get   |
| 0x82 0x2C | Generic Admin Properties Get        |
| 0x82 0x2D | Generic Admin Property Get          |
| 0x82 0x2E | Generic User Properties Get         |
| 0x82 0x2F | Generic User Property Get           |
| 0x82 0x30 | Sensor Descriptor Get               |
| 0x82 0x31 | Sensor Get                          |
| 0x82 0x32 | Sensor Column Get                   |
| 0x82 0x33 | Sensor Series Get                   |
| 0x82 0x34 | Sensor Cadence Get                  |
| 0x82 0x35 | Sensor Settings Get                 |
| 0x82 0x36 | Sensor Setting Get                  |
| 0x82 0x37 | Time Get                            |
| 0x82 0x38 | Time Role Get                       |
| 0x82 0x39 | Time Role Set                       |
| 0x82 0x3A | Time Role Status                    |
| 0x82 0x3B | Time Zone Get                       |
| 0x82 0x3C | Time Zone Set                       |
| 0x82 0x3D | Time Zone Status                    |
| 0x82 0x3E | TAI-UTC Delta Get                   |
| 0x82 0x3F | TAI-UTC Delta Set                   |
| 0x82 0x40 | TAI-UTC Delta Status                |
| 0x82 0x41 | Scene Get                           |
| 0x82 0x42 | Scene Recall                        |
| 0x82 0x43 | Scene Recall Unacknowledged         |
| 0x82 0x44 | Scene Register Get                  |
| 0x82 0x45 | Scene Register Status               |
| 0x82 0x46 | Scene Store                         |
| 0x82 0x47 | Scene Store Unacknowledged          |
| 0x82 0x48 | Scheduler Action Get                |
| 0x82 0x49 | Scheduler Get                       |
| 0x82 0x4A | Scheduler Status                    |
| 0x82 0x4B | Light Lightness Get                 |
| 0x82 0x4C | Light Lightness Set                 |
| 0x82 0x4D | Light Lightness Set Unacknowledged  |

|           |  |
|-----------|--|
| 0x82 0x4E | Light Lightness Status                         |
| 0x82 0x4F | Light Lightness Linear Get                     |
| 0x82 0x50 | Light Lightness Linear Set                     |
| 0x82 0x51 | Light Lightness Linear Set Unacknowledged      |
| 0x82 0x52 | Light Lightness Linear Status                  |
| 0x82 0x53 | Light Lightness Last Get                       |
| 0x82 0x54 | Light Lightness Last Status                    |
| 0x82 0x55 | Light Lightness Default Get                    |
| 0x82 0x56 | Light Lightness Default Status                 |
| 0x82 0x57 | Light Lightness Range Get                      |
| 0x82 0x58 | Light Lightness Range Status                   |
| 0x82 0x59 | Light Lightness Default Set                    |
| 0x82 0x5A | Light Lightness Default Set Unacknowledged     |
| 0x82 0x5B | Light Lightness Range Set                      |
| 0x82 0x5C | Light Lightness Range Set Unacknowledged       |
| 0x82 0x5D | Light CTL Get                                  |
| 0x82 0x5E | Light CTL Set                                  |
| 0x82 0x5F | Light CTL Set Unacknowledged                   |
| 0x82 0x60 | Light CTL Status                               |
| 0x82 0x61 | Light CTL Temperature Get                      |
| 0x82 0x62 | Light CTL Temperature Range Get                |
| 0x82 0x63 | Light CTL Temperature Range Status             |
| 0x82 0x64 | Light CTL Temperature Set                      |
| 0x82 0x65 | Light CTL Temperature Set Unacknowledged       |
| 0x82 0x66 | Light CTL Temperature Status                   |
| 0x82 0x67 | Light CTL Default Get                          |
| 0x82 0x68 | Light CTL Default Status                       |
| 0x82 0x69 | Light CTL Default Set                          |
| 0x82 0x6A | Light CTL Default Set Unacknowledged           |
| 0x82 0x6B | Light CTL Temperature Range Set                |
| 0x82 0x6C | Light CTL Temperature Range Set Unacknowledged |
| 0x82 0x6D | Light HSL Get                                  |
| 0x82 0x6E | Light HSL Hue Get                              |
| 0x82 0x6F | Light HSL Hue Set                              |
| 0x82 0x70 | Light HSL Hue Set Unacknowledged               |
| 0x82 0x71 | Light HSL Hue Status                           |

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|-----------|---|
| 0x82 0x72 | Light HSL Saturation Get                |
| 0x82 0x73 | Light HSL Saturation Set                |
| 0x82 0x74 | Light HSL Saturation Set Unacknowledged |
| 0x82 0x75 | Light HSL Saturation Status             |
| 0x82 0x76 | Light HSL Set                           |
| 0x82 0x77 | Light HSL Set Unacknowledged            |
| 0x82 0x78 | Light HSL Status                        |
| 0x82 0x79 | Light HSL Target Get                    |
| 0x82 0x7A | Light HSL Target Status                 |
| 0x82 0x7B | Light HSL Default Get                   |
| 0x82 0x7C | Light HSL Default Status                |
| 0x82 0x7D | Light HSL Range Get                     |
| 0x82 0x7E | Light HSL Range Status                  |
| 0x82 0x7F | Light HSL Default Set                   |
| 0x82 0x80 | Light HSL Default Set Unacknowledged    |
| 0x82 0x81 | Light HSL Range Set                     |
| 0x82 0x82 | Light HSL Range Set Unacknowledged      |
| 0x82 0x83 | Light xyL Get                           |
| 0x82 0x84 | Light xyL Set                           |
| 0x82 0x85 | Light xyL Set Unacknowledged            |
| 0x82 0x86 | Light xyL Status                        |
| 0x82 0x87 | Light xyL Target Get                    |
| 0x82 0x88 | Light xyL Target Status                 |
| 0x82 0x89 | Light xyL Default Get                   |
| 0x82 0x8A | Light xyL Default Status                |
| 0x82 0x8B | Light xyL Range Get                     |
| 0x82 0x8C | Light xyL Range Status                  |
| 0x82 0x8D | Light xyL Default Set                   |
| 0x82 0x8E | Light xyL Default Set Unacknowledged    |
| 0x82 0x8F | Light xyL Range Set                     |
| 0x82 0x90 | Light xyL Range Set Unacknowledged      |
| 0x82 0x91 | Light LC Mode Get                       |
| 0x82 0x92 | Light LC Mode Set                       |
| 0x82 0x93 | Light LC Mode Set Unacknowledged        |
| 0x82 0x94 | Light LC Mode Status                    |
| 0x82 0x95 | Light LC OM Get                         |

|           |  |
|-----------|--|
| 0x82 0x96 | Light LC OM Set                            |
| 0x82 0x97 | Light LC OM Set Unacknowledged             |
| 0x82 0x98 | Light LC OM Status                         |
| 0x82 0x99 | Light LC Light OnOff Get                   |
| 0x82 0x9A | Light LC Light OnOff Set                   |
| 0x82 0x9B | Light LC Light OnOff Set Unacknowledged    |
| 0x82 0x9C | Light LC Light OnOff Status                |
| 0x82 0x9D | Light LC Property Get                      |
| 0x82 0x9E | Scene Delete                               |
| 0x82 0x9F | Scene Delete Unacknowledged                |
| 0x83 0x00 | BLOB Transfer Get                          |
| 0x83 0x01 | BLOB Transfer Start                        |
| 0x83 0x02 | BLOB Transfer Cancel                       |
| 0x83 0x03 | BLOB Transfer Status                       |
| 0x83 0x04 | BLOB Block Start                           |
| 0x83 0x05 | BLOB Block Get                             |
| 0x83 0x06 | BLOB Information Get                       |
| 0x83 0x07 | BLOB Information Status                    |
| 0x83 0x08 | Firmware Update Information Get            |
| 0x83 0x09 | Firmware Update Information Status         |
| 0x83 0x0A | Firmware Update Firmware Metadata Check    |
| 0x83 0x0B | Firmware Update Firmware Metadata Status   |
| 0x83 0x0C | Firmware Update Get                        |
| 0x83 0x0D | Firmware Update Start                      |
| 0x83 0x0E | Firmware Update Cancel                     |
| 0x83 0x0F | Firmware Update Apply                      |
| 0x83 0x10 | Firmware Update Status                     |
| 0x83 0x11 | Firmware Distribution Receivers Add        |
| 0x83 0x12 | Firmware Distribution Receivers Delete All |
| 0x83 0x13 | Firmware Distribution Receivers Status     |
| 0x83 0x14 | Firmware Distribution Receivers Get        |
| 0x83 0x15 | Firmware Distribution Receivers List       |
| 0x83 0x16 | Firmware Distribution Capabilities Get     |
| 0x83 0x17 | Firmware Distribution Capabilities Status  |
| 0x83 0x18 | Firmware Distribution Get                  |
| 0x83 0x19 | Firmware Distribution Start                |

|           |   |
|-----------|---|
| 0x83 0x1A | Firmware Distribution Suspend               |
| 0x83 0x1B | Firmware Distribution Cancel                |
| 0x83 0x1C | Firmware Distribution Apply                 |
| 0x83 0x1D | Firmware Distribution Status                |
| 0x83 0x1E | Firmware Distribution Upload Get            |
| 0x83 0x1F | Firmware Distribution Upload Start          |
| 0x83 0x20 | Firmware Distribution Upload OOB Start      |
| 0x83 0x21 | Firmware Distribution Upload Cancel         |
| 0x83 0x22 | Firmware Distribution Upload Status         |
| 0x83 0x23 | Firmware Distribution Firmware Get          |
| 0x83 0x24 | Firmware Distribution Firmware Get By Index |
| 0x83 0x25 | Firmware Distribution Firmware Delete       |
| 0x83 0x26 | Firmware Distribution Firmware Delete All   |
| 0x83 0x27 | Firmware Distribution Firmware Status       |

## 4.2.2 Mesh Model Message Opcodes by Name

The table below lists the assigned numbers for model message opcodes organized by message name.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mmdl\\_opcodes.yaml](#)

| Message Name              | Message Opcode |
|---------------------------|----------------|
| BLOB Block Get            | 0x83 0x05      |
| BLOB Block Start          | 0x83 0x04      |
| BLOB Block Status         | 0x67           |
| BLOB Chunk Transfer       | 0x66           |
| BLOB Information Get      | 0x83 0x06      |
| BLOB Information Status   | 0x83 0x07      |
| BLOB Partial Block Report | 0x68           |
| BLOB Transfer Cancel      | 0x83 0x02      |
| BLOB Transfer Get         | 0x83 0x00      |
| BLOB Transfer Start       | 0x83 0x01      |
| BLOB Transfer Status      | 0x83 0x03      |
| BRIDGED_SUBNETS_GET       | 0x80 0xB7      |
| BRIDGED_SUBNETS_LIST      | 0x80 0xB8      |
| BRIDGING_TABLE_ADD        | 0x80 0xB4      |



|                                       |           |
|---------------------------------------|-----------|
| BRIDGING_TABLE_GET                    | 0x80 0xB9 |
| BRIDGING_TABLE_LIST                   | 0x80 0xBA |
| BRIDGING_TABLE_REMOVE                 | 0x80 0xB5 |
| BRIDGING_TABLE_SIZE_GET               | 0x80 0xBB |
| BRIDGING_TABLE_SIZE_STATUS            | 0x80 0xBC |
| BRIDGING_TABLE_STATUS                 | 0x80 0xB6 |
| Config AppKey Add                     | 0x00      |
| Config AppKey Delete                  | 0x80 0x00 |
| Config AppKey Get                     | 0x80 0x01 |
| Config AppKey List                    | 0x80 0x02 |
| Config AppKey Status                  | 0x80 0x03 |
| Config AppKey Update                  | 0x01      |
| Config Beacon Get                     | 0x80 0x09 |
| Config Beacon Set                     | 0x80 0x0A |
| Config Beacon Status                  | 0x80 0x0B |
| Config Composition Data Get           | 0x80 0x08 |
| Config Composition Data Status        | 0x02      |
| Config Default TTL Get                | 0x80 0x0C |
| Config Default TTL Set                | 0x80 0x0D |
| Config Default TTL Status             | 0x80 0x0E |
| Config Friend Get                     | 0x80 0x0F |
| Config Friend Set                     | 0x80 0x10 |
| Config Friend Status                  | 0x80 0x11 |
| Config GATT Proxy Get                 | 0x80 0x12 |
| Config GATT Proxy Set                 | 0x80 0x13 |
| Config GATT Proxy Status              | 0x80 0x14 |
| Config Heartbeat Publication Get      | 0x80 0x38 |
| Config Heartbeat Publication Set      | 0x80 0x39 |
| Config Heartbeat Publication Status   | 0x06      |
| Config Heartbeat Subscription Get     | 0x80 0x3A |
| Config Heartbeat Subscription Set     | 0x80 0x3B |
| Config Heartbeat Subscription Status  | 0x80 0x3C |
| Config Key Refresh Phase Get          | 0x80 0x15 |
| Config Key Refresh Phase Set          | 0x80 0x16 |
| Config Key Refresh Phase Status       | 0x80 0x17 |
| Config Low Power Node PollTimeout Get | 0x80 0x2D |

|   |           |
|---|-----------|
| Config Low Power Node PollTimeout Status            | 0x80 0x2E |
| Config Model App Bind                               | 0x80 0x3D |
| Config Model App Status                             | 0x80 0x3E |
| Config Model App Unbind                             | 0x80 0x3F |
| Config Model Publication Get                        | 0x80 0x18 |
| Config Model Publication Set                        | 0x03      |
| Config Model Publication Status                     | 0x80 0x19 |
| Config Model Publication Virtual Address Set        | 0x80 0x1A |
| Config Model Subscription Add                       | 0x80 0x1B |
| Config Model Subscription Delete                    | 0x80 0x1C |
| Config Model Subscription Delete All                | 0x80 0x1D |
| Config Model Subscription Overwrite                 | 0x80 0x1E |
| Config Model Subscription Status                    | 0x80 0x1F |
| Config Model Subscription Virtual Address Add       | 0x80 0x20 |
| Config Model Subscription Virtual Address Delete    | 0x80 0x21 |
| Config Model Subscription Virtual Address Overwrite | 0x80 0x22 |
| Config NetKey Add                                   | 0x80 0x40 |
| Config NetKey Delete                                | 0x80 0x41 |
| Config NetKey Get                                   | 0x80 0x42 |
| Config NetKey List                                  | 0x80 0x43 |
| Config NetKey Status                                | 0x80 0x44 |
| Config NetKey Update                                | 0x80 0x45 |
| Config Network Transmit Get                         | 0x80 0x23 |
| Config Network Transmit Set                         | 0x80 0x24 |
| Config Network Transmit Status                      | 0x80 0x25 |
| Config Node Identity Get                            | 0x80 0x46 |
| Config Node Identity Set                            | 0x80 0x47 |
| Config Node Identity Status                         | 0x80 0x48 |
| Config Node Reset                                   | 0x80 0x49 |
| Config Node Reset Status                            | 0x80 0x4A |
| Config Relay Get                                    | 0x80 0x26 |
| Config Relay Set                                    | 0x80 0x27 |
| Config Relay Status                                 | 0x80 0x28 |
| Config SIG Model App Get                            | 0x80 0x4B |
| Config SIG Model App List                           | 0x80 0x4C |
| Config SIG Model Subscription Get                   | 0x80 0x29 |

|  |           |
|--|-----------|
| Config SIG Model Subscription List       | 0x80 0x2A |
| Config Vendor Model App Get              | 0x80 0x4D |
| Config Vendor Model App List             | 0x80 0x4E |
| Config Vendor Model Subscription Get     | 0x80 0x2B |
| Config Vendor Model Subscription List    | 0x80 0x2C |
| DIRECTED_CONTROL_GET                     | 0x80 0x7B |
| DIRECTED_CONTROL_NETWORK_TRANSMIT_GET    | 0x80 0xAB |
| DIRECTED_CONTROL_NETWORK_TRANSMIT_SET    | 0x80 0xAC |
| DIRECTED_CONTROL_NETWORK_TRANSMIT_STATUS | 0x80 0xAD |
| DIRECTED_CONTROL_RELAY_RETRANSMIT_GET    | 0x80 0xAE |
| DIRECTED_CONTROL_RELAY_RETRANSMIT_SET    | 0x80 0xAF |
| DIRECTED_CONTROL_RELAY_RETRANSMIT_STATUS | 0x80 0xB0 |
| DIRECTED_CONTROL_SET                     | 0x80 0x7C |
| DIRECTED_CONTROL_STATUS                  | 0x80 0x7D |
| DIRECTED_NETWORK_TRANSMIT_GET            | 0x80 0x99 |
| DIRECTED_NETWORK_TRANSMIT_SET            | 0x80 0x9A |
| DIRECTED_NETWORK_TRANSMIT_STATUS         | 0x80 0x9B |
| DIRECTED_PATHS_GET                       | 0x80 0xA2 |
| DIRECTED_PATHS_STATUS                    | 0x80 0xA3 |
| DIRECTED_PUBLISH_POLICY_GET              | 0x80 0xA4 |
| DIRECTED_PUBLISH_POLICY_SET              | 0x80 0xA5 |
| DIRECTED_PUBLISH_POLICY_STATUS           | 0x80 0xA6 |
| DIRECTED_RELAY_RETRANSMIT_GET            | 0x80 0x9C |
| DIRECTED_RELAY_RETRANSMIT_SET            | 0x80 0x9D |
| DIRECTED_RELAY_RETRANSMIT_STATUS         | 0x80 0x9E |
| DISCOVERY_TABLE_CAPABILITIES_GET         | 0x80 0x81 |
| DISCOVERY_TABLE_CAPABILITIES_SET         | 0x80 0x82 |
| DISCOVERY_TABLE_CAPABILITIES_STATUS      | 0x80 0x83 |
| FORWARDING_TABLE_ADD                     | 0x80 0x84 |
| FORWARDING_TABLE_DELETE                  | 0x80 0x85 |
| FORWARDING_TABLE_DEPENDENTS_ADD          | 0x80 0x87 |
| FORWARDING_TABLE_DEPENDENTS_DELETE       | 0x80 0x88 |
| FORWARDING_TABLE_DEPENDENTS_GET          | 0x80 0x8A |
| FORWARDING_TABLE_DEPENDENTS_GET_STATUS   | 0x80 0x8B |
| FORWARDING_TABLE_DEPENDENTS_STATUS       | 0x80 0x89 |
| FORWARDING_TABLE_ENTRIES_COUNT_GET       | 0x80 0x8C |



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|---|-----------|
| FORWARDING_TABLE_ENTRIES_COUNT_STATUS       | 0x80 0x8D |
| FORWARDING_TABLE_ENTRIES_GET                | 0x80 0x8E |
| FORWARDING_TABLE_ENTRIES_STATUS             | 0x80 0x8F |
| FORWARDING_TABLE_STATUS                     | 0x80 0x86 |
| Firmware Distribution Apply                 | 0x83 0x1C |
| Firmware Distribution Cancel                | 0x83 0x1B |
| Firmware Distribution Capabilities Get      | 0x83 0x16 |
| Firmware Distribution Capabilities Status   | 0x83 0x17 |
| Firmware Distribution Firmware Delete       | 0x83 0x25 |
| Firmware Distribution Firmware Delete All   | 0x83 0x26 |
| Firmware Distribution Firmware Get          | 0x83 0x23 |
| Firmware Distribution Firmware Get By Index | 0x83 0x24 |
| Firmware Distribution Firmware Status       | 0x83 0x27 |
| Firmware Distribution Get                   | 0x83 0x18 |
| Firmware Distribution Receivers Add         | 0x83 0x11 |
| Firmware Distribution Receivers Delete All  | 0x83 0x12 |
| Firmware Distribution Receivers Get         | 0x83 0x14 |
| Firmware Distribution Receivers List        | 0x83 0x15 |
| Firmware Distribution Receivers Status      | 0x83 0x13 |
| Firmware Distribution Start                 | 0x83 0x19 |
| Firmware Distribution Status                | 0x83 0x1D |
| Firmware Distribution Suspend               | 0x83 0x1A |
| Firmware Distribution Upload Cancel         | 0x83 0x21 |
| Firmware Distribution Upload Get            | 0x83 0x1E |
| Firmware Distribution Upload OOB Start      | 0x83 0x20 |
| Firmware Distribution Upload Start          | 0x83 0x1F |
| Firmware Distribution Upload Status         | 0x83 0x22 |
| Firmware Update Apply                       | 0x83 0x0F |
| Firmware Update Cancel                      | 0x83 0x0E |
| Firmware Update Firmware Metadata Check     | 0x83 0x0A |
| Firmware Update Firmware Metadata Status    | 0x83 0x0B |
| Firmware Update Get                         | 0x83 0x0C |
| Firmware Update Information Get             | 0x83 0x08 |
| Firmware Update Information Status          | 0x83 0x09 |
| Firmware Update Start                       | 0x83 0x0D |
| Firmware Update Status                      | 0x83 0x10 |

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| Generic Admin Properties Get                       | 0x82 0x2C |
| Generic Admin Properties Status                    | 0x47      |
| Generic Admin Property Get                         | 0x82 0x2D |
| Generic Admin Property Set                         | 0x48      |
| Generic Admin Property Set Unacknowledged          | 0x49      |
| Generic Admin Property Status                      | 0x4A      |
| Generic Battery Get                                | 0x82 0x23 |
| Generic Battery Status                             | 0x82 0x24 |
| Generic Client Properties Get                      | 0x4F      |
| Generic Client Properties Status                   | 0x50      |
| Generic Default Transition Time Get                | 0x82 0x0D |
| Generic Default Transition Time Set                | 0x82 0x0E |
| Generic Default Transition Time Set Unacknowledged | 0x82 0x0F |
| Generic Default Transition Time Status             | 0x82 0x10 |
| Generic Delta Set                                  | 0x82 0x09 |
| Generic Delta Set Unacknowledged                   | 0x82 0x0A |
| Generic Level Get                                  | 0x82 0x05 |
| Generic Level Set                                  | 0x82 0x06 |
| Generic Level Set Unacknowledged                   | 0x82 0x07 |
| Generic Level Status                               | 0x82 0x08 |
| Generic Location Global Get                        | 0x82 0x25 |
| Generic Location Global Set                        | 0x41      |
| Generic Location Global Set Unacknowledged         | 0x42      |
| Generic Location Global Status                     | 0x40      |
| Generic Location Local Get                         | 0x82 0x26 |
| Generic Location Local Set                         | 0x82 0x28 |
| Generic Location Local Set Unacknowledged          | 0x82 0x29 |
| Generic Location Local Status                      | 0x82 0x27 |
| Generic Manufacturer Properties Get                | 0x82 0x2A |
| Generic Manufacturer Properties Status             | 0x43      |
| Generic Manufacturer Property Get                  | 0x82 0x2B |
| Generic Manufacturer Property Set                  | 0x44      |
| Generic Manufacturer Property Set Unacknowledged   | 0x45      |
| Generic Manufacturer Property Status               | 0x46      |
| Generic Move Set                                   | 0x82 0x0B |
| Generic Move Set Unacknowledged                    | 0x82 0x0C |

|  |           |
|--|-----------|
| Generic OnOff Get                        | 0x82 0x01 |
| Generic OnOff Set                        | 0x82 0x02 |
| Generic OnOff Set Unacknowledged         | 0x82 0x03 |
| Generic OnOff Status                     | 0x82 0x04 |
| Generic OnPowerUp Get                    | 0x82 0x11 |
| Generic OnPowerUp Set                    | 0x82 0x13 |
| Generic OnPowerUp Set Unacknowledged     | 0x82 0x14 |
| Generic OnPowerUp Status                 | 0x82 0x12 |
| Generic Power Default Get                | 0x82 0x1B |
| Generic Power Default Set                | 0x82 0x1F |
| Generic Power Default Set Unacknowledged | 0x82 0x20 |
| Generic Power Default Status             | 0x82 0x1C |
| Generic Power Last Get                   | 0x82 0x19 |
| Generic Power Last Status                | 0x82 0x1A |
| Generic Power Level Get                  | 0x82 0x15 |
| Generic Power Level Set                  | 0x82 0x16 |
| Generic Power Level Set Unacknowledged   | 0x82 0x17 |
| Generic Power Level Status               | 0x82 0x18 |
| Generic Power Range Get                  | 0x82 0x1D |
| Generic Power Range Set                  | 0x82 0x21 |
| Generic Power Range Set Unacknowledged   | 0x82 0x22 |
| Generic Power Range Status               | 0x82 0x1E |
| Generic User Properties Get              | 0x82 0x2E |
| Generic User Properties Status           | 0x4B      |
| Generic User Property Get                | 0x82 0x2F |
| Generic User Property Set                | 0x4C      |
| Generic User Property Set Unacknowledged | 0x4D      |
| Generic User Property Status             | 0x4E      |
| Health Attention Get                     | 0x80 0x04 |
| Health Attention Set                     | 0x80 0x05 |
| Health Attention Set Unacknowledged      | 0x80 0x06 |
| Health Attention Status                  | 0x80 0x07 |
| Health Current Status                    | 0x04      |
| Health Fault Clear                       | 0x80 0x2F |
| Health Fault Clear Unacknowledged        | 0x80 0x30 |
| Health Fault Get                         | 0x80 0x31 |

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|--|-----------|
| Health Fault Status                            | 0x05      |
| Health Fault Test                              | 0x80 0x32 |
| Health Fault Test Unacknowledged               | 0x80 0x33 |
| Health Period Get                              | 0x80 0x34 |
| Health Period Set                              | 0x80 0x35 |
| Health Period Set Unacknowledged               | 0x80 0x36 |
| Health Period Status                           | 0x80 0x37 |
| IEC 62386-104 Frame                            | 0x65      |
| LARGE_COMPOSITION_DATA_GET                     | 0x80 0x74 |
| LARGE_COMPOSITION_DATA_STATUS                  | 0x80 0x75 |
| Light CTL Default Get                          | 0x82 0x67 |
| Light CTL Default Set                          | 0x82 0x69 |
| Light CTL Default Set Unacknowledged           | 0x82 0x6A |
| Light CTL Default Status                       | 0x82 0x68 |
| Light CTL Get                                  | 0x82 0x5D |
| Light CTL Set                                  | 0x82 0x5E |
| Light CTL Set Unacknowledged                   | 0x82 0x5F |
| Light CTL Status                               | 0x82 0x60 |
| Light CTL Temperature Get                      | 0x82 0x61 |
| Light CTL Temperature Range Get                | 0x82 0x62 |
| Light CTL Temperature Range Set                | 0x82 0x6B |
| Light CTL Temperature Range Set Unacknowledged | 0x82 0x6C |
| Light CTL Temperature Range Status             | 0x82 0x63 |
| Light CTL Temperature Set                      | 0x82 0x64 |
| Light CTL Temperature Set Unacknowledged       | 0x82 0x65 |
| Light CTL Temperature Status                   | 0x82 0x66 |
| Light HSL Default Get                          | 0x82 0x7B |
| Light HSL Default Set                          | 0x82 0x7F |
| Light HSL Default Set Unacknowledged           | 0x82 0x80 |
| Light HSL Default Status                       | 0x82 0x7C |
| Light HSL Get                                  | 0x82 0x6D |
| Light HSL Hue Get                              | 0x82 0x6E |
| Light HSL Hue Set                              | 0x82 0x6F |
| Light HSL Hue Set Unacknowledged               | 0x82 0x70 |
| Light HSL Hue Status                           | 0x82 0x71 |
| Light HSL Range Get                            | 0x82 0x7D |



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|--|-----------|
| Light HSL Range Set                        | 0x82 0x81 |
| Light HSL Range Set Unacknowledged         | 0x82 0x82 |
| Light HSL Range Status                     | 0x82 0x7E |
| Light HSL Saturation Get                   | 0x82 0x72 |
| Light HSL Saturation Set                   | 0x82 0x73 |
| Light HSL Saturation Set Unacknowledged    | 0x82 0x74 |
| Light HSL Saturation Status                | 0x82 0x75 |
| Light HSL Set                              | 0x82 0x76 |
| Light HSL Set Unacknowledged               | 0x82 0x77 |
| Light HSL Status                           | 0x82 0x78 |
| Light HSL Target Get                       | 0x82 0x79 |
| Light HSL Target Status                    | 0x82 0x7A |
| Light LC Light OnOff Get                   | 0x82 0x99 |
| Light LC Light OnOff Set                   | 0x82 0x9A |
| Light LC Light OnOff Set Unacknowledged    | 0x82 0x9B |
| Light LC Light OnOff Status                | 0x82 0x9C |
| Light LC Mode Get                          | 0x82 0x91 |
| Light LC Mode Set                          | 0x82 0x92 |
| Light LC Mode Set Unacknowledged           | 0x82 0x93 |
| Light LC Mode Status                       | 0x82 0x94 |
| Light LC OM Get                            | 0x82 0x95 |
| Light LC OM Set                            | 0x82 0x96 |
| Light LC OM Set Unacknowledged             | 0x82 0x97 |
| Light LC OM Status                         | 0x82 0x98 |
| Light LC Property Get                      | 0x82 0x9D |
| Light LC Property Set                      | 0x62      |
| Light LC Property Set Unacknowledged       | 0x63      |
| Light LC Property Status                   | 0x64      |
| Light Lightness Default Get                | 0x82 0x55 |
| Light Lightness Default Set                | 0x82 0x59 |
| Light Lightness Default Set Unacknowledged | 0x82 0x5A |
| Light Lightness Default Status             | 0x82 0x56 |
| Light Lightness Get                        | 0x82 0x4B |
| Light Lightness Last Get                   | 0x82 0x53 |
| Light Lightness Last Status                | 0x82 0x54 |
| Light Lightness Linear Get                 | 0x82 0x4F |

|   |           |
|---|-----------|
| Light Lightness Linear Set                | 0x82 0x50 |
| Light Lightness Linear Set Unacknowledged | 0x82 0x51 |
| Light Lightness Linear Status             | 0x82 0x52 |
| Light Lightness Range Get                 | 0x82 0x57 |
| Light Lightness Range Set                 | 0x82 0x5B |
| Light Lightness Range Set Unacknowledged  | 0x82 0x5C |
| Light Lightness Range Status              | 0x82 0x58 |
| Light Lightness Set                       | 0x82 0x4C |
| Light Lightness Set Unacknowledged        | 0x82 0x4D |
| Light Lightness Status                    | 0x82 0x4E |
| Light xyL Default Get                     | 0x82 0x89 |
| Light xyL Default Set                     | 0x82 0x8D |
| Light xyL Default Set Unacknowledged      | 0x82 0x8E |
| Light xyL Default Status                  | 0x82 0x8A |
| Light xyL Get                             | 0x82 0x83 |
| Light xyL Range Get                       | 0x82 0x8B |
| Light xyL Range Set                       | 0x82 0x8F |
| Light xyL Range Set Unacknowledged        | 0x82 0x90 |
| Light xyL Range Status                    | 0x82 0x8C |
| Light xyL Set                             | 0x82 0x84 |
| Light xyL Set Unacknowledged              | 0x82 0x85 |
| Light xyL Status                          | 0x82 0x86 |
| Light xyL Target Get                      | 0x82 0x87 |
| Light xyL Target Status                   | 0x82 0x88 |
| MODELS_METADATA_GET                       | 0x80 0x76 |
| MODELS_METADATA_STATUS                    | 0x80 0x77 |
| ON_DEMAND_PRIVATE_PROXY_GET               | 0x80 0x69 |
| ON_DEMAND_PRIVATE_PROXY_SET               | 0x80 0x6A |
| ON_DEMAND_PRIVATE_PROXY_STATUS            | 0x80 0x6B |
| OPCODES_AGGREGATOR_SEQUENCE               | 0x80 0x72 |
| OPCODES_AGGREGATOR_STATUS                 | 0x80 0x73 |
| PATH_DISCOVERY_TIMING_CONTROL_GET         | 0x80 0xA7 |
| PATH_DISCOVERY_TIMING_CONTROL_SET         | 0x80 0xA8 |
| PATH_DISCOVERY_TIMING_CONTROL_STATUS      | 0x80 0xA9 |
| PATH_ECHO_INTERVAL_GET                    | 0x80 0x96 |
| PATH_ECHO_INTERVAL_SET                    | 0x80 0x97 |

|  |           |
|--|-----------|
| PATH_ECHO_INTERVAL_STATUS                    | 0x80 0x98 |
| PATH_METRIC_GET                              | 0x80 0x7E |
| PATH_METRIC_SET                              | 0x80 0x7F |
| PATH_METRIC_STATUS                           | 0x80 0x80 |
| PRIVATE_BEACON_GET                           | 0x80 0x60 |
| PRIVATE_BEACON_SET                           | 0x80 0x61 |
| PRIVATE_BEACON_STATUS                        | 0x80 0x62 |
| PRIVATE_GATT_PROXY_GET                       | 0x80 0x63 |
| PRIVATE_GATT_PROXY_SET                       | 0x80 0x64 |
| PRIVATE_GATT_PROXY_STATUS                    | 0x80 0x65 |
| PRIVATE_NODE_IDENTITY_GET                    | 0x80 0x66 |
| PRIVATE_NODE_IDENTITY_SET                    | 0x80 0x67 |
| PRIVATE_NODE_IDENTITY_STATUS                 | 0x80 0x68 |
| RSSI_THRESHOLD_GET                           | 0x80 0x9F |
| RSSI_THRESHOLD_SET                           | 0x80 0xA0 |
| RSSI_THRESHOLD_STATUS                        | 0x80 0xA1 |
| Remote Provisioning Extended Scan Report     | 0x80 0x57 |
| Remote Provisioning Extended Scan Start      | 0x80 0x56 |
| Remote Provisioning Link Close               | 0x80 0x5A |
| Remote Provisioning Link Get                 | 0x80 0x58 |
| Remote Provisioning Link Open                | 0x80 0x59 |
| Remote Provisioning Link Report              | 0x80 0x5C |
| Remote Provisioning Link Status              | 0x80 0x5B |
| Remote Provisioning PDU Outbound Report      | 0x80 0x5E |
| Remote Provisioning PDU Report               | 0x80 0x5F |
| Remote Provisioning PDU Send                 | 0x80 0x5D |
| Remote Provisioning Scan Capabilities Get    | 0x80 0x4F |
| Remote Provisioning Scan Capabilities Status | 0x80 0x50 |
| Remote Provisioning Scan Get                 | 0x80 0x51 |
| Remote Provisioning Scan Report              | 0x80 0x55 |
| Remote Provisioning Scan Start               | 0x80 0x52 |
| Remote Provisioning Scan Status              | 0x80 0x54 |
| Remote Provisioning Scan Stop                | 0x80 0x53 |
| SAR_RECEIVER_GET                             | 0x80 0x6F |
| SAR_RECEIVER_SET                             | 0x80 0x70 |
| SAR_RECEIVER_STATUS                          | 0x80 0x71 |

|  |           |
|--|-----------|
| SAR_TRANSMITTER_GET                            | 0x80 0x6C |
| SAR_TRANSMITTER_SET                            | 0x80 0x6D |
| SAR_TRANSMITTER_STATUS                         | 0x80 0x6E |
| SOLICITATION_PDU_RPL_ITEM_CLEAR                | 0x80 0x78 |
| SOLICITATION_PDU_RPL_ITEM_CLEAR_UNACKNOWLEDGED | 0x80 0x79 |
| SOLICITATION_PDU_RPL_ITEM_STATUS               | 0x80 0x7A |
| SUBNET_BRIDGE_GET                              | 0x80 0xB1 |
| SUBNET_BRIDGE_SET                              | 0x80 0xB2 |
| SUBNET_BRIDGE_STATUS                           | 0x80 0xB3 |
| Scene Delete                                   | 0x82 0x9E |
| Scene Delete Unacknowledged                    | 0x82 0x9F |
| Scene Get                                      | 0x82 0x41 |
| Scene Recall                                   | 0x82 0x42 |
| Scene Recall Unacknowledged                    | 0x82 0x43 |
| Scene Register Get                             | 0x82 0x44 |
| Scene Register Status                          | 0x82 0x45 |
| Scene Status                                   | 0x5E      |
| Scene Store                                    | 0x82 0x46 |
| Scene Store Unacknowledged                     | 0x82 0x47 |
| Scheduler Action Get                           | 0x82 0x48 |
| Scheduler Action Set                           | 0x60      |
| Scheduler Action Set Unacknowledged            | 0x61      |
| Scheduler Action Status                        | 0x5F      |
| Scheduler Get                                  | 0x82 0x49 |
| Scheduler Status                               | 0x82 0x4A |
| Sensor Cadence Get                             | 0x82 0x34 |
| Sensor Cadence Set                             | 0x55      |
| Sensor Cadence Set Unacknowledged              | 0x56      |
| Sensor Cadence Status                          | 0x57      |
| Sensor Column Get                              | 0x82 0x32 |
| Sensor Column Status                           | 0x53      |
| Sensor Descriptor Get                          | 0x82 0x30 |
| Sensor Descriptor Status                       | 0x51      |
| Sensor Get                                     | 0x82 0x31 |
| Sensor Series Get                              | 0x82 0x33 |
| Sensor Series Status                           | 0x54      |



|                                   |           |
|-----------------------------------|-----------|
| Sensor Setting Get                | 0x82 0x36 |
| Sensor Setting Set                | 0x59      |
| Sensor Setting Set Unacknowledged | 0x5A      |
| Sensor Setting Status             | 0x5B      |
| Sensor Settings Get               | 0x82 0x35 |
| Sensor Settings Status            | 0x58      |
| Sensor Status                     | 0x52      |
| TAI-UTC Delta Get                 | 0x82 0x3E |
| TAI-UTC Delta Set                 | 0x82 0x3F |
| TAI-UTC Delta Status              | 0x82 0x40 |
| TWO_WAY_PATH_GET                  | 0x80 0x93 |
| TWO_WAY_PATH_SET                  | 0x80 0x94 |
| TWO_WAY_PATH_STATUS               | 0x80 0x95 |
| Time Get                          | 0x82 0x37 |
| Time Role Get                     | 0x82 0x38 |
| Time Role Set                     | 0x82 0x39 |
| Time Role Status                  | 0x82 0x3A |
| Time Set                          | 0x5C      |
| Time Status                       | 0x5D      |
| Time Zone Get                     | 0x82 0x3B |
| Time Zone Set                     | 0x82 0x3C |
| Time Zone Status                  | 0x82 0x3D |
| WANTED_LANES_GET                  | 0x80 0x90 |
| WANTED_LANES_SET                  | 0x80 0x91 |
| WANTED_LANES_STATUS               | 0x80 0x92 |
| this opcode is not used           | 0x80 0xAA |

## 4.3 Mesh Protocol

The following section includes the assigned numbers used in the Mesh Protocol specification [17] [18].

### 4.3.1 Mesh Beacon Types

The table below lists the assigned numbers for beacon types.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mesh\\_beacon\\_types.yaml](#)

| Value | Definition                  |
|-------|-----------------------------|
| 0x00  | Unprovisioned Device beacon |
| 0x01  | Secure Network beacon       |
| 0x02  | Mesh Private beacon         |

### 4.3.2 Mesh Transport Control Message Opcodes

The table below lists the assigned numbers for Transport Control message opcodes.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mesh\\_transport\\_control\\_opcodes.yaml](#)

| Opcode | Name                         | Description  |
|--------|------------------------------|--|
| 0x00   | –                            | Reserved for the lower transport layer.  |
| 0x01   | Friend Poll                  | Sent by a Low Power node to its Friend node to request any messages that it has stored for the Low Power node. |
| 0x02   | Friend Update                | Sent by a Friend node to a Low Power node to inform it about security updates.                                 |
| 0x03   | Friend Request               | Sent by a Low Power node to the all-friends fixed group address to initiate a search for a friend.             |
| 0x04   | Friend Offer                 | Sent by a Friend node to a Low Power node to offer to become its friend.                                       |
| 0x05   | Friend Clear                 | Sent to a Friend node to inform a previous friend of a Low Power node about the removal of a friendship.       |
| 0x06   | Friend Clear Confirm         | Sent from a previous friend to the Friend node to confirm that a prior friend relationship has been removed.   |
| 0x07   | Friend Subscription List Add | Sent to a Friend node to add one or more addresses to the Friend Subscription List.                            |

|      |                                  |  |
|------|----------------------------------|--|
| 0x08 | Friend Subscription List Remove  | Sent to a Friend node to remove one or more addresses from the Friend Subscription List.   |
| 0x09 | Friend Subscription List Confirm | Sent by a Friend node to confirm Friend Subscription List updates.   |
| 0x0A | Heartbeat                        | Sent by a node to let other nodes determine topology of a subnet.  |
| 0x0B | PATH_REQUEST                     | Sent by a Path Origin or by a Directed Relay node to discover a path to a destination.   |
| 0x0C | PATH_REPLY                       | Sent by a Path Target or by a Directed Relay node to establish a path from a Path Origin to a Path Target.   |
| 0x0D | PATH_CONFIRMATION                | Sent by a Path Origin or by a Directed Relay node to confirm that a two-way path has been established from the Path Origin to a Path Target.                                     |
| 0x0E | PATH_ECHO_REQUEST                | Sent by a Path Origin to validate a path from the Path Origin to a destination.  |
| 0x0F | PATH_ECHO_REPLY                  | Sent by a Path Target in order to confirm that a path exists from a Path Origin to the destination.  |
| 0x10 | DEPENDENT_NODE_UPDATE            | Sent by a path endpoint or a Directed Relay node to notify nodes in a subnet that element addresses of a dependent node are to be added to or removed from the Forwarding Table. |
| 0x11 | PATH_REQUEST_SOLICITATION        | Sent by a Directed Forwarding node or a Configuration Manager to solicit the discovery of paths toward unicast addresses, group addresses, or virtual addresses.                 |

### 4.3.3 Mesh Provisioning PDU Types

The table below lists the assigned numbers for Provisioning PDU types.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mesh\\_provisioning\\_pdu\\_types.yaml](#)

| Value | Name                | Description   |
|-------|---------------------|---|
| 0x00  | Provisioning Invite | Invites an unprovisioned device (the intended Provisionee) to join a mesh network |



|      |                              |  |
|------|------------------------------|--|
| 0x01 | Provisioning Capabilities    | Indicates the capabilities of the Provisionee  |
| 0x02 | Provisioning Start           | Indicates the provisioning method selected by the Provisioner based on the capabilities of the Provisionee         |
| 0x03 | Provisioning Public Key      | Contains the Public Key of the Provisionee or the Provisioner  |
| 0x04 | Provisioning Input Complete  | Indicates that the user has completed inputting a value  |
| 0x05 | Provisioning Confirmation    | Contains the provisioning confirmation value of the Provisionee or the Provisioner                                 |
| 0x06 | Provisioning Random          | Contains the provisioning random value of the Provisionee or the Provisioner                                       |
| 0x07 | Provisioning Data            | Includes the assigned unicast address of the primary element, a network key, NetKey Index, Flags, and the IV Index |
| 0x08 | Provisioning Complete        | Indicates that provisioning is complete  |
| 0x09 | Provisioning Failed          | Indicates that provisioning was unsuccessful   |
| 0x0A | Provisioning Record Request  | Indicates a request to retrieve a provisioning record fragment from the Provisionee                                |
| 0x0B | Provisioning Record Response | Contains a provisioning record fragment or an error status, sent in response to a Provisioning Record Request      |
| 0x0C | Provisioning Records Get     | Indicates a request to retrieve the list of IDs of the provisioning records that the Provisionee supports.         |
| 0x0D | Provisioning Records List    | Contains the list of IDs of the provisioning records that the Provisionee supports.                                |

#### 4.3.4 Mesh Proxy PDU Types

The table below lists the assigned numbers for Proxy PDU types.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mesh\\_proxy\\_pdu\\_types.yaml](#)

| Value | Name        | Description                  |
|-------|-------------|------------------------------|
| 0x00  | Network PDU | The message is a Network PDU |
| 0x01  | Mesh Beacon | The message is a mesh beacon |



|      |                     |  |
|------|---------------------|--|
| 0x02 | Proxy Configuration | The message is a proxy configuration message |
| 0x03 | Provisioning PDU    | The message is a Provisioning PDU            |

### 4.3.5 Mesh Health Fault IDs

This section lists the Health Fault IDs assigned to the health models.

#### 4.3.5.1 Mesh Health Fault IDs by Value

The table below lists the Health Fault IDs organized by fault ID value.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mesh\\_health\\_faults.yaml](#)

| Value | Name                             |
|-------|----------------------------------|
| 0x00  | No Fault                         |
| 0x01  | Battery Low Warning              |
| 0x02  | Battery Low Error                |
| 0x03  | Supply Voltage Too Low Warning   |
| 0x04  | Supply Voltage Too Low Error     |
| 0x05  | Supply Voltage Too High Warning  |
| 0x06  | Supply Voltage Too High Error    |
| 0x07  | Power Supply Interrupted Warning |
| 0x08  | Power Supply Interrupted Error   |
| 0x09  | No Load Warning                  |
| 0x0A  | No Load Error                    |
| 0x0B  | Overload Warning                 |
| 0x0C  | Overload Error                   |
| 0x0D  | Overheat Warning                 |
| 0x0E  | Overheat Error                   |
| 0x0F  | Condensation Warning             |
| 0x10  | Condensation Error               |
| 0x11  | Vibration Warning                |
| 0x12  | Vibration Error                  |
| 0x13  | Configuration Warning            |
| 0x14  | Configuration Error              |
| 0x15  | Element Not Calibrated Warning   |
| 0x16  | Element Not Calibrated Error     |



|           |                                 |
|-----------|---------------------------------|
| 0x17      | Memory Warning                  |
| 0x18      | Memory Error                    |
| 0x19      | Self-Test Warning               |
| 0x1A      | Self-Test Error                 |
| 0x1B      | Input Too Low Warning           |
| 0x1C      | Input Too Low Error             |
| 0x1D      | Input Too High Warning          |
| 0x1E      | Input Too High Error            |
| 0x1F      | Input No Change Warning         |
| 0x20      | Input No Change Error           |
| 0x21      | Actuator Blocked Warning        |
| 0x22      | Actuator Blocked Error          |
| 0x23      | Housing Opened Warning          |
| 0x24      | Housing Opened Error            |
| 0x25      | Tamper Warning                  |
| 0x26      | Tamper Error                    |
| 0x27      | Device Moved Warning            |
| 0x28      | Device Moved Error              |
| 0x29      | Device Dropped Warning          |
| 0x2A      | Device Dropped Error            |
| 0x2B      | Overflow Warning                |
| 0x2C      | Overflow Error                  |
| 0x2D      | Empty Warning                   |
| 0x2E      | Empty Error                     |
| 0x2F      | Internal Bus Warning            |
| 0x30      | Internal Bus Error              |
| 0x31      | Mechanism Jammed Warning        |
| 0x32      | Mechanism Jammed Error          |
| 0x80-0xFF | Vendor Specific Warning / Error |

#### 4.3.5.2 Mesh Health Fault IDs by Name

The table below lists the Health Fault IDs organized by fault name.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mesh\\_health\\_faults.yaml](#)



| <b>Name</b>                    | <b>Value</b> |
|--------------------------------|--------------|
| Actuator Blocked Error         | 0x22         |
| Actuator Blocked Warning       | 0x21         |
| Battery Low Error              | 0x02         |
| Battery Low Warning            | 0x01         |
| Condensation Error             | 0x10         |
| Condensation Warning           | 0x0F         |
| Configuration Error            | 0x14         |
| Configuration Warning          | 0x13         |
| Device Dropped Error           | 0x2A         |
| Device Dropped Warning         | 0x29         |
| Device Moved Error             | 0x28         |
| Device Moved Warning           | 0x27         |
| Element Not Calibrated Error   | 0x16         |
| Element Not Calibrated Warning | 0x15         |
| Empty Error                    | 0x2E         |
| Empty Warning                  | 0x2D         |
| Housing Opened Error           | 0x24         |
| Housing Opened Warning         | 0x23         |
| Input No Change Error          | 0x20         |
| Input No Change Warning        | 0x1F         |
| Input Too High Error           | 0x1E         |
| Input Too High Warning         | 0x1D         |
| Input Too Low Error            | 0x1C         |
| Input Too Low Warning          | 0x1B         |
| Internal Bus Error             | 0x30         |
| Internal Bus Warning           | 0x2F         |
| Mechanism Jammed Error         | 0x32         |
| Mechanism Jammed Warning       | 0x31         |
| Memory Error                   | 0x18         |
| Memory Warning                 | 0x17         |
| No Fault                       | 0x00         |
| No Load Error                  | 0x0A         |
| No Load Warning                | 0x09         |
| Overflow Error                 | 0x2C         |
| Overflow Warning               | 0x2B         |

|                                  |           |
|----------------------------------|-----------|
| Overheat Error                   | 0x0E      |
| Overheat Warning                 | 0x0D      |
| Overload Error                   | 0x0C      |
| Overload Warning                 | 0x0B      |
| Power Supply Interrupted Error   | 0x08      |
| Power Supply Interrupted Warning | 0x07      |
| Self-Test Error                  | 0x1A      |
| Self-Test Warning                | 0x19      |
| Supply Voltage Too High Error    | 0x06      |
| Supply Voltage Too High Warning  | 0x05      |
| Supply Voltage Too Low Error     | 0x04      |
| Supply Voltage Too Low Warning   | 0x03      |
| Tamper Error                     | 0x26      |
| Tamper Warning                   | 0x25      |
| Vendor Specific Warning / Error  | 0x80-0xFF |
| Vibration Error                  | 0x12      |
| Vibration Warning                | 0x11      |

### 4.3.6 Mesh Metadata Identifiers

The table below lists the assigned numbers for metadata identifiers.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mesh\\_metadata\\_ids.yaml](#)

| Value  | Identifier                  |
|--------|-----------------------------|
| 0x0000 | Health Tests Information    |
| 0x0001 | Sensor Properties           |
| 0x0002 | Light Purpose               |
| 0x0003 | Light Lightness Range       |
| 0x0004 | Light CTL Temperature Range |
| 0x0005 | Light HSL Hue Range         |
| 0x0006 | Light HSL Saturation Range  |
| 0x0007 | Clock Accuracy              |
| 0x0008 | Timekeeping Reserve         |





## 4.4 Mesh Model

The following section includes the assigned numbers used in the Mesh Model specification [16].

### 4.4.1 Light Purpose

The table below lists the assigned numbers for Light Purpose metadata.

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/mesh/mmdl\\_light\\_purposes.yaml](#)

| Value  | Definition         |
|--------|--------------------|
| 0x0000 | Uplight            |
| 0x0001 | Uplight Left       |
| 0x0002 | Uplight Center     |
| 0x0003 | Uplight Right      |
| 0x0004 | Downlight          |
| 0x0005 | Downlight Left     |
| 0x0006 | Downlight Center   |
| 0x0007 | Downlight Right    |
| 0x0008 | Inside             |
| 0x0009 | Outside            |
| 0x000A | Backlight          |
| 0x000B | Floodlight         |
| 0x000C | Tasklight          |
| 0x000D | Tasklight Left     |
| 0x000E | Tasklight Center   |
| 0x000F | Tasklight Right    |
| 0x0010 | Warming Light      |
| 0x0011 | Emergency Light    |
| 0x0012 | Night Light        |
| 0x0013 | Indicator Light    |
| 0x0014 | Undercabinet Light |
| 0x0015 | Accent Light       |
| 0x0016 | Strip Light        |
| 0x0017 | Troffer Light      |
| 0x0018 | High Bay Light     |
| 0x0019 | Wall Pack Light    |

## 5 Service Discovery

### 5.1 Attribute Identifiers

#### 5.1.1 Advanced Audio Distribution Profile (A2DP)

Applicable to Service Class UUIDs:

- Audio Source: 0x110A
- Audio Sink: 0x110B

See also [Section 6.5](#).

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/a2dp.yaml](#)

| Attribute ID | Attribute Name     |
|--------------|--------------------|
| 0x0311       | Supported Features |

#### 5.1.2 Audio/Video Remote Control Profile (AVRCP)

Applicable to Service Class UUIDs:

- A/V Remote Control Target: 0x110C
- A/V Remote Control: 0x110E
- A/V Remote Control Controller: 0x110F

See also [Section 6.4](#).

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/avrcp.yaml](#)

| Attribute ID | Attribute Name     |
|--------------|--------------------|
| 0x0311       | Supported Features |

#### 5.1.3 Basic Imaging Profile (BIP)

Applicable to Service Class UUIDs:

- Imaging Responder: 0x111B
- Imaging Automatic Archive: 0x111C
- Imaging Referenced Objects: 0x111D

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/bip.yaml](#)

| Attribute ID | Attribute Name                    |
|--------------|-----------------------------------|
| 0x0200       | GoepL2capPsm (BIP v1.1 and later) |



|        |                             |
|--------|-----------------------------|
| 0x0310 | Supported Capabilities      |
| 0x0311 | Supported Features          |
| 0x0312 | Supported Functions         |
| 0x0313 | Total Imaging Data Capacity |

### 5.1.4 Basic Printing Profile (BPP)

Applicable to Service Class UUIDs:

- Direct Printing: 0x1118
- ReferencePrinting: 0x1119
- DirectPrintingReferencedObjectsService: 0x1120
- ReflectedUI: 0x1121
- PrintingStatus: 0x1123

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/bpp.yaml](#)

| Attribute ID | Attribute Name                      |
|--------------|-------------------------------------|
| 0x0350       | Document Formats Supported          |
| 0x0352       | Character Repertoires Supported     |
| 0x0354       | XHTML-Print Image Formats Supported |
| 0x0356       | Color Supported                     |
| 0x0358       | 1284ID                              |
| 0x035A       | Printer Name                        |
| 0x035C       | Printer Location                    |
| 0x035E       | Duplex Supported                    |
| 0x0360       | Media Types Supported               |
| 0x0362       | MaxMediaWidth                       |
| 0x0364       | MaxMediaLength                      |
| 0x0366       | Enhanced Layout Supported           |
| 0x0368       | RUI Formats Supported               |
| 0x0370       | Reference Printing RUI Supported    |
| 0x0372       | Direct Printing RUI Supported       |
| 0x0374       | Reference Printing Top URL          |
| 0x0376       | Direct Printing Top URL             |
| 0x0378       | Printer Admin RUI Top URL           |
| 0x037A       | Device Name                         |

### 5.1.5 Bluetooth Core Specification: Universal Attributes

The following attribute IDs have the same meaning for all services.

See Bluetooth Core Specification [Vol 3] Part B, Section 5.1 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/universal\\_attributes.yaml](#)

| Attribute ID | Attribute Name                    |
|--------------|-----------------------------------|
| 0x0000       | ServiceRecordHandle               |
| 0x0001       | ServiceClassIDList                |
| 0x0002       | ServiceRecordState                |
| 0x0003       | ServiceID                         |
| 0x0004       | ProtocolDescriptorList            |
| 0x0005       | BrowseGroupList                   |
| 0x0006       | LanguageBaseAttributeIDList       |
| 0x0007       | ServiceInfoTimeToLive             |
| 0x0008       | ServiceAvailability               |
| 0x0009       | BluetoothProfileDescriptorList    |
| 0x000A       | DocumentationURL                  |
| 0x000B       | ClientExecutableURL               |
| 0x000C       | IconURL                           |
| 0x000D       | AdditionalProtocolDescriptorLists |

### 5.1.6 Bluetooth Core Specification: Service Discovery Service

Applicable to Service Class UUIDs:

- ServiceDiscoveryServerServiceClassID: 0x1000

See Bluetooth Core Specification [Vol 3] Part B, Section 5.2 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/sdp.yaml](#)

| Attribute ID | Attribute Name       |
|--------------|----------------------|
| 0x0200       | VersionNumberList    |
| 0x0201       | ServiceDatabaseState |



### 5.1.7 Bluetooth Core Specification: Browse Group Descriptor Service

Applicable to Service Class UUIDs:

- BrowseGroupDescriptorServiceClassID: 0x1001

See Bluetooth Core Specification [Vol 3] Part B, Section 5.3 [4].

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/browse\\_group\\_descriptor\\_service.yaml](#)

| Attribute ID | Attribute Name |
|--------------|----------------|
| 0x0200       | GroupID        |

### 5.1.8 Calendar Tasks and Notes (CTN)

Applicable to Service Class UUIDs:

- CTN Access Service: 0x113C
- CTN Notification Service: 0x113D

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/calendar\\_tasks\\_and\\_notes.yaml](#)

| Attribute ID | Attribute Name         |
|--------------|------------------------|
| 0x0315       | CTN InstanceID         |
| 0x0317       | CTN Supported Features |

### 5.1.9 Cordless Telephony Profile (CTP)

Applicable to Service Class UUIDs:

- CordlessTelephony: 0x1109

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/cordless\\_telephony\\_profile.yaml](#)

| Attribute ID | Attribute Name   |
|--------------|------------------|
| 0x0301       | External Network |

### 5.1.10 Device Identification Profile (DID)

Applicable to Service Class UUIDs:

- PnPInformation: 0x1200

Last Modified: 2024-02-05



Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/device\\_identification\\_profile.yaml](#)

| Attribute ID | Attribute Name  |
|--------------|-----------------|
| 0x0200       | SpecificationID |
| 0x0201       | VendorID        |
| 0x0202       | ProductID       |
| 0x0203       | Version         |
| 0x0204       | PrimaryRecord   |
| 0x0205       | VendorIDSource  |

### 5.1.11 Dial-Up Networking Profile (DUN)

Applicable to Service Class UUIDs:

- Dial-Up Networking: 0x1103

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/dun.yaml](#)

| Attribute ID | Attribute Name         |
|--------------|------------------------|
| 0x0305       | Audio Feedback Support |

### 5.1.12 FAX Profile (FAX)

Applicable to Service Class UUIDs:

- Fax: 0x1111

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/fax\\_profile.yaml](#)

| Attribute ID | Attribute Name                             |
|--------------|--|
| 0x0302       | Fax Class 1 Support                        |
| 0x0303       | Fax Class 2.0 Support                      |
| 0x0304       | Fax Class 2 Support(vendor-specific class) |
| 0x0305       | Audio Feedback Support                     |

### 5.1.13 File Transfer Profile (FTP)

Applicable to Service Class UUIDs:

- OBEX File Transfer: 0x1106

Last Modified: 2024-02-05



Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/file\\_transfer\\_profile.yaml](#)

| Attribute ID | Attribute Name                    |
|--------------|-----------------------------------|
| 0x0200       | GoepL2capPsm (FTP v1.2 and later) |

### 5.1.14 Global Navigation Satellite System Profile (GNSS)

Applicable to Service Class UUIDs:

- GNSS\_Server: 0x1136

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/gnss.yaml](#)

| Attribute ID | Attribute Name    |
|--------------|-------------------|
| 0x0200       | SupportedFeatures |

### 5.1.15 Hands-Free Profile (HFP)

Applicable to Service Class UUIDs:

- Hands-Free: 0x111E
- AG Hands-Free: 0x111F

See also [Section 6.10](#).

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/hands\\_free\\_profile.yaml](#)

| Attribute ID | Attribute Name    |
|--------------|-------------------|
| 0x0301       | Network           |
| 0x0311       | SupportedFeatures |

### 5.1.16 Hardcopy Replacement Profile (HCRP)

Applicable to Service Class UUIDs:

- HCR\_Print: 0x1126
- HCR\_Scan: 0x1127

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/hardcopy\\_replacement\\_profile.yaml](#)

| Attribute ID | Attribute Name |
|--------------|----------------|
| 0x0300       | 1284ID         |
| 0x0302       | Device Name    |



|        |                 |
|--------|-----------------|
| 0x0304 | Friendly Name   |
| 0x0306 | Device Location |

### 5.1.17 Headset Profile (HSP)

Applicable to Service Class UUIDs:

- Headset: 0x1108
- Headset Audio Gateway (AG): 0x1112
- Headset – HS: 0x1131

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/headset\\_profile.yaml](#)

| Attribute ID | Attribute Name              |
|--------------|-----------------------------|
| 0x0302       | Remote Audio Volume Control |

### 5.1.18 Health Device Profile (HDP)

Applicable to Service Class UUIDs:

- HDP Source: 0x1401
- HDP Sink: 0x1402

See also [Section 6.8](#).

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/health\\_device\\_profile.yaml](#)

| Attribute ID | Attribute Name              |
|--------------|-----------------------------|
| 0x0200       | Supported Features          |
| 0x0301       | Data Exchange Specification |
| 0x0302       | MCAP Supported Procedures   |

### 5.1.19 Human Interface Device Profile (HID)

Applicable to Service Class UUIDs:

- HID: 0x1124

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/human\\_interface\\_device\\_profile.yaml](#)

| Attribute ID | Attribute Name                                 |
|--------------|--|
| 0x0200       | HIDDeviceReleaseNumber (Deprecated in HID 1.1) |





|        |                                       |
|--------|---------------------------------------|
| 0x0201 | HIDParserVersion                      |
| 0x0202 | HIDDeviceSubclass                     |
| 0x0203 | HIDCountryCode                        |
| 0x0204 | HIDVirtualCable                       |
| 0x0205 | HIDReconnectInitiate                  |
| 0x0206 | HIDDescriptorList                     |
| 0x0207 | HIDLANGIDBaseList                     |
| 0x0208 | HIDSDPDisable (Deprecated in HID 1.1) |
| 0x0209 | HIDBatteryPower                       |
| 0x020A | HIDRemoteWake                         |
| 0x020B | HIDProfileVersion                     |
| 0x020C | HIDSupervisionTimeout                 |
| 0x020D | HIDNormallyConnectable                |
| 0x020E | HIDBootDevice                         |
| 0x020F | HIDSSRHostMaxLatency                  |
| 0x0210 | HIDSSRHostMinTimeout                  |

### 5.1.20 Interoperability Requirements for Bluetooth technology as a WAP Bearer (WAP)

Applicable to Service Class UUIDs:

- WAP: 0x1113
- WAP\_CLIENT: 0x1114

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/interoperability\\_requirements.yaml](#)

| Attribute ID | Attribute Name |
|--------------|----------------|
| 0x0306       | NetworkAddress |
| 0x0307       | WAPGateway     |
| 0x0308       | HomePageURL    |
| 0x0309       | WAPStackType   |

### 5.1.21 Message Access Profile (MAP)

Applicable to Service Class UUIDs:

- Message Access Server: 0x1132
- Message Notification Server: 0x1133

See also [Section 6.9](#).



Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/message\\_access\\_profile.yaml](#)

| Attribute ID | Attribute Name                            |
|--------------|---|
| 0x0200       | GoepL2capPsm (MAP v1.2 and later)         |
| 0x0315       | MASInstanceID                             |
| 0x0316       | SupportedMessageTypes                     |
| 0x0317       | MapSupportedFeatures (MAP v1.2 and later) |

### 5.1.22 Multi-Profile Specification (MPS)

Applicable to Service Class UUIDs:

- MPS: 0x113B

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/multi\\_profile.yaml](#)

| Attribute ID | Attribute Name                              |
|--------------|---|
| 0x0200       | Supported Scenarios MPSP                    |
| 0x0201       | Supported Scenarios MPMD                    |
| 0x0202       | Supported Profile and Protocol Dependencies |

### 5.1.23 Object Push Profile (OPP)

Applicable to Service Class UUIDs:

- OBEXObjectPush: 0x1105

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/object\\_push\\_profile.yaml](#)

| Attribute ID | Attribute Name                    |
|--------------|-----------------------------------|
| 0x0200       | GoepL2capPsm (OPP v1.2 and later) |
| 0x0300       | Service Version                   |
| 0x0303       | Supported Formats List            |

### 5.1.24 Personal Area Network Profile (PAN)

Applicable to Service Class UUIDs:

- PANU: 0x1115
- NAP: 0x1116
- GN: 0x1117



Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/pan\\_profile.yaml](#)

| Attribute ID | Attribute Name                  |
|--------------|---------------------------------|
| 0x0200       | IpSubnet (Not used in PAN v1.0) |
| 0x030A       | Security Description            |
| 0x030B       | NetAccessType                   |
| 0x030C       | MaxNetAccessRate                |
| 0x030D       | IPv4Subnet                      |
| 0x030E       | IPv6Subnet                      |

### 5.1.25 Phone Book Access Profile (PBAP)

Applicable to Service Class UUIDs:

- Phonebook Access Client: 0x112E
- Phonebook Access Server: 0x112F

Last Modified: 2024-03-25

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/phone\\_book\\_access\\_profile.yaml](#)

| Attribute ID | Attribute Name                              |
|--------------|---|
| 0x0200       | GoepL2capPsm (PBAP v1.2 and later)          |
| 0x0314       | Supported Repositories                      |
| 0x0317       | PbapSupportedFeatures (PBAP v1.2 and later) |

### 5.1.26 Synchronization Profile (SYNC)

Applicable to Service Class UUIDs:

- IrMCSync: 0x1104

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_ids/synchronization\\_profile.yaml](#)

| Attribute ID | Attribute Name             |
|--------------|----------------------------|
| 0x0301       | Supported Data Stores List |

## 5.2 Attribute ID Offsets for Strings

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/attribute\\_id\\_offsets\\_for\\_strings.yaml](#)



| Attribute ID Offset | Attribute ID Offset Name |
|---------------------|--------------------------|
| 0x0000              | ServiceName              |
| 0x0001              | ServiceDescription       |
| 0x0002              | ProviderName             |

### 5.3 Protocol Parameters

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/service\\_discovery/protocol\\_parameters.yaml](#)

| Protocol | Parameter Name                     | Parameter Index |
|----------|------------------------------------|-----------------|
| L2CAP    | PSM                                | 1               |
| RFCOMM   | Channel                            | 1               |
| TCP      | Port                               | 1               |
| UDP      | Port                               | 1               |
| BNEP     | Version                            | 1               |
| BNEP     | Supported Network Packet Type List | 2               |

## 6 Profiles and Services

---

### 6.1 Environmental Sensing Service

#### 6.1.1 Permitted Characteristics

The list below specifies the characteristics that are permitted for use with the Environmental Sensing Service [7].

- Ammonia Concentration
- Apparent Wind Direction
- Apparent Wind Speed
- Barometric Pressure Trend
- Carbon Monoxide Concentration
- Dew Point
- Elevation
- Gust Factor
- Heat Index
- Humidity
- Irradiance
- Magnetic Declination
- Magnetic Flux Density - 2D
- Magnetic Flux Density - 3D
- Methane Concentration
- Nitrogen Dioxide Concentration
- Non-Methane Volatile Organic Compounds Concentration
- Ozone Concentration
- Particulate Matter - PM1 Concentration
- Particulate Matter - PM10 Concentration
- Particulate Matter - PM2.5 Concentration
- Pollen Concentration
- Pressure
- Rainfall
- Sulfur Dioxide Concentration
- Sulfur Hexafluoride Concentration
- Temperature
- True Wind Direction
- True Wind Speed
- UV Index
- Wind Chill

### 6.2 User Data Service

#### 6.2.1 Permitted Characteristics

The list below specifies the characteristics that are permitted for use with the User Data Service [25].

- Activity Goal
- Aerobic Heart Rate Lower Limit
- Aerobic Heart Rate Upper Limit
- Aerobic Threshold
- Age
- Anaerobic Heart Rate Lower Limit



- Anaerobic Heart Rate Upper Limit
- Anaerobic Threshold
- Caloric Intake
- Date of Birth
- Date of Threshold Assessment
- Device Wearing Position
- Email Address
- Fat Burn Heart Rate Lower Limit
- Fat Burn Heart Rate Upper Limit
- First Name
- Five Zone Heart Rate Limits
- Four Zone Heart Rate Limits
- Gender
- Handedness
- Heart Rate Max
- Height
- High Intensity Exercise Threshold
- High Resolution Height
- Hip Circumference
- Language
- Last Name
- Maximum Recommended Heart Rate
- Middle Name
- Preferred Units
- Resting Heart Rate
- Sedentary Interval Notification
- Sport Type for Aerobic and Anaerobic Thresholds
- Stride Length
- Three Zone Heart Rate Limits
- Two Zone Heart Rate Limits
- VO2 Max
- Waist Circumference
- Weight

## 6.3 A/V Distribution Protocol (AVDTP)

### 6.3.1 Media Type

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/avdtp/avdtp\\_media\\_type.yaml](#)

| Value | Description |
|-------|-------------|
| 0x0   | Audio       |
| 0x1   | Video       |
| 0x2   | Multimedia  |

### 6.3.2 A/V Content Protection Method

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/avdtp/avdtp\\_content\\_protection\\_method.yaml](#)

| Value  | Mnemonic | Content Security (reference)  | Usage in Bluetooth (reference)   |
|--------|----------|---|--|
| 0x0001 | DTCP     | Please see <a href="http://www.dtcp.com">www.dtcp.com</a> for details of how Digital Transmission Content Protection (DTCP) is mapped to the Bluetooth AV transport services and for information about DTCP licensing by the Digital Transmission Licensing Administrator (DTLA). | Bluetooth A/V Distribution Transport Protocol Specification "Content Protection Capabilities", Section 8.19.6  |
| 0x0002 | SCMS-T   | SCMS-T uses Cp-bit and L-bit that are defined by IEC60958-3:1999 and IEC61119-6:1992. For definition of L-bit, normal logic, instead of reverse situation defined in section 4.3.1 of IEC60958-3, shall be applied.   | The Contents Protection Header (CP Header) defined by A2DP is used for transmitting these two bits (Cp-bit and L-bit). CP Header has a one-byte length. The bit0 field of CP Headers is used for the L-bit and the bit 1 field of CP Header is used for the Cp-bit. Other bits (from bit2 to bit7) are defined as the RFA field. |

General Note: The following applies to any A/V Content Protection Method identifier:

- The Content Protection method includes a reference to either the relevant controlling entity or a description of the method.



- The Content Protection method indicates how the identifier is to be used in the context of Bluetooth A/V.

## 6.4 A/V Remote Control Profile (AVRCP)

See also [Section 5.1.2](#).

### 6.4.1 Major Player Type

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/avrcp/avrcp\\_major\\_player\\_type.yaml](#)

| Value | Parameter Description |
|-------|-----------------------|
| 0x01  | Audio                 |
| 0x02  | Video                 |
| 0x04  | Broadcasting Audio    |
| 0x08  | Broadcasting Video    |

### 6.4.2 Player Sub Type

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/avrcp/avrcp\\_player\\_sub\\_type.yaml](#)

| Value      | Parameter Description |
|------------|-----------------------|
| 0x00000001 | Audio Book            |
| 0x00000002 | Podcast               |

### 6.4.3 Folder Type

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/avrcp/avrcp\\_folder\\_type.yaml](#)

| Value | Parameter Description |
|-------|-----------------------|
| 0x00  | Mixed                 |
| 0x01  | Titles                |
| 0x02  | Albums                |
| 0x03  | Artists               |
| 0x04  | Genres                |
| 0x05  | Playlists             |
| 0x06  | Years                 |



## 6.4.4 Media Type

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/avrcp/avrcp\\_media\\_type.yaml](#)

| Value | Parameter Description |
|-------|-----------------------|
| 0x00  | Audio                 |
| 0x01  | Video                 |

## 6.4.5 List of Media Attributes

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/avrcp/avrcp\\_media\\_attributes.yaml](#)

| Value | Description  | Allowed Values   |
|-------|--|--|
| 0x0   | Illegal, Should Not Be Used                                      |  |
| 0x1   | Title of the Media   | Any text encoded in specific character set                       |
| 0x2   | Name of the Artist   | Any text encoded in specified character set                      |
| 0x3   | Name of the Album  | Any text encoded in specified character set                      |
| 0x4   | Number of the Media (e.g., Track Number in a CD)                 | Numeric ASCII text with zero suppresses                          |
| 0x5   | Total Number of the Media (e.g., Total Number of Tracks in a CD) | Numeric ASCII text with zero suppresses                          |
| 0x6   | Genre  | Any text encoded in specified character set                      |
| 0x7   | Playing Time, in Milliseconds                                    | Numeric ASCII text with zero suppresses (ex. 2min30sec = 150000) |

## 6.4.6 Player Application Settings

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/avrcp/avrcp\\_player\\_application\\_settings.yaml](#)

| Player Application Setting Attribute | Attribute Description        | Player Application Setting ValueID | Description |
|--------------------------------------|------------------------------|------------------------------------|-------------|
| 0x00                                 | Illegal - Should Not Be Used | None                               |             |
| 0x01                                 | Equalizer ON/OFF Status      | 0x01                               | OFF         |



|           |   |      |                     |
|-----------|---|------|---------------------|
|           |   | 0x02 | ON                  |
| 0x02      | Repeat Mode Status  | 0x01 | OFF                 |
|           |   | 0x02 | Single Track Repeat |
|           |   | 0x03 | All Track Repeat    |
|           |   | 0x04 | Group Repeat        |
| 0x03      | Shuffle ON/OFF Status   | 0x01 | OFF                 |
|           |   | 0x02 | All Tracks Shuffle  |
|           |   | 0x03 | Group Shuffle       |
| 0x04      | Scan ON/OFF Status  | 0x01 | OFF                 |
|           |   | 0x02 | All Tracks Scan     |
|           |   | 0x03 | Group Scan          |
| 0x80-0xFF | Provided for TG Driven Static Media Player Menu Extension by CT |      |                     |

## 6.5 Advanced Audio Distribution Profile (A2DP)

See also [Section 5.1.1](#).

### 6.5.1 Audio Codec ID

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/a2dp/a2dp.yaml](#)

| Value | Codec                               | Specified In | Used in |
|-------|-------------------------------------|--------------|---------|
| 0x00  | SBC                                 | A2DP         | A2DP    |
| 0x01  | MPEG-1, 2 Audio                     | A2DP         | A2DP    |
| 0x02  | MPEG-2, 4 AAC                       | A2DP         | A2DP    |
| 0x03  | MPEG-D USAC                         | A2DP         | A2DP    |
| 0x04  | ATRAC Family                        | A2DP         | A2DP    |
| 0xFF  | Vendor Specific (formerly Non-A2DP) | A2DP         | A2DP    |

## 6.6 Video Distribution Profile (VDP)

### 6.6.1 Video Codec ID

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/vdp/vdp.yaml](#)



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| <b>Value</b> | <b>Codec</b>                       | <b>Specified In</b> | <b>Used in</b> |
|--------------|------------------------------------|---------------------|----------------|
| 0x00         | H.263 Baseline                     | VDP                 | VDP            |
| 0x01         | MPEG-4 Visual                      | VDP                 | VDP            |
| 0x02         | H.263 Profile 3                    | VDP                 | VDP            |
| 0x04         | H.263 Profile 8                    | VDP                 | VDP            |
| 0xFF         | Vendor Specific (formerly Non-VDP) | VDP                 | VDP            |

## 6.7 Transport Discovery Service

### 6.7.1 Organization IDs

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/tds/transport\\_discovery\\_service\\_id.yaml](#)

| Value | Definition                                   |
|-------|--|
| 0x01  | Bluetooth SIG                                |
| 0x02  | Wi-Fi Alliance Neighbor Awareness Networking |
| 0x03  | Wi-Fi Alliance Service Advertisement         |

## 6.8 Health Device Profile

See also [Section 5.1.18](#).

### 6.8.1 Data Exchange Specifications

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/hdp/data\\_exchange\\_specs.yaml](#)

| Value | Document Name  | Document Number      |
|-------|--|----------------------|
| 0x01  | Health informatics -<br>Personal health device<br>communication -<br>Application profile -<br>Optimized exchange<br>protocol | ISO/IEEE 11073-20601 |

### 6.8.2 Device Data Specializations

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/hdp/device\\_data\\_specs.yaml](#)

| MDEP Data Type (IEEE 11073-10101 Nomenclature Data Type Code) | Data Type              | IEEE 11073 Document Number | IEEE 11073 Document Name   | Notes |
|---|------------------------|----------------------------|--|-------|
| 0x1000  | Hydra                  | 11073-20601                | IEEE 11073 Part 10101: Nomenclature; IEEE 11073-20601: Application profile - Optimized Exchange Protocol   |       |
| 0x1004  | Pulse Oximeter         | 11073-10404                | Health informatics - Personal health device communication - Device specialization - Pulse oximeter         |       |
| 0x1006  | Basic ECG (heart rate) | 11073-10406                | Health informatics - Personal health device communication - Device specialization - Basic ECG (heart rate) |       |
| 0x1007  | Blood Pressure Monitor | 11073-10407                | Health informatics - Personal health device communication - Device specialization - Blood pressure monitor |       |
| 0x1008  | Body Thermometer       | 11073-10408                | Health informatics - Personal health device communication - Device specialization - Body thermometer       |       |

|        |  |             |   |        |
|--------|--|-------------|---|--------|
| 0x100F | Body Weight Scale                            | 11073-10415 | Health informatics - Personal health device communication - Device specialization - Body weight scale   |        |
| 0x1011 | Glucose Meter                                | 11073-10417 | Health informatics - Personal health device communication - Device Specialization - Glucose meter   |        |
| 0x1012 | International Normalized Ratio (INR) Monitor | 11073-10418 | Health informatics - Personal health device communication - Device Specialization - International Normalized Ratio (INR) Monitor                |        |
| 0x1014 | Body Composition Analyzer                    | 11073-10420 | Health informatics - Personal health device communication - Device specialization - Body composition analyzer                                   |        |
| 0x1015 | Peak Flow Monitor                            | 11073-10421 | Health informatics - Personal health device communication - Device specialization - Peak flow monitor   |        |
| 0x101C | Power Status Monitor                         | 11073-10427 | Health informatics - Personal health device communication - Part 10427: Device specialization - Power Status Monitor of Personal Health Devices |        |
| 0x1029 | Cardiovascular Fitness and Activity Monitor  | 11073-10441 | Health informatics - Personal health device communication - Device specialization - Cardiovascular Fitness and Activity Monitor                 | Note 1 |
| 0x102A | Strength Fitness Equipment                   | 11073-10442 | Health informatics - Personal health device communication - Device specialization - Strength fitness equipment                                  | Note 1 |
| 0x1047 | Independent Living Activity Hub              | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Independent Living Activity Hub                             | Note 1 |
| 0x1048 | Medication monitor                           | 11073-10472 | Health informatics - Personal health device communication - Device specialization - Medication monitor  |        |
| 0x1049 | Generic                                      | 11073-20601 | IEEE 11073 Part 10101: Nomenclature; IEEE 11073-20601: Application profile - Optimized Exchange Protocol  |        |
| 0x1068 | Step Counter based on 10441                  | 11073-10441 | Health informatics - Personal health device communication - Device specialization - Step Counter based on 10441                                 | Note 2 |
| 0x1075 | Fall Sensor                                  | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Fall Sensor   | Note 3 |

|        |                                    |             |  |        |
|--------|------------------------------------|-------------|--|--------|
| 0x1076 | Personal Emergency Response Sensor | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Personal Emergency Response Sensor | Note 3 |
| 0x1077 | Smoke Sensor                       | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Smoke Sensor                       | Note 3 |
| 0x1078 | Carbon Monoxide (CO) Sensor        | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Carbon Monoxide (CO) Sensor        | Note 3 |
| 0x1079 | Water Sensor                       | 11073-10471 | Health informatics - Personal health device communication - Device specialization - WaterSensor                        | Note 3 |
| 0x107A | Gas Sensor                         | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Gas Sensor                         | Note 3 |
| 0x107B | Motion Sensor                      | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Motion Sensor                      | Note 3 |
| 0x107C | Property Exit Sensor               | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Property Exit Sensor               | Note 3 |
| 0x107D | Enuresis Sensor                    | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Enuresis Sensor                    | Note 3 |
| 0x107E | Contact Closure Sensor             | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Contact Closure Sensor             | Note 3 |
| 0x107F | Usage Sensor                       | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Usage Sensor                       | Note 3 |
| 0x1080 | Switch Sensor                      | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Switch Sensor                      | Note 3 |
| 0x1081 | Medication Dosing Sensor           | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Medication Dosing Sensor           | Note 3 |
| 0x1082 | Temperature Sensor                 | 11073-10471 | Health informatics - Personal health device communication - Device specialization - Temperature Sensor                 | Note 3 |

**Note 1:** Only for devices that support all objects.

**Note 2:** Profiling on top of IEEE 11073-10415 is part of Continua Health Alliance Interoperability Guideline v1.5 or later.



**Note 3:** Profiling on top of IEEE 11073-10471 is part of Continua Health Alliance Interoperability Guideline v1.5 or later.





## 6.9 Message Access Profile

See also [Section 5.1.21](#).

### 6.9.1 Presence

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/map/presence.yaml](#)

| Value | Parameter Name |
|-------|----------------|
| 0x00  | Unknown        |
| 0x01  | Offline        |
| 0x02  | Online         |
| 0x03  | Away           |
| 0x04  | Do Not Disturb |
| 0x05  | Busy           |
| 0x06  | In a Meeting   |

### 6.9.2 Chat State

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/map/chat\\_state.yaml](#)

| Value | Parameter Name   |
|-------|------------------|
| 0x00  | Unknown          |
| 0x01  | Inactive         |
| 0x02  | Active           |
| 0x03  | Composing        |
| 0x04  | Paused Composing |
| 0x05  | Gone             |

### 6.9.3 Message Extended Data

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/map/message\\_extended\\_data.yaml](#)

| Value | Parameter Name              | Format  |
|-------|-----------------------------|---------|
| 0x00  | Number of Facebook Likes    | Integer |
| 0x01  | Number of Twitter Followers | Integer |
| 0x02  | Number of Twitter Retweets  | Integer |



|      |                      |         |
|------|----------------------|---------|
| 0x03 | Number of Google +1s | Integer |
|------|----------------------|---------|

## 6.10 Hands-Free Profile

See also [Section 5.1.15](#).

### 6.10.1 HF Indicators

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/hfp/hf\\_indicators.yaml](#)

| Value | Description                         |
|-------|-------------------------------------|
| 0x01  | 0: Enhanced Safety is Disabled      |
|       | 1: Enhanced Safety is Enabled       |
| 0x02  | 0 - 100: Remaining level of Battery |

### 6.10.2 Bearer Technology

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/hfp/bearer\\_technology.yaml](#)

| Value | Technology |
|-------|------------|
| 0x01  | 3G         |
| 0x02  | 4G         |
| 0x03  | LTE        |
| 0x04  | Wi-Fi      |
| 0x05  | 5G         |
| 0x06  | GSM        |
| 0x07  | CDMA       |
| 0x08  | 2G         |
| 0x09  | WCDMA      |

### 6.10.3 Uniform Caller Identifiers

See [Section 6.11.1](#).



## 6.11 Telephone Bearer Service

### 6.11.1 Uniform Caller Identifiers

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/tbs/uniform\\_caller\\_identifiers.yaml](#)

| Client ID | Client Name   | Company Name                                 | Notes   |
|-----------|---|--|---|
| E.164     | Any built-in dialer able to make standard phone calls | N/A  | For example, mobile service provider or landline                          |
| bbm       | Blackberry Messenger                                  | Blackberry                                   |   |
| bbv       | Blackberry Voice                                      | Blackberry                                   |   |
| chsec     | ChatSecure  |  | <a href="https://chatsecure.org/about/">https://chatsecure.org/about/</a> |
| con       | ChatOn  | Samsung                                      |   |
| eyebm     | Eyebeam   | Counterpath                                  |   |
| fbch      | Facebook Chat   | Meta   |   |
| ftime     | Facetime  | Apple  |   |
| gtalk     | Google Talk   | Google LLC                                   |   |
| hgus      | Hangouts  | Google LLC                                   |   |
| icht      | iChat   | Apple  |   |
| imo       | imo.im  | PageBites, Inc.                              | <a href="https://imo.im/register">https://imo.im/register</a>             |
| jabr      | Jabber  | Cisco  |   |
| kik       | KIK   | KIK Interactive                              |   |
| kkt       | KakaoTalk   | Daum Communications                          |   |
| lbn       | Libon   | Orange Vallée                                |   |
| lne       | Line  | Line Corporation                             | <a href="https://line.me/en/">https://line.me/en/</a>                     |
| lync      | Lync  | Microsoft                                    |   |
| mme       | MessageMe   | Yahoo  |   |
| mngr      | Messenger   | Meta   |   |
| nbuz      | Nimbuzz   | Nimbuzz BV / Nimbuzz Internet India Pvt. Ltd |   |
| ov        | ooVo  | ooVoo LLC                                    |   |
| qik       | Skye Qik  | Microsoft                                    |   |
| qq        | QQ  | Tencent Technology                           |   |
| rnds      | Rounds  | Rounds Entertainment Ltd.                    |   |
| skype     | Skype   | Microsoft                                    |   |
| spika     | Spika   | Studio Djetelina d.o.o.                      |   |

|                  |                            |                        |  |
|------------------|----------------------------|------------------------|--|
| tgo              | Tango                      | TangoMe Inc.           |  |
| tgrm             | Telegram                   | Telegram Messenger LLP |  |
| un000 -<br>un999 | Unknown                    | Unknown                | If the client is unknown, the host OS should assign a string from the range un000 to un999 inclusive. This string should be assigned to this client for the time it was installed to when it is uninstalled, after which the string can be reused. |
| vbr              | Viber                      | Rakuten                |  |
| vonm             | Vonage Mobile              | Vonage                 |  |
| wbrtc            | Any WebRTC Enabled Browser | N/A                    | Firefox and Chrome Browsers  |
| wcht             | WeChat                     | Tencent                |  |
| wtsap            | WhatsApp                   | Meta                   |  |

## 6.12 Generic Audio

### 6.12.1 Audio Location Definitions

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/audio\\_location\\_definitions.yaml](#)

| Value      | Audio Location                           |
|------------|--|
| 0x00000000 | Mono Audio (no specified Audio Location) |
| 0x00000001 | Front Left                               |
| 0x00000002 | Front Right                              |
| 0x00000004 | Front Center                             |
| 0x00000008 | Low Frequency Effects 1                  |
| 0x00000010 | Back Left                                |
| 0x00000020 | Back Right                               |
| 0x00000040 | Front Left of Center                     |
| 0x00000080 | Front Right of Center                    |
| 0x00000100 | Back Center                              |
| 0x00000200 | Low Frequency Effects 2                  |
| 0x00000400 | Side Left                                |
| 0x00000800 | Side Right                               |
| 0x00001000 | Top Front Left                           |
| 0x00002000 | Top Front Right                          |
| 0x00004000 | Top Front Center                         |
| 0x00008000 | Top Center                               |
| 0x00010000 | Top Back Left                            |
| 0x00020000 | Top Back Right                           |
| 0x00040000 | Top Side Left                            |
| 0x00080000 | Top Side Right                           |
| 0x00100000 | Top Back Center                          |
| 0x00200000 | Bottom Front Center                      |
| 0x00400000 | Bottom Front Left                        |
| 0x00800000 | Bottom Front Right                       |
| 0x01000000 | Front Left Wide                          |
| 0x02000000 | Front Right Wide                         |
| 0x04000000 | Left Surround                            |
| 0x08000000 | Right Surround                           |

## 6.12.2 Audio Input Type Definitions

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/audio\\_input\\_type\\_definitions.yaml](#)

| Value | Label       | Description               |
|-------|-------------|---------------------------|
| 0x00  | Unspecified | Unspecified Input         |
| 0x01  | Bluetooth   | Bluetooth Audio Stream    |
| 0x02  | Microphone  | Microphone                |
| 0x03  | Analog      | Analog Interface          |
| 0x04  | Digital     | Digital Interface         |
| 0x05  | Radio       | AM/FM/XM/etc.             |
| 0x06  | Streaming   | Streaming Audio Source    |
| 0x07  | Ambient     | Transparency/Pass-through |

## 6.12.3 Context Type

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/context\\_type.yaml](#)

| Value  | Label            | Description  |
|--------|------------------|--|
| 0x0000 | Prohibited       | Prohibited   |
| 0x0001 | Unspecified      | Identifies audio where the use case context does not match any other defined value, or where the context is unknown or cannot be determined.               |
| 0x0002 | Conversational   | Conversation between humans, for example, in telephony or video calls, including traditional cellular as well as VoIP and Push-to-Talk                     |
| 0x0004 | Media            | Media, for example, music playback, radio, podcast or movie soundtrack, or tv audio  |
| 0x0008 | Game             | Audio associated with video gaming, for example gaming media; gaming effects; music and in-game voice chat between participants; or a mix of all the above |
| 0x0010 | Instructional    | Instructional audio, for example, in navigation, announcements, or user guidance   |
| 0x0020 | Voice Assistants | Man-machine communication, for example, with voice recognition or virtual assistants   |
| 0x0040 | Live             | Live audio, for example, from a microphone where audio is perceived both through a direct acoustic path and through an LE Audio Stream                     |
| 0x0080 | Sound Effects    | Sound effects including keyboard and touch feedback; menu and user interface sounds; and other system sounds   |

|        |                 |  |
|--------|-----------------|--|
| 0x0100 | Notifications   | Notification and reminder sounds; attention-seeking audio, for example, in beeps signaling the arrival of a message                                    |
| 0x0200 | Ringtone        | Alerts the user to an incoming call, for example, an incoming telephony or video call, including traditional cellular as well as VoIP and Push-to-Talk |
| 0x0400 | Alerts          | Alarms and timers; immediate alerts, for example, in a critical battery alarm, timer expiry or alarm clock, toaster, cooker, kettle, microwave, etc.   |
| 0x0800 | Emergency Alarm | Emergency alarm Emergency sounds, for example, fire alarms or other urgent alerts  |

## 6.12.4 Codec\_Specific\_Capabilities LTV Structures

### 6.12.4.1 Supported\_Sampling\_Frequencies

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_capabilities/supported\\_sampling\\_frequencies.yaml](#)

| Parameter | Size (Octets) | Value             | Description  |
|-----------|---------------|-------------------|--|
| Length    | 1             | 0x03              |  |
| Type      | 1             | 0x01              |  |
| Value     | 2             | Bit 0: 8000 Hz    | Bitfield<br>0b1 = supported<br>0b0 = not supported |
|           |               | Bit 1: 11025 Hz   |  |
|           |               | Bit 2: 16000 Hz   |  |
|           |               | Bit 3: 22050 Hz   |  |
|           |               | Bit 4: 24000 Hz   |  |
|           |               | Bit 5: 32000 Hz   |  |
|           |               | Bit 6: 44100 Hz   |  |
|           |               | Bit 7: 48000 Hz   |  |
|           |               | Bit 8: 88200 Hz   |  |
|           |               | Bit 9: 96000 Hz   |  |
|           |               | Bit 10: 176400 Hz |  |
|           |               | Bit 11: 192000 Hz |  |
|           |               | Bit 12: 384000 Hz |  |

### 6.12.4.2 Supported\_Frame\_Durations

Last Modified: 2024-08-12





Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_capabilities/supported\\_frame\\_durations.yaml](#)

| Parameter | Size (Octets) | Value                        | Description   |
|-----------|---------------|------------------------------|---|
| Length    | 1             | 0x02                         |   |
| Type      | 1             | 0x02                         |   |
| Value     | 1             | Bit 0: 7.5 ms frame duration | 0b1 = supported, 0b0 = not supported                        |
|           |               | Bit 1: 10 ms frame duration  | 0b1 = supported, 0b0 = not supported                        |
|           |               | Bit 4: 7.5 ms preferred      | Valid only when 7.5 ms is supported and 10 ms is supported. |
|           |               | Bit 5: 10 ms preferred       | Valid only when 7.5 ms is supported and 10 ms is supported. |

Note: The combination of 0b11 is not valid for bit 4 and 5.

### 6.12.4.3 Supported\_Audio\_Channel\_Counts

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_capabilities/supported\\_audio\\_channel\\_counts.yaml](#)

| Parameter | Size (Octets) | Value                   | Description  |
|-----------|---------------|-------------------------|--|
| Length    | 1             | 0x02                    |  |
| Type      | 1             | 0x03                    |  |
| value     | 1             | Bit 0: Channel count: 1 | Bitfield<br>0b0 = Channel count not supported<br>0b1 = Channel count supported |
|           |               | Bit 1: Channel count: 2 |  |
|           |               | Bit 2: Channel count: 3 |  |
|           |               | Bit 3: Channel count: 4 |  |
|           |               | Bit 4: Channel count: 5 |  |
|           |               | Bit 5: Channel count: 6 |  |
|           |               | Bit 6: Channel count: 7 |  |
|           |               | Bit 7: Channel count: 8 |  |

### 6.12.4.4 Supported\_Octets\_Per\_Codec\_Frame

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_capabilities/supported\\_octets\\_per\\_codec\\_frame.yaml](#)

| Parameter | Size (Octets) | Value |
|-----------|---------------|-------|
| Length    | 1             | 0x05  |
| Type      | 1             | 0x04  |



|       |   |   |
|-------|---|---|
| Value | 4 | Octet 0-1: Minimum number of octets supported per codec frame |
|       |   | Octet 2-3: Maximum number of octets supported per codec frame |

#### 6.12.4.5 Supported\_Max\_Codec\_Frames\_Per\_SDU

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_capabilities/supported\\_max\\_codec\\_frames\\_per\\_sdu.yaml](#)

| Parameter | Size (Octets) | Value | Description   |
|-----------|---------------|-------|---|
| Length    | 1             | 0x02  |   |
| Type      | 1             | 0x05  |   |
| Value     | 1             |       | Maximum number of codec frames per SDU supported by this device |

### 6.12.5 Codec\_Specific\_Configuration LTV structures

#### 6.12.5.1 Sampling\_Frequency

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_configuration\\_ltv/sampling\\_frequency\\_configuration.yaml](#)

| Parameter       | Size (Octets) | Value           | Description                       |
|-----------------|---------------|-----------------|-----------------------------------|
| Length          | 1             | 0x02            |                                   |
| Type            | 1             | 0x01            |                                   |
| Value           | 1             | 0x01: 8000 Hz   | Selected codec sampling frequency |
|                 |               | 0x02: 11025 Hz  |                                   |
|                 |               | 0x03: 16000 Hz  |                                   |
|                 |               | 0x04: 22050 Hz  |                                   |
|                 |               | 0x05: 24000 Hz  |                                   |
|                 |               | 0x06: 32000 Hz  |                                   |
|                 |               | 0x07: 44100 Hz  |                                   |
|                 |               | 0x08: 48000 Hz  |                                   |
|                 |               | 0x09: 88200 Hz  |                                   |
|                 |               | 0x0A: 96000 Hz  |                                   |
|                 |               | 0x0B: 176400 Hz |                                   |
| 0x0C: 192000 Hz |               |                 |                                   |



|  |                 |
|--|-----------------|
|  | 0x0D: 384000 Hz |
|--|-----------------|

### 6.12.5.2 Frame\_Duration

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_configuration\\_ltv/frame\\_duration\\_configuration.yaml](#)

| Parameter | Size (Octets) | Value                         | Description                   |
|-----------|---------------|-------------------------------|-------------------------------|
| Length    | 1             | 0x02                          |                               |
| Type      | 1             | 0x02                          |                               |
| Value     | 1             | 0x00: Use 7.5 ms codec frames | Selected codec frame duration |
|           |               | 0x01: Use 10 ms codec frames  |                               |

### 6.12.5.3 Audio\_Channel\_Allocation

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_configuration\\_ltv/audio\\_channel\\_allocation\\_configuration.yaml](#)

| Parameter | Size (Octets) | Value | Description                               |
|-----------|---------------|-------|---|
| Length    | 1             | 0x05  |   |
| Type      | 1             | 0x03  |   |
| Value     | 4             |       | 4-octet bitfield of Audio Location values |

### 6.12.5.4 Octets\_Per\_Codec\_Frame

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_configuration\\_ltv/octets\\_per\\_codec\\_frame\\_configuration.yaml](#)

| Parameter | Size (Octets) | Value | Description                           |
|-----------|---------------|-------|---------------------------------------|
| Length    | 1             | 0x03  |                                       |
| Type      | 1             | 0x04  |                                       |
| Value     | 2             |       | Number of octets used per codec frame |

### 6.12.5.5 Codec\_Frame\_Blocks\_Per\_SDU



Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/codec\\_configuration\\_ltv/codec\\_frame\\_blocks\\_per\\_sdu\\_configuration.yaml](#)

| Parameter | Size (Octets) | Value | Description                              |
|-----------|---------------|-------|--|
| Length    | 1             | 0x02  |  |
| Type      | 1             | 0x05  |  |
| Value     | 1             |       | Number of blocks of codec frames per SDU |

## 6.12.6 Metadata LTV structures

### 6.12.6.1 Preferred\_Audio\_Contexts

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/preferred\\_audio\\_contexts.yaml](#)

| Parameter | Size (Octets) | Value | Description   |
|-----------|---------------|-------|---|
| Length    | 1             | 0x03  |   |
| Type      | 1             | 0x01  |   |
| Value     | 2             |       | Bitfield of Context Type values.<br><br>See Context Type values defined in <a href="#">Section 6.12.3</a> .<br><br>0b0 = Context Type is not a preferred use case for this codec configuration.<br>0b1 = Context Type is a preferred use case for this codec configuration. |

### 6.12.6.2 Streaming\_Audio\_Contexts

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/streaming\\_audio\\_contexts.yaml](#)

| Parameter | Size (Octets) | Value | Description |
|-----------|---------------|-------|-------------|
| Length    | 1             | 0x03  |             |
| Type      | 1             | 0x02  |             |



|       |   |  |   |
|-------|---|--|---|
| Value | 2 |  | <p>Bitfield of Context Type values</p> <p>See Context Type values defined in <a href="#">Section 6.12.3</a>.</p> <p>0b0 = Context Type is not an intended use case for this Audio Stream.<br/>0b1 = Context Type is an intended use case for this Audio Stream.</p> |
|-------|---|--|---|

### 6.12.6.3 Program\_Info

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/program\\_info.yaml](#)

| Parameter | Size (Octets) | Value  | Description  |
|-----------|---------------|--------|--|
| Length    | 1             | Varies |  |
| Type      | 1             | 0x03   |  |
| Value     | Varies        |        | Title and/or summary of Audio Stream content: UTF-8 format |

### 6.12.6.4 Language

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/language.yaml](#)

| Parameter | Size (Octets) | Value | Description  |
|-----------|---------------|-------|--|
| Length    | 1             | 0x04  |  |
| Type      | 1             | 0x04  |  |
| Value     | 3             |       | 3-byte, lower case language code as defined in ISO 639-3 |

### 6.12.6.5 CCID\_List

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/ccid\\_list.yaml](#)

| Parameter | Size (Octets) | Value  | Description          |
|-----------|---------------|--------|----------------------|
| Length    | 1             | Varies |                      |
| Type      | 1             | 0x05   |                      |
| Value     | Varies        |        | Array of CCID values |



### 6.12.6.6 Parental\_Rating

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/parental\\_rating.yaml](#)

| Parameter | Size (Octets) | Value  | Description   |
|-----------|---------------|--|---|
| Length    | 1             | 0x02   |   |
| Type      | 1             | 0x06   |   |
| Value     | 1             | 0x00: no rating  | Bits 0-3 Value representing the parental rating.  |
|           |               | 0x01: recommended for listeners of any age   |   |
|           |               | Other values: recommended for listeners of age Y years, where Y = value + 3 years. e.g., 0x05 = recommended for listeners of 8 years or older. | The numbering scheme aligns with Annex F of EN 300 707 v1.2.1 which defines parental rating for viewing.<br><br><a href="https://www.etsi.org">https://www.etsi.org</a><br>ETSI EN 300 707 V1.2.1 (2002-12) |

### 6.12.6.7 Program\_Info\_URI

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/programinfo\\_uri.yaml](#)

| Parameter | Size (Octets) | Value  | Description  |
|-----------|---------------|--------|--|
| Length    | 1             | Varies |  |
| Type      | 1             | 0x07   |  |
| Value     | Varies        |        | A UTF-8 formatted URL link used to present more information about Program_Info |

### 6.12.6.8 Extended\_Metadata

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/extended\\_metadata.yaml](#)

| Parameter | Size (Octets) | Value                             |
|-----------|---------------|-----------------------------------|
| Length    | 1             | Varies                            |
| Type      | 1             | 0xFE                              |
| Value     | Varies        | Octet 0–1: Extended Metadata Type |
|           |               | Octet 2–254: Extended Metadata    |



### 6.12.6.9 Vendor\_Specific

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/vendor\\_specific.yaml](#)

| Parameter | Size (Octets) | Value                                 | Description   |
|-----------|---------------|---------------------------------------|---|
| Length    | 1             | Varies                                |   |
| Type      | 1             | 0xFF                                  |   |
| Value     | Varies        | Octet 0–1: Company_ID                 | Company ID values are defined in Bluetooth Assigned Numbers |
|           |               | Octet 2–254: Vendor-Specific Metadata |   |

### 6.12.6.10 Audio\_Active\_State

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/audio\\_active\\_state.yaml](#)

| Parameter | Size (Octets) | Value                                    |
|-----------|---------------|--|
| Length    | 1             | 0x02                                     |
| Type      | 1             | 0x08                                     |
| Value     | 1             | 0x00: No audio data is being transmitted |
|           |               | 0x01: Audio data is being transmitted    |

### 6.12.6.11 Broadcast\_Audio\_Immediate\_Rendering\_Flag

Last Modified: 2024-02-14

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/broadcast\\_audio\\_immediate\\_rendering\\_flag.yaml](#)

| Parameter | Size (Octets) | Value | Description |
|-----------|---------------|-------|-------------|
| Length    | 1             | 0x01  |             |
| Type      | 1             | 0x09  |             |
| Value     | 0             | None  | Zero length |

### 6.12.6.12 Assisted\_Listening\_Stream

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/assisted\\_listening\\_stream.yaml](#)

| Parameter | Size (Octets) | Value | Description |
|-----------|---------------|-------|-------------|
|-----------|---------------|-------|-------------|



|        |   |      |   |
|--------|---|------|---|
| Length | 1 | 0x02 |   |
| Type   | 1 | 0x0A |   |
| Value  | 1 |      | 1 octet enumeration of Assisted Listening Stream method<br><br>0x00 – unspecified audio enhancement<br><br>All other values – RFU |

### 6.12.6.13 Broadcast\_Name

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/generic\\_audio/metadata\\_ltv/broadcast\\_name.yaml](#)

| Parameter | Size (Octets)    | Value  | Description                                    |
|-----------|------------------|--------|--|
| Length    | 1                | Varies |  |
| Type      | 1                | 0x0B   |  |
| Value     | Varies (4 – 128) |        | The UTF-8 string of the Broadcast_Name AD Type |



## 6.13 Electronic Shelf Label Service

### 6.13.1 Display Types

Last Modified: 2024-02-05

Filename: [assigned\\_numbers/profiles\\_and\\_services/esl/display\\_types.yaml](#)

| Value | Description            |
|-------|------------------------|
| 0x01  | black white            |
| 0x02  | three gray scale       |
| 0x03  | four gray scale        |
| 0x04  | eight gray scale       |
| 0x05  | sixteen gray scale     |
| 0x06  | red black white        |
| 0x07  | yellow black white     |
| 0x08  | red yellow black white |
| 0x09  | seven color            |
| 0x0A  | sixteen color          |
| 0x0B  | full RGB               |

## 7 Company Identifiers

Company identifiers are unique numbers assigned by the Bluetooth SIG to member companies requesting one.

To request a new Company Identifier, please submit a ticket to [Bluetooth Support](#) and select the Assigned Numbers category (login required). For those not familiar with the assignment process, please refer to Section 2.3 of the Assigned Numbers Process Document which is available on the [Templates and Documents page](#).

Please allow five business days for your request to be fulfilled, and another five business days from the time your request is fulfilled to view your Company Identifier on this page.

Referenced from the following:

- Bluetooth Core Specification [Vol 4] Part E, Section 7.1.45 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.4.1 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.4.8 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.4.10 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.7.12 [4].
- Bluetooth Core Specification [Vol 4] Part E, Section 7.8.109 [4].
- Bluetooth Core Specification [Vol 6] Part B, Section 2.4.2.13 [4].
- Supplement to the Bluetooth Core Specification Part A, Section 1.4.1 [22].

### 7.1 Company Identifiers by Value

Last Modified: 2024-08-29

Filename: [assigned\\_numbers/company\\_identifiers/company\\_identifiers.yaml](#)

| Value  | Name   |
|--------|--|
| 0x0000 | Ericsson AB                                      |
| 0x0001 | Nokia Mobile Phones                              |
| 0x0002 | Intel Corp.                                      |
| 0x0003 | IBM Corp.  |
| 0x0004 | Toshiba Corp.                                    |
| 0x0005 | 3Com   |
| 0x0006 | Microsoft  |
| 0x0007 | Lucent   |
| 0x0008 | Motorola   |
| 0x0009 | Infineon Technologies AG                         |
| 0x000A | Qualcomm Technologies International, Ltd. (QTIL) |
| 0x000B | Silicon Wave                                     |
| 0x000C | Digianswer A/S                                   |
| 0x000D | Texas Instruments Inc.                           |
| 0x000E | Parthus Technologies Inc.                        |
| 0x000F | Broadcom Corporation                             |



|        |                                 |
|--------|---------------------------------|
| 0x0010 | Mitel Semiconductor             |
| 0x0011 | Widcomm, Inc.                   |
| 0x0012 | Zeevo, Inc.                     |
| 0x0013 | Atmel Corporation               |
| 0x0014 | Mitsubishi Electric Corporation |
| 0x0015 | RTX A/S                         |
| 0x0016 | KC Technology Inc.              |
| 0x0017 | Newlogic                        |
| 0x0018 | Transilica, Inc.                |
| 0x0019 | Rohde & Schwarz GmbH & Co. KG   |
| 0x001A | TTPCom Limited                  |
| 0x001B | Signia Technologies, Inc.       |
| 0x001C | Conexant Systems Inc.           |
| 0x001D | Qualcomm                        |
| 0x001E | Inventel                        |
| 0x001F | AVM Berlin                      |
| 0x0020 | BandSpeed, Inc.                 |
| 0x0021 | Mansella Ltd                    |
| 0x0022 | NEC Corporation                 |
| 0x0023 | WavePlus Technology Co., Ltd.   |
| 0x0024 | Alcatel                         |
| 0x0025 | NXP B.V.                        |
| 0x0026 | C Technologies                  |
| 0x0027 | Open Interface                  |
| 0x0028 | R F Micro Devices               |
| 0x0029 | Hitachi Ltd                     |
| 0x002A | Symbol Technologies, Inc.       |
| 0x002B | Tenovis                         |
| 0x002C | Macronix International Co. Ltd. |
| 0x002D | GCT Semiconductor               |
| 0x002E | Norwood Systems                 |
| 0x002F | MewTel Technology Inc.          |
| 0x0030 | ST Microelectronics             |
| 0x0031 | Synopsys, Inc.                  |
| 0x0032 | Red-M (Communications) Ltd      |
| 0x0033 | Commil Ltd                      |

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| 0x0034 | Computer Access Technology Corporation (CATC) |
| 0x0035 | Eclipse (HQ Espana) S.L.                      |
| 0x0036 | Renesas Electronics Corporation               |
| 0x0037 | Mobilian Corporation                          |
| 0x0038 | Syntronix Corporation                         |
| 0x0039 | Integrated System Solution Corp.              |
| 0x003A | Panasonic Holdings Corporation                |
| 0x003B | Genum Corporation                             |
| 0x003C | BlackBerry Limited                            |
| 0x003D | IPextreme, Inc.                               |
| 0x003E | Systems and Chips, Inc                        |
| 0x003F | Bluetooth SIG, Inc                            |
| 0x0040 | Seiko Epson Corporation                       |
| 0x0041 | Integrated Silicon Solution Taiwan, Inc.      |
| 0x0042 | CONWISE Technology Corporation Ltd            |
| 0x0043 | PARROT AUTOMOTIVE SAS                         |
| 0x0044 | Socket Mobile                                 |
| 0x0045 | Atheros Communications, Inc.                  |
| 0x0046 | MediaTek, Inc.                                |
| 0x0047 | Bluegiga                                      |
| 0x0048 | Marvell Technology Group Ltd.                 |
| 0x0049 | 3DSP Corporation                              |
| 0x004A | Accel Semiconductor Ltd.                      |
| 0x004B | Continental Automotive Systems                |
| 0x004C | Apple, Inc.                                   |
| 0x004D | Staccato Communications, Inc.                 |
| 0x004E | Avago Technologies                            |
| 0x004F | APT Ltd.                                      |
| 0x0050 | SiRF Technology, Inc.                         |
| 0x0051 | Tzero Technologies, Inc.                      |
| 0x0052 | J&M Corporation                               |
| 0x0053 | Free2move AB                                  |
| 0x0054 | 3DiJoy Corporation                            |
| 0x0055 | Plantronics, Inc.                             |
| 0x0056 | Sony Ericsson Mobile Communications           |
| 0x0057 | Harman International Industries, Inc.         |

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|--------|---|
| 0x0058 | Vizio, Inc.                               |
| 0x0059 | Nordic Semiconductor ASA                  |
| 0x005A | EM Microelectronic-Marin SA               |
| 0x005B | Ralink Technology Corporation             |
| 0x005C | Belkin International, Inc.                |
| 0x005D | Realtek Semiconductor Corporation         |
| 0x005E | Stonestreet One, LLC                      |
| 0x005F | Wicentric, Inc.                           |
| 0x0060 | RivieraWaves S.A.S                        |
| 0x0061 | RDA Microelectronics                      |
| 0x0062 | Gibson Guitars                            |
| 0x0063 | MiCommand Inc.                            |
| 0x0064 | Band XI International, LLC                |
| 0x0065 | HP, Inc.                                  |
| 0x0066 | 9Solutions Oy                             |
| 0x0067 | GN Audio A/S                              |
| 0x0068 | General Motors                            |
| 0x0069 | A&D Engineering, Inc.                     |
| 0x006A | LTIMINDTREE LIMITED                       |
| 0x006B | Polar Electro OY                          |
| 0x006C | Beautiful Enterprise Co., Ltd.            |
| 0x006D | BriarTek, Inc                             |
| 0x006E | Summit Data Communications, Inc.          |
| 0x006F | Sound ID                                  |
| 0x0070 | Monster, LLC                              |
| 0x0071 | connectBlue AB                            |
| 0x0072 | ShangHai Super Smart Electronics Co. Ltd. |
| 0x0073 | Group Sense Ltd.                          |
| 0x0074 | Zomm, LLC                                 |
| 0x0075 | Samsung Electronics Co. Ltd.              |
| 0x0076 | Creative Technology Ltd.                  |
| 0x0077 | Laird Connectivity LLC                    |
| 0x0078 | Nike, Inc.                                |
| 0x0079 | lesswire AG                               |
| 0x007A | MStar Semiconductor, Inc.                 |
| 0x007B | Hanlynn Technologies                      |

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| 0x007C | A & R Cambridge                                   |
| 0x007D | Seers Technology Co., Ltd.                        |
| 0x007E | Sports Tracking Technologies Ltd.                 |
| 0x007F | Autonet Mobile                                    |
| 0x0080 | DeLorme Publishing Company, Inc.                  |
| 0x0081 | WuXi Vimicro                                      |
| 0x0082 | DSEA A/S  |
| 0x0083 | TimeKeeping Systems, Inc.                         |
| 0x0084 | Ludus Helsinki Ltd.                               |
| 0x0085 | BlueRadios, Inc.                                  |
| 0x0086 | Equinix AG  |
| 0x0087 | Garmin International, Inc.                        |
| 0x0088 | Ecotest   |
| 0x0089 | GN Hearing A/S                                    |
| 0x008A | Jawbone   |
| 0x008B | Topcon Positioning Systems, LLC                   |
| 0x008C | Gimbal Inc.                                       |
| 0x008D | Zscan Software                                    |
| 0x008E | Quintic Corp                                      |
| 0x008F | Telit Wireless Solutions GmbH                     |
| 0x0090 | Funai Electric Co., Ltd.                          |
| 0x0091 | Advanced PANMOBIL systems GmbH & Co. KG           |
| 0x0092 | ThinkOptics, Inc.                                 |
| 0x0093 | Universal Electronics, Inc.                       |
| 0x0094 | Airoha Technology Corp.                           |
| 0x0095 | NEC Lighting, Ltd.                                |
| 0x0096 | ODM Technology, Inc.                              |
| 0x0097 | ConnecteDevice Ltd.                               |
| 0x0098 | zero1.tv GmbH                                     |
| 0x0099 | i.Tech Dynamic Global Distribution Ltd.           |
| 0x009A | Alpwise   |
| 0x009B | Jiangsu Toppower Automotive Electronics Co., Ltd. |
| 0x009C | Colorfy, Inc.                                     |
| 0x009D | Geoforce Inc.                                     |
| 0x009E | Bose Corporation                                  |
| 0x009F | Suunto Oy   |

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| 0x00A0 | Kensington Computer Products Group         |
| 0x00A1 | SR-Medizinelektronik                       |
| 0x00A2 | Vertu Corporation Limited                  |
| 0x00A3 | Meta Watch Ltd.                            |
| 0x00A4 | LINAK A/S                                  |
| 0x00A5 | OTL Dynamics LLC                           |
| 0x00A6 | Panda Ocean Inc.                           |
| 0x00A7 | Visteon Corporation                        |
| 0x00A8 | ARP Devices Limited                        |
| 0x00A9 | MARELLI EUROPE S.P.A.                      |
| 0x00AA | CAEN RFID srl                              |
| 0x00AB | Ingenieur-Systemgruppe Zahn GmbH           |
| 0x00AC | Green Throttle Games                       |
| 0x00AD | Peter Systemtechnik GmbH                   |
| 0x00AE | Omegawave Oy                               |
| 0x00AF | Cinetix                                    |
| 0x00B0 | Passif Semiconductor Corp                  |
| 0x00B1 | Saris Cycling Group, Inc                   |
| 0x00B2 | Bekey A/S                                  |
| 0x00B3 | Clarinox Technologies Pty. Ltd.            |
| 0x00B4 | BDE Technology Co., Ltd.                   |
| 0x00B5 | Swirl Networks                             |
| 0x00B6 | Meso international                         |
| 0x00B7 | TreLab Ltd                                 |
| 0x00B8 | Qualcomm Innovation Center, Inc. (QuIC)    |
| 0x00B9 | Johnson Controls, Inc.                     |
| 0x00BA | Starkey Hearing Technologies               |
| 0x00BB | S-Power Electronics Limited                |
| 0x00BC | Ace Sensor Inc                             |
| 0x00BD | Aplix Corporation                          |
| 0x00BE | AAMP of America                            |
| 0x00BF | Stalmart Technology Limited                |
| 0x00C0 | AMICCOM Electronics Corporation            |
| 0x00C1 | Shenzhen Excelsecu Data Technology Co.,Ltd |
| 0x00C2 | Geneq Inc.                                 |
| 0x00C3 | adidas AG                                  |

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| 0x00C4 | LG Electronics                         |
| 0x00C5 | Onset Computer Corporation             |
| 0x00C6 | Selfly BV                              |
| 0x00C7 | Quuppa Oy.                             |
| 0x00C8 | GeLo Inc                               |
| 0x00C9 | Evluma                                 |
| 0x00CA | MC10                                   |
| 0x00CB | Binauric SE                            |
| 0x00CC | Beats Electronics                      |
| 0x00CD | Microchip Technology Inc.              |
| 0x00CE | Eve Systems GmbH                       |
| 0x00CF | ARCHOS SA                              |
| 0x00D0 | Dexcom, Inc.                           |
| 0x00D1 | Polar Electro Europe B.V.              |
| 0x00D2 | Dialog Semiconductor B.V.              |
| 0x00D3 | Taixingbang Technology (HK) Co.,. LTD. |
| 0x00D4 | Kawantech                              |
| 0x00D5 | Austco Communication Systems           |
| 0x00D6 | Timex Group USA, Inc.                  |
| 0x00D7 | Qualcomm Technologies, Inc.            |
| 0x00D8 | Qualcomm Connected Experiences, Inc.   |
| 0x00D9 | Voyetra Turtle Beach                   |
| 0x00DA | txtr GmbH                              |
| 0x00DB | Snuza (Pty) Ltd                        |
| 0x00DC | Procter & Gamble                       |
| 0x00DD | Hosiden Corporation                    |
| 0x00DE | Muzik LLC                              |
| 0x00DF | Misfit Wearables Corp                  |
| 0x00E0 | Google                                 |
| 0x00E1 | Danlers Ltd                            |
| 0x00E2 | Semilink Inc                           |
| 0x00E3 | inMusic Brands, Inc                    |
| 0x00E4 | L.S. Research, Inc.                    |
| 0x00E5 | Eden Software Consultants Ltd.         |
| 0x00E6 | Freshtemp                              |
| 0x00E7 | KS Technologies                        |



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| 0x00E8 | ACTS Technologies                           |
| 0x00E9 | Vtrack Systems                              |
| 0x00EA | www.vtracksystems.com                       |
| 0x00EB | Server Technology Inc.                      |
| 0x00EC | BioResearch Associates                      |
| 0x00ED | Jolly Logic, LLC                            |
| 0x00EE | Above Average Outcomes, Inc.                |
| 0x00EF | Bitsplitters GmbH                           |
| 0x00F0 | PayPal, Inc.                                |
| 0x00F1 | Witron Technology Limited                   |
| 0x00F2 | Morse Project Inc.                          |
| 0x00F3 | Kent Displays Inc.                          |
| 0x00F4 | Nautilus Inc.                               |
| 0x00F5 | Smartifier Oy                               |
| 0x00F6 | Elcometer Limited                           |
| 0x00F7 | VSN Technologies, Inc.                      |
| 0x00F8 | AceUni Corp., Ltd.                          |
| 0x00F9 | StickNFind                                  |
| 0x00FA | Crystal Alarm AB                            |
| 0x00FB | KOUKAAM a.s.                                |
| 0x00FC | Delphi Corporation                          |
| 0x00FD | ValenceTech Limited                         |
| 0x00FE | Stanley Black and Decker                    |
| 0x00FF | Typo Products, LLC                          |
| 0x0100 | TomTom International BV                     |
| 0x0101 | Fugoo, Inc.                                 |
| 0x0102 | Keiser Corporation                          |
| 0x0103 | Bang & Olufsen A/S                          |
| 0x0104 | PLUS Location Systems Pty Ltd               |
| 0x0105 | Ubiquitous Computing Technology Corporation |
| 0x0106 | Innovative Yachtter Solutions               |
| 0x0107 | Demant A/S                                  |
| 0x0108 | Chicony Electronics Co., Ltd.               |
| 0x0109 | Atus BV                                     |
| 0x010A | Codegate Ltd                                |
| 0x010B | ERi, Inc                                    |

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| 0x010C | Transducers Direct, LLC             |
| 0x010D | DENSO TEN Limited                   |
| 0x010E | Audi AG                             |
| 0x010F | HiSilicon Technologies CO., LIMITED |
| 0x0110 | Nippon Seiki Co., Ltd.              |
| 0x0111 | Steelseries ApS                     |
| 0x0112 | Visybl Inc.                         |
| 0x0113 | Openbrain Technologies, Co., Ltd.   |
| 0x0114 | Xensr                               |
| 0x0115 | e.solutions                         |
| 0x0116 | 10AK Technologies                   |
| 0x0117 | Wimoto Technologies Inc             |
| 0x0118 | Radius Networks, Inc.               |
| 0x0119 | Wize Technology Co., Ltd.           |
| 0x011A | Qualcomm Labs, Inc.                 |
| 0x011B | Hewlett Packard Enterprise          |
| 0x011C | Baidu                               |
| 0x011D | Arendi AG                           |
| 0x011E | Skoda Auto a.s.                     |
| 0x011F | Volkswagen AG                       |
| 0x0120 | Porsche AG                          |
| 0x0121 | Sino Wealth Electronic Ltd.         |
| 0x0122 | AirTurn, Inc.                       |
| 0x0123 | Kinsa, Inc                          |
| 0x0124 | HID Global                          |
| 0x0125 | SEAT es                             |
| 0x0126 | Promethean Ltd.                     |
| 0x0127 | Salutica Allied Solutions           |
| 0x0128 | GPSI Group Pty Ltd                  |
| 0x0129 | Nimble Devices Oy                   |
| 0x012A | Changzhou Yongse Infotech Co., Ltd. |
| 0x012B | SportIQ                             |
| 0x012C | TEMEC Instruments B.V.              |
| 0x012D | Sony Corporation                    |
| 0x012E | ASSA ABLOY                          |
| 0x012F | Clarion Co. Inc.                    |

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| 0x0130 | Warehouse Innovations                 |
| 0x0131 | Cypress Semiconductor                 |
| 0x0132 | MADS Inc                              |
| 0x0133 | Blue Maestro Limited                  |
| 0x0134 | Resolution Products, Ltd.             |
| 0x0135 | Aireware LLC                          |
| 0x0136 | Silvair, Inc.                         |
| 0x0137 | Prestigio Plaza Ltd.                  |
| 0x0138 | NTEO Inc.                             |
| 0x0139 | Focus Systems Corporation             |
| 0x013A | Tencent Holdings Ltd.                 |
| 0x013B | Allegion                              |
| 0x013C | Murata Manufacturing Co., Ltd.        |
| 0x013D | WirelessWERX                          |
| 0x013E | Nod, Inc.                             |
| 0x013F | B&B Manufacturing Company             |
| 0x0140 | Alpine Electronics (China) Co., Ltd   |
| 0x0141 | FedEx Services                        |
| 0x0142 | Grape Systems Inc.                    |
| 0x0143 | Bkon Connect                          |
| 0x0144 | Lintech GmbH                          |
| 0x0145 | Novatel Wireless                      |
| 0x0146 | Ciright                               |
| 0x0147 | Mighty Cast, Inc.                     |
| 0x0148 | Ambimat Electronics                   |
| 0x0149 | Perytons Ltd.                         |
| 0x014A | Tivoli Audio, LLC                     |
| 0x014B | Master Lock                           |
| 0x014C | Mesh-Net Ltd                          |
| 0x014D | HUIZHOU DESAY SV AUTOMOTIVE CO., LTD. |
| 0x014E | Tangerine, Inc.                       |
| 0x014F | B&W Group Ltd.                        |
| 0x0150 | Pioneer Corporation                   |
| 0x0151 | OnBeep                                |
| 0x0152 | Vernier Software & Technology         |
| 0x0153 | ROL Ergo                              |

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| 0x0154 | Pebble Technology                                |
| 0x0155 | NETATMO  |
| 0x0156 | Accumulate AB                                    |
| 0x0157 | Anhui Huami Information Technology Co., Ltd.     |
| 0x0158 | Inmite s.r.o.                                    |
| 0x0159 | ChefSteps, Inc.                                  |
| 0x015A | micas AG   |
| 0x015B | Biomedical Research Ltd.                         |
| 0x015C | Pitius Tec S.L.                                  |
| 0x015D | Estimote, Inc.                                   |
| 0x015E | Unikey Technologies, Inc.                        |
| 0x015F | Timer Cap Co.                                    |
| 0x0160 | AwoX   |
| 0x0161 | yikes  |
| 0x0162 | MADSGlobalNZ Ltd.                                |
| 0x0163 | PCH International                                |
| 0x0164 | Qingdao Yeelink Information Technology Co., Ltd. |
| 0x0165 | Milwaukee Electric Tools                         |
| 0x0166 | MISHIK Pte Ltd                                   |
| 0x0167 | Ascensia Diabetes Care US Inc.                   |
| 0x0168 | Spicebox LLC                                     |
| 0x0169 | emberlight                                       |
| 0x016A | Copeland Cold Chain LP                           |
| 0x016B | Qblinks  |
| 0x016C | MYSHERA  |
| 0x016D | LifeScan Inc                                     |
| 0x016E | Volantic AB                                      |
| 0x016F | Podo Labs, Inc                                   |
| 0x0170 | Roche Diabetes Care AG                           |
| 0x0171 | Amazon.com Services LLC                          |
| 0x0172 | Connovate Technology Private Limited             |
| 0x0173 | Kocomojo, LLC                                    |
| 0x0174 | Everykey Inc.                                    |
| 0x0175 | Dynamic Controls                                 |
| 0x0176 | SentriLock                                       |
| 0x0177 | I-SYST inc.                                      |

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| 0x0178 | CASIO COMPUTER CO., LTD.              |
| 0x0179 | LAPIS Semiconductor Co.,Ltd           |
| 0x017A | Telemonitor, Inc.                     |
| 0x017B | taskit GmbH                           |
| 0x017C | Mercedes-Benz Group AG                |
| 0x017D | BatAndCat                             |
| 0x017E | BluDotz Ltd                           |
| 0x017F | XTel Wireless ApS                     |
| 0x0180 | Gigaset Technologies GmbH             |
| 0x0181 | Gecko Health Innovations, Inc.        |
| 0x0182 | HOP Ubiquitous                        |
| 0x0183 | Walt Disney                           |
| 0x0184 | Nectar                                |
| 0x0185 | bel'apps LLC                          |
| 0x0186 | CORE Lighting Ltd                     |
| 0x0187 | Seraphim Sense Ltd                    |
| 0x0188 | Unico RBC                             |
| 0x0189 | Physical Enterprises Inc.             |
| 0x018A | Able Trend Technology Limited         |
| 0x018B | Konica Minolta, Inc.                  |
| 0x018C | Wilo SE                               |
| 0x018D | Extron Design Services                |
| 0x018E | Google LLC                            |
| 0x018F | Fireflies Systems                     |
| 0x0190 | Intelletto Technologies Inc.          |
| 0x0191 | FDK CORPORATION                       |
| 0x0192 | Cloudleaf, Inc                        |
| 0x0193 | Maveric Automation LLC                |
| 0x0194 | Acoustic Stream Corporation           |
| 0x0195 | Zuli                                  |
| 0x0196 | Paxton Access Ltd                     |
| 0x0197 | WiSilica Inc.                         |
| 0x0198 | VENGIT Korlatolt Felelossegu Tarsasag |
| 0x0199 | SALTO SYSTEMS S.L.                    |
| 0x019A | TRON Forum                            |
| 0x019B | CUBETECH s.r.o.                       |

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| 0x019C | Cokiya Incorporated                  |
| 0x019D | CVS Health                           |
| 0x019E | Ceruus                               |
| 0x019F | Strainstall Ltd                      |
| 0x01A0 | Channel Enterprises (HK) Ltd.        |
| 0x01A1 | FIAMM                                |
| 0x01A2 | GIGALANE.CO.,LTD                     |
| 0x01A3 | EROAD                                |
| 0x01A4 | MSA Innovation, LLC                  |
| 0x01A5 | Icon Health and Fitness              |
| 0x01A6 | Wille Engineering                    |
| 0x01A7 | ENERGOUS CORPORATION                 |
| 0x01A8 | Taobao                               |
| 0x01A9 | Canon Inc.                           |
| 0x01AA | Geophysical Technology Inc.          |
| 0x01AB | Meta Platforms, Inc.                 |
| 0x01AC | Trividia Health, Inc.                |
| 0x01AD | FlightSafety International           |
| 0x01AE | Earlens Corporation                  |
| 0x01AF | Sunrise Micro Devices, Inc.          |
| 0x01B0 | Star Micronics Co., Ltd.             |
| 0x01B1 | Netizens Sp. z o.o.                  |
| 0x01B2 | Nymi Inc.                            |
| 0x01B3 | Nytec, Inc.                          |
| 0x01B4 | Trineo Sp. z o.o.                    |
| 0x01B5 | Nest Labs Inc.                       |
| 0x01B6 | LM Technologies Ltd                  |
| 0x01B7 | General Electric Company             |
| 0x01B8 | i+D3 S.L.                            |
| 0x01B9 | HANA Micron                          |
| 0x01BA | Stages Cycling LLC                   |
| 0x01BB | Cochlear Bone Anchored Solutions AB  |
| 0x01BC | SenionLab AB                         |
| 0x01BD | Syzzone Co., Ltd                     |
| 0x01BE | Pulsate Mobile Ltd.                  |
| 0x01BF | Hongkong OnMicro Electronics Limited |

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| 0x01C0 | pironex GmbH                    |
| 0x01C1 | BRADATECH Corp.                 |
| 0x01C2 | Transenergooil AG               |
| 0x01C3 | Bunch                           |
| 0x01C4 | DME Microelectronics            |
| 0x01C5 | Bitcraze AB                     |
| 0x01C6 | HASWARE Inc.                    |
| 0x01C7 | Abiogenix Inc.                  |
| 0x01C8 | Poly-Control ApS                |
| 0x01C9 | Avi-on                          |
| 0x01CA | Laerdal Medical AS              |
| 0x01CB | Fetch My Pet                    |
| 0x01CC | Sam Labs Ltd.                   |
| 0x01CD | Chengdu Synwing Technology Ltd  |
| 0x01CE | HOUWA SYSTEM DESIGN, k.k.       |
| 0x01CF | BSH                             |
| 0x01D0 | Primus Inter Pares Ltd          |
| 0x01D1 | August Home, Inc                |
| 0x01D2 | Gill Electronics                |
| 0x01D3 | Sky Wave Design                 |
| 0x01D4 | Newlab S.r.l.                   |
| 0x01D5 | ELAD srl                        |
| 0x01D6 | G-wearables inc.                |
| 0x01D7 | Squadrone Systems Inc.          |
| 0x01D8 | Code Corporation                |
| 0x01D9 | Savant Systems LLC              |
| 0x01DA | Logitech International SA       |
| 0x01DB | Innblue Consulting              |
| 0x01DC | iParking Ltd.                   |
| 0x01DD | Koninklijke Philips N.V.        |
| 0x01DE | Minelab Electronics Pty Limited |
| 0x01DF | Bison Group Ltd.                |
| 0x01E0 | Widex A/S                       |
| 0x01E1 | Jolla Ltd                       |
| 0x01E2 | Lectronix, Inc.                 |
| 0x01E3 | Caterpillar Inc                 |

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| 0x01E4 | Freedom Innovations                                   |
| 0x01E5 | Dynamic Devices Ltd                                   |
| 0x01E6 | Technology Solutions (UK) Ltd                         |
| 0x01E7 | IPS Group Inc.  |
| 0x01E8 | STIR  |
| 0x01E9 | Sano, Inc.  |
| 0x01EA | Advanced Application Design, Inc.                     |
| 0x01EB | AutoMap LLC   |
| 0x01EC | Spreadtrum Communications Shanghai Ltd                |
| 0x01ED | CuteCircuit LTD                                       |
| 0x01EE | Valeo Service   |
| 0x01EF | Fullpower Technologies, Inc.                          |
| 0x01F0 | KloudNation   |
| 0x01F1 | Zebra Technologies Corporation                        |
| 0x01F2 | Itron, Inc.   |
| 0x01F3 | The University of Tokyo                               |
| 0x01F4 | UTC Fire and Security                                 |
| 0x01F5 | Cool Webthings Limited                                |
| 0x01F6 | DJO Global  |
| 0x01F7 | Gelliner Limited                                      |
| 0x01F8 | Anyka (Guangzhou) Microelectronics Technology Co, LTD |
| 0x01F9 | Medtronic Inc.  |
| 0x01FA | Gozio Inc.  |
| 0x01FB | Form Lifting, LLC                                     |
| 0x01FC | Wahoo Fitness, LLC                                    |
| 0x01FD | Kontakt Micro-Location Sp. z o.o.                     |
| 0x01FE | Radio Systems Corporation                             |
| 0x01FF | Freescale Semiconductor, Inc.                         |
| 0x0200 | Verifone Systems Pte Ltd. Taiwan Branch               |
| 0x0201 | AR Timing   |
| 0x0202 | Rigado LLC  |
| 0x0203 | Kemppi Oy   |
| 0x0204 | Tapcentive Inc.                                       |
| 0x0205 | Smartbotics Inc.                                      |
| 0x0206 | Otter Products, LLC                                   |
| 0x0207 | STEMP Inc.  |



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| 0x0208 | LumiGeek LLC                 |
| 0x0209 | InvisionHeart Inc.           |
| 0x020A | Macnica Inc.                 |
| 0x020B | Jaguar Land Rover Limited    |
| 0x020C | CoroWare Technologies, Inc   |
| 0x020D | Simplo Technology Co., LTD   |
| 0x020E | Omron Healthcare Co., LTD    |
| 0x020F | Comodule GMBH                |
| 0x0210 | ikeGPS                       |
| 0x0211 | Telink Semiconductor Co. Ltd |
| 0x0212 | Interplan Co., Ltd           |
| 0x0213 | Wyler AG                     |
| 0x0214 | IK Multimedia Production srl |
| 0x0215 | Lukoton Experience Oy        |
| 0x0216 | MTI Ltd                      |
| 0x0217 | Tech4home, Lda               |
| 0x0218 | Hiotech AB                   |
| 0x0219 | DOTT Limited                 |
| 0x021A | Blue Speck Labs, LLC         |
| 0x021B | Cisco Systems, Inc           |
| 0x021C | Mobicomm Inc                 |
| 0x021D | Edamic                       |
| 0x021E | Goodnet, Ltd                 |
| 0x021F | Luster Leaf Products Inc     |
| 0x0220 | Manus Machina BV             |
| 0x0221 | Mobiquity Networks Inc       |
| 0x0222 | Praxis Dynamics              |
| 0x0223 | Philip Morris Products S.A.  |
| 0x0224 | Comarch SA                   |
| 0x0225 | Nestlé Nespresso S.A.        |
| 0x0226 | Merlinia A/S                 |
| 0x0227 | LifeBEAM Technologies        |
| 0x0228 | Twocanoes Labs, LLC          |
| 0x0229 | Muoverti Limited             |
| 0x022A | Stamer Musikanlagen GMBH     |
| 0x022B | Tesla, Inc.                  |

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| 0x022C | Pharynks Corporation                            |
| 0x022D | Lupine  |
| 0x022E | Siemens AG                                      |
| 0x022F | Huami (Shanghai) Culture Communication CO., LTD |
| 0x0230 | Foster Electric Company, Ltd                    |
| 0x0231 | ETA SA  |
| 0x0232 | x-Senso Solutions Kft                           |
| 0x0233 | Shenzhen SuLong Communication Ltd               |
| 0x0234 | FengFan (BeiJing) Technology Co, Ltd            |
| 0x0235 | Qrio Inc  |
| 0x0236 | Pitpatpet Ltd                                   |
| 0x0237 | MSHeli s.r.l.                                   |
| 0x0238 | Trakm8 Ltd                                      |
| 0x0239 | JIN CO, Ltd                                     |
| 0x023A | Alatech Tehnology                               |
| 0x023B | Beijing CarePulse Electronic Technology Co, Ltd |
| 0x023C | Awarepoint                                      |
| 0x023D | ViCentra B.V.                                   |
| 0x023E | Raven Industries                                |
| 0x023F | WaveWare Technologies Inc.                      |
| 0x0240 | Argenox Technologies                            |
| 0x0241 | Bragi GmbH                                      |
| 0x0242 | 16Lab Inc                                       |
| 0x0243 | Masimo Corp                                     |
| 0x0244 | Iotera Inc                                      |
| 0x0245 | Endress+Hauser                                  |
| 0x0246 | ACKme Networks, Inc.                            |
| 0x0247 | FiftyThree Inc.                                 |
| 0x0248 | Parker Hannifin Corp                            |
| 0x0249 | Transcranial Ltd                                |
| 0x024A | Uwatec AG                                       |
| 0x024B | Orlan LLC                                       |
| 0x024C | Blue Clover Devices                             |
| 0x024D | M-Way Solutions GmbH                            |
| 0x024E | Microtronics Engineering GmbH                   |
| 0x024F | Schneider Schreibgeräte GmbH                    |

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| 0x0250 | Sapphire Circuits LLC  |
| 0x0251 | Lumo Bodytech Inc.   |
| 0x0252 | UKC Technosolution   |
| 0x0253 | Xicato Inc.  |
| 0x0254 | Playbrush  |
| 0x0255 | Dai Nippon Printing Co., Ltd.                                |
| 0x0256 | G24 Power Limited  |
| 0x0257 | AdBabble Local Commerce Inc.                                 |
| 0x0258 | Devialet SA  |
| 0x0259 | ALTYOR   |
| 0x025A | University of Applied Sciences Valais/Haute Ecole Valaisanne |
| 0x025B | Five Interactive, LLC dba Zendo                              |
| 0x025C | NetEase Hangzhou Network co.Ltd.                             |
| 0x025D | Lexmark International Inc.                                   |
| 0x025E | Fluke Corporation  |
| 0x025F | Yardarm Technologies   |
| 0x0260 | SensaRx  |
| 0x0261 | SECVRE GmbH  |
| 0x0262 | Glacial Ridge Technologies                                   |
| 0x0263 | Identiv, Inc.  |
| 0x0264 | DDS, Inc.  |
| 0x0265 | SMK Corporation  |
| 0x0266 | Schawbel Technologies LLC                                    |
| 0x0267 | XMI Systems SA   |
| 0x0268 | Cerevo   |
| 0x0269 | Torrox GmbH & Co KG  |
| 0x026A | Gemalto  |
| 0x026B | DEKA Research & Development Corp.                            |
| 0x026C | Domster Tadeusz Szydlowski                                   |
| 0x026D | Technogym SPA  |
| 0x026E | FLEURBAEY BVBA   |
| 0x026F | Aptcode Solutions  |
| 0x0270 | LSI ADL Technology   |
| 0x0271 | Animas Corp  |
| 0x0272 | Alps Alpine Co., Ltd.  |
| 0x0273 | OCEASOFT   |

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| 0x0274 | Motsai Research                   |
| 0x0275 | Geotab                            |
| 0x0276 | E.G.O. Elektro-Geraetebau GmbH    |
| 0x0277 | bewhere inc                       |
| 0x0278 | Johnson Outdoors Inc              |
| 0x0279 | steute Schaltgerate GmbH & Co. KG |
| 0x027A | Ekomini inc.                      |
| 0x027B | DEFA AS                           |
| 0x027C | Aseptika Ltd                      |
| 0x027D | HUAWEI Technologies Co., Ltd.     |
| 0x027E | HabitAware, LLC                   |
| 0x027F | ruwido austria gmbh               |
| 0x0280 | ITEC corporation                  |
| 0x0281 | StoneL                            |
| 0x0282 | Sonova AG                         |
| 0x0283 | Maven Machines, Inc.              |
| 0x0284 | Synapse Electronics               |
| 0x0285 | WOWTech Canada Ltd.               |
| 0x0286 | RF Code, Inc.                     |
| 0x0287 | Wally Ventures S.L.               |
| 0x0288 | Willowbank Electronics Ltd        |
| 0x0289 | SK Telecom                        |
| 0x028A | Jetro AS                          |
| 0x028B | Code Gears LTD                    |
| 0x028C | NANOLINK APS                      |
| 0x028D | IF, LLC                           |
| 0x028E | RF Digital Corp                   |
| 0x028F | Church & Dwight Co., Inc          |
| 0x0290 | Multibit Oy                       |
| 0x0291 | CliniCloud Inc                    |
| 0x0292 | SwiftSensors                      |
| 0x0293 | Blue Bite                         |
| 0x0294 | ELIAS GmbH                        |
| 0x0295 | Sivantos GmbH                     |
| 0x0296 | Petzl                             |
| 0x0297 | storm power ltd                   |

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| 0x0298 | EISST Ltd                         |
| 0x0299 | Inexess Technology Simma KG       |
| 0x029A | Currant, Inc.                     |
| 0x029B | C2 Development, Inc.              |
| 0x029C | Blue Sky Scientific, LLC          |
| 0x029D | ALOTTAZS LABS, LLC                |
| 0x029E | Kupson spol. s r.o.               |
| 0x029F | Areus Engineering GmbH            |
| 0x02A0 | Impossible Camera GmbH            |
| 0x02A1 | InventureTrack Systems            |
| 0x02A2 | Sera4 Ltd.                        |
| 0x02A3 | Itude                             |
| 0x02A4 | Pacific Lock Company              |
| 0x02A5 | Tendyron Corporation              |
| 0x02A6 | Robert Bosch GmbH                 |
| 0x02A7 | Illuxtron international B.V.      |
| 0x02A8 | miSport Ltd.                      |
| 0x02A9 | Chargelib                         |
| 0x02AA | Doppler Lab                       |
| 0x02AB | BBPOS Limited                     |
| 0x02AC | RTB Elektronik GmbH & Co. KG      |
| 0x02AD | Rx Networks, Inc.                 |
| 0x02AE | WeatherFlow, Inc.                 |
| 0x02AF | Technicolor USA Inc.              |
| 0x02B0 | Bestechnic(Shanghai),Ltd          |
| 0x02B1 | Raden Inc                         |
| 0x02B2 | Oura Health Oy                    |
| 0x02B3 | CLABER S.P.A.                     |
| 0x02B4 | Hyginex, Inc.                     |
| 0x02B5 | HANSHIN ELECTRIC RAILWAY CO.,LTD. |
| 0x02B6 | Schneider Electric                |
| 0x02B7 | Oort Technologies LLC             |
| 0x02B8 | Chrono Therapeutics               |
| 0x02B9 | Rinnai Corporation                |
| 0x02BA | Swissprime Technologies AG        |
| 0x02BB | Koha.,Co.Ltd                      |

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| 0x02BC | Genevac Ltd                                    |
| 0x02BD | Chemtronics                                    |
| 0x02BE | Seguro Technology Sp. z o.o.                   |
| 0x02BF | Redbird Flight Simulations                     |
| 0x02C0 | Dash Robotics                                  |
| 0x02C1 | LINE Corporation                               |
| 0x02C2 | Guillemot Corporation                          |
| 0x02C3 | Techtronic Power Tools Technology Limited      |
| 0x02C4 | Wilson Sporting Goods                          |
| 0x02C5 | Lenovo (Singapore) Pte Ltd.                    |
| 0x02C6 | Ayatan Sensors                                 |
| 0x02C7 | Electronics Tomorrow Limited                   |
| 0x02C8 | OneSpan  |
| 0x02C9 | PayRange Inc.                                  |
| 0x02CA | ABOV Semiconductor                             |
| 0x02CB | AINA-Wireless Inc.                             |
| 0x02CC | Eijkelpamp Soil & Water                        |
| 0x02CD | BMA ergonomics b.v.                            |
| 0x02CE | Teva Branded Pharmaceutical Products R&D, Inc. |
| 0x02CF | Anima  |
| 0x02D0 | 3M   |
| 0x02D1 | Empatica Srl                                   |
| 0x02D2 | Afero, Inc.                                    |
| 0x02D3 | Powercast Corporation                          |
| 0x02D4 | Secuyou ApS                                    |
| 0x02D5 | OMRON Corporation                              |
| 0x02D6 | Send Solutions                                 |
| 0x02D7 | NIPPON SYSTEMWARE CO.,LTD.                     |
| 0x02D8 | Neosfar  |
| 0x02D9 | Fliegl Agrartechnik GmbH                       |
| 0x02DA | Gilvader                                       |
| 0x02DB | Digi International Inc (R)                     |
| 0x02DC | DeWalch Technologies, Inc.                     |
| 0x02DD | Flint Rehabilitation Devices, LLC              |
| 0x02DE | Samsung SDS Co., Ltd.                          |
| 0x02DF | Blur Product Development                       |

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| 0x02E0 | University of Michigan                      |
| 0x02E1 | Victron Energy BV                           |
| 0x02E2 | NTT docomo                                  |
| 0x02E3 | Carmanah Technologies Corp.                 |
| 0x02E4 | Bytestorm Ltd.                              |
| 0x02E5 | Espressif Systems (Shanghai) Co., Ltd.      |
| 0x02E6 | Unwire                                      |
| 0x02E7 | Connected Yard, Inc.                        |
| 0x02E8 | American Music Environments                 |
| 0x02E9 | Sensogram Technologies, Inc.                |
| 0x02EA | Fujitsu Limited                             |
| 0x02EB | Ardic Technology                            |
| 0x02EC | Delta Systems, Inc                          |
| 0x02ED | HTC Corporation                             |
| 0x02EE | Citizen Holdings Co., Ltd.                  |
| 0x02EF | SMART-INNOVATION.inc                        |
| 0x02F0 | Blackrat Software                           |
| 0x02F1 | The Idea Cave, LLC                          |
| 0x02F2 | GoPro, Inc.                                 |
| 0x02F3 | AuthAir, Inc                                |
| 0x02F4 | Vensi, Inc.                                 |
| 0x02F5 | Indagem Tech LLC                            |
| 0x02F6 | Intemo Technologies                         |
| 0x02F7 | DreamVisions co., Ltd.                      |
| 0x02F8 | Runteq Oy Ltd                               |
| 0x02F9 | IMAGINATION TECHNOLOGIES LTD                |
| 0x02FA | CoSTAR TEchnologies                         |
| 0x02FB | Clarius Mobile Health Corp.                 |
| 0x02FC | Shanghai Frequen Microelectronics Co., Ltd. |
| 0x02FD | Uwanna, Inc.                                |
| 0x02FE | Lierda Science & Technology Group Co., Ltd. |
| 0x02FF | Silicon Laboratories                        |
| 0x0300 | World Moto Inc.                             |
| 0x0301 | Giatec Scientific Inc.                      |
| 0x0302 | Loop Devices, Inc                           |
| 0x0303 | IACA electronique                           |

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| 0x0304 | Oura Health Ltd                        |
| 0x0305 | Swipp ApS                              |
| 0x0306 | Life Laboratory Inc.                   |
| 0x0307 | FUJI INDUSTRIAL CO.,LTD.               |
| 0x0308 | Surefire, LLC                          |
| 0x0309 | Dolby Labs                             |
| 0x030A | Ellisys                                |
| 0x030B | Magnitude Lighting Converters          |
| 0x030C | Hilti AG                               |
| 0x030D | Devdata S.r.l.                         |
| 0x030E | Deviceworx                             |
| 0x030F | Shortcut Labs                          |
| 0x0310 | SGL Italia S.r.l.                      |
| 0x0311 | PEEQ DATA                              |
| 0x0312 | Ducere Technologies Pvt Ltd            |
| 0x0313 | DiveNav, Inc.                          |
| 0x0314 | RIIG AI Sp. z o.o.                     |
| 0x0315 | Thermo Fisher Scientific               |
| 0x0316 | AG Measurematics Pvt. Ltd.             |
| 0x0317 | CHUO Electronics CO., LTD.             |
| 0x0318 | Aspenta International                  |
| 0x0319 | Eugster Frismag AG                     |
| 0x031A | Wurth Elektronik eiSos GmbH & Co. KG   |
| 0x031B | HQ Inc                                 |
| 0x031C | Lab Sensor Solutions                   |
| 0x031D | Enterlab ApS                           |
| 0x031E | Eyefi, Inc.                            |
| 0x031F | MetaSystem S.p.A.                      |
| 0x0320 | SONO ELECTRONICS. CO., LTD             |
| 0x0321 | Jewelbots                              |
| 0x0322 | Compumedics Limited                    |
| 0x0323 | Rotor Bike Components                  |
| 0x0324 | Astro, Inc.                            |
| 0x0325 | Amotus Solutions                       |
| 0x0326 | Healthwear Technologies (Changzhou)Ltd |
| 0x0327 | Essex Electronics                      |



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| 0x0328 | Grundfos A/S                  |
| 0x0329 | Eargo, Inc.                   |
| 0x032A | Electronic Design Lab         |
| 0x032B | ESYLUX                        |
| 0x032C | NIPPON SMT.CO.,Ltd            |
| 0x032D | BM innovations GmbH           |
| 0x032E | indoormap                     |
| 0x032F | OttoQ Inc                     |
| 0x0330 | North Pole Engineering        |
| 0x0331 | 3flares Technologies Inc.     |
| 0x0332 | Electrocompaniet A.S.         |
| 0x0333 | Mul-T-Lock                    |
| 0x0334 | Airthings ASA                 |
| 0x0335 | Enlighted Inc                 |
| 0x0336 | GISTIC                        |
| 0x0337 | AJP2 Holdings, LLC            |
| 0x0338 | COBI GmbH                     |
| 0x0339 | Blue Sky Scientific, LLC      |
| 0x033A | Appception, Inc.              |
| 0x033B | Courtney Thorne Limited       |
| 0x033C | Virtuosys                     |
| 0x033D | TPV Technology Limited        |
| 0x033E | Monitra SA                    |
| 0x033F | Automation Components, Inc.   |
| 0x0340 | Letsense s.r.l.               |
| 0x0341 | Etesian Technologies LLC      |
| 0x0342 | GERTEC BRASIL LTDA.           |
| 0x0343 | Drekker Development Pty. Ltd. |
| 0x0344 | Whirl Inc                     |
| 0x0345 | Locus Positioning             |
| 0x0346 | Acuity Brands Lighting, Inc   |
| 0x0347 | Prevent Biometrics            |
| 0x0348 | Arioneo                       |
| 0x0349 | VersaMe                       |
| 0x034A | Vaddio                        |
| 0x034B | Libratone A/S                 |

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| 0x034C | HM Electronics, Inc.                      |
| 0x034D | TASER International, Inc.                 |
| 0x034E | SafeTrust Inc.                            |
| 0x034F | Heartland Payment Systems                 |
| 0x0350 | Bitstrata Systems Inc.                    |
| 0x0351 | Pieps GmbH                                |
| 0x0352 | iRiding(Xiamen)Technology Co.,Ltd.        |
| 0x0353 | Alpha Audiotronics, Inc.                  |
| 0x0354 | TOPPAN FORMS CO.,LTD.                     |
| 0x0355 | Sigma Designs, Inc.                       |
| 0x0356 | Spectrum Brands, Inc.                     |
| 0x0357 | Polymap Wireless                          |
| 0x0358 | MagniWare Ltd.                            |
| 0x0359 | Novotec Medical GmbH                      |
| 0x035A | Phillips-Medisize A/S                     |
| 0x035B | Matrix Inc.                               |
| 0x035C | Eaton Corporation                         |
| 0x035D | KYS                                       |
| 0x035E | Naya Health, Inc.                         |
| 0x035F | Acromag                                   |
| 0x0360 | Insulet Corporation                       |
| 0x0361 | Wellinks Inc.                             |
| 0x0362 | ON Semiconductor                          |
| 0x0363 | FREELAP SA                                |
| 0x0364 | Favero Electronics Srl                    |
| 0x0365 | BioMech Sensor LLC                        |
| 0x0366 | BOLTT Sports technologies Private limited |
| 0x0367 | Saphe International                       |
| 0x0368 | Metormote AB                              |
| 0x0369 | littleBits                                |
| 0x036A | SetPoint Medical                          |
| 0x036B | BRControls Products BV                    |
| 0x036C | Zipcar                                    |
| 0x036D | AirBolt Pty Ltd                           |
| 0x036E | MOTIVE TECHNOLOGIES, INC.                 |
| 0x036F | Motiv, Inc.                               |

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| 0x0370 | Wazombi Labs OÜ                                    |
| 0x0371 | ORBCOMM  |
| 0x0372 | Nixie Labs, Inc.                                   |
| 0x0373 | AppNearMe Ltd                                      |
| 0x0374 | Holman Industries                                  |
| 0x0375 | Expain AS  |
| 0x0376 | Electronic Temperature Instruments Ltd             |
| 0x0377 | Plejd AB   |
| 0x0378 | Propeller Health                                   |
| 0x0379 | Shenzhen iMCO Electronic Technology Co.,Ltd        |
| 0x037A | Algoria  |
| 0x037B | Apption Labs Inc.                                  |
| 0x037C | Cronologics Corporation                            |
| 0x037D | MICRODIA Ltd.                                      |
| 0x037E | lulabytes S.L.                                     |
| 0x037F | Société des Produits Nestlé S.A.                   |
| 0x0380 | LLC "MEGA-F service"                               |
| 0x0381 | Sharp Corporation                                  |
| 0x0382 | Precision Outcomes Ltd                             |
| 0x0383 | Kronos Incorporated                                |
| 0x0384 | OCOSMOS Co., Ltd.                                  |
| 0x0385 | Embedded Electronic Solutions Ltd. dba e2Solutions |
| 0x0386 | Aterica Inc.                                       |
| 0x0387 | BluStor PMC, Inc.                                  |
| 0x0388 | Kapsch TrafficCom AB                               |
| 0x0389 | ActiveBlu Corporation                              |
| 0x038A | Kohler Mira Limited                                |
| 0x038B | Noke   |
| 0x038C | Appion Inc.  |
| 0x038D | Resmed Ltd   |
| 0x038E | Crownstone B.V.                                    |
| 0x038F | Xiaomi Inc.  |
| 0x0390 | INFOTECH s.r.o.                                    |
| 0x0391 | Thingsquare AB                                     |
| 0x0392 | T&D  |
| 0x0393 | LAVAZZA S.p.A.                                     |

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| 0x0394 | Netclearance Systems, Inc.            |
| 0x0395 | SDATAWAY                              |
| 0x0396 | BLOKS GmbH                            |
| 0x0397 | LEGO System A/S                       |
| 0x0398 | Thetatronics Ltd                      |
| 0x0399 | Nikon Corporation                     |
| 0x039A | NeST                                  |
| 0x039B | South Silicon Valley Microelectronics |
| 0x039C | ALE International                     |
| 0x039D | CareView Communications, Inc.         |
| 0x039E | SchoolBoard Limited                   |
| 0x039F | Molex Corporation                     |
| 0x03A0 | IVT Wireless Limited                  |
| 0x03A1 | Alpine Labs LLC                       |
| 0x03A2 | Candura Instruments                   |
| 0x03A3 | SmartMovt Technology Co., Ltd         |
| 0x03A4 | Token Zero Ltd                        |
| 0x03A5 | ACE CAD Enterprise Co., Ltd. (ACECAD) |
| 0x03A6 | Medela, Inc                           |
| 0x03A7 | AeroScout                             |
| 0x03A8 | Esrille Inc.                          |
| 0x03A9 | THINKERLY SRL                         |
| 0x03AA | Exon Sp. z o.o.                       |
| 0x03AB | Meizu Technology Co., Ltd.            |
| 0x03AC | Smablo LTD                            |
| 0x03AD | XiQ                                   |
| 0x03AE | Allswell Inc.                         |
| 0x03AF | Comm-N-Sense Corp DBA Verigo          |
| 0x03B0 | VIBRADORM GmbH                        |
| 0x03B1 | Otodata Wireless Network Inc.         |
| 0x03B2 | Propagation Systems Limited           |
| 0x03B3 | Midwest Instruments & Controls        |
| 0x03B4 | Alpha Nodus, inc.                     |
| 0x03B5 | petPOMM, Inc                          |
| 0x03B6 | Mattel                                |
| 0x03B7 | Airbly Inc.                           |

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| 0x03B8 | A-Safe Limited                            |
| 0x03B9 | FREDERIQUE CONSTANT SA                    |
| 0x03BA | Maxscend Microelectronics Company Limited |
| 0x03BB | Abbott                                    |
| 0x03BC | ASB Bank Ltd                              |
| 0x03BD | amadas                                    |
| 0x03BE | Applied Science, Inc.                     |
| 0x03BF | iLumi Solutions Inc.                      |
| 0x03C0 | Arch Systems Inc.                         |
| 0x03C1 | Ember Technologies, Inc.                  |
| 0x03C2 | Snapchat Inc                              |
| 0x03C3 | Casambi Technologies Oy                   |
| 0x03C4 | Pico Technology Inc.                      |
| 0x03C5 | St. Jude Medical, Inc.                    |
| 0x03C6 | Intricon                                  |
| 0x03C7 | Structural Health Systems, Inc.           |
| 0x03C8 | Avvel International                       |
| 0x03C9 | Gallagher Group                           |
| 0x03CA | In2things Automation Pvt. Ltd.            |
| 0x03CB | SYSDEV Srl                                |
| 0x03CC | Vonkil Technologies Ltd                   |
| 0x03CD | Wynd Technologies, Inc.                   |
| 0x03CE | CONTRINEX S.A.                            |
| 0x03CF | MIRA, Inc.                                |
| 0x03D0 | Watteam Ltd                               |
| 0x03D1 | Density Inc.                              |
| 0x03D2 | IOT Pot India Private Limited             |
| 0x03D3 | Sigma Connectivity AB                     |
| 0x03D4 | PEG PEREGO SPA                            |
| 0x03D5 | Wyzelink Systems Inc.                     |
| 0x03D6 | Yota Devices LTD                          |
| 0x03D7 | FINSECUR                                  |
| 0x03D8 | Zen-Me Labs Ltd                           |
| 0x03D9 | 3iWare Co., Ltd.                          |
| 0x03DA | EnOcean GmbH                              |
| 0x03DB | Instabeat, Inc                            |

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| 0x03DC | Nima Labs                                |
| 0x03DD | Andreas Stihl AG & Co. KG                |
| 0x03DE | Nathan Rhoades LLC                       |
| 0x03DF | Grob Technologies, LLC                   |
| 0x03E0 | Actions (Zhuhai) Technology Co., Limited |
| 0x03E1 | SPD Development Company Ltd              |
| 0x03E2 | Sensoan Oy                               |
| 0x03E3 | Qualcomm Life Inc                        |
| 0x03E4 | Chip-ing AG                              |
| 0x03E5 | ffly4u                                   |
| 0x03E6 | IoT Instruments Oy                       |
| 0x03E7 | TRUE Fitness Technology                  |
| 0x03E8 | Reiner Kartengeräte GmbH & Co. KG.       |
| 0x03E9 | SHENZHEN LEMONJOY TECHNOLOGY CO., LTD.   |
| 0x03EA | Hello Inc.                               |
| 0x03EB | Ozo Edu, Inc.                            |
| 0x03EC | Jigowatts Inc.                           |
| 0x03ED | BASIC MICRO.COM,INC.                     |
| 0x03EE | CUBE TECHNOLOGIES                        |
| 0x03EF | foolography GmbH                         |
| 0x03F0 | CLINK                                    |
| 0x03F1 | Hestan Smart Cooking Inc.                |
| 0x03F2 | WindowMaster A/S                         |
| 0x03F3 | Flowscape AB                             |
| 0x03F4 | PAL Technologies Ltd                     |
| 0x03F5 | WHERE, Inc.                              |
| 0x03F6 | Iton Technology Corp.                    |
| 0x03F7 | Owl Labs Inc.                            |
| 0x03F8 | Rockford Corp.                           |
| 0x03F9 | Becon Technologies Co.,Ltd.              |
| 0x03FA | Vyassoft Technologies Inc                |
| 0x03FB | Nox Medical                              |
| 0x03FC | Kimberly-Clark                           |
| 0x03FD | Trimble Inc.                             |
| 0x03FE | Littelfuse                               |
| 0x03FF | Withings                                 |

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| 0x0400 | i-developer IT Beratung UG                          |
| 0x0401 | Relations Inc.                                      |
| 0x0402 | Sears Holdings Corporation                          |
| 0x0403 | Gantner Electronic GmbH                             |
| 0x0404 | Authomate Inc                                       |
| 0x0405 | Vertex International, Inc.                          |
| 0x0406 | Airtago   |
| 0x0407 | Swiss Audio SA                                      |
| 0x0408 | ToGetHome Inc.                                      |
| 0x0409 | RYSE INC.   |
| 0x040A | ZF OPENMATICS s.r.o.                                |
| 0x040B | Jana Care Inc.                                      |
| 0x040C | Senix Corporation                                   |
| 0x040D | NorthStar Battery Company, LLC                      |
| 0x040E | SKF (U.K.) Limited                                  |
| 0x040F | CO-AX Technology, Inc.                              |
| 0x0410 | Fender Musical Instruments                          |
| 0x0411 | Luidia Inc  |
| 0x0412 | SEFAM   |
| 0x0413 | Wireless Cables Inc                                 |
| 0x0414 | Lightning Protection International Pty Ltd          |
| 0x0415 | Uber Technologies Inc                               |
| 0x0416 | SODA GmbH   |
| 0x0417 | Fatigue Science                                     |
| 0x0419 | Novalogy LTD  |
| 0x041A | Friday Labs Limited                                 |
| 0x041B | OrthoAccel Technologies                             |
| 0x041C | WaterGuru, Inc.                                     |
| 0x041D | Benning Elektrotechnik und Elektronik GmbH & Co. KG |
| 0x041E | Dell Computer Corporation                           |
| 0x041F | Kopin Corporation                                   |
| 0x0420 | TecBakery GmbH                                      |
| 0x0421 | Backbone Labs, Inc.                                 |
| 0x0422 | DELSEY SA   |
| 0x0423 | Chargifi Limited                                    |
| 0x0424 | Traineesense Ltd.                                   |

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| 0x0425 | Unify Software and Solutions GmbH & Co. KG |
| 0x0426 | Husqvarna AB                               |
| 0x0427 | Focus fleet and fuel management inc        |
| 0x0428 | SmallLoop, LLC                             |
| 0x0429 | Proton Inc.                                |
| 0x042A | BD Medical                                 |
| 0x042B | iMicroMed Incorporated                     |
| 0x042C | Ticto N.V.                                 |
| 0x042D | Meshtech AS                                |
| 0x042E | MemCachier Inc.                            |
| 0x042F | Danfoss A/S                                |
| 0x0430 | SnapStyk Inc.                              |
| 0x0431 | Alticor Inc.                               |
| 0x0432 | Silk Labs, Inc.                            |
| 0x0433 | Pillsy Inc.                                |
| 0x0434 | Hatch Baby, Inc.                           |
| 0x0435 | Blocks Wearables Ltd.                      |
| 0x0436 | Drayson Technologies (Europe) Limited      |
| 0x0437 | eBest IOT Inc.                             |
| 0x0438 | Helvar Ltd                                 |
| 0x0439 | Radiance Technologies                      |
| 0x043A | Nuheara Limited                            |
| 0x043B | Appside co., ltd.                          |
| 0x043C | DeLaval                                    |
| 0x043D | Coiler Corporation                         |
| 0x043E | Thermomedics, Inc.                         |
| 0x043F | Tentacle Sync GmbH                         |
| 0x0440 | Valencell, Inc.                            |
| 0x0441 | iProtoXi Oy                                |
| 0x0442 | SECOM CO., LTD.                            |
| 0x0443 | Tucker International LLC                   |
| 0x0444 | Metanate Limited                           |
| 0x0445 | Kobian Canada Inc.                         |
| 0x0446 | NETGEAR, Inc.                              |
| 0x0447 | Fabtronics Australia Pty Ltd               |
| 0x0448 | Grand Centrix GmbH                         |



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| 0x0449 | 1UP USA.com llc                       |
| 0x044A | SHIMANO INC.                          |
| 0x044B | Nain Inc.                             |
| 0x044C | LifeStyle Lock, LLC                   |
| 0x044D | VEGA Grieshaber KG                    |
| 0x044E | Xtrava Inc.                           |
| 0x044F | TTS Tooltechnic Systems AG & Co. KG   |
| 0x0450 | Teenage Engineering AB                |
| 0x0451 | Tunstall Nordic AB                    |
| 0x0452 | Svep Design Center AB                 |
| 0x0453 | Qorvo Utrecht B.V.                    |
| 0x0454 | Sphinx Electronics GmbH & Co KG       |
| 0x0455 | Atomation                             |
| 0x0456 | Nemik Consulting Inc                  |
| 0x0457 | RF INNOVATION                         |
| 0x0458 | Mini Solution Co., Ltd.               |
| 0x0459 | Lumenetix, Inc                        |
| 0x045A | 2048450 Ontario Inc                   |
| 0x045B | SPACEEK LTD                           |
| 0x045C | Delta T Corporation                   |
| 0x045D | Boston Scientific Corporation         |
| 0x045E | Nuviz, Inc.                           |
| 0x045F | Real Time Automation, Inc.            |
| 0x0460 | Kolibree                              |
| 0x0461 | vhf elektronik GmbH                   |
| 0x0462 | Bonsai Systems GmbH                   |
| 0x0463 | Fathom Systems Inc.                   |
| 0x0464 | Bellman & Symfon Group AB             |
| 0x0465 | International Forte Group LLC         |
| 0x0466 | CycleLabs Solutions inc.              |
| 0x0467 | Codenex Oy                            |
| 0x0468 | Kynesim Ltd                           |
| 0x0469 | Palago AB                             |
| 0x046A | INSIGMA INC.                          |
| 0x046B | PMD Solutions                         |
| 0x046C | Qingdao Realtime Technology Co., Ltd. |

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| 0x046D | BEGA Gantenbrink-Leuchten KG   |
| 0x046E | Pambor Ltd.  |
| 0x046F | Develco Products A/S   |
| 0x0470 | iDesign s.r.l.   |
| 0x0471 | TiVo Corp  |
| 0x0472 | Control-J Pty Ltd  |
| 0x0473 | Steelcase, Inc.  |
| 0x0474 | iApartment co., ltd.   |
| 0x0475 | Icom inc.  |
| 0x0476 | Oxstren Wearable Technologies Private Limited                              |
| 0x0477 | Blue Spark Technologies  |
| 0x0478 | FarSite Communications Limited   |
| 0x0479 | mywerk system GmbH   |
| 0x047A | Sinosun Technology Co., Ltd.   |
| 0x047B | MIYOSHI ELECTRONICS CORPORATION  |
| 0x047C | POWERMAT LTD   |
| 0x047D | Occlly LLC   |
| 0x047E | OurHub Dev IvS   |
| 0x047F | Pro-Mark, Inc.   |
| 0x0480 | Dynometrics Inc.   |
| 0x0481 | Quintrax Limited   |
| 0x0482 | POS Tuning Udo Vosshenrich GmbH & Co. KG                                   |
| 0x0483 | Multi Care Systems B.V.  |
| 0x0484 | Revol Technologies Inc   |
| 0x0485 | SKIDATA AG   |
| 0x0486 | DEV TECNOLOGIA INDUSTRIA, COMERCIO E MANUTENCAO DE EQUIPAMENTOS LTDA. - ME |
| 0x0487 | Centrica Connected Home  |
| 0x0488 | Automotive Data Solutions Inc  |
| 0x0489 | Igarashi Engineering   |
| 0x048A | Taelek Oy  |
| 0x048B | CP Electronics Limited   |
| 0x048C | Vectronix AG   |
| 0x048D | S-Labs Sp. z o.o.  |
| 0x048E | Companion Medical, Inc.  |
| 0x048F | BlueKitchen GmbH   |

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| 0x0490 | Matting AB                                    |
| 0x0491 | SOREX - Wireless Solutions GmbH               |
| 0x0492 | ADC Technology, Inc.                          |
| 0x0493 | Lynxemi Pte Ltd                               |
| 0x0494 | SENNHEISER electronic GmbH & Co. KG           |
| 0x0495 | LMT Mercer Group, Inc                         |
| 0x0496 | Polymorphic Labs LLC                          |
| 0x0497 | Cochlear Limited                              |
| 0x0498 | METER Group, Inc. USA                         |
| 0x0499 | Ruuvi Innovations Ltd.                        |
| 0x049A | Situne AS                                     |
| 0x049B | nVisti, LLC                                   |
| 0x049C | DyOcean                                       |
| 0x049D | Uhlmann & Zacher GmbH                         |
| 0x049E | AND!XOR LLC                                   |
| 0x049F | Popper Pay AB                                 |
| 0x04A0 | Vypin, LLC                                    |
| 0x04A1 | PNI Sensor Corporation                        |
| 0x04A2 | ovrEngineered, LLC                            |
| 0x04A3 | GT-tronics HK Ltd                             |
| 0x04A4 | Herbert Waldmann GmbH & Co. KG                |
| 0x04A5 | Guangzhou FiiO Electronics Technology Co.,Ltd |
| 0x04A6 | Vinotech Co., Ltd                             |
| 0x04A7 | Dallas Logic Corporation                      |
| 0x04A8 | BioTex, Inc.                                  |
| 0x04A9 | DISCOVERY SOUND TECHNOLOGY, LLC               |
| 0x04AA | LINKIO SAS                                    |
| 0x04AB | Harbortronics, Inc.                           |
| 0x04AC | Undagrid B.V.                                 |
| 0x04AD | Shure Inc                                     |
| 0x04AE | ERM Electronic Systems LTD                    |
| 0x04AF | BIOROWER Handelsagentur GmbH                  |
| 0x04B0 | Weba Sport und Med. Artikel GmbH              |
| 0x04B1 | Kartographers Technologies Pvt. Ltd.          |
| 0x04B2 | The Shadow on the Moon                        |
| 0x04B3 | mobike (Hong Kong) Limited                    |

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| 0x04B4 | Inuheat Group AB                              |
| 0x04B5 | Swiftronix AB                                 |
| 0x04B6 | Diagnoptics Technologies                      |
| 0x04B7 | Analog Devices, Inc.                          |
| 0x04B8 | Soraa Inc.                                    |
| 0x04B9 | CSR Building Products Limited                 |
| 0x04BA | Crestron Electronics, Inc.                    |
| 0x04BB | Neatebox Ltd                                  |
| 0x04BC | Draegerwerk AG & Co. KGaA                     |
| 0x04BD | AlbynMedical                                  |
| 0x04BE | Averos FZCO                                   |
| 0x04BF | VIT Initiative, LLC                           |
| 0x04C0 | Statsports International                      |
| 0x04C1 | Sospitas, s.r.o.                              |
| 0x04C2 | Dmet Products Corp.                           |
| 0x04C3 | Mantracourt Electronics Limited               |
| 0x04C4 | TeAM Hutchins AB                              |
| 0x04C5 | Seibert Williams Glass, LLC                   |
| 0x04C6 | Insta GmbH                                    |
| 0x04C7 | Svantek Sp. z o.o.                            |
| 0x04C8 | Shanghai Flyco Electrical Appliance Co., Ltd. |
| 0x04C9 | Thornwave Labs Inc                            |
| 0x04CA | Steiner-Optik GmbH                            |
| 0x04CB | Novo Nordisk A/S                              |
| 0x04CC | Enflux Inc.                                   |
| 0x04CD | Safetech Products LLC                         |
| 0x04CE | GOOOLED S.R.L.                                |
| 0x04CF | DOM Sicherheitstechnik GmbH & Co. KG          |
| 0x04D0 | Olympus Corporation                           |
| 0x04D1 | KTS GmbH                                      |
| 0x04D2 | Anloq Technologies Inc.                       |
| 0x04D3 | Queercon, Inc                                 |
| 0x04D4 | 5th Element Ltd                               |
| 0x04D5 | Gooee Limited                                 |
| 0x04D6 | LUGLOC LLC                                    |
| 0x04D7 | Blincam, Inc.                                 |

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| 0x04D8 | FUJIFILM Corporation                 |
| 0x04D9 | RM Acquisition LLC                   |
| 0x04DA | Franceschi Marina snc                |
| 0x04DB | Engineered Audio, LLC.               |
| 0x04DC | IOTTIVE (OPC) PRIVATE LIMITED        |
| 0x04DD | 4MOD Technology                      |
| 0x04DE | Lutron Electronics Co., Inc.         |
| 0x04DF | Emerson Electric Co.                 |
| 0x04E0 | Guardtec, Inc.                       |
| 0x04E1 | REACTEC LIMITED                      |
| 0x04E2 | EllieGrid                            |
| 0x04E3 | Under Armour                         |
| 0x04E4 | Woodenshark                          |
| 0x04E5 | Avack Oy                             |
| 0x04E6 | Smart Solution Technology, Inc.      |
| 0x04E7 | REHABTRONICS INC.                    |
| 0x04E8 | STABILO International                |
| 0x04E9 | Busch Jaeger Elektro GmbH            |
| 0x04EA | Pacific Bioscience Laboratories, Inc |
| 0x04EB | Bird Home Automation GmbH            |
| 0x04EC | Motorola Solutions                   |
| 0x04ED | R9 Technology, Inc.                  |
| 0x04EE | Auxivia                              |
| 0x04EF | DaisyWorks, Inc                      |
| 0x04F0 | Kosi Limited                         |
| 0x04F1 | Theben AG                            |
| 0x04F2 | InDreamer Techsol Private Limited    |
| 0x04F3 | Cerevast Medical                     |
| 0x04F4 | ZanCompute Inc.                      |
| 0x04F5 | Pirelli Tyre S.P.A.                  |
| 0x04F6 | McLear Limited                       |
| 0x04F7 | Shenzhen Goodix Technology Co., Ltd  |
| 0x04F8 | Convergence Systems Limited          |
| 0x04F9 | Interactio                           |
| 0x04FA | Androtec GmbH                        |
| 0x04FB | Benchmark Drives GmbH & Co. KG       |

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| 0x04FC | SwingLync L. L. C.                          |
| 0x04FD | Tapkey GmbH                                 |
| 0x04FE | Woosim Systems Inc.                         |
| 0x04FF | Microsemi Corporation                       |
| 0x0500 | Wiliot LTD.                                 |
| 0x0501 | Polaris IND                                 |
| 0x0502 | Specifi-Kali LLC                            |
| 0x0503 | Locoroll, Inc                               |
| 0x0504 | PHYPLUS Inc                                 |
| 0x0505 | InPlay, Inc.                                |
| 0x0506 | Hager                                       |
| 0x0507 | Yellowcog                                   |
| 0x0508 | Axes System sp. z o. o.                     |
| 0x0509 | Garage Smart, Inc.                          |
| 0x050A | Shake-on B.V.                               |
| 0x050B | Vibrissa Inc.                               |
| 0x050C | OSRAM GmbH                                  |
| 0x050D | TRSystems GmbH                              |
| 0x050E | Yichip Microelectronics (Hangzhou) Co.,Ltd. |
| 0x050F | Foundation Engineering LLC                  |
| 0x0510 | UNI-ELECTRONICS, INC.                       |
| 0x0511 | Brookfield Equinox LLC                      |
| 0x0512 | Soprod SA                                   |
| 0x0513 | 9974091 Canada Inc.                         |
| 0x0514 | FIBRO GmbH                                  |
| 0x0515 | RB Controls Co., Ltd.                       |
| 0x0516 | Footmarks                                   |
| 0x0517 | Amtronic Sverige AB                         |
| 0x0518 | MAMORIO.inc                                 |
| 0x0519 | Tyto Life LLC                               |
| 0x051A | Leica Camera AG                             |
| 0x051B | Angee Technologies Ltd.                     |
| 0x051C | EDPS  |
| 0x051D | OFF Line Co., Ltd.                          |
| 0x051E | Detect Blue Limited                         |
| 0x051F | Setec Pty Ltd                               |

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| 0x0520 | Target Corporation                         |
| 0x0521 | IAI Corporation                            |
| 0x0522 | NS Tech, Inc.                              |
| 0x0523 | MTG Co., Ltd.                              |
| 0x0524 | Hangzhou iMagic Technology Co., Ltd        |
| 0x0525 | HONGKONG NANO IC TECHNOLOGIES CO., LIMITED |
| 0x0526 | Honeywell International Inc.               |
| 0x0527 | Albrecht JUNG                              |
| 0x0528 | Lunera Lighting Inc.                       |
| 0x0529 | Lumen UAB                                  |
| 0x052A | Keynes Controls Ltd                        |
| 0x052B | Novartis AG                                |
| 0x052C | Geosatis SA                                |
| 0x052D | EXFO, Inc.                                 |
| 0x052E | LEDVANCE GmbH                              |
| 0x052F | Center ID Corp.                            |
| 0x0530 | Adolene, Inc.                              |
| 0x0531 | D&M Holdings Inc.                          |
| 0x0532 | CRESCO Wireless, Inc.                      |
| 0x0533 | Nura Operations Pty Ltd                    |
| 0x0534 | Frontiergadget, Inc.                       |
| 0x0535 | Smart Component Technologies Limited       |
| 0x0536 | ZTR Control Systems LLC                    |
| 0x0537 | MetaLogics Corporation                     |
| 0x0538 | Medela AG                                  |
| 0x0539 | OPPLE Lighting Co., Ltd                    |
| 0x053A | Savitech Corp.,                            |
| 0x053B | prodigy                                    |
| 0x053C | Screenovate Technologies Ltd               |
| 0x053D | TESA SA                                    |
| 0x053E | CLIM8 LIMITED                              |
| 0x053F | Silergy Corp                               |
| 0x0540 | SilverPlus, Inc                            |
| 0x0541 | Sharknet srl                               |
| 0x0542 | Mist Systems, Inc.                         |
| 0x0543 | MIWA LOCK CO.,Ltd                          |

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| 0x0544 | OrthoSensor, Inc.                                 |
| 0x0545 | Candy Hoover Group s.r.l                          |
| 0x0546 | Apexar Technologies S.A.                          |
| 0x0547 | LOGICDATA Electronic & Software Entwicklungs GmbH |
| 0x0548 | Knick Elektronische Messgeraete GmbH & Co. KG     |
| 0x0549 | Smart Technologies and Investment Limited         |
| 0x054A | Linough Inc.                                      |
| 0x054B | Advanced Electronic Designs, Inc.                 |
| 0x054C | Carefree Scott Fetzer Co Inc                      |
| 0x054D | Sensome   |
| 0x054E | FORTRONIK storitve d.o.o.                         |
| 0x054F | Sinnoz  |
| 0x0550 | Versa Networks, Inc.                              |
| 0x0551 | Sylero  |
| 0x0552 | Avempace SARL                                     |
| 0x0553 | Nintendo Co., Ltd.                                |
| 0x0554 | National Instruments                              |
| 0x0555 | KROHNE Messtechnik GmbH                           |
| 0x0556 | Otodynamics Ltd                                   |
| 0x0557 | Arwin Technology Limited                          |
| 0x0558 | benegear, inc.                                    |
| 0x0559 | Newcon Optik                                      |
| 0x055A | CANDY HOUSE, Inc.                                 |
| 0x055B | FRANKLIN TECHNOLOGY INC                           |
| 0x055C | Lely  |
| 0x055D | Valve Corporation                                 |
| 0x055E | Hekatron Vertriebs GmbH                           |
| 0x055F | PROTECH S.A.S. DI GIRARDI ANDREA & C.             |
| 0x0560 | Sarita CareTech APS                               |
| 0x0561 | Finder S.p.A.                                     |
| 0x0562 | Thalmic Labs Inc.                                 |
| 0x0563 | Steinel Vertrieb GmbH                             |
| 0x0564 | Beghelli Spa                                      |
| 0x0565 | Beijing Smartspace Technologies Inc.              |
| 0x0566 | CORE TRANSPORT TECHNOLOGIES NZ LIMITED            |
| 0x0567 | Xiamen Everesports Goods Co., Ltd                 |



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| 0x0568 | Bodyport Inc.                     |
| 0x0569 | Audionics System, INC.            |
| 0x056A | Flipnavi Co.,Ltd.                 |
| 0x056B | Rion Co., Ltd.                    |
| 0x056C | Long Range Systems, LLC           |
| 0x056D | Redmond Industrial Group LLC      |
| 0x056E | VIZPIN INC.                       |
| 0x056F | BikeFinder AS                     |
| 0x0570 | Consumer Sleep Solutions LLC      |
| 0x0571 | PSIKICK, INC.                     |
| 0x0572 | AntTail.com                       |
| 0x0573 | Lighting Science Group Corp.      |
| 0x0574 | AFFORDABLE ELECTRONICS INC        |
| 0x0575 | Integral Memroy Plc               |
| 0x0576 | Globalstar, Inc.                  |
| 0x0577 | True Wearables, Inc.              |
| 0x0578 | Wellington Drive Technologies Ltd |
| 0x0579 | Ensemble Tech Private Limited     |
| 0x057A | OMNI Remotes                      |
| 0x057B | Duracell U.S. Operations Inc.     |
| 0x057C | Toor Technologies LLC             |
| 0x057D | Instinct Performance              |
| 0x057E | Beco, Inc                         |
| 0x057F | Scuf Gaming International, LLC    |
| 0x0580 | ARANZ Medical Limited             |
| 0x0581 | LYS TECHNOLOGIES LTD              |
| 0x0582 | Breakwall Analytics, LLC          |
| 0x0583 | Code Blue Communications          |
| 0x0584 | Gira Giersiepen GmbH & Co. KG     |
| 0x0585 | Hearing Lab Technology            |
| 0x0586 | LEGRAND                           |
| 0x0587 | Derichs GmbH                      |
| 0x0588 | ALT-TEKNIK LLC                    |
| 0x0589 | Star Technologies                 |
| 0x058A | START TODAY CO.,LTD.              |
| 0x058B | Maxim Integrated Products         |

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| 0x058C | Fracarro Radioindustrie SRL         |
| 0x058D | Jungheinrich Aktiengesellschaft     |
| 0x058E | Meta Platforms Technologies, LLC    |
| 0x058F | HENDON SEMICONDUCTORS PTY LTD       |
| 0x0590 | Pur3 Ltd                            |
| 0x0591 | Viasat Group S.p.A.                 |
| 0x0592 | IZITHERM                            |
| 0x0593 | Spaulding Clinical Research         |
| 0x0594 | Kohler Company                      |
| 0x0595 | Inor Process AB                     |
| 0x0596 | My Smart Blinds                     |
| 0x0597 | RadioPulse Inc                      |
| 0x0598 | rapitag GmbH                        |
| 0x0599 | Lazlo326, LLC.                      |
| 0x059A | Teledyne Lecroy, Inc.               |
| 0x059B | Dataflow Systems Limited            |
| 0x059C | Macrogiga Electronics               |
| 0x059D | Tandem Diabetes Care                |
| 0x059E | Polycom, Inc.                       |
| 0x059F | Fisher & Paykel Healthcare          |
| 0x05A0 | RCP Software Oy                     |
| 0x05A1 | Shanghai Xiaoyi Technology Co.,Ltd. |
| 0x05A2 | ADHERIUM(NZ) LIMITED                |
| 0x05A3 | Axiomware Systems Incorporated      |
| 0x05A4 | O. E. M. Controls, Inc.             |
| 0x05A5 | Kiiroo BV                           |
| 0x05A6 | Telecon Mobile Limited              |
| 0x05A7 | Sonos Inc                           |
| 0x05A8 | Tom Allebrandi Consulting           |
| 0x05A9 | Monidor                             |
| 0x05AA | Tramex Limited                      |
| 0x05AB | Nofence AS                          |
| 0x05AC | GoerTek Dynaudio Co., Ltd.          |
| 0x05AD | INIA                                |
| 0x05AE | CARMATE MFG.CO.,LTD                 |
| 0x05AF | OV LOOP, INC.                       |

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| 0x05B0 | NewTec GmbH                           |
| 0x05B1 | Medallion Instrumentation Systems     |
| 0x05B2 | CAREL INDUSTRIES S.P.A.               |
| 0x05B3 | Parabit Systems, Inc.                 |
| 0x05B4 | White Horse Scientific Ltd            |
| 0x05B5 | verisilicon                           |
| 0x05B6 | Elecs Industry Co.,Ltd.               |
| 0x05B7 | Beijing Pinecone Electronics Co.,Ltd. |
| 0x05B8 | Ambystoma Labs Inc.                   |
| 0x05B9 | Suzhou Pairlink Network Technology    |
| 0x05BA | igloohome                             |
| 0x05BB | Oxford Metrics plc                    |
| 0x05BC | Leviton Mfg. Co., Inc.                |
| 0x05BD | ULC Robotics Inc.                     |
| 0x05BE | RFID Global by Softwork Srl           |
| 0x05BF | Real-World-Systems Corporation        |
| 0x05C0 | Nalu Medical, Inc.                    |
| 0x05C1 | P.I.Engineering                       |
| 0x05C2 | Grote Industries                      |
| 0x05C3 | Runtime, Inc.                         |
| 0x05C4 | Codecoup sp. z o.o. sp. k.            |
| 0x05C5 | SELVE GmbH & Co. KG                   |
| 0x05C6 | Smart Animal Training Systems, LLC    |
| 0x05C7 | Lippert Components, INC               |
| 0x05C8 | SOMFY SAS                             |
| 0x05C9 | TBS Electronics B.V.                  |
| 0x05CA | MHL Custom Inc                        |
| 0x05CB | LucentWear LLC                        |
| 0x05CC | WATTS ELECTRONICS                     |
| 0x05CD | RJ Brands LLC                         |
| 0x05CE | V-ZUG Ltd                             |
| 0x05CF | Biowatch SA                           |
| 0x05D0 | Anova Applied Electronics             |
| 0x05D1 | Lindab AB                             |
| 0x05D2 | frogblue TECHNOLOGY GmbH              |
| 0x05D3 | Acurable Limited                      |

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| 0x05D4 | LAMPLIGHT Co., Ltd.               |
| 0x05D5 | TEGAM, Inc.                       |
| 0x05D6 | Zhuhai Jieli technology Co.,Ltd   |
| 0x05D7 | modum.io AG                       |
| 0x05D8 | Farm Jenny LLC                    |
| 0x05D9 | Toyo Electronics Corporation      |
| 0x05DA | Applied Neural Research Corp      |
| 0x05DB | Avid Identification Systems, Inc. |
| 0x05DC | Petronics Inc.                    |
| 0x05DD | essentim GmbH                     |
| 0x05DE | QT Medical INC.                   |
| 0x05DF | VIRTUALCLINIC.DIRECT LIMITED      |
| 0x05E0 | Viper Design LLC                  |
| 0x05E1 | Human, Incorporated               |
| 0x05E2 | stAPPtronics GmbH                 |
| 0x05E3 | Elemental Machines, Inc.          |
| 0x05E4 | Taiyo Yuden Co., Ltd              |
| 0x05E5 | INEO ENERGY& SYSTEMS              |
| 0x05E6 | Motion Instruments Inc.           |
| 0x05E7 | PressurePro                       |
| 0x05E8 | COWBOY                            |
| 0x05E9 | iconmobile GmbH                   |
| 0x05EA | ACS-Control-System GmbH           |
| 0x05EB | Bayerische Motoren Werke AG       |
| 0x05EC | Gycom Svenska AB                  |
| 0x05ED | Fuji Xerox Co., Ltd               |
| 0x05EE | Wristcam Inc.                     |
| 0x05EF | SIKOM AS                          |
| 0x05F0 | beken                             |
| 0x05F1 | The Linux Foundation              |
| 0x05F2 | Try and E CO.,LTD.                |
| 0x05F3 | SeeScan                           |
| 0x05F4 | Clarity, LLC                      |
| 0x05F5 | GS TAG                            |
| 0x05F6 | DPTechnics                        |
| 0x05F7 | TRACMO, INC.                      |

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| 0x05F8 | Anki Inc.                                 |
| 0x05F9 | Hagleitner Hygiene International GmbH     |
| 0x05FA | Konami Sports Life Co., Ltd.              |
| 0x05FB | Arblet Inc.                               |
| 0x05FC | Masbando GmbH                             |
| 0x05FD | Innoseis                                  |
| 0x05FE | Niko nv                                   |
| 0x05FF | Wellnomics Ltd                            |
| 0x0600 | iRobot Corporation                        |
| 0x0601 | Schrader Electronics                      |
| 0x0602 | Geberit International AG                  |
| 0x0603 | Fourth Evolution Inc                      |
| 0x0604 | Cell2Jack LLC                             |
| 0x0605 | FMW electronic Futterer u. Maier-Wolf OHG |
| 0x0606 | John Deere                                |
| 0x0607 | Rookery Technology Ltd                    |
| 0x0608 | KeySafe-Cloud                             |
| 0x0609 | BUCHI Labortechnik AG                     |
| 0x060A | IQAir AG                                  |
| 0x060B | Triax Technologies Inc                    |
| 0x060C | Vuzix Corporation                         |
| 0x060D | TDK Corporation                           |
| 0x060E | Blueair AB                                |
| 0x060F | Signify Netherlands B.V.                  |
| 0x0610 | ADH GUARDIAN USA LLC                      |
| 0x0611 | Beurer GmbH                               |
| 0x0612 | Playfinity AS                             |
| 0x0613 | Hans Dinslage GmbH                        |
| 0x0614 | OnAsset Intelligence, Inc.                |
| 0x0615 | INTER ACTION Corporation                  |
| 0x0616 | OS42 UG (haftungsbeschaenkt)              |
| 0x0617 | WIZCONNECTED COMPANY LIMITED              |
| 0x0618 | Audio-Technica Corporation                |
| 0x0619 | Six Guys Labs, s.r.o.                     |
| 0x061A | R.W. Beckett Corporation                  |
| 0x061B | silex technology, inc.                    |

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| 0x061C | Univations Limited                     |
| 0x061D | SENS Innovation ApS                    |
| 0x061E | Diamond Kinetics, Inc.                 |
| 0x061F | Phrame Inc.                            |
| 0x0620 | Forciot Oy                             |
| 0x0621 | Noordung d.o.o.                        |
| 0x0622 | Beam Labs, LLC                         |
| 0x0623 | Philadelphia Scientific (U.K.) Limited |
| 0x0624 | Biovotion AG                           |
| 0x0625 | Square Panda, Inc.                     |
| 0x0626 | Amplifico                              |
| 0x0627 | WEG S.A.                               |
| 0x0628 | Ensto Oy                               |
| 0x0629 | PHONEPE PVT LTD                        |
| 0x062A | Lunatico Astronomia SL                 |
| 0x062B | MinebeaMitsumi Inc.                    |
| 0x062C | ASPion GmbH                            |
| 0x062D | Vossloh-Schwabe Deutschland GmbH       |
| 0x062E | Procept                                |
| 0x062F | ONKYO Corporation                      |
| 0x0630 | Asthrea D.O.O.                         |
| 0x0631 | Fortiori Design LLC                    |
| 0x0632 | Hugo Muller GmbH & Co KG               |
| 0x0633 | Wangi Lai PLT                          |
| 0x0634 | Fanstel Corp                           |
| 0x0635 | Crookwood                              |
| 0x0636 | ELECTRONICA INTEGRAL DE SONIDO S.A.    |
| 0x0637 | GiP Innovation Tools GmbH              |
| 0x0638 | LX SOLUTIONS PTY LIMITED               |
| 0x0639 | Shenzhen Minew Technologies Co., Ltd.  |
| 0x063A | Prolojik Limited                       |
| 0x063B | Kromek Group Plc                       |
| 0x063C | Contec Medical Systems Co., Ltd.       |
| 0x063D | Xradio Technology Co.,Ltd.             |
| 0x063E | The Indoor Lab, LLC                    |
| 0x063F | LDL TECHNOLOGY                         |

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| 0x0640 | Dish Network LLC                             |
| 0x0641 | Revenue Collection Systems FRANCE SAS        |
| 0x0642 | Bluetrum Technology Co.,Ltd                  |
| 0x0643 | makita corporation                           |
| 0x0644 | Apogee Instruments                           |
| 0x0645 | BM3  |
| 0x0646 | SGV Group Holding GmbH & Co. KG              |
| 0x0647 | MED-EL                                       |
| 0x0648 | Ultune Technologies                          |
| 0x0649 | Ryeex Technology Co.,Ltd.                    |
| 0x064A | Open Research Institute, Inc.                |
| 0x064B | Scale-Tec, Ltd                               |
| 0x064C | Zumtobel Group AG                            |
| 0x064D | iLOQ Oy                                      |
| 0x064E | KRUXWorks Technologies Private Limited       |
| 0x064F | Digital Matter Pty Ltd                       |
| 0x0650 | Coravin, Inc.                                |
| 0x0651 | Stasis Labs, Inc.                            |
| 0x0652 | ITZ Innovations- und Technologiezentrum GmbH |
| 0x0653 | Meggitt SA                                   |
| 0x0654 | Ledlenser GmbH & Co. KG                      |
| 0x0655 | Renishaw PLC                                 |
| 0x0656 | ZhuHai AdvanPro Technology Company Limited   |
| 0x0657 | Meshtronix Limited                           |
| 0x0658 | Payex Norge AS                               |
| 0x0659 | UnSeen Technologies Oy                       |
| 0x065A | Zound Industries International AB            |
| 0x065B | Sesam Solutions BV                           |
| 0x065C | PixArt Imaging Inc.                          |
| 0x065D | Panduit Corp.                                |
| 0x065E | Alo AB                                       |
| 0x065F | Ricoh Company Ltd                            |
| 0x0660 | RTC Industries, Inc.                         |
| 0x0661 | Mode Lighting Limited                        |
| 0x0662 | Particle Industries, Inc.                    |
| 0x0663 | Advanced Telemetry Systems, Inc.             |

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| 0x0664 | RHA TECHNOLOGIES LTD  |
| 0x0665 | Pure International Limited  |
| 0x0666 | WTO Werkzeug-Einrichtungen GmbH   |
| 0x0667 | Spark Technology Labs Inc.  |
| 0x0668 | Bleb Technology srl   |
| 0x0669 | Livanova USA, Inc.  |
| 0x066A | Brady Worldwide Inc.  |
| 0x066B | DewertOkin GmbH   |
| 0x066C | Ztove ApS   |
| 0x066D | Venso EcoSolutions AB   |
| 0x066E | Eurotronik Kranj d.o.o.   |
| 0x066F | Hug Technology Ltd  |
| 0x0670 | Gema Switzerland GmbH   |
| 0x0671 | Buzz Products Ltd.  |
| 0x0672 | Kopi  |
| 0x0673 | Innova Ideas Limited  |
| 0x0674 | BeSpoon   |
| 0x0675 | Deco Enterprises, Inc.  |
| 0x0676 | Expai Solutions Private Limited   |
| 0x0677 | Innovation First, Inc.  |
| 0x0678 | SABIK Offshore GmbH   |
| 0x0679 | 4iiii Innovations Inc.  |
| 0x067A | The Energy Conservatory, Inc.   |
| 0x067B | I.FARM, INC.  |
| 0x067C | Tile, Inc.  |
| 0x067D | Form Athletica Inc.   |
| 0x067E | MbientLab Inc   |
| 0x067F | NETGRID S.N.C. DI BISSOLI MATTEO, CAMPOREALE SIMONE,<br>TOGNETTI FEDERICO |
| 0x0680 | Mankind Corporation   |
| 0x0681 | Trade FIDES a.s.  |
| 0x0682 | Photron Limited   |
| 0x0683 | Eltako GmbH   |
| 0x0684 | Dermalapps, LLC   |
| 0x0685 | Greenwald Industries  |
| 0x0686 | inQs Co., Ltd.  |



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| 0x0687 | Cherry GmbH   |
| 0x0688 | Amsted Digital Solutions Inc.                             |
| 0x0689 | Tacx b.v.   |
| 0x068A | Raytac Corporation  |
| 0x068B | Jiangsu Teranovo Tech Co., Ltd.                           |
| 0x068C | Changzhou Sound Dragon Electronics and Acoustics Co., Ltd |
| 0x068D | JetBeep Inc.  |
| 0x068E | Razer Inc.  |
| 0x068F | JRM Group Limited   |
| 0x0690 | Eccrine Systems, Inc.                                     |
| 0x0691 | Curie Point AB  |
| 0x0692 | Georg Fischer AG  |
| 0x0693 | Hach - Danaher  |
| 0x0694 | T&A Laboratories LLC                                      |
| 0x0695 | Koki Holdings Co., Ltd.                                   |
| 0x0696 | Gunakar Private Limited                                   |
| 0x0697 | Stemco Products Inc                                       |
| 0x0698 | Wood IT Security, LLC                                     |
| 0x0699 | RandomLab SAS   |
| 0x069A | Adero, Inc.   |
| 0x069B | Dragonchip Limited  |
| 0x069C | Noomi AB  |
| 0x069D | Vakaros LLC   |
| 0x069E | Delta Electronics, Inc.                                   |
| 0x069F | FlowMotion Technologies AS                                |
| 0x06A0 | OBIQ Location Technology Inc.                             |
| 0x06A1 | Cardo Systems, Ltd  |
| 0x06A2 | Globalworx GmbH   |
| 0x06A3 | Nymbus, LLC   |
| 0x06A4 | LIMNO Co. Ltd.  |
| 0x06A5 | TEKZITEL PTY LTD  |
| 0x06A6 | Roambee Corporation                                       |
| 0x06A7 | Chipsea Technologies (ShenZhen) Corp.                     |
| 0x06A8 | GD Midea Air-Conditioning Equipment Co., Ltd.             |
| 0x06A9 | Soundmax Electronics Limited                              |
| 0x06AA | Produal Oy  |

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| 0x06AB | HMS Industrial Networks AB                                   |
| 0x06AC | Ingchips Technology Co., Ltd.                                |
| 0x06AD | InnovaSea Systems Inc.                                       |
| 0x06AE | SenseQ Inc.  |
| 0x06AF | Shoof Technologies   |
| 0x06B0 | BRK Brands, Inc.   |
| 0x06B1 | SimpliSafe, Inc.   |
| 0x06B2 | Tussock Innovation 2013 Limited                              |
| 0x06B3 | The Hablab ApS   |
| 0x06B4 | Sencilion Oy   |
| 0x06B5 | Wabilogic Ltd.   |
| 0x06B6 | Sociometric Solutions, Inc.                                  |
| 0x06B7 | iCOGNIZE GmbH  |
| 0x06B8 | ShadeCraft, Inc  |
| 0x06B9 | Beflex Inc.  |
| 0x06BA | Beaconzone Ltd   |
| 0x06BB | Leaftronix Analogic Solutions Private Limited                |
| 0x06BC | TWS Srl  |
| 0x06BD | ABB Oy   |
| 0x06BE | HitSeed Oy   |
| 0x06BF | Delcom Products Inc.   |
| 0x06C0 | CAME S.p.A.  |
| 0x06C1 | Alarm.com Holdings, Inc                                      |
| 0x06C2 | Measurlogic Inc.   |
| 0x06C3 | King I Electronics.Co.,Ltd                                   |
| 0x06C4 | Dream Labs GmbH  |
| 0x06C5 | Urban Compass, Inc   |
| 0x06C6 | Simm Tronic Limited  |
| 0x06C7 | Somatix Inc  |
| 0x06C8 | Storz & Bickel GmbH & Co. KG                                 |
| 0x06C9 | MYLAPS B.V.  |
| 0x06CA | Shenzhen Zhongguang Infotech Technology Development Co., Ltd |
| 0x06CB | Dyeware, LLC   |
| 0x06CC | Dongguan SmartAction Technology Co.,Ltd.                     |
| 0x06CD | DIG Corporation  |
| 0x06CE | FIOR & GENTZ   |

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| 0x06CF | Belparts N.V.                           |
| 0x06D0 | Etekciry Corporation                    |
| 0x06D1 | Meyer Sound Laboratories, Incorporated  |
| 0x06D2 | CeoTronics AG                           |
| 0x06D3 | TriTeq Lock and Security, LLC           |
| 0x06D4 | DYNAKODE TECHNOLOGY PRIVATE LIMITED     |
| 0x06D5 | Sensirion AG                            |
| 0x06D6 | JCT Healthcare Pty Ltd                  |
| 0x06D7 | FUBA Automotive Electronics GmbH        |
| 0x06D8 | AW Company                              |
| 0x06D9 | Shanghai Mountain View Silicon Co.,Ltd. |
| 0x06DA | Zliide Technologies ApS                 |
| 0x06DB | Automatic Labs, Inc.                    |
| 0x06DC | Industrial Network Controls, LLC        |
| 0x06DD | Intellithings Ltd.                      |
| 0x06DE | Navcast, Inc.                           |
| 0x06DF | HLI Solutions Inc.                      |
| 0x06E0 | Avaya Inc.                              |
| 0x06E1 | Milestone AV Technologies LLC           |
| 0x06E2 | Alango Technologies Ltd                 |
| 0x06E3 | Spinlock Ltd                            |
| 0x06E4 | Aluna                                   |
| 0x06E5 | OPTEX CO.,LTD.                          |
| 0x06E6 | NIHON DENGYO KOUSAKU                    |
| 0x06E7 | VELUX A/S                               |
| 0x06E8 | Almendo Technologies GmbH               |
| 0x06E9 | Zmartfun Electronics, Inc.              |
| 0x06EA | SafeLine Sweden AB                      |
| 0x06EB | Houston Radar LLC                       |
| 0x06EC | Sigur                                   |
| 0x06ED | J Neades Ltd                            |
| 0x06EE | Avantis Systems Limited                 |
| 0x06EF | ALCARE Co., Ltd.                        |
| 0x06F0 | Chargy Technologies, SL                 |
| 0x06F1 | Shibutani Co., Ltd.                     |
| 0x06F2 | Trapper Data AB                         |

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| 0x06F3 | Alfred International Inc.                       |
| 0x06F4 | Touché Technology Ltd                           |
| 0x06F5 | Vigil Technologies Inc.                         |
| 0x06F6 | Vitulo Plus BV                                  |
| 0x06F7 | WILKA Schliesstechnik GmbH                      |
| 0x06F8 | BodyPlus Technology Co.,Ltd                     |
| 0x06F9 | happybrush GmbH                                 |
| 0x06FA | Enequi AB                                       |
| 0x06FB | Sartorius AG                                    |
| 0x06FC | Tom Communication Industrial Co.,Ltd.           |
| 0x06FD | ESS Embedded System Solutions Inc.              |
| 0x06FE | Mahr GmbH                                       |
| 0x06FF | Redpine Signals Inc                             |
| 0x0700 | TraqFreq LLC                                    |
| 0x0701 | PAFERS TECH                                     |
| 0x0702 | Akciju sabiedriba "SAF TEHNIKA"                 |
| 0x0703 | Beijing Jingdong Century Trading Co., Ltd.      |
| 0x0704 | JBX Designs Inc.                                |
| 0x0705 | AB Electrolux                                   |
| 0x0706 | Wernher von Braun Center for ASdvanced Research |
| 0x0707 | Essity Hygiene and Health Aktiebolag            |
| 0x0708 | Be Interactive Co., Ltd                         |
| 0x0709 | Carewear Corp.                                  |
| 0x070A | Huf Hüsbeck & Fürst GmbH & Co. KG               |
| 0x070B | Element Products, Inc.                          |
| 0x070C | Beijing Winner Microelectronics Co.,Ltd         |
| 0x070D | SmartSnugg Pty Ltd                              |
| 0x070E | FiveCo Sarl                                     |
| 0x070F | California Things Inc.                          |
| 0x0710 | Audiodo AB                                      |
| 0x0711 | ABAX AS   |
| 0x0712 | Bull Group Company Limited                      |
| 0x0713 | Respiri Limited                                 |
| 0x0714 | MindPeace Safety LLC                            |
| 0x0715 | MBARC LABS Inc                                  |
| 0x0716 | Altonics  |

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| 0x0717 | iQsquare BV   |
| 0x0718 | IDIBAIX engineering                                 |
| 0x0719 | COREIOT PTY LTD                                     |
| 0x071A | REVSMART WEARABLE HK CO LTD                         |
| 0x071B | Precor  |
| 0x071C | F5 Sports, Inc                                      |
| 0x071D | exoTIC Systems                                      |
| 0x071E | DONGGUAN HELE ELECTRONICS CO., LTD                  |
| 0x071F | Dongguan Liesheng Electronic Co.Ltd                 |
| 0x0720 | Oculeve, Inc.                                       |
| 0x0721 | Clover Network, Inc.                                |
| 0x0722 | Xiamen Eholder Electronics Co.Ltd                   |
| 0x0723 | Ford Motor Company                                  |
| 0x0724 | Guangzhou SuperSound Information Technology Co.,Ltd |
| 0x0725 | Tedee Sp. z o.o.                                    |
| 0x0726 | PHC Corporation                                     |
| 0x0727 | STALKIT AS  |
| 0x0728 | Eli Lilly and Company                               |
| 0x0729 | SwaraLink Technologies                              |
| 0x072A | JMR embedded systems GmbH                           |
| 0x072B | Bitkey Inc.   |
| 0x072C | GWA Hygiene GmbH                                    |
| 0x072D | Safera Oy   |
| 0x072E | Open Platform Systems LLC                           |
| 0x072F | OnePlus Electronics (Shenzhen) Co., Ltd.            |
| 0x0730 | Wildlife Acoustics, Inc.                            |
| 0x0731 | ABLIC Inc.  |
| 0x0732 | Dairy Tech, LLC                                     |
| 0x0733 | Iguanavation, Inc.                                  |
| 0x0734 | DiUS Computing Pty Ltd                              |
| 0x0735 | UpRight Technologies LTD                            |
| 0x0736 | Luna XIO, Inc.                                      |
| 0x0737 | LLC Navitek   |
| 0x0738 | Glass Security Pte Ltd                              |
| 0x0739 | Jiangsu Qinheng Co., Ltd.                           |
| 0x073A | Chandler Systems Inc.                               |

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| 0x073B | Fantini Cosmi s.p.a.                                  |
| 0x073C | Acubit ApS  |
| 0x073D | Beijing Hao Heng Tian Tech Co., Ltd.                  |
| 0x073E | Bluepack S.R.L.                                       |
| 0x073F | Beijing Unisoc Technologies Co., Ltd.                 |
| 0x0740 | HITIQ LIMITED   |
| 0x0741 | MAC SRL   |
| 0x0742 | DML LLC   |
| 0x0743 | Sanofi  |
| 0x0744 | SOCOMEK   |
| 0x0745 | WIZNOVA, Inc.   |
| 0x0746 | Seitec Elektronik GmbH                                |
| 0x0747 | OR Technologies Pty Ltd                               |
| 0x0748 | GuangZhou KuGou Computer Technology Co.Ltd            |
| 0x0749 | DIAODIAO (Beijing) Technology Co., Ltd.               |
| 0x074A | Illusory Studios LLC                                  |
| 0x074B | Sarvavid Software Solutions LLP                       |
| 0x074C | iopool s.a.   |
| 0x074D | Amtech Systems, LLC                                   |
| 0x074E | EAGLE DETECTION SA                                    |
| 0x074F | MEDIATECH S.R.L.                                      |
| 0x0750 | Hamilton Professional Services of Canada Incorporated |
| 0x0751 | Changsha JEMO IC Design Co.,Ltd                       |
| 0x0752 | Elatec GmbH   |
| 0x0753 | JLG Industries, Inc.                                  |
| 0x0754 | Michael Parkin  |
| 0x0755 | Brother Industries, Ltd                               |
| 0x0756 | Lumens For Less, Inc                                  |
| 0x0757 | ELA Innovation  |
| 0x0758 | umanSense AB  |
| 0x0759 | Shanghai InGeek Cyber Security Co., Ltd.              |
| 0x075A | HARMAN CO.,LTD.                                       |
| 0x075B | Smart Sensor Devices AB                               |
| 0x075C | Antitronics Inc.                                      |
| 0x075D | RHOMBUS SYSTEMS, INC.                                 |
| 0x075E | Katerra Inc.  |

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| 0x075F | Remote Solution Co., LTD.                   |
| 0x0760 | Vimar SpA                                   |
| 0x0761 | Mantis Tech LLC                             |
| 0x0762 | TerOpta Ltd                                 |
| 0x0763 | PIKOLIN S.L.                                |
| 0x0764 | WWZN Information Technology Company Limited |
| 0x0765 | Voxx International                          |
| 0x0766 | ART AND PROGRAM, INC.                       |
| 0x0767 | NITTO DENKO ASIA TECHNICAL CENTRE PTE. LTD. |
| 0x0768 | Peloton Interactive Inc.                    |
| 0x0769 | Force Impact Technologies                   |
| 0x076A | Dmac Mobile Developments, LLC               |
| 0x076B | Engineered Medical Technologies             |
| 0x076C | Noodle Technology inc                       |
| 0x076D | Graesslin GmbH                              |
| 0x076E | WuQi technologies, Inc.                     |
| 0x076F | Successful Endeavours Pty Ltd               |
| 0x0770 | InnoCon Medical ApS                         |
| 0x0771 | Corvex Connected Safety                     |
| 0x0772 | Thirdwayv Inc.                              |
| 0x0773 | Echoflex Solutions Inc.                     |
| 0x0774 | C-MAX Asia Limited                          |
| 0x0775 | 4eBusiness GmbH                             |
| 0x0776 | Cyber Transport Control GmbH                |
| 0x0777 | Cue   |
| 0x0778 | KOAMTAC INC.                                |
| 0x0779 | Loopshore Oy                                |
| 0x077A | Niruha Systems Private Limited              |
| 0x077B | AmaterZ, Inc.                               |
| 0x077C | radius co., ltd.                            |
| 0x077D | Sensority, s.r.o.                           |
| 0x077E | Sparkage Inc.                               |
| 0x077F | Glenview Software Corporation               |
| 0x0780 | Finch Technologies Ltd.                     |
| 0x0781 | Qingping Technology (Beijing) Co., Ltd.     |
| 0x0782 | DeviceDrive AS                              |

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| 0x0783 | ESEMBER LIMITED LIABILITY COMPANY                    |
| 0x0784 | audifon GmbH & Co. KG                                |
| 0x0785 | O2 Micro, Inc.                                       |
| 0x0786 | HLP Controls Pty Limited                             |
| 0x0787 | Pangaea Solution                                     |
| 0x0788 | BubblyNet, LLC                                       |
| 0x0789 | PCB Piezotronics, Inc.                               |
| 0x078A | The Wildflower Foundation                            |
| 0x078B | Optikam Tech Inc.                                    |
| 0x078C | MINIBREW HOLDING B.V                                 |
| 0x078D | Cybex GmbH   |
| 0x078E | FUJIMIC NIIGATA, INC.                                |
| 0x078F | Hanna Instruments, Inc.                              |
| 0x0790 | KOMPAN A/S   |
| 0x0791 | Scosche Industries, Inc.                             |
| 0x0792 | Cricut, Inc.   |
| 0x0793 | AEV spol. s r.o.                                     |
| 0x0794 | The Coca-Cola Company                                |
| 0x0795 | GASTEC CORPORATION                                   |
| 0x0796 | StarLeaf Ltd   |
| 0x0797 | Water-i.d. GmbH                                      |
| 0x0798 | HoloKit, Inc.  |
| 0x0799 | PlantChoir Inc.                                      |
| 0x079A | GuangDong Oppo Mobile Telecommunications Corp., Ltd. |
| 0x079B | CST ELECTRONICS (PROPRIETARY) LIMITED                |
| 0x079C | Sky UK Limited                                       |
| 0x079D | Digibale Pty Ltd                                     |
| 0x079E | Smartloxx GmbH                                       |
| 0x079F | Pune Scientific LLP                                  |
| 0x07A0 | Regent Beleuchtungskorper AG                         |
| 0x07A1 | Apollo Neuroscience, Inc.                            |
| 0x07A2 | Roku, Inc.   |
| 0x07A3 | Comcast Cable  |
| 0x07A4 | Xiamen Mage Information Technology Co., Ltd.         |
| 0x07A5 | RAB Lighting, Inc.                                   |
| 0x07A6 | Musen Connect, Inc.                                  |



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| 0x07A7 | Zume, Inc.                        |
| 0x07A8 | conbee GmbH                       |
| 0x07A9 | Bruel & Kjaer Sound & Vibration   |
| 0x07AA | The Kroger Co.                    |
| 0x07AB | Granite River Solutions, Inc.     |
| 0x07AC | LoupeDeck Oy                      |
| 0x07AD | New H3C Technologies Co.,Ltd      |
| 0x07AE | Aurea Solucoes Tecnologicas Ltda. |
| 0x07AF | Hong Kong Bouffalo Lab Limited    |
| 0x07B0 | GV Concepts Inc.                  |
| 0x07B1 | Thomas Dynamics, LLC              |
| 0x07B2 | Moeco IOT Inc.                    |
| 0x07B3 | 2N TELEKOMUNIKACE a.s.            |
| 0x07B4 | Hormann KG Antriebstechnik        |
| 0x07B5 | CRONO CHIP, S.L.                  |
| 0x07B6 | Soundbrenner Limited              |
| 0x07B7 | ETABLISSEMENTS GEORGES RENAULT    |
| 0x07B8 | iSwip                             |
| 0x07B9 | Epona Biotec Limited              |
| 0x07BA | Battery-Biz Inc.                  |
| 0x07BB | EPIC S.R.L.                       |
| 0x07BC | KD CIRCUITS LLC                   |
| 0x07BD | Genedrive Diagnostics Ltd         |
| 0x07BE | Axentia Technologies AB           |
| 0x07BF | REGULA Ltd.                       |
| 0x07C0 | Biral AG                          |
| 0x07C1 | A.W. Chesterton Company           |
| 0x07C2 | Radinn AB                         |
| 0x07C3 | CIMTechniques, Inc.               |
| 0x07C4 | Johnson Health Tech NA            |
| 0x07C5 | June Life, Inc.                   |
| 0x07C6 | Bluenetics GmbH                   |
| 0x07C7 | iaconicDesign Inc.                |
| 0x07C8 | WRLDS Creations AB                |
| 0x07C9 | Skullcandy, Inc.                  |
| 0x07CA | Modul-System HH AB                |

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| 0x07CB | West Pharmaceutical Services, Inc.                |
| 0x07CC | Barnacle Systems Inc.                             |
| 0x07CD | Smart Wave Technologies Canada Inc                |
| 0x07CE | Shanghai Top-Chip Microelectronics Tech. Co., LTD |
| 0x07CF | NeoSensory, Inc.                                  |
| 0x07D0 | Hangzhou Tuya Information Technology Co., Ltd     |
| 0x07D1 | Shanghai Panchip Microelectronics Co., Ltd        |
| 0x07D2 | React Accessibility Limited                       |
| 0x07D3 | LIVNEX Co.,Ltd.                                   |
| 0x07D4 | Kano Computing Limited                            |
| 0x07D5 | hoots classic GmbH                                |
| 0x07D6 | ecobee Inc.                                       |
| 0x07D7 | Nanjing Qinheng Microelectronics Co., Ltd         |
| 0x07D8 | SOLUTIONS AMBRA INC.                              |
| 0x07D9 | Micro-Design, Inc.                                |
| 0x07DA | STARLITE Co., Ltd.                                |
| 0x07DB | Remedee Labs                                      |
| 0x07DC | ThingOS GmbH & Co KG                              |
| 0x07DD | Linear Circuits                                   |
| 0x07DE | Unlimited Engineering SL                          |
| 0x07DF | Snap-on Incorporated                              |
| 0x07E0 | Edifier International Limited                     |
| 0x07E1 | Lucie Labs  |
| 0x07E2 | Alfred Kaercher SE & Co. KG                       |
| 0x07E3 | Airoha Technology Corp.                           |
| 0x07E4 | Geeksme S.L.                                      |
| 0x07E5 | Minut, Inc.                                       |
| 0x07E6 | Waybeyond Limited                                 |
| 0x07E7 | Komfort IQ, Inc.                                  |
| 0x07E8 | Packetcraft, Inc.                                 |
| 0x07E9 | Häfele GmbH & Co KG                               |
| 0x07EA | ShapeLog, Inc.                                    |
| 0x07EB | NOVABASE S.R.L.                                   |
| 0x07EC | Frecce LLC  |
| 0x07ED | Joule IQ, INC.                                    |
| 0x07EE | KidzTek LLC                                       |

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| 0x07EF | Aktiebolaget Sandvik Coromant                                    |
| 0x07F0 | e-moola.com Pty Ltd  |
| 0x07F1 | Zimi Innovations Pty Ltd   |
| 0x07F2 | SERENE GROUP, INC  |
| 0x07F3 | DIGISINE ENERGYTECH CO. LTD.                                     |
| 0x07F4 | MEDIRLAB Orvosbiologiai Fejlesztó Korlátolt Felelősségű Társaság |
| 0x07F5 | Byton North America Corporation                                  |
| 0x07F6 | Shenzhen TonliScience and Technology Development Co.,Ltd         |
| 0x07F7 | Cesar Systems Ltd.   |
| 0x07F8 | quip NYC Inc.  |
| 0x07F9 | Direct Communication Solutions, Inc.                             |
| 0x07FA | Klipsch Group, Inc.  |
| 0x07FB | Access Co., Ltd  |
| 0x07FC | Renault SA   |
| 0x07FD | JSK CO., LTD.  |
| 0x07FE | BIROTA   |
| 0x07FF | maxon motor ltd.   |
| 0x0800 | Optek  |
| 0x0801 | CRONUS ELECTRONICS LTD   |
| 0x0802 | NantSound, Inc.  |
| 0x0803 | Domintell s.a.   |
| 0x0804 | Andon Health Co.,Ltd   |
| 0x0805 | Urbanminded Ltd  |
| 0x0806 | TYRI Sweden AB   |
| 0x0807 | ECD Electronic Components GmbH Dresden                           |
| 0x0808 | SISTEMAS KERN, SOCIEDAD ANÓNIMA                                  |
| 0x0809 | Trulli Audio   |
| 0x080A | Altaneos   |
| 0x080B | Nanoleaf Canada Limited  |
| 0x080C | Ingy B.V.  |
| 0x080D | Azbil Co.  |
| 0x080E | TATTCOM LLC  |
| 0x080F | Paradox Engineering SA   |
| 0x0810 | LECO Corporation   |
| 0x0811 | Becker Antriebe GmbH   |
| 0x0812 | Mstream Technologies., Inc.                                      |

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| 0x0813 | Flextronics International USA Inc.                 |
| 0x0814 | Ossur hf.  |
| 0x0815 | SKC Inc  |
| 0x0816 | SPICA SYSTEMS LLC                                  |
| 0x0817 | Wangs Alliance Corporation                         |
| 0x0818 | tatwah SA  |
| 0x0819 | Hunter Douglas Inc                                 |
| 0x081A | Shenzhen Conex                                     |
| 0x081B | DIM3   |
| 0x081C | Bobrick Washroom Equipment, Inc.                   |
| 0x081D | Potrykus Holdings and Development LLC              |
| 0x081E | iNFORM Technology GmbH                             |
| 0x081F | eSenseLab LTD                                      |
| 0x0820 | Brilliant Home Technology, Inc.                    |
| 0x0821 | INOVA Geophysical, Inc.                            |
| 0x0822 | adafruit industries                                |
| 0x0823 | Nexite Ltd   |
| 0x0824 | 8Power Limited                                     |
| 0x0825 | CME PTE. LTD.                                      |
| 0x0826 | Hyundai Motor Company                              |
| 0x0827 | Kickmaker  |
| 0x0828 | Shanghai Suisheng Information Technology Co., Ltd. |
| 0x0829 | HEXAGON METROLOGY DIVISION ROMER                   |
| 0x082A | Mitutoyo Corporation                               |
| 0x082B | shenzhen fitcare electronics Co.,Ltd               |
| 0x082C | INGICS TECHNOLOGY CO., LTD.                        |
| 0x082D | INCUS PERFORMANCE LTD.                             |
| 0x082E | ABB S.p.A.   |
| 0x082F | Blippit AB   |
| 0x0830 | Core Health and Fitness LLC                        |
| 0x0831 | Foxble, LLC  |
| 0x0832 | Intermotive, Inc.                                  |
| 0x0833 | Conneqtech B.V.                                    |
| 0x0834 | RIKEN KEIKI CO., LTD.,                             |
| 0x0835 | Canopy Growth Corporation                          |
| 0x0836 | Bitwards Oy  |

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| 0x0837 | vivo Mobile Communication Co., Ltd.              |
| 0x0838 | Etymotic Research, Inc.                          |
| 0x0839 | A puissance 3                                    |
| 0x083A | BPW Bergische Achsen Kommanditgesellschaft       |
| 0x083B | Piaggio Fast Forward                             |
| 0x083C | BeerTech LTD                                     |
| 0x083D | Tokenize, Inc.                                   |
| 0x083E | Zorachka LTD                                     |
| 0x083F | D-Link Corp.                                     |
| 0x0840 | Down Range Systems LLC                           |
| 0x0841 | General Luminaire (Shanghai) Co., Ltd.           |
| 0x0842 | Tangshan HongJia electronic technology co., LTD. |
| 0x0843 | FRAGRANCE DELIVERY TECHNOLOGIES LTD              |
| 0x0844 | Pepperl + Fuchs GmbH                             |
| 0x0845 | Dometic Corporation                              |
| 0x0846 | USound GmbH                                      |
| 0x0847 | DNANUDGE LIMITED                                 |
| 0x0848 | JUJU JOINTS CANADA CORP.                         |
| 0x0849 | Dopple Technologies B.V.                         |
| 0x084A | ARCOM  |
| 0x084B | Biotechware SRL                                  |
| 0x084C | ORSO Inc.  |
| 0x084D | SafePort   |
| 0x084E | Carol Cole Company                               |
| 0x084F | Embedded Fitness B.V.                            |
| 0x0850 | Yealink (Xiamen) Network Technology Co.,LTD      |
| 0x0851 | Subeca, Inc.                                     |
| 0x0852 | Cognosos, Inc.                                   |
| 0x0853 | Pektron Group Limited                            |
| 0x0854 | Tap Sound System                                 |
| 0x0855 | Helios Sports, Inc.                              |
| 0x0856 | Canopy Growth Corporation                        |
| 0x0857 | Parsyl Inc                                       |
| 0x0858 | SOUNDBOKS  |
| 0x0859 | BlueUp   |
| 0x085A | DAKATECH   |

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| 0x085B | Nisshinbo Micro Devices Inc.                   |
| 0x085C | ACOS CO.,LTD.                                  |
| 0x085D | Guilin Zhishen Information Technology Co.,Ltd. |
| 0x085E | Krog Systems LLC                               |
| 0x085F | COMPEGPS TEAM,SOCIEDAD LIMITADA                |
| 0x0860 | Alflex Products B.V.                           |
| 0x0861 | SmartSensor Labs Ltd                           |
| 0x0862 | SmartDrive                                     |
| 0x0863 | Yo-tronics Technology Co., Ltd.                |
| 0x0864 | Rafaelmicro                                    |
| 0x0865 | Emergency Lighting Products Limited            |
| 0x0866 | LAONZ Co.,Ltd                                  |
| 0x0867 | Western Digital Technologies, Inc.             |
| 0x0868 | WIOsense GmbH & Co. KG                         |
| 0x0869 | EVVA Sicherheitstechnologie GmbH               |
| 0x086A | Odic Incorporated                              |
| 0x086B | Pacific Track, LLC                             |
| 0x086C | Revvo Technologies, Inc.                       |
| 0x086D | Biometrika d.o.o.                              |
| 0x086E | Vorwerk Elektrowerke GmbH & Co. KG             |
| 0x086F | Trackunit A/S                                  |
| 0x0870 | Wyze Labs, Inc                                 |
| 0x0871 | Dension Elektronikai Kft.                      |
| 0x0872 | 11 Health & Technologies Limited               |
| 0x0873 | Innophase Incorporated                         |
| 0x0874 | Treegreen Limited                              |
| 0x0875 | Berner International LLC                       |
| 0x0876 | SmartResQ ApS                                  |
| 0x0877 | Tome, Inc.                                     |
| 0x0878 | The Chamberlain Group, Inc.                    |
| 0x0879 | MIZUNO Corporation                             |
| 0x087A | ZRF, LLC                                       |
| 0x087B | BYSTAMP  |
| 0x087C | Crosscan GmbH                                  |
| 0x087D | Konftel AB                                     |
| 0x087E | 1bar.net Limited                               |

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| 0x087F | Phillips Connect Technologies LLC                                       |
| 0x0880 | imagiLabs AB  |
| 0x0881 | Optalert  |
| 0x0882 | PSYONIC, Inc.   |
| 0x0883 | Wintersteiger AG  |
| 0x0884 | Controlid Industria, Comercio de Hardware e Servicos de Tecnologia Ltda |
| 0x0885 | LEVOLOR INC   |
| 0x0886 | Movella Technologies B.V.   |
| 0x0887 | Hydro-Gear Limited Partnership  |
| 0x0888 | EnPointe Fencing Pty Ltd  |
| 0x0889 | XANTHIO   |
| 0x088A | sclak s.r.l.  |
| 0x088B | Tricorder Arraay Technologies LLC                                       |
| 0x088C | GB Solution co.,Ltd   |
| 0x088D | Soliton Systems K.K.  |
| 0x088E | GIGA-TMS INC  |
| 0x088F | Tait International Limited  |
| 0x0890 | NICHIEI INTEC CO., LTD.   |
| 0x0891 | SmartWireless GmbH & Co. KG   |
| 0x0892 | Ingenieurbuero Birnfeld UG (haftungsbeschraenkt)                        |
| 0x0893 | Maytronics Ltd  |
| 0x0894 | EPIFIT  |
| 0x0895 | Gimer medical   |
| 0x0896 | Nokian Renkaat Oyj  |
| 0x0897 | Current Lighting Solutions LLC  |
| 0x0898 | Sensibo, Inc.   |
| 0x0899 | SFS unimarket AG  |
| 0x089A | Private limited company "Teltonika"                                     |
| 0x089B | Saucon Technologies   |
| 0x089C | Embedded Devices Co. Company  |
| 0x089D | J-J.A.D.E. Enterprise LLC   |
| 0x089E | i-SENS, inc.  |
| 0x089F | Witschi Electronic Ltd  |
| 0x08A0 | Aclara Technologies LLC   |
| 0x08A1 | EXEO TECH CORPORATION   |
| 0x08A2 | Epic Systems Co., Ltd.  |

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| 0x08A3 | Hoffmann SE  |
| 0x08A4 | Realme Chongqing Mobile Telecommunications Corp., Ltd. |
| 0x08A5 | UMEHEAL Ltd  |
| 0x08A6 | Intelligenceworks Inc.                                 |
| 0x08A7 | TGR 1.618 Limited                                      |
| 0x08A8 | Shanghai Kfcube Inc                                    |
| 0x08A9 | Fraunhofer IIS   |
| 0x08AA | SZ DJI TECHNOLOGY CO.,LTD                              |
| 0x08AB | Coburn Technology, LLC                                 |
| 0x08AC | Topre Corporation                                      |
| 0x08AD | Kayamatics Limited                                     |
| 0x08AE | Moticon ReGo AG  |
| 0x08AF | Polidea Sp. z o.o.                                     |
| 0x08B0 | Trivedi Advanced Technologies LLC                      |
| 0x08B1 | CORE vision BV   |
| 0x08B2 | PF SCHWEISSTECHNOLOGIE GMBH                            |
| 0x08B3 | IONIQ Skincare GmbH & Co. KG                           |
| 0x08B4 | Sengled Co., Ltd.                                      |
| 0x08B5 | TransferFi   |
| 0x08B6 | Boehringer Ingelheim Vetmedica GmbH                    |
| 0x08B7 | ABB Inc  |
| 0x08B8 | Check Technology Solutions LLC                         |
| 0x08B9 | U-Shin Ltd.  |
| 0x08BA | HYPER ICE, INC.  |
| 0x08BB | Tokai-rika co.,ltd.                                    |
| 0x08BC | Prevayl Limited  |
| 0x08BD | bf1systems limited                                     |
| 0x08BE | ubisys technologies GmbH                               |
| 0x08BF | SIRC Co., Ltd.   |
| 0x08C0 | Accent Advanced Systems SLU                            |
| 0x08C1 | Rayden.Earth LTD                                       |
| 0x08C2 | Lindinvent AB  |
| 0x08C3 | CHIPOLO d.o.o.   |
| 0x08C4 | CellAssist, LLC  |
| 0x08C5 | J. Wagner GmbH   |
| 0x08C6 | Integra Optics Inc                                     |



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| 0x08C7 | Monadnock Systems Ltd.                           |
| 0x08C8 | Liteboxer Technologies Inc.                      |
| 0x08C9 | Noventa AG                                       |
| 0x08CA | Nubia Technology Co.,Ltd.                        |
| 0x08CB | JT INNOVATIONS LIMITED                           |
| 0x08CC | TGM TECHNOLOGY CO., LTD.                         |
| 0x08CD | ifly   |
| 0x08CE | ZIMI CORPORATION                                 |
| 0x08CF | betternotstealmybike UG (with limited liability) |
| 0x08D0 | ESTOM Infotech Kft.                              |
| 0x08D1 | Sensovium Inc.                                   |
| 0x08D2 | Virscient Limited                                |
| 0x08D3 | Novel Bits, LLC                                  |
| 0x08D4 | ADATA Technology Co., LTD.                       |
| 0x08D5 | KEYes  |
| 0x08D6 | Nome Oy  |
| 0x08D7 | Inovonics Corp                                   |
| 0x08D8 | WARES  |
| 0x08D9 | Pointr Labs Limited                              |
| 0x08DA | Miridia Technology Incorporated                  |
| 0x08DB | Tertium Technology                               |
| 0x08DC | SHENZHEN AUKEY E BUSINESS CO., LTD               |
| 0x08DD | code-Q   |
| 0x08DE | TE Connectivity Corporation                      |
| 0x08DF | IRIS OHYAMA CO.,LTD.                             |
| 0x08E0 | Philia Technology                                |
| 0x08E1 | KOZO KEIKAKU ENGINEERING Inc.                    |
| 0x08E2 | Shenzhen Simo Technology co. LTD                 |
| 0x08E3 | Republic Wireless, Inc.                          |
| 0x08E4 | Rashidov ltd                                     |
| 0x08E5 | Crowd Connected Ltd                              |
| 0x08E6 | Eneso Tecnologia de Adaptacion S.L.              |
| 0x08E7 | Barrot Technology Co.,Ltd.                       |
| 0x08E8 | Naonext  |
| 0x08E9 | Taiwan Intelligent Home Corp.                    |
| 0x08EA | COWBELL ENGINEERING CO.,LTD.                     |

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| 0x08EB | Beijing Big Moment Technology Co., Ltd.   |
| 0x08EC | Denso Corporation                         |
| 0x08ED | IMI Hydronic Engineering International SA |
| 0x08EE | Askey Computer Corp.                      |
| 0x08EF | Cumulus Digital Systems, Inc              |
| 0x08F0 | Joovv, Inc.                               |
| 0x08F1 | The L.S. Starrett Company                 |
| 0x08F2 | Microoled                                 |
| 0x08F3 | PSP - Pauli Services & Products GmbH      |
| 0x08F4 | Kodimo Technologies Company Limited       |
| 0x08F5 | Tymtix Technologies Private Limited       |
| 0x08F6 | Dermal Photonics Corporation              |
| 0x08F7 | MTD Products Inc & Affiliates             |
| 0x08F8 | instagrid GmbH                            |
| 0x08F9 | Spacelabs Medical Inc.                    |
| 0x08FA | Troo Corporation                          |
| 0x08FB | Darkglass Electronics Oy                  |
| 0x08FC | Hill-Rom                                  |
| 0x08FD | BioIntelliSense, Inc.                     |
| 0x08FE | Ketronixs Sdn Bhd                         |
| 0x08FF | Plastimold Products, Inc                  |
| 0x0900 | Beijing Zizai Technology Co., LTD.        |
| 0x0901 | Lucimed                                   |
| 0x0902 | TSC Auto-ID Technology Co., Ltd.          |
| 0x0903 | DATAMARS, Inc.                            |
| 0x0904 | SUNCORPORATION                            |
| 0x0905 | Yandex Services AG                        |
| 0x0906 | Scope Logistical Solutions                |
| 0x0907 | User Hello, LLC                           |
| 0x0908 | Pinpoint Innovations Limited              |
| 0x0909 | 70mai Co.,Ltd.                            |
| 0x090A | Zhuhai Hoksi Technology CO.,LTD           |
| 0x090B | EMBR labs, INC                            |
| 0x090C | Radiawave Technologies Co.,Ltd.           |
| 0x090D | IOT Invent GmbH                           |
| 0x090E | OPTIMUSIOT TECH LLP                       |

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| 0x090F | VC Inc.  |
| 0x0910 | ASR Microelectronics (Shanghai) Co., Ltd.        |
| 0x0911 | Douglas Lighting Controls Inc.                   |
| 0x0912 | Nerbio Medical Software Platforms Inc            |
| 0x0913 | Braveheart Wireless, Inc.                        |
| 0x0914 | INEO-SENSE                                       |
| 0x0915 | Honda Motor Co., Ltd.                            |
| 0x0916 | Ambient Sensors LLC                              |
| 0x0917 | ASR Microelectronics(ShenZhen)Co., Ltd.          |
| 0x0918 | Technosphere Labs Pvt. Ltd.                      |
| 0x0919 | NO SMD LIMITED                                   |
| 0x091A | Albertronic BV                                   |
| 0x091B | Luminostics, Inc.                                |
| 0x091C | Oblamatik AG                                     |
| 0x091D | Innokind, Inc.                                   |
| 0x091E | Melbot Studios, Sociedad Limitada                |
| 0x091F | Myzee Technology                                 |
| 0x0920 | Omnisense Limited                                |
| 0x0921 | KAHA PTE. LTD.                                   |
| 0x0922 | Shanghai MXCHIP Information Technology Co., Ltd. |
| 0x0923 | JSB TECH PTE LTD                                 |
| 0x0924 | Fundacion Tecnalía Research and Innovation       |
| 0x0925 | Yukai Engineering Inc.                           |
| 0x0926 | Gooligum Technologies Pty Ltd                    |
| 0x0927 | ROOQ GmbH  |
| 0x0928 | AiRISTA  |
| 0x0929 | Qingdao Haier Technology Co., Ltd.               |
| 0x092A | Sappl Verwaltungs- und Betriebs GmbH             |
| 0x092B | TekHome  |
| 0x092C | PCI Private Limited                              |
| 0x092D | Leggett & Platt, Incorporated                    |
| 0x092E | PS GmbH  |
| 0x092F | C.O.B.O. SpA                                     |
| 0x0930 | James Walker RotaBolt Limited                    |
| 0x0931 | BREATHINGS Co., Ltd.                             |
| 0x0932 | BarVision, LLC                                   |

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| 0x0933 | SRAM   |
| 0x0934 | KiteSpring Inc.                                  |
| 0x0935 | Reconnect, Inc.                                  |
| 0x0936 | Elekon AG  |
| 0x0937 | RealThingks GmbH                                 |
| 0x0938 | Henway Technologies, LTD.                        |
| 0x0939 | ASTEM Co.,Ltd.                                   |
| 0x093A | LinkedSemi Microelectronics (Xiamen) Co., Ltd    |
| 0x093B | ENSESO LLC                                       |
| 0x093C | Xenoma Inc.                                      |
| 0x093D | Adolf Wuerth GmbH & Co KG                        |
| 0x093E | Catalyft Labs, Inc.                              |
| 0x093F | JEPICO Corporation                               |
| 0x0940 | Hero Workout GmbH                                |
| 0x0941 | Rivian Automotive, LLC                           |
| 0x0942 | TRANSSION HOLDINGS LIMITED                       |
| 0x0944 | Agitron d.o.o.                                   |
| 0x0945 | Globe (Jiangsu) Co., Ltd                         |
| 0x0946 | AMC International Alfa Metalcraft Corporation AG |
| 0x0947 | First Light Technologies Ltd.                    |
| 0x0948 | Wearable Link Limited                            |
| 0x0949 | Metronom Health Europe                           |
| 0x094A | Zwift, Inc.                                      |
| 0x094B | Kindeva Drug Delivery L.P.                       |
| 0x094C | GimmiSys GmbH                                    |
| 0x094D | tkLABS INC.                                      |
| 0x094E | PassiveBolt, Inc.                                |
| 0x094F | Limited Liability Company "Mikrotikls"           |
| 0x0950 | Capetech   |
| 0x0951 | PPRS   |
| 0x0952 | Apptricity Corporation                           |
| 0x0953 | LogiLube, LLC                                    |
| 0x0954 | Julbo  |
| 0x0955 | Breville Group                                   |
| 0x0956 | Kerlink  |
| 0x0957 | Ohsung Electronics                               |

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| 0x0958 | ZTE Corporation   |
| 0x0959 | HerdDogg, Inc   |
| 0x095A | Selekt Bilgisayar, Iletisim Urunleri Insaat Sanayi ve Ticaret Limited Sirketi |
| 0x095B | Lismore Instruments Limited   |
| 0x095C | LogiLube, LLC   |
| 0x095D | Electronic Theatre Controls   |
| 0x095E | BioEchoNet inc.   |
| 0x095F | NUANCE HEARING LTD  |
| 0x0960 | Sena Technologies Inc.  |
| 0x0961 | Linkura AB  |
| 0x0962 | GL Solutions K.K.   |
| 0x0963 | Moonbird BV   |
| 0x0964 | Countrymate Technology Limited  |
| 0x0965 | Asahi Kasei Corporation   |
| 0x0966 | PointGuard, LLC   |
| 0x0967 | Neo Materials and Consulting Inc.   |
| 0x0968 | Actev Motors, Inc.  |
| 0x0969 | Woan Technology (Shenzhen) Co., Ltd.  |
| 0x096A | dricos, Inc.  |
| 0x096B | Guide ID B.V.   |
| 0x096C | 9374-7319 Quebec inc  |
| 0x096D | Gunwerks, LLC   |
| 0x096E | Band Industries, inc.   |
| 0x096F | Lund Motion Products, Inc.  |
| 0x0970 | IBA Dosimetry GmbH  |
| 0x0971 | GA  |
| 0x0972 | Closed Joint Stock Company "Zavod Flometr" ("Zavod Flometr" CJSC)             |
| 0x0973 | Popit Oy  |
| 0x0974 | ABEYE   |
| 0x0975 | BlueIoT(Beijing) Technology Co.,Ltd   |
| 0x0976 | Fauna Audio GmbH  |
| 0x0977 | TOYOTA motor corporation  |
| 0x0978 | ZifferEins GmbH & Co. KG  |
| 0x0979 | BIOTRONIK SE & Co. KG   |
| 0x097A | CORE CORPORATION  |
| 0x097B | CTEK Sweden AB  |

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| 0x097C | Thorley Industries, LLC                 |
| 0x097D | CLB B.V.                                |
| 0x097E | SonicSensory Inc                        |
| 0x097F | ISEMAR S.R.L.                           |
| 0x0980 | DEKRA TESTING AND CERTIFICATION, S.A.U. |
| 0x0981 | Bernard Krone Holding SE & Co.KG        |
| 0x0982 | ELPRO-BUCHS AG                          |
| 0x0983 | Feedback Sports LLC                     |
| 0x0984 | TeraTron GmbH                           |
| 0x0985 | Lumos Health Inc.                       |
| 0x0986 | Cello Hill, LLC                         |
| 0x0987 | TSE BRAKES, INC.                        |
| 0x0988 | BHM-Tech Produktionsgesellschaft m.b.H  |
| 0x0989 | WIKA Alexander Wiegand SE & Co.KG       |
| 0x098A | Biovigil                                |
| 0x098B | Mequonic Engineering, S.L.              |
| 0x098C | bGrid B.V.                              |
| 0x098D | C3-WIRELESS, LLC                        |
| 0x098E | ADVEEZ                                  |
| 0x098F | Aktiebolaget Regin                      |
| 0x0990 | Anton Paar GmbH                         |
| 0x0991 | Telenor ASA                             |
| 0x0992 | Big Kaiser Precision Tooling Ltd        |
| 0x0993 | Absolute Audio Labs B.V.                |
| 0x0994 | VT42 Pty Ltd                            |
| 0x0995 | Bronkhorst High-Tech B.V.               |
| 0x0996 | C. & E. Fein GmbH                       |
| 0x0997 | NextMind                                |
| 0x0998 | Pixie Dust Technologies, Inc.           |
| 0x0999 | eTactica ehf                            |
| 0x099A | New Audio LLC                           |
| 0x099B | Sendum Wireless Corporation             |
| 0x099C | deister electronic GmbH                 |
| 0x099D | YKK AP Inc.                             |
| 0x099E | Step One Limited                        |
| 0x099F | Koya Medical, Inc.                      |

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| 0x09A0 | Proof Diagnostics, Inc.                              |
| 0x09A1 | VOS Systems, LLC                                     |
| 0x09A2 | ENGAGENOW DATA SCIENCES PRIVATE LIMITED              |
| 0x09A3 | ARDUINO SA   |
| 0x09A4 | KUMHO ELECTRICS, INC                                 |
| 0x09A5 | Security Enhancement Systems, LLC                    |
| 0x09A6 | BEIJING ELECTRIC VEHICLE CO.,LTD                     |
| 0x09A7 | Paybuddy ApS   |
| 0x09A8 | KHN Solutions LLC                                    |
| 0x09A9 | Nippon Ceramic Co.,Ltd.                              |
| 0x09AA | PHOTODYNAMIC INCORPORATED                            |
| 0x09AB | DashLogic, Inc.                                      |
| 0x09AC | Ambiq  |
| 0x09AD | Narhwall Inc.  |
| 0x09AE | Pozyx NV   |
| 0x09AF | ifLink Open Community                                |
| 0x09B0 | Deublin Company, LLC                                 |
| 0x09B1 | BLINQY   |
| 0x09B2 | DYPHI  |
| 0x09B3 | BlueX Microelectronics Corp Ltd.                     |
| 0x09B4 | PentaLock Aps.                                       |
| 0x09B5 | AUTEC Gesellschaft fuer Automationstechnik mbH       |
| 0x09B6 | Pegasus Technologies, Inc.                           |
| 0x09B7 | Bout Labs, LLC                                       |
| 0x09B8 | PlayerData Limited                                   |
| 0x09B9 | SAVOY ELECTRONIC LIGHTING                            |
| 0x09BA | Elimo Engineering Ltd                                |
| 0x09BB | SkyStream Corporation                                |
| 0x09BC | Aerosens LLC   |
| 0x09BD | Centre Suisse d'Electronique et de Microtechnique SA |
| 0x09BE | Vessel Ltd.  |
| 0x09BF | Span.IO, Inc.  |
| 0x09C0 | AnotherBrain inc.                                    |
| 0x09C1 | Rosewill   |
| 0x09C2 | Universal Audio, Inc.                                |
| 0x09C3 | JAPAN TOBACCO INC.                                   |

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| 0x09C4 | UVISIO  |
| 0x09C5 | HungYi Microelectronics Co.,Ltd.  |
| 0x09C6 | Honor Device Co., Ltd.  |
| 0x09C7 | Combustion, LLC   |
| 0x09C8 | XUNTONG   |
| 0x09C9 | CrowdGlow Ltd   |
| 0x09CA | Mobitrace   |
| 0x09CB | Hx Engineering, LLC   |
| 0x09CC | Senso4s d.o.o.  |
| 0x09CD | Blyott  |
| 0x09CE | Julius Blum GmbH  |
| 0x09CF | BlueStreak IoT, LLC   |
| 0x09D0 | Chess Wise B.V.   |
| 0x09D1 | ABLEPAY TECHNOLOGIES AS   |
| 0x09D2 | Temperature Sensitive Solutions Systems Sweden AB                         |
| 0x09D3 | HeartHero, inc.   |
| 0x09D4 | ORBIS Inc.  |
| 0x09D5 | GEAR RADIO ELECTRONICS CORP.  |
| 0x09D6 | EAR TEKNIK ISITME VE ODIOMETRI CIHAZLARI SANAYI VE TICARET ANONIM SIRKETI |
| 0x09D7 | Coyotta   |
| 0x09D8 | Synergy Tecnologia em Sistemas Ltda                                       |
| 0x09D9 | VivoSensMedical GmbH  |
| 0x09DA | Nagravision SA  |
| 0x09DB | Bionic Avionics Inc.  |
| 0x09DC | AON2 Ltd.   |
| 0x09DD | Innoware Development AB   |
| 0x09DE | JLD Technology Solutions, LLC   |
| 0x09DF | Magnus Technology Sdn Bhd   |
| 0x09E0 | Preddio Technologies Inc.   |
| 0x09E1 | Tag-N-Trac Inc  |
| 0x09E2 | Wuhan Linptech Co.,Ltd.   |
| 0x09E3 | Friday Home Aps   |
| 0x09E4 | CPS AS  |
| 0x09E5 | Mobilogix   |
| 0x09E6 | Masonite Corporation  |



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| 0x09E7 | Kabushikigaisha HANERON                        |
| 0x09E8 | Melange Systems Pvt. Ltd.                      |
| 0x09E9 | LumenRadio AB                                  |
| 0x09EA | Athlos Oy                                      |
| 0x09EB | KEAN ELECTRONICS PTY LTD                       |
| 0x09EC | Yukon advanced optics worldwide, UAB           |
| 0x09ED | Sibel Inc.                                     |
| 0x09EE | OJMAR SA                                       |
| 0x09EF | Steinel Solutions AG                           |
| 0x09F0 | WatchGas B.V.                                  |
| 0x09F1 | OM Digital Solutions Corporation               |
| 0x09F2 | Audeara Pty Ltd                                |
| 0x09F3 | Beijing Zero Zero Infinity Technology Co.,Ltd. |
| 0x09F4 | Spectrum Technologies, Inc.                    |
| 0x09F5 | OKI Electric Industry Co., Ltd                 |
| 0x09F6 | Mobile Action Technology Inc.                  |
| 0x09F7 | SENSATEC Co., Ltd.                             |
| 0x09F8 | R.O. S.R.L.                                    |
| 0x09F9 | Hangzhou Yaguan Technology Co. LTD             |
| 0x09FA | Listen Technologies Corporation                |
| 0x09FB | TOITU CO., LTD.                                |
| 0x09FC | Confidex                                       |
| 0x09FD | Keep Technologies, Inc.                        |
| 0x09FE | Lichtvision Engineering GmbH                   |
| 0x09FF | AIRSTAR  |
| 0x0A00 | Ampler Bikes OU                                |
| 0x0A01 | Cleveron AS                                    |
| 0x0A02 | Ayxon-Dynamics GmbH                            |
| 0x0A03 | donutrobotics Co., Ltd.                        |
| 0x0A04 | Flosonics Medical                              |
| 0x0A05 | Southwire Company, LLC                         |
| 0x0A06 | Shanghai wuqi microelectronics Co.,Ltd         |
| 0x0A07 | Reflow Pty Ltd                                 |
| 0x0A08 | Oras Oy  |
| 0x0A09 | ECCT   |
| 0x0A0A | Volan Technology Inc.                          |

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| 0x0A0B | SIANA Systems                                    |
| 0x0A0C | Shanghai Yidian Intelligent Technology Co., Ltd. |
| 0x0A0D | Blue Peacock GmbH                                |
| 0x0A0E | Roland Corporation                               |
| 0x0A0F | LIXIL Corporation                                |
| 0x0A10 | SUBARU Corporation                               |
| 0x0A11 | Sensolus   |
| 0x0A12 | Dyson Technology Limited                         |
| 0x0A13 | Tec4med LifeScience GmbH                         |
| 0x0A14 | CROXEL, INC.                                     |
| 0x0A15 | Syng Inc   |
| 0x0A16 | RIDE VISION LTD                                  |
| 0x0A17 | Plume Design Inc                                 |
| 0x0A18 | Cambridge Animal Technologies Ltd                |
| 0x0A19 | Maxell, Ltd.                                     |
| 0x0A1A | Link Labs, Inc.                                  |
| 0x0A1B | Embrava Pty Ltd                                  |
| 0x0A1C | INPEAK S.C.                                      |
| 0x0A1D | API-K  |
| 0x0A1E | CombiQ AB  |
| 0x0A1F | DeVilbiss Healthcare LLC                         |
| 0x0A20 | Jiangxi Innotech Technology Co., Ltd             |
| 0x0A21 | Apollogic Sp. z o.o.                             |
| 0x0A22 | DAIICHIKOSHO CO., LTD.                           |
| 0x0A23 | BIXOLON CO.,LTD                                  |
| 0x0A24 | Atmosic Technologies, Inc.                       |
| 0x0A25 | Eran Financial Services LLC                      |
| 0x0A26 | Louis Vuitton                                    |
| 0x0A27 | AYU DEVICES PRIVATE LIMITED                      |
| 0x0A28 | NanoFlex Power Corporation                       |
| 0x0A29 | Worthcloud Technology Co.,Ltd                    |
| 0x0A2A | Yamaha Corporation                               |
| 0x0A2B | PaceBait IVS                                     |
| 0x0A2C | Shenzhen H&T Intelligent Control Co., Ltd        |
| 0x0A2D | Shenzhen Feasycom Technology Co., Ltd.           |
| 0x0A2E | Zuma Array Limited                               |

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| 0x0A2F | Instamic, Inc.                                       |
| 0x0A30 | Air-Weigh  |
| 0x0A31 | Nevro Corp.  |
| 0x0A32 | Pinnacle Technology, Inc.                            |
| 0x0A33 | WMF AG   |
| 0x0A34 | Luxer Corporation                                    |
| 0x0A35 | safactory GmbH                                       |
| 0x0A36 | NGK SPARK PLUG CO., LTD.                             |
| 0x0A37 | 2587702 Ontario Inc.                                 |
| 0x0A38 | Bouffalo Lab (Nanjing),. Ltd.                        |
| 0x0A39 | BLUETICKETING SRL                                    |
| 0x0A3A | Incotex Co. Ltd.                                     |
| 0x0A3B | Galileo Technology Limited                           |
| 0x0A3C | Siteco GmbH  |
| 0x0A3D | DELABIE  |
| 0x0A3E | Hefei Yunlian Semiconductor Co., Ltd                 |
| 0x0A3F | Shenzhen Yopeak Optoelectronics Technology Co., Ltd. |
| 0x0A40 | GEWISS S.p.A.  |
| 0x0A41 | OPEX Corporation                                     |
| 0x0A42 | Motionalysis, Inc.                                   |
| 0x0A43 | Busch Systems International Inc.                     |
| 0x0A44 | Novidan, Inc.  |
| 0x0A45 | 3SI Security Systems, Inc                            |
| 0x0A46 | Beijing HC-Infinite Technology Limited               |
| 0x0A47 | The Wand Company Ltd                                 |
| 0x0A48 | JRC Mobility Inc.                                    |
| 0x0A49 | Venture Research Inc.                                |
| 0x0A4A | Map Large, Inc.                                      |
| 0x0A4B | MistyWest Energy and Transport Ltd.                  |
| 0x0A4C | SiFli Technologies (shanghai) Inc.                   |
| 0x0A4D | Lockn Technologies Private Limited                   |
| 0x0A4E | Toytec Corporation                                   |
| 0x0A4F | VANMOOF Global Holding B.V.                          |
| 0x0A50 | Nextscape Inc.                                       |
| 0x0A51 | CSIRO  |
| 0x0A52 | Follow Sense Europe B.V.                             |

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| 0x0A53 | KKM COMPANY LIMITED                          |
| 0x0A54 | SQL Technologies Corp.                       |
| 0x0A55 | Inugo Systems Limited                        |
| 0x0A56 | ambie  |
| 0x0A57 | Meizhou Guo Wei Electronics Co., Ltd         |
| 0x0A58 | Indigo Diabetes                              |
| 0x0A59 | TourBuilt, LLC                               |
| 0x0A5A | Sontheim Industrie Elektronik GmbH           |
| 0x0A5B | LEGIC Identsystems AG                        |
| 0x0A5C | Innovative Design Labs Inc.                  |
| 0x0A5D | MG Energy Systems B.V.                       |
| 0x0A5E | LaceClips llc                                |
| 0x0A5F | stryker                                      |
| 0x0A60 | DATANG SEMICONDUCTOR TECHNOLOGY CO.,LTD      |
| 0x0A61 | Smart Parks B.V.                             |
| 0x0A62 | MOKO TECHNOLOGY Ltd                          |
| 0x0A63 | Gremsy JSC                                   |
| 0x0A64 | Geopal system A/S                            |
| 0x0A65 | LytX, INC.                                   |
| 0x0A66 | JUSTMORPH PTE. LTD.                          |
| 0x0A67 | Beijing SuperHexa Century Technology CO. Ltd |
| 0x0A68 | Focus Ingenieria SRL                         |
| 0x0A69 | HAPPIEST BABY, INC.                          |
| 0x0A6A | Scribble Design Inc.                         |
| 0x0A6B | Olympic Ophthalmics, Inc.                    |
| 0x0A6C | Pokkels                                      |
| 0x0A6D | KUUKANJYOKIN Co.,Ltd.                        |
| 0x0A6E | Pac Sane Limited                             |
| 0x0A6F | Warner Bros.                                 |
| 0x0A70 | Ooma   |
| 0x0A71 | Senquip Pty Ltd                              |
| 0x0A72 | Jumo GmbH & Co. KG                           |
| 0x0A73 | Innohome Oy                                  |
| 0x0A74 | MICROSON S.A.                                |
| 0x0A75 | Delta Cycle Corporation                      |
| 0x0A76 | Synaptics Incorporated                       |

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| 0x0A77 | AXTRO PTE. LTD.                                     |
| 0x0A78 | Shenzhen Sunricher Technology Limited               |
| 0x0A79 | Webasto SE  |
| 0x0A7A | Emlid Limited                                       |
| 0x0A7B | UniqAir Oy  |
| 0x0A7C | WAFERLOCK   |
| 0x0A7D | Freedman Electronics Pty Ltd                        |
| 0x0A7E | KEBA Handover Automation GmbH                       |
| 0x0A7F | Intuity Medical                                     |
| 0x0A80 | Cleer Limited                                       |
| 0x0A81 | Universal Biosensors Pty Ltd                        |
| 0x0A82 | Corsair   |
| 0x0A83 | Rivata, Inc.  |
| 0x0A84 | Greennote Inc,                                      |
| 0x0A85 | Snowball Technology Co., Ltd.                       |
| 0x0A86 | ALIZENT International                               |
| 0x0A87 | Shanghai Smart System Technology Co., Ltd           |
| 0x0A88 | PSA Peugeot Citroen                                 |
| 0x0A89 | SES-Imagotag  |
| 0x0A8A | HAINBUCH GMBH SPANNENDE TECHNIK                     |
| 0x0A8B | SANlight GmbH                                       |
| 0x0A8C | DelpSys, s.r.o.                                     |
| 0x0A8D | JCM TECHNOLOGIES S.A.                               |
| 0x0A8E | Perfect Company                                     |
| 0x0A8F | TOTO LTD.   |
| 0x0A90 | Shenzhen Grandsun Electronic Co.,Ltd.               |
| 0x0A91 | Monarch International Inc.                          |
| 0x0A92 | Carestream Dental LLC                               |
| 0x0A93 | GiPStech S.r.l.                                     |
| 0x0A94 | OObIK Inc.  |
| 0x0A95 | Pamex Inc.  |
| 0x0A96 | Lightricity Ltd                                     |
| 0x0A97 | SensTek   |
| 0x0A98 | Foil, Inc.  |
| 0x0A99 | Shanghai high-flying electronics technology Co.,Ltd |
| 0x0A9A | TEMKIN ASSOCIATES, LLC                              |

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| 0x0A9B | Eello LLC                                     |
| 0x0A9C | Xi'an Fengyu Information Technology Co., Ltd. |
| 0x0A9D | Canon Finetech Nisca Inc.                     |
| 0x0A9E | LifePlus, Inc.                                |
| 0x0A9F | ista International GmbH                       |
| 0x0AA0 | Loy Tec electronics GmbH                      |
| 0x0AA1 | LINCOGN TECHNOLOGY CO. LIMITED                |
| 0x0AA2 | Care Bloom, LLC                               |
| 0x0AA3 | DIC Corporation                               |
| 0x0AA4 | FAZEPRO LLC                                   |
| 0x0AA5 | Shenzhen Uascent Technology Co., Ltd          |
| 0x0AA6 | Realityworks, inc.                            |
| 0x0AA7 | Urbanista AB                                  |
| 0x0AA8 | Zencontrol Pty Ltd                            |
| 0x0AA9 | Spintly, Inc.                                 |
| 0x0AAA | Computime International Ltd                   |
| 0x0AAB | Anhui Listenai Co                             |
| 0x0AAC | OSM HK Limited                                |
| 0x0AAD | Adevo Consulting AB                           |
| 0x0AAE | PS Engineering, Inc.                          |
| 0x0AAF | AIAIAI ApS                                    |
| 0x0AB0 | Visiontronic s.r.o.                           |
| 0x0AB1 | InVue Security Products Inc                   |
| 0x0AB2 | TouchTronics, Inc.                            |
| 0x0AB3 | INNER RANGE PTY. LTD.                         |
| 0x0AB4 | Ellenby Technologies, Inc.                    |
| 0x0AB5 | Elstat Electronics Ltd.                       |
| 0x0AB6 | Xenter, Inc.                                  |
| 0x0AB7 | LogTag North America Inc.                     |
| 0x0AB8 | Sens.ai Incorporated                          |
| 0x0AB9 | STL   |
| 0x0ABA | Open Bionics Ltd.                             |
| 0x0ABB | R-DAS, s.r.o.                                 |
| 0x0ABC | KCCS Mobile Engineering Co., Ltd.             |
| 0x0ABD | Inventas AS                                   |
| 0x0ABE | Robkoo Information & Technologies Co., Ltd.   |

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| 0x0ABF | PAUL HARTMANN AG   |
| 0x0AC0 | Omni-ID USA, INC.  |
| 0x0AC1 | Shenzhen Jingxun Technology Co., Ltd.                    |
| 0x0AC2 | RealMega Microelectronics technology (Shanghai) Co. Ltd. |
| 0x0AC3 | Kenzen, Inc.   |
| 0x0AC4 | CODIUM   |
| 0x0AC5 | Flexoptix GmbH   |
| 0x0AC6 | Barnes Group Inc.  |
| 0x0AC7 | Chengdu Aich Technology Co.,Ltd                          |
| 0x0AC8 | Keepin Co., Ltd.   |
| 0x0AC9 | Swedlock AB  |
| 0x0ACA | Shenzhen CoolKit Technology Co., Ltd                     |
| 0x0ACB | ise Individuelle Software und Elektronik GmbH            |
| 0x0ACC | Nuvoton  |
| 0x0ACD | Visuallex Sport International Limited                    |
| 0x0ACE | KOBATA GAUGE MFG. CO., LTD.                              |
| 0x0ACF | CACI Technologies  |
| 0x0AD0 | Nordic Strong ApS  |
| 0x0AD1 | EAGLE KINGDOM TECHNOLOGIES LIMITED                       |
| 0x0AD2 | Lautsprecher Teufel GmbH                                 |
| 0x0AD3 | SSV Software Systems GmbH                                |
| 0x0AD4 | Zhuhai Pantum Electronisc Co., Ltd                       |
| 0x0AD5 | Streamit B.V.  |
| 0x0AD6 | nymea GmbH   |
| 0x0AD7 | AL-KO Geraete GmbH                                       |
| 0x0AD8 | Franz Kaldewei GmbH&Co KG                                |
| 0x0AD9 | Shenzhen Aimore. Co.,Ltd                                 |
| 0x0ADA | Codefabrik GmbH  |
| 0x0ADB | Reelables, Inc.  |
| 0x0ADC | Duravit AG   |
| 0x0ADD | Boss Audio   |
| 0x0ADE | Vocera Communications, Inc.                              |
| 0x0ADF | Douglas Dynamics L.L.C.                                  |
| 0x0AE0 | Viceroy Devices Corporation                              |
| 0x0AE1 | ChengDu ForThink Technology Co., Ltd.                    |
| 0x0AE2 | IMATRIX SYSTEMS, INC.                                    |

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| 0x0AE3 | GlobalMed                                  |
| 0x0AE4 | DALI Alliance                              |
| 0x0AE5 | unu GmbH                                   |
| 0x0AE6 | Hexology                                   |
| 0x0AE7 | Sunplus Technology Co., Ltd.               |
| 0x0AE8 | LEVEL, s.r.o.                              |
| 0x0AE9 | FLIR Systems AB                            |
| 0x0AEA | Borda Technology                           |
| 0x0AEB | Square, Inc.                               |
| 0x0AEC | FUTEK ADVANCED SENSOR TECHNOLOGY, INC      |
| 0x0AED | Saxonar GmbH                               |
| 0x0AEE | Velentium, LLC                             |
| 0x0AEF | GLP German Light Products GmbH             |
| 0x0AF0 | Leupold & Stevens, Inc.                    |
| 0x0AF1 | CRADERS,CO.,LTD                            |
| 0x0AF2 | Shanghai All Link Microelectronics Co.,Ltd |
| 0x0AF3 | 701x Inc.                                  |
| 0x0AF4 | Radioworks Microelectronics PTY LTD        |
| 0x0AF5 | Unitech Electronic Inc.                    |
| 0x0AF6 | AMETEK, Inc.                               |
| 0x0AF7 | Irdeto                                     |
| 0x0AF8 | First Design System Inc.                   |
| 0x0AF9 | Unisto AG                                  |
| 0x0AFA | Chengdu Ambit Technology Co., Ltd.         |
| 0x0AFB | SMT ELEKTRONIK GmbH                        |
| 0x0AFC | Cerebrum Sensor Technologies Inc.          |
| 0x0AFD | Weber Sensors, LLC                         |
| 0x0AFE | Earda Technologies Co.,Ltd                 |
| 0x0AFF | FUSEAWARE LIMITED                          |
| 0x0B00 | Flaircomm Microelectronics Inc.            |
| 0x0B01 | RESIDEO TECHNOLOGIES, INC.                 |
| 0x0B02 | IORA Technology Development Ltd. Sti.      |
| 0x0B03 | Precision Triathlon Systems Limited        |
| 0x0B04 | I-PERCUT                                   |
| 0x0B05 | Marquardt GmbH                             |
| 0x0B06 | FAZUA GmbH                                 |



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| 0x0B07 | Workaround Gmbh                                    |
| 0x0B08 | Shenzhen Qianfenyi Intelligent Technology Co., LTD |
| 0x0B09 | soonisys   |
| 0x0B0A | Belun Technology Company Limited                   |
| 0x0B0B | Sanistaal A/S                                      |
| 0x0B0C | BluPeak  |
| 0x0B0D | SANYO DENKO Co.,Ltd.                               |
| 0x0B0E | Honda Lock Mfg. Co.,Ltd.                           |
| 0x0B0F | B.E.A. S.A.  |
| 0x0B10 | Alfa Laval Corporate AB                            |
| 0x0B11 | ThermoWorks, Inc.                                  |
| 0x0B12 | ToughBuilt Industries LLC                          |
| 0x0B13 | IOTOOLS  |
| 0x0B14 | Olumee   |
| 0x0B15 | NAOS JAPAN K.K.                                    |
| 0x0B16 | Guard RFID Solutions Inc.                          |
| 0x0B17 | SIG SAUER, INC.                                    |
| 0x0B18 | DECATHLON SE                                       |
| 0x0B19 | WBS PROJECT H PTY LTD                              |
| 0x0B1A | Roca Sanitario, S.A.                               |
| 0x0B1B | Enerpac Tool Group Corp.                           |
| 0x0B1C | Nanoleq AG   |
| 0x0B1D | Accelerated Systems                                |
| 0x0B1E | PB INC.  |
| 0x0B1F | Beijing ESWIN Computing Technology Co., Ltd.       |
| 0x0B20 | TKH Security B.V.                                  |
| 0x0B21 | ams AG   |
| 0x0B22 | Hygiene IQ, LLC.                                   |
| 0x0B23 | iRhythm Technologies, Inc.                         |
| 0x0B24 | BeiJing ZiJie TiaoDong KeJi Co.,Ltd.               |
| 0x0B25 | NIBROTECH LTD                                      |
| 0x0B26 | Baracoda Daily Healthtech.                         |
| 0x0B27 | Lumi United Technology Co., Ltd                    |
| 0x0B28 | CHACON   |
| 0x0B29 | Tech-Venom Entertainment Private Limited           |
| 0x0B2A | ACL Airshop B.V.                                   |

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| 0x0B2B | MAINBOT                                      |
| 0x0B2C | ILLUMAGEAR, Inc.                             |
| 0x0B2D | REDARC ELECTRONICS PTY LTD                   |
| 0x0B2E | MOCA System Inc.                             |
| 0x0B2F | Duke Manufacturing Co                        |
| 0x0B30 | ART SPA                                      |
| 0x0B31 | Silver Wolf Vehicles Inc.                    |
| 0x0B32 | Hala Systems, Inc.                           |
| 0x0B33 | ARMATURA LLC                                 |
| 0x0B34 | CONZUMEX INDUSTRIES PRIVATE LIMITED          |
| 0x0B35 | BH SENS                                      |
| 0x0B36 | SINTEF                                       |
| 0x0B37 | Omnivoltaic Energy Solutions Limited Company |
| 0x0B38 | WISYCOM S.R.L.                               |
| 0x0B39 | Red 100 Lighting Co., Ltd.                   |
| 0x0B3A | Impact Biosystems, Inc.                      |
| 0x0B3B | AIC semiconductor (Shanghai) Co., Ltd.       |
| 0x0B3C | Dodge Industrial, Inc.                       |
| 0x0B3D | REALTIMEID AS                                |
| 0x0B3E | ISEO Serrature S.p.a.                        |
| 0x0B3F | MindRhythm, Inc.                             |
| 0x0B40 | Havells India Limited                        |
| 0x0B41 | Sentrax GmbH                                 |
| 0x0B42 | TSI  |
| 0x0B43 | INCITAT ENVIRONNEMENT                        |
| 0x0B44 | nFore Technology Co., Ltd.                   |
| 0x0B45 | Electronic Sensors, Inc.                     |
| 0x0B46 | Bird Rides, Inc.                             |
| 0x0B47 | Gentex Corporation                           |
| 0x0B48 | NIO USA, Inc.                                |
| 0x0B49 | SkyHawke Technologies                        |
| 0x0B4A | Nomono AS                                    |
| 0x0B4B | EMS Integrators, LLC                         |
| 0x0B4C | BiosBob.Biz                                  |
| 0x0B4D | Adam Hall GmbH                               |
| 0x0B4E | ICP Systems B.V.                             |

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| 0x0B4F | Breezi.io, Inc.   |
| 0x0B50 | Mesh Systems LLC  |
| 0x0B51 | FUN FACTORY GmbH  |
| 0x0B52 | ZIIP Inc  |
| 0x0B53 | SHENZHEN KAADAS INTELLIGENT TECHNOLOGY CO.,Ltd            |
| 0x0B54 | Emotion Fitness GmbH & Co. KG                             |
| 0x0B55 | H G M Automotive Electronics, Inc.                        |
| 0x0B56 | BORA - Vertriebs GmbH & Co KG                             |
| 0x0B57 | CONVERTRONIX TECHNOLOGIES AND SERVICES LLP                |
| 0x0B58 | TOKAI-DENSHI INC  |
| 0x0B59 | Versa Group B.V.  |
| 0x0B5A | H.P. Shelby Manufacturing, LLC.                           |
| 0x0B5B | Shenzhen ImagineVision Technology Limited                 |
| 0x0B5C | Exponential Power, Inc.                                   |
| 0x0B5D | Fujian Newland Auto-ID Tech. Co., Ltd.                    |
| 0x0B5E | CELLCONTROL, INC.   |
| 0x0B5F | Rivieh, Inc.  |
| 0x0B60 | RATOC Systems, Inc.                                       |
| 0x0B61 | Sentek Pty Ltd  |
| 0x0B62 | NOVEA ENERGIES  |
| 0x0B63 | Innolux Corporation                                       |
| 0x0B64 | NingBo klite Electric Manufacture Co.,LTD                 |
| 0x0B65 | The Apache Software Foundation                            |
| 0x0B66 | MITSUBISHI ELECTRIC AUTOMATION (THAILAND) COMPANY LIMITED |
| 0x0B67 | CleanSpace Technology Pty Ltd                             |
| 0x0B68 | Quha oy   |
| 0x0B69 | Addaday   |
| 0x0B6A | Dymo  |
| 0x0B6B | Samsara Networks, Inc                                     |
| 0x0B6C | Sensitech, Inc.   |
| 0x0B6D | SOLUM CO., LTD  |
| 0x0B6E | React Mobile  |
| 0x0B6F | Shenzhen Malide Technology Co.,Ltd                        |
| 0x0B70 | JDRF Electromag Engineering Inc                           |
| 0x0B71 | lilbit ODM AS   |
| 0x0B72 | Geeknet, Inc.   |

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| 0x0B73 | HARADA INDUSTRY CO., LTD.                                    |
| 0x0B74 | BQN  |
| 0x0B75 | Triple W Japan Inc.  |
| 0x0B76 | MAX-co., ltd   |
| 0x0B77 | Aixlink(Chengdu) Co., Ltd.                                   |
| 0x0B78 | FIELD DESIGN INC.  |
| 0x0B79 | Sankyo Air Tech Co.,Ltd.                                     |
| 0x0B7A | Shenzhen KTC Technology Co.,Ltd.                             |
| 0x0B7B | Hardcoder Oy   |
| 0x0B7C | Scangrip A/S   |
| 0x0B7D | FoundersLane GmbH  |
| 0x0B7E | Offcode Oy   |
| 0x0B7F | ICU tech GmbH  |
| 0x0B80 | AXELIFE  |
| 0x0B81 | SCM Group  |
| 0x0B82 | Mammut Sports Group AG                                       |
| 0x0B83 | Taiga Motors Inc.  |
| 0x0B84 | Presidio Medical, Inc.                                       |
| 0x0B85 | VIMANA TECH PTY LTD  |
| 0x0B86 | Trek Bicycle   |
| 0x0B87 | Ampetronic Ltd   |
| 0x0B88 | Muguang (Guangdong) Intelligent Lighting Technology Co., Ltd |
| 0x0B89 | Rotronic AG  |
| 0x0B8A | Seiko Instruments Inc.                                       |
| 0x0B8B | American Technology Components, Incorporated                 |
| 0x0B8C | MOTREX   |
| 0x0B8D | Pertech Industries Inc                                       |
| 0x0B8E | Gentle Energy Corp.  |
| 0x0B8F | Senscomm Semiconductor Co., Ltd.                             |
| 0x0B90 | Ineos Automotive Limited                                     |
| 0x0B91 | Alfen ICU B.V.   |
| 0x0B92 | Citisend Solutions, SL                                       |
| 0x0B93 | Hangzhou BroadLink Technology Co., Ltd.                      |
| 0x0B94 | Dreem SAS  |
| 0x0B95 | Netwake GmbH   |
| 0x0B96 | Telecom Design   |

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| 0x0B97 | SILVER TREE LABS, INC.                                    |
| 0x0B98 | Gymstory B.V.   |
| 0x0B99 | The Goodyear Tire & Rubber Company                        |
| 0x0B9A | Beijing Wisepool Infinite Intelligence Technology Co.,Ltd |
| 0x0B9B | GISMAN  |
| 0x0B9C | Komatsu Ltd.  |
| 0x0B9D | Sensoria Holdings LTD                                     |
| 0x0B9E | Audio Partnership Plc                                     |
| 0x0B9F | Group Lotus Limited                                       |
| 0x0BA0 | Data Sciences International                               |
| 0x0BA1 | Bunn-O-Matic Corporation                                  |
| 0x0BA2 | TireCheck GmbH  |
| 0x0BA3 | Sonova Consumer Hearing GmbH                              |
| 0x0BA4 | Vervent Audio Group                                       |
| 0x0BA5 | SONICOS ENTERPRISES, LLC                                  |
| 0x0BA6 | Nissan Motor Co., Ltd.                                    |
| 0x0BA7 | hearX Group (Pty) Ltd                                     |
| 0x0BA8 | GLOWFORGE INC.  |
| 0x0BA9 | Allterco Robotics ltd                                     |
| 0x0BAA | Infinitegra, Inc.   |
| 0x0BAB | Grandex International Corporation                         |
| 0x0BAC | Machfu Inc.   |
| 0x0BAD | Roambotics, Inc.  |
| 0x0BAE | Soma Labs LLC   |
| 0x0BAF | NITTO KOGYO CORPORATION                                   |
| 0x0BB0 | Ecolab Inc.   |
| 0x0BB1 | Beijing ranxin intelligence technology Co.,LTD            |
| 0x0BB2 | Fjorden Electra AS  |
| 0x0BB3 | Flender GmbH  |
| 0x0BB4 | New Cosmos USA, Inc.                                      |
| 0x0BB5 | Xirgo Technologies, LLC                                   |
| 0x0BB6 | Build With Robots Inc.                                    |
| 0x0BB7 | IONA Tech LLC   |
| 0x0BB8 | INNOVAG PTY. LTD.   |
| 0x0BB9 | SaluStim Group Oy   |
| 0x0BBA | Huso, INC   |



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| 0x0BBB | SWISSINNO SOLUTIONS AG                             |
| 0x0BBC | T2REALITY SOLUTIONS PRIVATE LIMITED                |
| 0x0BBD | ETHEORY PTY LTD                                    |
| 0x0BBE | SAAB Aktiebolag                                    |
| 0x0BBF | HIMSA II K/S                                       |
| 0x0BC0 | READY FOR SKY LLP                                  |
| 0x0BC1 | Miele & Cie. KG                                    |
| 0x0BC2 | EntWick Co.  |
| 0x0BC3 | MCOT INC.  |
| 0x0BC4 | TECHTICS ENGINEERING B.V.                          |
| 0x0BC5 | Aperia Technologies, Inc.                          |
| 0x0BC6 | TCL COMMUNICATION EQUIPMENT CO.,LTD.               |
| 0x0BC7 | Signtle Inc.                                       |
| 0x0BC8 | OTF Distribution, LLC                              |
| 0x0BC9 | Neuvatek Inc.                                      |
| 0x0BCA | Perimeter Technologies, Inc.                       |
| 0x0BCB | Divesoft s.r.o.                                    |
| 0x0BCC | Sylvac sa  |
| 0x0BCD | Amiko srl  |
| 0x0BCE | Neurocity, Inc.                                    |
| 0x0BCF | LL Tec Group LLC                                   |
| 0x0BD0 | Durag GmbH   |
| 0x0BD1 | Hubei Yuan Times Technology Co., Ltd.              |
| 0x0BD2 | IDEC   |
| 0x0BD3 | Procon Analytics, LLC                              |
| 0x0BD4 | ndd Medizintechnik AG                              |
| 0x0BD5 | Super B Lithium Power B.V.                         |
| 0x0BD6 | Shenzhen Injoinic Technology Co., Ltd.             |
| 0x0BD7 | VINFAST TRADING AND PRODUCTION JOINT STOCK COMPANY |
| 0x0BD8 | PURA SCENTS, INC.                                  |
| 0x0BD9 | Elics Basis Ltd.                                   |
| 0x0BDA | Aardex Ltd.  |
| 0x0BDB | CHAR-BROIL, LLC                                    |
| 0x0BDC | Ledworks S.r.l.                                    |
| 0x0BDD | Coroflo Limited                                    |
| 0x0BDE | Yale   |

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| 0x0BDF | WINKEY ENTERPRISE (HONG KONG) LIMITED          |
| 0x0BE0 | Koizumi Lighting Technology corp.              |
| 0x0BE1 | Back40 Precision                               |
| 0x0BE2 | OTC engineering                                |
| 0x0BE3 | Comtel Systems Ltd.                            |
| 0x0BE4 | Deepfield Connect GmbH                         |
| 0x0BE5 | ZWILLING J.A. Henckels Aktiengesellschaft      |
| 0x0BE6 | Puratap Pty Ltd                                |
| 0x0BE7 | Fresnel Technologies, Inc.                     |
| 0x0BE8 | Sensormate AG                                  |
| 0x0BE9 | Shindengen Electric Manufacturing Co., Ltd.    |
| 0x0BEA | Twenty Five Seven, prodaja in storitve, d.o.o. |
| 0x0BEB | Luna Health, Inc.                              |
| 0x0BEC | Miracle-Ear, Inc.                              |
| 0x0BED | CORAL-TAIYI Co. Ltd.                           |
| 0x0BEE | LINKSYS USA, INC.                              |
| 0x0BEF | Safetytest GmbH                                |
| 0x0BF0 | KIDO SPORTS CO., LTD.                          |
| 0x0BF1 | Site IQ LLC                                    |
| 0x0BF2 | Angel Medical Systems, Inc.                    |
| 0x0BF3 | PONE BIOMETRICS AS                             |
| 0x0BF4 | ER Lab LLC                                     |
| 0x0BF5 | T5 tek, Inc.                                   |
| 0x0BF6 | greenTEG AG                                    |
| 0x0BF7 | Wacker Neuson SE                               |
| 0x0BF8 | Innovacionnye Resheniya                        |
| 0x0BF9 | Alio, Inc                                      |
| 0x0BFA | CleanBands Systems Ltd.                        |
| 0x0BFB | Dodam Enersys Co., Ltd                         |
| 0x0BFC | T+A elektroakustik GmbH & Co.KG                |
| 0x0BFD | Esmé Solutions                                 |
| 0x0BFE | Media-Cartec GmbH                              |
| 0x0BFF | Ratio Electric BV                              |
| 0x0C00 | MQA Limited                                    |
| 0x0C01 | NEOWRK SISTEMAS INTELIGENTES S.A.              |
| 0x0C02 | Loomanet, Inc.                                 |

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| 0x0C03 | Puff Corp                                   |
| 0x0C04 | Happy Health, Inc.                          |
| 0x0C05 | Montage Connect, Inc.                       |
| 0x0C06 | LED Smart Inc.                              |
| 0x0C07 | CONSTRUKTS, INC.                            |
| 0x0C08 | limited liability company "Red"             |
| 0x0C09 | Senic Inc.                                  |
| 0x0C0A | Automated Pet Care Products, LLC            |
| 0x0C0B | aconno GmbH                                 |
| 0x0C0C | Mendeltron, Inc.                            |
| 0x0C0D | Mereltron bv                                |
| 0x0C0E | ALEX DENKO CO.,LTD.                         |
| 0x0C0F | AETERLINK                                   |
| 0x0C10 | Cosmed s.r.l.                               |
| 0x0C11 | Gordon Murray Design Limited                |
| 0x0C12 | IoSA  |
| 0x0C13 | Scandinavian Health Limited                 |
| 0x0C14 | Fasetto, Inc.                               |
| 0x0C15 | Geva Sol B.V.                               |
| 0x0C16 | TYKEE PTY. LTD.                             |
| 0x0C17 | SomnoMed Limited                            |
| 0x0C18 | CORROHM                                     |
| 0x0C19 | Arlo Technologies, Inc.                     |
| 0x0C1A | Catapult Group International Ltd            |
| 0x0C1B | Rockchip Electronics Co., Ltd.              |
| 0x0C1C | GEMU  |
| 0x0C1D | OFF Line Japan Co., Ltd.                    |
| 0x0C1E | EC sense co., Ltd                           |
| 0x0C1F | LVI Co.                                     |
| 0x0C20 | COMELIT GROUP S.P.A.                        |
| 0x0C21 | Foshan Viomi Electrical Technology Co., Ltd |
| 0x0C22 | Glamo Inc.                                  |
| 0x0C23 | KEYTEC,Inc.                                 |
| 0x0C24 | SMARTD TECHNOLOGIES INC.                    |
| 0x0C25 | JURA Elektroapparate AG                     |
| 0x0C26 | Performance Electronics, Ltd.               |



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| 0x0C27 | Pal Electronics                               |
| 0x0C28 | Embecta Corp.                                 |
| 0x0C29 | DENSO AIRCOOL CORPORATION                     |
| 0x0C2A | Caresix Inc.                                  |
| 0x0C2B | GigaDevice Semiconductor Inc.                 |
| 0x0C2C | Zeku Technology (Shanghai) Corp., Ltd.        |
| 0x0C2D | OTF Product Sourcing, LLC                     |
| 0x0C2E | Easee AS                                      |
| 0x0C2F | BEEHERO, INC.                                 |
| 0x0C30 | McIntosh Group Inc                            |
| 0x0C31 | KINDOO LLP                                    |
| 0x0C32 | Xian Yisuobao Electronic Technology Co., Ltd. |
| 0x0C33 | Exeger Operations AB                          |
| 0x0C34 | BYD Company Limited                           |
| 0x0C35 | Thermokon-Sensortechnik GmbH                  |
| 0x0C36 | Cosmicnode BV                                 |
| 0x0C37 | SignalQuest, LLC                              |
| 0x0C38 | Noritz Corporation.                           |
| 0x0C39 | TIGER CORPORATION                             |
| 0x0C3A | Equinosis, LLC                                |
| 0x0C3B | ORB Innovations Ltd                           |
| 0x0C3C | Classified Cycling                            |
| 0x0C3D | Wrmth Corp.                                   |
| 0x0C3E | BELLDESIGN Inc.                               |
| 0x0C3F | Stinger Equipment, Inc.                       |
| 0x0C40 | HORIBA, Ltd.                                  |
| 0x0C41 | Control Solutions LLC                         |
| 0x0C42 | Heath Consultants Inc.                        |
| 0x0C43 | Berlinger & Co. AG                            |
| 0x0C44 | ONCELABS LLC                                  |
| 0x0C45 | Brose Verwaltung SE, Bamberg                  |
| 0x0C46 | Granwin IoT Technology (Guangzhou) Co.,Ltd    |
| 0x0C47 | Epsilon Electronics,Inc                       |
| 0x0C48 | VALEO MANAGEMENT SERVICES                     |
| 0x0C49 | twopounds gmbh                                |
| 0x0C4A | atSpiro ApS                                   |

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| 0x0C4B | ADTRAN, Inc.                            |
| 0x0C4C | Orpyx Medical Technologies Inc.         |
| 0x0C4D | Seekwave Technology Co.,Ltd.            |
| 0x0C4E | Tactile Engineering, Inc.               |
| 0x0C4F | SharkNinja Operating LLC                |
| 0x0C50 | Imostar Technologies Inc.               |
| 0x0C51 | INNOVA S.R.L.                           |
| 0x0C52 | ESCEA LIMITED                           |
| 0x0C53 | Taco, Inc.                              |
| 0x0C54 | HiViz Lighting, Inc.                    |
| 0x0C55 | Zintouch B.V.                           |
| 0x0C56 | Rheem Sales Company, Inc.               |
| 0x0C57 | UNEEG medical A/S                       |
| 0x0C58 | Hykso Inc.                              |
| 0x0C59 | CYBERDYNE Inc.                          |
| 0x0C5A | Lockswitch Sdn Bhd                      |
| 0x0C5B | Alban Giacomo S.P.A.                    |
| 0x0C5C | MGM WIRELESSS HOLDINGS PTY LTD          |
| 0x0C5D | StepUp Solutions ApS                    |
| 0x0C5E | BlueID GmbH                             |
| 0x0C5F | Wuxi Linkpower Microelectronics Co.,Ltd |
| 0x0C60 | KEBA Energy Automation GmbH             |
| 0x0C61 | NNOXX, Inc                              |
| 0x0C62 | Phiaton Corporation                     |
| 0x0C63 | phg Peter Hengstler GmbH + Co. KG       |
| 0x0C64 | dormakaba Holding AG                    |
| 0x0C65 | WAKO CO.,LTD                            |
| 0x0C66 | DEN Smart Home B.V.                     |
| 0x0C67 | TRACKTING S.R.L.                        |
| 0x0C68 | Emerja Corporation                      |
| 0x0C69 | BLITZ electric motors. LTD              |
| 0x0C6A | CONSORCIO TRUST CONTROL - NETTEL        |
| 0x0C6B | GILSON SAS                              |
| 0x0C6C | SNIFF LOGIC LTD                         |
| 0x0C6D | Fidure Corp.                            |
| 0x0C6E | Sensa LLC                               |

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| 0x0C6F | Parakey AB  |
| 0x0C70 | SCARAB SOLUTIONS LTD                              |
| 0x0C71 | BitGreen Technolabz (OPC) Private Limited         |
| 0x0C72 | StreetCar ORV, LLC                                |
| 0x0C73 | Truma Gerätetechnik GmbH & Co. KG                 |
| 0x0C74 | yupiteru  |
| 0x0C75 | Embedded Engineering Solutions LLC                |
| 0x0C76 | Shenzhen Gwell Times Technology Co. , Ltd         |
| 0x0C77 | TEAC Corporation                                  |
| 0x0C78 | CHARGTRON IOT PRIVATE LIMITED                     |
| 0x0C79 | Zhuhai Smartlink Technology Co., Ltd              |
| 0x0C7A | Triductor Technology (Suzhou), Inc.               |
| 0x0C7B | PT SADAMAYA GRAHA TEKNOLOGI                       |
| 0x0C7C | Mopeka Products LLC                               |
| 0x0C7D | 3ALogics, Inc.                                    |
| 0x0C7E | BOOMING OF THINGS                                 |
| 0x0C7F | Rochester Sensors, LLC                            |
| 0x0C80 | CARDIOID - TECHNOLOGIES, LDA                      |
| 0x0C81 | Carrier Corporation                               |
| 0x0C82 | NACON   |
| 0x0C83 | Watchdog Systems LLC                              |
| 0x0C84 | MAXON INDUSTRIES, INC.                            |
| 0x0C85 | Amlogic, Inc.                                     |
| 0x0C86 | Qingdao Eastsoft Communication Technology Co.,Ltd |
| 0x0C87 | Weltek Technologies Company Limited               |
| 0x0C88 | Nextivity Inc.                                    |
| 0x0C89 | AGZZX OPTOELECTRONICS TECHNOLOGY CO., LTD         |
| 0x0C8A | A.GLOBAL co.,Ltd.                                 |
| 0x0C8B | Heavys Inc  |
| 0x0C8C | T-Mobile USA                                      |
| 0x0C8D | tonies GmbH                                       |
| 0x0C8E | Technocon Engineering Ltd.                        |
| 0x0C8F | Radar Automobile Sales(Shandong)Co.,Ltd.          |
| 0x0C90 | WESCO AG  |
| 0x0C91 | Yashu Systems                                     |
| 0x0C92 | Kesseböhmer Ergonomietechnik GmbH                 |

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| 0x0C93 | Movesense Oy   |
| 0x0C94 | Baxter Healthcare Corporation                                  |
| 0x0C95 | Gemstone Lights Canada Ltd.                                    |
| 0x0C96 | H+B Hightech GmbH  |
| 0x0C97 | Deako  |
| 0x0C98 | MiX Telematics International (PTY) LTD                         |
| 0x0C99 | Vire Health Oy   |
| 0x0C9A | ALF Inc.   |
| 0x0C9B | NTT sonority, Inc.   |
| 0x0C9C | Sunstone-RTLS Ipari Szolgaltato Korlatolt Felelossegu Tarsasag |
| 0x0C9D | Ribbiot, INC.  |
| 0x0C9E | ECCEL CORPORATION SAS  |
| 0x0C9F | Dragonfly Energy Corp.   |
| 0x0CA0 | BIGBEN   |
| 0x0CA1 | YAMAHA MOTOR CO.,LTD.  |
| 0x0CA2 | XSENSE LTD   |
| 0x0CA3 | MAQUET GmbH  |
| 0x0CA4 | MITSUBISHI ELECTRIC LIGHTING CO, LTD                           |
| 0x0CA5 | Princess Cruise Lines, Ltd.                                    |
| 0x0CA6 | Megger Ltd   |
| 0x0CA7 | Verve InfoTec Pty Ltd  |
| 0x0CA8 | Sonas, Inc.  |
| 0x0CA9 | Mievo Technologies Private Limited                             |
| 0x0CAA | Shenzhen Poseidon Network Technology Co., Ltd                  |
| 0x0CAB | HERUTU ELECTRONICS CORPORATION                                 |
| 0x0CAC | Shenzhen Shokz Co.,Ltd.  |
| 0x0CAD | Shenzhen Openhearing Tech CO., LTD .                           |
| 0x0CAE | Evident Corporation  |
| 0x0CAF | NEURINNOV  |
| 0x0CB0 | SwipeSense, Inc.   |
| 0x0CB1 | RF Creations   |
| 0x0CB2 | SHINKAWA Sensor Technology, Inc.                               |
| 0x0CB3 | janova GmbH  |
| 0x0CB4 | Eberspaecher Climate Control Systems GmbH                      |
| 0x0CB5 | Racketry, d. o. o.   |
| 0x0CB6 | THE EELECTRIC MACARON LLC                                      |

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| 0x0CB7 | Cucumber Lighting Controls Limited                         |
| 0x0CB8 | Shanghai Proxy Network Technology Co., Ltd.                |
| 0x0CB9 | seca GmbH & Co. KG   |
| 0x0CBA | Ameso Tech (OPC) Private Limited                           |
| 0x0CBB | Emlid Tech Kft.  |
| 0x0CBC | TROX GmbH  |
| 0x0CBD | Pricer AB  |
| 0x0CBF | Forward Thinking Systems LLC.                              |
| 0x0CC0 | Garnet Instruments Ltd.                                    |
| 0x0CC1 | CLEIO Inc.   |
| 0x0CC2 | Anker Innovations Limited                                  |
| 0x0CC3 | HMD Global Oy  |
| 0x0CC4 | ABUS August Bremicker Soehne Kommanditgesellschaft         |
| 0x0CC5 | Open Road Solutions, Inc.                                  |
| 0x0CC6 | Serial Technology Corporation                              |
| 0x0CC7 | SB C&S Corp.   |
| 0x0CC8 | TrikThom   |
| 0x0CC9 | Innocent Technology Co., Ltd.                              |
| 0x0CCA | Cyclops Marine Ltd   |
| 0x0CCB | NOTHING TECHNOLOGY LIMITED                                 |
| 0x0CCC | Kord Defence Pty Ltd                                       |
| 0x0CCD | YanFeng Visteon(Chongqing) Automotive Electronic Co.,Ltd   |
| 0x0CCE | SENOSPACE LLC  |
| 0x0CCF | Shenzhen CESI Information Technology Co., Ltd.             |
| 0x0CD0 | MooreSilicon Semiconductor Technology (Shanghai) Co., LTD. |
| 0x0CD1 | Imagine Marketing Limited                                  |
| 0x0CD2 | EQOM SSC B.V.  |
| 0x0CD3 | TechSwipe  |
| 0x0CD4 | Reoqoo IoT Technology Co., Ltd.                            |
| 0x0CD5 | Numa Products, LLC   |
| 0x0CD6 | HHO (Hangzhou) Digital Technology Co., Ltd.                |
| 0x0CD7 | Maztech Industries, LLC                                    |
| 0x0CD8 | SIA Mesh Group   |
| 0x0CD9 | Minami acoustics Limited                                   |
| 0x0CDA | Wolf Steel ltd   |
| 0x0CDB | Circus World Displays Limited                              |

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| 0x0CDC | Ypsomed AG                                       |
| 0x0CDD | Alif Semiconductor, Inc.                         |
| 0x0CDE | RESPONSE TECHNOLOGIES, LTD.                      |
| 0x0CDF | SHENZHEN CHENYUN ELECTRONICS CO., LTD            |
| 0x0CE0 | VODALOGIC PTY LTD                                |
| 0x0CE1 | Regal Beloit America, Inc.                       |
| 0x0CE2 | CORVENT MEDICAL, INC.                            |
| 0x0CE3 | Taiwan Fuhsing                                   |
| 0x0CE4 | Off-Highway Powertrain Services Germany GmbH     |
| 0x0CE5 | Amina Distribution AS                            |
| 0x0CE6 | McWong International, Inc.                       |
| 0x0CE7 | TAG HEUER SA                                     |
| 0x0CE8 | Dongguan Yougo Electronics Co.,Ltd.              |
| 0x0CE9 | PEAG, LLC dba JLab Audio                         |
| 0x0CEA | HAYWARD INDUSTRIES, INC.                         |
| 0x0CEB | Shenzhen Tingting Technology Co. LTD             |
| 0x0CEC | Pacific Coast Fishery Services (2003) Inc.       |
| 0x0CED | CV. NURI TEKNIK                                  |
| 0x0CEE | MadgeTech, Inc                                   |
| 0x0CEF | POGS B.V.  |
| 0x0CF0 | THOTAKA TEKHNOLOGIES INDIA PRIVATE LIMITED       |
| 0x0CF1 | Midmark  |
| 0x0CF2 | BestSens AG                                      |
| 0x0CF3 | Radio Sound                                      |
| 0x0CF4 | SOLUX PTY LTD                                    |
| 0x0CF5 | BOS Balance of Storage Systems AG                |
| 0x0CF6 | OJ Electronics A/S                               |
| 0x0CF7 | TVS Motor Company Ltd.                           |
| 0x0CF8 | core sensing GmbH                                |
| 0x0CF9 | Tamblue Oy                                       |
| 0x0CFA | Protect Animals With Satellites LLC              |
| 0x0CFB | Tyromotion GmbH                                  |
| 0x0CFC | ElectronX design                                 |
| 0x0CFD | Wuhan Woncan Construction Technologies Co., Ltd. |
| 0x0CFE | Thule Group AB                                   |
| 0x0CFF | Ergodrive Inc                                    |

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| 0x0D00 | Sparkpark AS                             |
| 0x0D01 | KEEPEN                                   |
| 0x0D02 | Rocky Mountain ATV/MC Jake Wilson        |
| 0x0D03 | MakuSafe Corp                            |
| 0x0D04 | Bartec Auto Id Ltd                       |
| 0x0D05 | Energy Technology and Control Limited    |
| 0x0D06 | doubleO Co., Ltd.                        |
| 0x0D07 | Datalogic S.r.l.                         |
| 0x0D08 | Datalogic USA, Inc.                      |
| 0x0D09 | Leica Geosystems AG                      |
| 0x0D0A | CATEYE Co., Ltd.                         |
| 0x0D0B | Research Products Corporation            |
| 0x0D0C | Planmeca Oy                              |
| 0x0D0D | C.Ed. Schulte GmbH Zylinderschlossfabrik |
| 0x0D0E | PetVoice Co., Ltd.                       |
| 0x0D0F | Timebirds Australia Pty Ltd              |
| 0x0D10 | JVC KENWOOD Corporation                  |
| 0x0D11 | Great Dane LLC                           |
| 0x0D12 | Spartek Systems Inc.                     |
| 0x0D13 | MERRY ELECTRONICS CO., LTD.              |
| 0x0D14 | Merry Electronics (S) Pte Ltd            |
| 0x0D15 | Spark                                    |
| 0x0D16 | Nations Technologies Inc.                |
| 0x0D17 | Akix S.r.l.                              |
| 0x0D18 | Bioliberty Ltd                           |
| 0x0D19 | C.G. Air Systemes Inc.                   |
| 0x0D1A | Maturix ApS                              |
| 0x0D1B | RACHIO, INC.                             |
| 0x0D1C | LIMBOID LLC                              |
| 0x0D1D | Electronics4All Inc.                     |
| 0x0D1E | FESTINA LOTUS SA                         |
| 0x0D1F | Synkopi, Inc.                            |
| 0x0D20 | SCIENTERRA LIMITED                       |
| 0x0D21 | Cennox Group Limited                     |
| 0x0D22 | Cedarware, Corp.                         |
| 0x0D23 | GREE Electric Appliances, Inc. of Zhuhai |

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|--------|--|
| 0x0D24 | Japan Display Inc.                     |
| 0x0D25 | System Elite Holdings Group Limited    |
| 0x0D26 | Burkert Werke GmbH & Co. KG            |
| 0x0D27 | velocitux                              |
| 0x0D28 | FUJITSU COMPONENT LIMITED              |
| 0x0D29 | MIYAKAWA ELECTRIC WORKS LTD.           |
| 0x0D2A | PhysioLogic Devices, Inc.              |
| 0x0D2B | Sensoryx AG                            |
| 0x0D2C | SIL System Integration Laboratory GmbH |
| 0x0D2D | Cooler Pro, LLC                        |
| 0x0D2E | Advanced Electronic Applications, Inc  |
| 0x0D2F | Delta Development Team, Inc            |
| 0x0D30 | Laxmi Therapeutic Devices, Inc.        |
| 0x0D31 | SYNCHRON, INC.                         |
| 0x0D32 | Badger Meter                           |
| 0x0D33 | Micropower Group AB                    |
| 0x0D34 | ZILLIOT TECHNOLOGIES PRIVATE LIMITED   |
| 0x0D35 | Universidad Politecnica de Madrid      |
| 0x0D36 | XIHAO INTELLIGENGTECHNOLOGY CO., LTD   |
| 0x0D37 | Zerene Inc.                            |
| 0x0D38 | CycLock                                |
| 0x0D39 | Systemic Games, LLC                    |
| 0x0D3A | Frost Solutions, LLC                   |
| 0x0D3B | Lone Star Marine Pty Ltd               |
| 0x0D3C | SIRONA Dental Systems GmbH             |
| 0x0D3D | bHaptics Inc.                          |
| 0x0D3E | LUMINOAH, INC.                         |
| 0x0D3F | Vogels Products B.V.                   |
| 0x0D40 | SignalFire Telemetry, Inc.             |
| 0x0D41 | CPAC Systems AB                        |
| 0x0D42 | TEKTRO TECHNOLOGY CORPORATION          |
| 0x0D43 | Gosuncn Technology Group Co., Ltd.     |
| 0x0D44 | Ex Makhina Inc.                        |
| 0x0D45 | Odeon, Inc.                            |
| 0x0D46 | Thales Simulation & Training AG        |
| 0x0D47 | Shenzhen DOKE Electronic Co., Ltd      |



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|--------|--|
| 0x0D48 | Vemcon GmbH                                      |
| 0x0D49 | Refrigerated Transport Electronics, Inc.         |
| 0x0D4A | Rockpile Solutions, LLC                          |
| 0x0D4B | Soundwave Hearing, LLC                           |
| 0x0D4C | lotGizmo Corporation                             |
| 0x0D4D | Optec, LLC                                       |
| 0x0D4E | NIKAT SOLUTIONS PRIVATE LIMITED                  |
| 0x0D4F | Movano Inc.                                      |
| 0x0D50 | NINGBO FOTILE KITCHENWARE CO., LTD.              |
| 0x0D51 | Genetus inc.                                     |
| 0x0D52 | DIVAN TRADING CO., LTD.                          |
| 0x0D53 | Luxottica Group S.p.A                            |
| 0x0D54 | ISEKI FRANCE S.A.S                               |
| 0x0D55 | NO CLIMB PRODUCTS LTD                            |
| 0x0D56 | Wellang.Co.,Ltd                                  |
| 0x0D57 | Nanjing Xinxiangyuan Microelectronics Co., Ltd.  |
| 0x0D58 | ifm electronic gmbh                              |
| 0x0D59 | HYUPSUNG MACHINERY ELECTRIC CO., LTD.            |
| 0x0D5A | Gunnebo Aktiebolag                               |
| 0x0D5B | Axis Communications AB                           |
| 0x0D5C | Pison Technology, Inc.                           |
| 0x0D5D | Stogger B.V.                                     |
| 0x0D5E | Pella Corp                                       |
| 0x0D5F | SiChuan Homme Intelligent Technology co.,Ltd.    |
| 0x0D60 | Smart Products Connection, S.A.                  |
| 0x0D61 | F.I.P. FORMATURA INIEZIONE POLIMERI - S.P.A.     |
| 0x0D62 | MEBSTER s.r.o.                                   |
| 0x0D63 | SKF France                                       |
| 0x0D64 | Southco  |
| 0x0D65 | Molnlycke Health Care AB                         |
| 0x0D66 | Hendrickson USA , L.L.C                          |
| 0x0D67 | BLACK BOX NETWORK SERVICES INDIA PRIVATE LIMITED |
| 0x0D68 | Status Audio LLC                                 |
| 0x0D69 | AIR AROMA INTERNATIONAL PTY LTD                  |
| 0x0D6A | Helge Kaiser GmbH                                |
| 0x0D6B | Crane Payment Innovations, Inc.                  |

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| 0x0D6C | Ambient IoT Pty Ltd                                   |
| 0x0D6D | DYNAMOX S/A   |
| 0x0D6E | Look Cycle International                              |
| 0x0D6F | Closed Joint Stock Company NVP BOLID                  |
| 0x0D70 | Kindhome  |
| 0x0D71 | Kiteras Inc.  |
| 0x0D72 | Earfun Technology (HK) Limited                        |
| 0x0D73 | iota Biosciences, Inc.                                |
| 0x0D74 | ANUME s.r.o.  |
| 0x0D75 | Indistinguishable From Magic, Inc.                    |
| 0x0D76 | i-focus Co.,Ltd                                       |
| 0x0D77 | DualNetworks SA                                       |
| 0x0D78 | MITACHI CO.,LTD.                                      |
| 0x0D79 | VIVIWARE JAPAN, Inc.                                  |
| 0x0D7A | Xiamen Intretech Inc.                                 |
| 0x0D7B | MindMaze SA   |
| 0x0D7C | BeiJing SmartChip Microelectronics Technology Co.,Ltd |
| 0x0D7D | Taiko Audio B.V.                                      |
| 0x0D7E | Daihatsu Motor Co., Ltd.                              |
| 0x0D7F | Konova  |
| 0x0D80 | Gravaa B.V.   |
| 0x0D81 | Beyerdynamic GmbH & Co. KG                            |
| 0x0D82 | VELCO   |
| 0x0D83 | ATLANTIC SOCIETE FRANCAISE DE DEVELOPPEMENT THERMIQUE |
| 0x0D84 | Testo SE & Co. KGaA                                   |
| 0x0D85 | SEW-EURODRIVE GmbH & Co KG                            |
| 0x0D86 | ROCKWELL AUTOMATION, INC.                             |
| 0x0D87 | Quectel Wireless Solutions Co., Ltd.                  |
| 0x0D88 | Geocene Inc.  |
| 0x0D89 | Nanohex Corp  |
| 0x0D8A | Simply Embedded Inc.                                  |
| 0x0D8B | Software Development, LLC                             |
| 0x0D8C | Ultimea Technology (Shenzhen) Limited                 |
| 0x0D8D | RF Electronics Limited                                |
| 0x0D8E | Optivolt Labs, Inc.                                   |
| 0x0D8F | Canon Electronics Inc.                                |

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|--------|---|
| 0x0D90 | LAAS ApS                                      |
| 0x0D91 | Beamex Oy Ab                                  |
| 0x0D92 | TACHIKAWA CORPORATION                         |
| 0x0D93 | HagerEnergy GmbH                              |
| 0x0D94 | Shrooly Inc                                   |
| 0x0D95 | Hunter Industries Incorporated                |
| 0x0D96 | NEOKOHM SISTEMAS ELETRONICOS LTDA             |
| 0x0D97 | Zhejiang Huanfu Technology Co., LTD           |
| 0x0D98 | E.F. Johnson Company                          |
| 0x0D99 | Caire Inc.                                    |
| 0x0D9A | Yeasound (Xiamen) Hearing Technology Co., Ltd |
| 0x0D9B | Boxyz, Inc.                                   |
| 0x0D9C | Skytech Creations Limited                     |
| 0x0D9D | Cear, Inc.                                    |
| 0x0D9E | Impulse Wellness LLC                          |
| 0x0D9F | MML US, Inc                                   |
| 0x0DA0 | SICK AG                                       |
| 0x0DA1 | Fen Systems Ltd.                              |
| 0x0DA2 | KIWI.KI GmbH                                  |
| 0x0DA3 | Airgraft Inc.                                 |
| 0x0DA4 | HP Tuners                                     |
| 0x0DA5 | PIXELA CORPORATION                            |
| 0x0DA6 | Generac Corporation                           |
| 0x0DA7 | Novoferm tormatic GmbH                        |
| 0x0DA8 | Airwallet ApS                                 |
| 0x0DA9 | Inventronics GmbH                             |
| 0x0DAA | Shenzhen EBELONG Technology Co., Ltd.         |
| 0x0DAB | Efento  |
| 0x0DAC | ITALTRACTOR ITM S.P.A.                        |
| 0x0DAD | linktop                                       |
| 0x0DAE | TITUM AUDIO, INC.                             |
| 0x0DAF | Hexagon Aura Reality AG                       |
| 0x0DB0 | Invisalert Solutions, Inc.                    |
| 0x0DB1 | TELE System Communications Pte. Ltd.          |
| 0x0DB2 | Whirlpool                                     |
| 0x0DB3 | SHENZHEN REFLYING ELECTRONIC CO., LTD         |

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| 0x0DB4 | Franklin Control Systems                                   |
| 0x0DB5 | Djup AB  |
| 0x0DB6 | SAFEGUARD EQUIPMENT, INC.                                  |
| 0x0DB7 | Morningstar Corporation                                    |
| 0x0DB8 | Shenzhen Chuangyuan Digital Technology Co., Ltd            |
| 0x0DB9 | CompanyDeep Ltd  |
| 0x0DBA | Veo Technologies ApS                                       |
| 0x0DBB | Nexis Link Technology Co., Ltd.                            |
| 0x0DBC | Felion Technologies Company Limited                        |
| 0x0DBD | MAATEL   |
| 0x0DBE | HELLA GmbH & Co. KGaA                                      |
| 0x0DBF | HWM-Water Limited  |
| 0x0DC0 | Shenzhen Jahport Electronic Technology Co., Ltd.           |
| 0x0DC1 | NACHI-FUJIKOSHI CORP.                                      |
| 0x0DC2 | Cirrus Research plc  |
| 0x0DC3 | GEARBAC TECHNOLOGIES INC.                                  |
| 0x0DC4 | Hangzhou NationalChip Science & Technology Co.,Ltd         |
| 0x0DC5 | DHL  |
| 0x0DC6 | Levita   |
| 0x0DC7 | MORNINGSTAR FX PTE. LTD.                                   |
| 0x0DC8 | ETO GRUPPE TECHNOLOGIES GmbH                               |
| 0x0DC9 | farmunited GmbH  |
| 0x0DCA | Aptener Mechatronics Private Limited                       |
| 0x0DCB | GEOPH, LLC   |
| 0x0DCC | Trotec GmbH  |
| 0x0DCD | Astra LED AG   |
| 0x0DCE | NOVAFON - Electromedical devices limited liability company |
| 0x0DCF | KUBU SMART LIMITED   |
| 0x0DD0 | ESNAH  |
| 0x0DD1 | OrangeMicro Limited  |
| 0x0DD2 | Sitecom Europe B.V.  |
| 0x0DD3 | Global Satellite Engineering                               |
| 0x0DD4 | KOQOON GmbH & Co.KG  |
| 0x0DD5 | BEEPINGS   |
| 0x0DD6 | MODULAR MEDICAL, INC.                                      |
| 0x0DD7 | Xiant Technologies, Inc.                                   |

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|--------|--|
| 0x0DD8 | Granchip IoT Technology (Guangzhou) Co.,Ltd                                |
| 0x0DD9 | SCHELL GmbH & Co. KG   |
| 0x0DDA | Minebea Intec GmbH   |
| 0x0DDB | KAGA FEI Co., Ltd.   |
| 0x0DDC | AUTHOR-ALARM, razvoj in prodaja avtomobilskih sistemov proti kraji, d.o.o. |
| 0x0DDD | Tozoa LLC  |
| 0x0DDE | SHENZHEN DNS INDUSTRIES CO., LTD.  |
| 0x0DDF | Shenzhen Lunci Technology Co., Ltd   |
| 0x0DE0 | KNOG PTY. LTD.   |
| 0x0DE1 | Outshiny India Private Limited   |
| 0x0DE2 | TAMADIC Co., Ltd.  |
| 0x0DE3 | Shenzhen MODSEMI Co., Ltd  |
| 0x0DE4 | EMBEINT INC  |
| 0x0DE5 | Ehong Technology Co.,Ltd   |
| 0x0DE6 | DEXATEK Technology LTD   |
| 0x0DE7 | Dendro Technologies, Inc.  |
| 0x0DE8 | Vivint, Inc.   |
| 0x0DE9 | General Laser GmbH   |
| 0x0DEA | Kathrein Solutions GmbH  |
| 0x0DEB | Fitz Inc.  |
| 0x0DEC | ATEGENOS PHARMACEUTICALS INC   |
| 0x0DED | Flextronic GmbH  |
| 0x0DEE | Safety Swim LLC  |
| 0x0DEF | SING SUN TECHNOLOGY (INTERNATIONAL) LIMITED                                |
| 0x0DF0 | Woncan (Hong Kong) Limited   |
| 0x0DF1 | iFLYTEK (Suzhou) Technology Co., Ltd.                                      |
| 0x0DF2 | Weber-Stephen Products LLC   |
| 0x0DF3 | hDrop Technologies Inc.  |
| 0x0DF4 | REEKON TOOLS INC.  |
| 0x0DF5 | Delta Faucet Company   |
| 0x0DF6 | Mutrack Co., Ltd   |
| 0x0DF7 | Hangzhou Zhaotong Microelectronics Co., Ltd.                               |
| 0x0DF8 | Chengdu CSCT Microelectronics Co., Ltd.                                    |
| 0x0DF9 | Belusun Technology Ltd.  |
| 0x0DFA | Shenzhen Matches IoT Technology Co., Ltd.                                  |
| 0x0DFB | Beidou Intelligent Connected Vehicle Technology Co., Ltd.                  |

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|        |   |
|--------|---|
| 0x0DFC | SOJI ELECTRONICS JOINT STOCK COMPANY              |
| 0x0DFD | BH Technologies                                   |
| 0x0DFE | Haptch, Inc.                                      |
| 0x0DFF | WaveRF, Corp.                                     |
| 0x0E00 | SHENZHEN SOUNDSOUL INFORMATION TECHNOLOGY CO.,LTD |
| 0x0E01 | Wuhu Mengbo Technology Co., Ltd.                  |
| 0x0E02 | PROSYS DEV LIMITED                                |
| 0x0E03 | Shenzhen eMeet technology Co.,Ltd                 |
| 0x0E04 | Doro AB   |
| 0x0E05 | SUREPULSE MEDICAL LIMITED                         |
| 0x0E06 | iodyne, LLC                                       |
| 0x0E07 | Pinpoint GmbH                                     |

## 7.2 Company Identifiers by Name

Last Modified: 2024-08-29

Filename: [assigned\\_numbers/company\\_identifiers/company\\_identifiers.yaml](#)

| Name                             | Value  |
|----------------------------------|--------|
| 10AK Technologies                | 0x0116 |
| 11 Health & Technologies Limited | 0x0872 |
| 16Lab Inc                        | 0x0242 |
| 1bar.net Limited                 | 0x087E |
| 1UP USA.com llc                  | 0x0449 |
| 2048450 Ontario Inc              | 0x045A |
| 2587702 Ontario Inc.             | 0x0A37 |
| 2N TELEKOMUNIKACE a.s.           | 0x07B3 |
| 3ALogics, Inc.                   | 0x0C7D |
| 3Com                             | 0x0005 |
| 3DiJoy Corporation               | 0x0054 |
| 3DSP Corporation                 | 0x0049 |
| 3flares Technologies Inc.        | 0x0331 |
| 3IWare Co., Ltd.                 | 0x03D9 |
| 3M                               | 0x02D0 |
| 3SI Security Systems, Inc        | 0x0A45 |
| 4eBusiness GmbH                  | 0x0775 |
| 4iiii Innovations Inc.           | 0x0679 |
| 4MOD Technology                  | 0x04DD |
| 5th Element Ltd                  | 0x04D4 |
| 701x Inc.                        | 0x0AF3 |
| 70mai Co.,Ltd.                   | 0x0909 |
| 8Power Limited                   | 0x0824 |
| 9374-7319 Quebec inc             | 0x096C |
| 9974091 Canada Inc.              | 0x0513 |
| 9Solutions Oy                    | 0x0066 |
| A & R Cambridge                  | 0x007C |
| A puissance 3                    | 0x0839 |
| A&D Engineering, Inc.            | 0x0069 |
| A-Safe Limited                   | 0x03B8 |
| A.GLOBAL co.,Ltd.                | 0x0C8A |
| A.W. Chesterton Company          | 0x07C1 |



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|--|--------|
| AAMP of America                                    | 0x00BE |
| Aardex Ltd.  | 0x0BDA |
| AB Electrolux                                      | 0x0705 |
| ABAX AS  | 0x0711 |
| ABB Inc  | 0x08B7 |
| ABB Oy   | 0x06BD |
| ABB S.p.A.   | 0x082E |
| Abbott   | 0x03BB |
| ABEYE  | 0x0974 |
| Abiogenix Inc.                                     | 0x01C7 |
| Able Trend Technology Limited                      | 0x018A |
| ABLEPAY TECHNOLOGIES AS                            | 0x09D1 |
| ABLIC Inc.   | 0x0731 |
| ABOV Semiconductor                                 | 0x02CA |
| Above Average Outcomes, Inc.                       | 0x00EE |
| Absolute Audio Labs B.V.                           | 0x0993 |
| ABUS August Bremicker Soehne Kommanditgesellschaft | 0x0CC4 |
| Accel Semiconductor Ltd.                           | 0x004A |
| Accelerated Systems                                | 0x0B1D |
| Accent Advanced Systems SLU                        | 0x08C0 |
| Access Co., Ltd                                    | 0x07FB |
| Accumulate AB                                      | 0x0156 |
| ACE CAD Enterprise Co., Ltd. (ACECAD)              | 0x03A5 |
| Ace Sensor Inc                                     | 0x00BC |
| AceUni Corp., Ltd.                                 | 0x00F8 |
| ACKme Networks, Inc.                               | 0x0246 |
| ACL Airshop B.V.                                   | 0x0B2A |
| Aclara Technologies LLC                            | 0x08A0 |
| aconno GmbH  | 0x0C0B |
| ACOS CO.,LTD.                                      | 0x085C |
| Acoustic Stream Corporation                        | 0x0194 |
| Acromag  | 0x035F |
| ACS-Control-System GmbH                            | 0x05EA |
| Actev Motors, Inc.                                 | 0x0968 |
| Actions (Zhuhai) Technology Co., Limited           | 0x03E0 |
| ActiveBlu Corporation                              | 0x0389 |



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|---|--------|
| ACTS Technologies                         | 0x00E8 |
| Acubit ApS                                | 0x073C |
| Acuity Brands Lighting, Inc               | 0x0346 |
| Acurable Limited                          | 0x05D3 |
| adafruit industries                       | 0x0822 |
| Adam Hall GmbH                            | 0x0B4D |
| ADATA Technology Co., LTD.                | 0x08D4 |
| AdBabble Local Commerce Inc.              | 0x0257 |
| ADC Technology, Inc.                      | 0x0492 |
| Addaday                                   | 0x0B69 |
| Adero, Inc.                               | 0x069A |
| Adevo Consulting AB                       | 0x0AAD |
| ADH GUARDIAN USA LLC                      | 0x0610 |
| ADHERIUM(NZ) LIMITED                      | 0x05A2 |
| adidas AG                                 | 0x00C3 |
| Adolene, Inc.                             | 0x0530 |
| Adolf Wuerth GmbH & Co KG                 | 0x093D |
| ADTRAN, Inc.                              | 0x0C4B |
| Advanced Application Design, Inc.         | 0x01EA |
| Advanced Electronic Applications, Inc     | 0x0D2E |
| Advanced Electronic Designs, Inc.         | 0x054B |
| Advanced PANMOBIL systems GmbH & Co. KG   | 0x0091 |
| Advanced Telemetry Systems, Inc.          | 0x0663 |
| ADVEEZ                                    | 0x098E |
| AeroScout                                 | 0x03A7 |
| Aerosens LLC                              | 0x09BC |
| AETERLINK                                 | 0x0C0F |
| AEV spol. s r.o.                          | 0x0793 |
| Afero, Inc.                               | 0x02D2 |
| AFFORDABLE ELECTRONICS INC                | 0x0574 |
| AG Measurematics Pvt. Ltd.                | 0x0316 |
| Agitron d.o.o.                            | 0x0944 |
| AGZZX OPTOELECTRONICS TECHNOLOGY CO., LTD | 0x0C89 |
| AIAIAI ApS                                | 0x0AAF |
| AIC semiconductor (Shanghai) Co., Ltd.    | 0x0B3B |
| AINA-Wireless Inc.                        | 0x02CB |

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|---------------------------------|--------|
| AIR AROMA INTERNATIONAL PTY LTD | 0x0D69 |
| Air-Weigh                       | 0x0A30 |
| Airbly Inc.                     | 0x03B7 |
| AirBolt Pty Ltd                 | 0x036D |
| Aireware LLC                    | 0x0135 |
| Airgraft Inc.                   | 0x0DA3 |
| AiRISTA                         | 0x0928 |
| Airoha Technology Corp.         | 0x07E3 |
| Airoha Technology Corp.         | 0x0094 |
| AIRSTAR                         | 0x09FF |
| Airtago                         | 0x0406 |
| Airthings ASA                   | 0x0334 |
| AirTurn, Inc.                   | 0x0122 |
| Airwallet ApS                   | 0x0DA8 |
| Aixlink(Chengdu) Co., Ltd.      | 0x0B77 |
| AJP2 Holdings, LLC              | 0x0337 |
| Akciju sabiedriba "SAF TEHNIKA" | 0x0702 |
| Akix S.r.l.                     | 0x0D17 |
| Aktiebolaget Regin              | 0x098F |
| Aktiebolaget Sandvik Coromant   | 0x07EF |
| AL-KO Geraete GmbH              | 0x0AD7 |
| Alango Technologies Ltd         | 0x06E2 |
| Alarm.com Holdings, Inc         | 0x06C1 |
| Alatech Tehnology               | 0x023A |
| Alban Giacomo S.P.A.            | 0x0C5B |
| Albertronic BV                  | 0x091A |
| Albrecht JUNG                   | 0x0527 |
| AlbynMedical                    | 0x04BD |
| ALCARE Co., Ltd.                | 0x06EF |
| Alcatel                         | 0x0024 |
| ALE International               | 0x039C |
| ALEX DENKO CO.,LTD.             | 0x0C0E |
| ALF Inc.                        | 0x0C9A |
| Alfa Laval Corporate AB         | 0x0B10 |
| Alfen ICU B.V.                  | 0x0B91 |
| Alflex Products B.V.            | 0x0860 |



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|--|--------|
| Alfred International Inc.                        | 0x06F3 |
| Alfred Kaercher SE & Co. KG                      | 0x07E2 |
| Algoria  | 0x037A |
| Alif Semiconductor, Inc.                         | 0x0CDD |
| Alio, Inc  | 0x0BF9 |
| ALIZENT International                            | 0x0A86 |
| Allegion   | 0x013B |
| Allswell Inc.                                    | 0x03AE |
| Allterco Robotics ltd                            | 0x0BA9 |
| Almendo Technologies GmbH                        | 0x06E8 |
| Alo AB   | 0x065E |
| ALOTTAZS LABS, LLC                               | 0x029D |
| Alpha Audiotronics, Inc.                         | 0x0353 |
| Alpha Nodus, inc.                                | 0x03B4 |
| Alpine Electronics (China) Co., Ltd              | 0x0140 |
| Alpine Labs LLC                                  | 0x03A1 |
| Alps Alpine Co., Ltd.                            | 0x0272 |
| Alpwise  | 0x009A |
| ALT-TEKNIK LLC                                   | 0x0588 |
| Altaneos   | 0x080A |
| Alticor Inc.                                     | 0x0431 |
| Altonics   | 0x0716 |
| ALTYOR   | 0x0259 |
| Aluna  | 0x06E4 |
| amadas   | 0x03BD |
| AmaterZ, Inc.                                    | 0x077B |
| Amazon.com Services LLC                          | 0x0171 |
| ambie  | 0x0A56 |
| Ambient IoT Pty Ltd                              | 0x0D6C |
| Ambient Sensors LLC                              | 0x0916 |
| Ambimat Electronics                              | 0x0148 |
| Ambiq  | 0x09AC |
| Ambystoma Labs Inc.                              | 0x05B8 |
| AMC International Alfa Metalcraft Corporation AG | 0x0946 |
| American Music Environments                      | 0x02E8 |
| American Technology Components, Incorporated     | 0x0B8B |

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|---|--------|
| Ameso Tech (OPC) Private Limited                      | 0x0CBA |
| AMETEK, Inc.  | 0x0AF6 |
| AMICCOM Electronics Corporation                       | 0x00C0 |
| Amiko srl   | 0x0BCD |
| Amina Distribution AS                                 | 0x0CE5 |
| Amlogic, Inc.   | 0x0C85 |
| Amotus Solutions                                      | 0x0325 |
| Ampetronic Ltd  | 0x0B87 |
| Ampler Bikes OU                                       | 0x0A00 |
| Amplifico   | 0x0626 |
| ams AG  | 0x0B21 |
| Amsted Digital Solutions Inc.                         | 0x0688 |
| Amtech Systems, LLC                                   | 0x074D |
| Amtronic Sverige AB                                   | 0x0517 |
| Analog Devices, Inc.                                  | 0x04B7 |
| AND!XOR LLC   | 0x049E |
| Andon Health Co.,Ltd                                  | 0x0804 |
| Andreas Stihl AG & Co. KG                             | 0x03DD |
| Androtec GmbH   | 0x04FA |
| Angee Technologies Ltd.                               | 0x051B |
| Angel Medical Systems, Inc.                           | 0x0BF2 |
| Anhui Huami Information Technology Co., Ltd.          | 0x0157 |
| Anhui Listenai Co                                     | 0x0AAB |
| Anima   | 0x02CF |
| Animas Corp   | 0x0271 |
| Anker Innovations Limited                             | 0x0CC2 |
| Anki Inc.   | 0x05F8 |
| Anloq Technologies Inc.                               | 0x04D2 |
| AnotherBrain inc.                                     | 0x09C0 |
| Anova Applied Electronics                             | 0x05D0 |
| Antitronics Inc.                                      | 0x075C |
| Anton Paar GmbH                                       | 0x0990 |
| AntTail.com   | 0x0572 |
| ANUME s.r.o.  | 0x0D74 |
| Anyka (Guangzhou) Microelectronics Technology Co, LTD | 0x01F8 |
| AON2 Ltd.   | 0x09DC |

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|--------------------------------------|--------|
| Aperia Technologies, Inc.            | 0x0BC5 |
| Apexar Technologies S.A.             | 0x0546 |
| API-K                                | 0x0A1D |
| Aplix Corporation                    | 0x00BD |
| Apogee Instruments                   | 0x0644 |
| Apollo Neuroscience, Inc.            | 0x07A1 |
| Apollogic Sp. z o.o.                 | 0x0A21 |
| Appception, Inc.                     | 0x033A |
| Appion Inc.                          | 0x038C |
| Apple, Inc.                          | 0x004C |
| Applied Neural Research Corp         | 0x05DA |
| Applied Science, Inc.                | 0x03BE |
| AppNearMe Ltd                        | 0x0373 |
| Appside co., Ltd.                    | 0x043B |
| Apption Labs Inc.                    | 0x037B |
| Apptricity Corporation               | 0x0952 |
| APT Ltd.                             | 0x004F |
| Aptcode Solutions                    | 0x026F |
| Aptener Mechatronics Private Limited | 0x0DCA |
| AR Timing                            | 0x0201 |
| ARANZ Medical Limited                | 0x0580 |
| Arblet Inc.                          | 0x05FB |
| Arch Systems Inc.                    | 0x03C0 |
| ARCHOS SA                            | 0x00CF |
| ARCOM                                | 0x084A |
| Ardic Technology                     | 0x02EB |
| ARDUINO SA                           | 0x09A3 |
| Arendi AG                            | 0x011D |
| Areus Engineering GmbH               | 0x029F |
| Argenox Technologies                 | 0x0240 |
| Arioneo                              | 0x0348 |
| Arlo Technologies, Inc.              | 0x0C19 |
| ARMATURA LLC                         | 0x0B33 |
| ARP Devices Limited                  | 0x00A8 |
| ART AND PROGRAM, INC.                | 0x0766 |
| ART SPA                              | 0x0B30 |



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|---|--------|
| Arwin Technology Limited                              | 0x0557 |
| Asahi Kasei Corporation                               | 0x0965 |
| ASB Bank Ltd  | 0x03BC |
| Ascensia Diabetes Care US Inc.                        | 0x0167 |
| Aseptika Ltd  | 0x027C |
| Askey Computer Corp.                                  | 0x08EE |
| Aspenta International                                 | 0x0318 |
| ASPion GmbH   | 0x062C |
| ASR Microelectronics (Shanghai) Co., Ltd.             | 0x0910 |
| ASR Microelectronics(ShenZhen)Co., Ltd.               | 0x0917 |
| ASSA ABLOY  | 0x012E |
| ASTEM Co.,Ltd.  | 0x0939 |
| Asthrea D.O.O.  | 0x0630 |
| Astra LED AG  | 0x0DCD |
| Astro, Inc.   | 0x0324 |
| ATEGENOS PHARMACEUTICALS INC                          | 0x0DEC |
| Aterica Inc.  | 0x0386 |
| Atheros Communications, Inc.                          | 0x0045 |
| Athlos Oy   | 0x09EA |
| ATLANTIC SOCIETE FRANCAISE DE DEVELOPPEMENT THERMIQUE | 0x0D83 |
| Atmel Corporation                                     | 0x0013 |
| Atmosic Technologies, Inc.                            | 0x0A24 |
| Atomation   | 0x0455 |
| atSpiro ApS   | 0x0C4A |
| Atus BV   | 0x0109 |
| Audeara Pty Ltd                                       | 0x09F2 |
| Audi AG   | 0x010E |
| audifon GmbH & Co. KG                                 | 0x0784 |
| Audio Partnership Plc                                 | 0x0B9E |
| Audio-Technica Corporation                            | 0x0618 |
| Audiodo AB  | 0x0710 |
| Audionics System, INC.                                | 0x0569 |
| August Home, Inc                                      | 0x01D1 |
| Aurea Solucoes Tecnologicas Ltda.                     | 0x07AE |
| Austco Communication Systems                          | 0x00D5 |
| AUTEC Gesellschaft fuer Automationstechnik mbH        | 0x09B5 |



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| AuthAir, Inc   | 0x02F3 |
| Authomate Inc  | 0x0404 |
| AUTHOR-ALARM, razvoj in prodaja avtomobilskih sistemov proti kraji, d.o.o. | 0x0DDC |
| AutoMap LLC  | 0x01EB |
| Automated Pet Care Products, LLC   | 0x0C0A |
| Automatic Labs, Inc.   | 0x06DB |
| Automation Components, Inc.  | 0x033F |
| Automotive Data Solutions Inc  | 0x0488 |
| Autonet Mobile   | 0x007F |
| Auxivia  | 0x04EE |
| Avack Oy   | 0x04E5 |
| Avago Technologies   | 0x004E |
| Avantis Systems Limited  | 0x06EE |
| Avaya Inc.   | 0x06E0 |
| Avempace SARL  | 0x0552 |
| Averos FZCO  | 0x04BE |
| Avi-on   | 0x01C9 |
| Avid Identification Systems, Inc.  | 0x05DB |
| AVM Berlin   | 0x001F |
| Avvel International  | 0x03C8 |
| AW Company   | 0x06D8 |
| Awarepoint   | 0x023C |
| AwoX   | 0x0160 |
| AXELIFE  | 0x0B80 |
| Axentia Technologies AB  | 0x07BE |
| Axes System sp. z o. o.  | 0x0508 |
| Axiomware Systems Incorporated   | 0x05A3 |
| Axis Communications AB   | 0x0D5B |
| AXTRO PTE. LTD.  | 0x0A77 |
| Ayatan Sensors   | 0x02C6 |
| AYU DEVICES PRIVATE LIMITED  | 0x0A27 |
| Ayxon-Dynamics GmbH  | 0x0A02 |
| Azbil Co.  | 0x080D |
| B&B Manufacturing Company  | 0x013F |
| B&W Group Ltd.   | 0x014F |
| B.E.A. S.A.  | 0x0B0F |

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|--------------------------------|--------|
| Back40 Precision               | 0x0BE1 |
| Backbone Labs, Inc.            | 0x0421 |
| Badger Meter                   | 0x0D32 |
| Baidu                          | 0x011C |
| Band Industries, inc.          | 0x096E |
| Band XI International, LLC     | 0x0064 |
| BandSpeed, Inc.                | 0x0020 |
| Bang & Olufsen A/S             | 0x0103 |
| Baracoda Daily Healthtech.     | 0x0B26 |
| Barnacle Systems Inc.          | 0x07CC |
| Barnes Group Inc.              | 0x0AC6 |
| Barrot Technology Co.,Ltd.     | 0x08E7 |
| Bartec Auto Id Ltd             | 0x0D04 |
| BarVision, LLC                 | 0x0932 |
| BASIC MICRO.COM,INC.           | 0x03ED |
| BatAndCat                      | 0x017D |
| Battery-Biz Inc.               | 0x07BA |
| Baxter Healthcare Corporation  | 0x0C94 |
| Bayerische Motoren Werke AG    | 0x05EB |
| BBPOS Limited                  | 0x02AB |
| BD Medical                     | 0x042A |
| BDE Technology Co., Ltd.       | 0x00B4 |
| Be Interactive Co., Ltd        | 0x0708 |
| Beaconzone Ltd                 | 0x06BA |
| Beam Labs, LLC                 | 0x0622 |
| Beamex Oy Ab                   | 0x0D91 |
| Beats Electronics              | 0x00CC |
| Beautiful Enterprise Co., Ltd. | 0x006C |
| Becker Antriebe GmbH           | 0x0811 |
| Beco, Inc                      | 0x057E |
| Becon Technologies Co.,Ltd.    | 0x03F9 |
| BEEHERO, INC.                  | 0x0C2F |
| BEEPINGS                       | 0x0DD5 |
| BeerTech LTD                   | 0x083C |
| Beflex Inc.                    | 0x06B9 |
| BEGA Gantenbrink-Leuchten KG   | 0x046D |





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| Beghelli Spa  | 0x0564 |
| Beidou Intelligent Connected Vehicle Technology Co., Ltd. | 0x0DFB |
| Beijing Big Moment Technology Co., Ltd.                   | 0x08EB |
| Beijing CarePulse Electronic Technology Co, Ltd           | 0x023B |
| BEIJING ELECTRIC VEHICLE CO.,LTD                          | 0x09A6 |
| Beijing ESWIN Computing Technology Co., Ltd.              | 0x0B1F |
| Beijing Hao Heng Tian Tech Co., Ltd.                      | 0x073D |
| Beijing HC-Infinite Technology Limited                    | 0x0A46 |
| Beijing Jingdong Century Trading Co., Ltd.                | 0x0703 |
| Beijing Pinecone Electronics Co.,Ltd.                     | 0x05B7 |
| Beijing ranxin intelligence technology Co.,LTD            | 0x0BB1 |
| BeiJing SmartChip Microelectronics Technology Co.,Ltd     | 0x0D7C |
| Beijing Smartspace Technologies Inc.                      | 0x0565 |
| Beijing SuperHexa Century Technology CO. Ltd              | 0x0A67 |
| Beijing Unisoc Technologies Co., Ltd.                     | 0x073F |
| Beijing Winner Microelectronics Co.,Ltd                   | 0x070C |
| Beijing Wisepool Infinite Intelligence Technology Co.,Ltd | 0x0B9A |
| Beijing Zero Zero Infinity Technology Co.,Ltd.            | 0x09F3 |
| BeiJing ZiJie TiaoDong KeJi Co.,Ltd.                      | 0x0B24 |
| Beijing Zizai Technology Co., LTD.                        | 0x0900 |
| beken   | 0x05F0 |
| Bekey A/S   | 0x00B2 |
| bel'apps LLC  | 0x0185 |
| Belkin International, Inc.                                | 0x005C |
| BELLDESIGN Inc.   | 0x0C3E |
| Bellman & Symfon Group AB                                 | 0x0464 |
| Belparts N.V.   | 0x06CF |
| Belun Technology Company Limited                          | 0x0B0A |
| Belusun Technology Ltd.                                   | 0x0DF9 |
| Benchmark Drives GmbH & Co. KG                            | 0x04FB |
| benegear, inc.  | 0x0558 |
| Benning Elektrotechnik und Elektronik GmbH & Co. KG       | 0x041D |
| Berlinger & Co. AG  | 0x0C43 |
| Bernard Krone Holding SE & Co.KG                          | 0x0981 |
| Berner International LLC                                  | 0x0875 |
| BeSpoon   | 0x0674 |

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| Bestechnic(Shanghai),Ltd                         | 0x02B0 |
| BestSens AG                                      | 0x0CF2 |
| betternotstealmybike UG (with limited liability) | 0x08CF |
| Beurer GmbH                                      | 0x0611 |
| bewhere inc                                      | 0x0277 |
| Beyerdynamic GmbH & Co. KG                       | 0x0D81 |
| bf1systems limited                               | 0x08BD |
| bGrid B.V.                                       | 0x098C |
| BH SENS  | 0x0B35 |
| BH Technologies                                  | 0x0DFD |
| bHaptics Inc.                                    | 0x0D3D |
| BHM-Tech Produktionsgesellschaft m.b.H           | 0x0988 |
| Big Kaiser Precision Tooling Ltd                 | 0x0992 |
| BIGBEN   | 0x0CA0 |
| BikeFinder AS                                    | 0x056F |
| Binauric SE                                      | 0x00CB |
| BioEchoNet inc.                                  | 0x095E |
| BioIntelliSense, Inc.                            | 0x08FD |
| Bioliberty Ltd                                   | 0x0D18 |
| BioMech Sensor LLC                               | 0x0365 |
| Biomedical Research Ltd.                         | 0x015B |
| Biometrika d.o.o.                                | 0x086D |
| Bionic Avionics Inc.                             | 0x09DB |
| BioResearch Associates                           | 0x00EC |
| BIOROWER Handelsagentur GmbH                     | 0x04AF |
| BiosBob.Biz                                      | 0x0B4C |
| Biotechware SRL                                  | 0x084B |
| BioTex, Inc.                                     | 0x04A8 |
| BIOTRONIK SE & Co. KG                            | 0x0979 |
| Biovigil   | 0x098A |
| Biovotion AG                                     | 0x0624 |
| Biowatch SA                                      | 0x05CF |
| Biral AG   | 0x07C0 |
| Bird Home Automation GmbH                        | 0x04EB |
| Bird Rides, Inc.                                 | 0x0B46 |
| BIROTA   | 0x07FE |

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| Bison Group Ltd.                                 | 0x01DF |
| Bitcraze AB                                      | 0x01C5 |
| BitGreen Technolabz (OPC) Private Limited        | 0x0C71 |
| Bitkey Inc.                                      | 0x072B |
| Bitsplitters GmbH                                | 0x00EF |
| Bitstrata Systems Inc.                           | 0x0350 |
| Bitwards Oy                                      | 0x0836 |
| BIXOLON CO.,LTD                                  | 0x0A23 |
| Bkon Connect                                     | 0x0143 |
| BLACK BOX NETWORK SERVICES INDIA PRIVATE LIMITED | 0x0D67 |
| BlackBerry Limited                               | 0x003C |
| Blackrat Software                                | 0x02F0 |
| Bleb Technology srl                              | 0x0668 |
| BlinCam, Inc.                                    | 0x04D7 |
| BLINQY   | 0x09B1 |
| Blippit AB                                       | 0x082F |
| BLITZ electric motors. LTD                       | 0x0C69 |
| Blocks Wearables Ltd.                            | 0x0435 |
| BLOKS GmbH                                       | 0x0396 |
| BluDotz Ltd                                      | 0x017E |
| Blue Bite  | 0x0293 |
| Blue Clover Devices                              | 0x024C |
| Blue Maestro Limited                             | 0x0133 |
| Blue Peacock GmbH                                | 0x0A0D |
| Blue Sky Scientific, LLC                         | 0x0339 |
| Blue Sky Scientific, LLC                         | 0x029C |
| Blue Spark Technologies                          | 0x0477 |
| Blue Speck Labs, LLC                             | 0x021A |
| Blueair AB                                       | 0x060E |
| Bluegiga   | 0x0047 |
| BlueID GmbH                                      | 0x0C5E |
| BlueIoT(Beijing) Technology Co.,Ltd              | 0x0975 |
| BlueKitchen GmbH                                 | 0x048F |
| Bluenetics GmbH                                  | 0x07C6 |
| Bluepack S.R.L.                                  | 0x073E |
| BlueRadios, Inc.                                 | 0x0085 |



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| BlueStreak IoT, LLC                        | 0x09CF |
| BLUETICKETING SRL                          | 0x0A39 |
| Bluetooth SIG, Inc                         | 0x003F |
| Bluetrum Technology Co.,Ltd                | 0x0642 |
| BlueUp                                     | 0x0859 |
| BlueX Microelectronics Corp Ltd.           | 0x09B3 |
| BluPeak                                    | 0x0B0C |
| Blur Product Development                   | 0x02DF |
| BluStor PMC, Inc.                          | 0x0387 |
| Blyott                                     | 0x09CD |
| BM innovations GmbH                        | 0x032D |
| BM3  | 0x0645 |
| BMA ergonomics b.v.                        | 0x02CD |
| Bobrick Washroom Equipment, Inc.           | 0x081C |
| BodyPlus Technology Co.,Ltd                | 0x06F8 |
| Bodyport Inc.                              | 0x0568 |
| Boehringer Ingelheim Vetmedica GmbH        | 0x08B6 |
| BOLTT Sports technologies Private limited  | 0x0366 |
| Bonsai Systems GmbH                        | 0x0462 |
| BOOMING OF THINGS                          | 0x0C7E |
| BORA - Vertriebs GmbH & Co KG              | 0x0B56 |
| Borda Technology                           | 0x0AEA |
| BOS Balance of Storage Systems AG          | 0x0CF5 |
| Bose Corporation                           | 0x009E |
| Boss Audio                                 | 0x0ADD |
| Boston Scientific Corporation              | 0x045D |
| Bouffalo Lab (Nanjing)., Ltd.              | 0x0A38 |
| Bout Labs, LLC                             | 0x09B7 |
| Boxyz, Inc.                                | 0x0D9B |
| BPW Bergische Achsen Kommanditgesellschaft | 0x083A |
| BQN  | 0x0B74 |
| BRADATECH Corp.                            | 0x01C1 |
| Brady Worldwide Inc.                       | 0x066A |
| Bragi GmbH                                 | 0x0241 |
| Braveheart Wireless, Inc.                  | 0x0913 |
| BRControls Products BV                     | 0x036B |



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| Breakwall Analytics, LLC                 | 0x0582 |
| BREATHINGS Co., Ltd.                     | 0x0931 |
| Breezi.io, Inc.                          | 0x0B4F |
| Breville Group                           | 0x0955 |
| BriarTek, Inc                            | 0x006D |
| Brilliant Home Technology, Inc.          | 0x0820 |
| BRK Brands, Inc.                         | 0x06B0 |
| Broadcom Corporation                     | 0x000F |
| Bronkhorst High-Tech B.V.                | 0x0995 |
| Brookfield Equinox LLC                   | 0x0511 |
| Brose Verwaltung SE, Bamberg             | 0x0C45 |
| Brother Industries, Ltd                  | 0x0755 |
| Bruel & Kjaer Sound & Vibration          | 0x07A9 |
| BSH                                      | 0x01CF |
| BubblyNet, LLC                           | 0x0788 |
| BUCHI Labortechnik AG                    | 0x0609 |
| Build With Robots Inc.                   | 0x0BB6 |
| Bull Group Company Limited               | 0x0712 |
| Bunch                                    | 0x01C3 |
| Bunn-O-Matic Corporation                 | 0x0BA1 |
| Burkert Werke GmbH & Co. KG              | 0x0D26 |
| Busch Jaeger Elektro GmbH                | 0x04E9 |
| Busch Systems International Inc.         | 0x0A43 |
| Buzz Products Ltd.                       | 0x0671 |
| BYD Company Limited                      | 0x0C34 |
| BYSTAMP                                  | 0x087B |
| Bytestorm Ltd.                           | 0x02E4 |
| Byton North America Corporation          | 0x07F5 |
| C Technologies                           | 0x0026 |
| C-MAX Asia Limited                       | 0x0774 |
| C. & E. Fein GmbH                        | 0x0996 |
| C.Ed. Schulte GmbH Zylinderschlossfabrik | 0x0D0D |
| C.G. Air Systemes Inc.                   | 0x0D19 |
| C.O.B.O. SpA                             | 0x092F |
| C2 Development, Inc.                     | 0x029B |
| C3-WIRELESS, LLC                         | 0x098D |



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|-----------------------------------|--------|
| CACI Technologies                 | 0x0ACF |
| CAEN RFID srl                     | 0x00AA |
| Caire Inc.                        | 0x0D99 |
| California Things Inc.            | 0x070F |
| Cambridge Animal Technologies Ltd | 0x0A18 |
| CAME S.p.A.                       | 0x06C0 |
| Candura Instruments               | 0x03A2 |
| Candy Hoover Group s.r.l          | 0x0545 |
| CANDY HOUSE, Inc.                 | 0x055A |
| Canon Electronics Inc.            | 0x0D8F |
| Canon Finetech Nisca Inc.         | 0x0A9D |
| Canon Inc.                        | 0x01A9 |
| Canopy Growth Corporation         | 0x0856 |
| Canopy Growth Corporation         | 0x0835 |
| Capetech                          | 0x0950 |
| CARDIOID - TECHNOLOGIES, LDA      | 0x0C80 |
| Cardo Systems, Ltd                | 0x06A1 |
| Care Bloom, LLC                   | 0x0AA2 |
| Carefree Scott Fetzer Co Inc      | 0x054C |
| CAREL INDUSTRIES S.P.A.           | 0x05B2 |
| Caresix Inc.                      | 0x0C2A |
| Carestream Dental LLC             | 0x0A92 |
| CareView Communications, Inc.     | 0x039D |
| Carewear Corp.                    | 0x0709 |
| Carmanah Technologies Corp.       | 0x02E3 |
| CARMATE MFG.CO.,LTD               | 0x05AE |
| Carol Cole Company                | 0x084E |
| Carrier Corporation               | 0x0C81 |
| Casambi Technologies Oy           | 0x03C3 |
| CASIO COMPUTER CO., LTD.          | 0x0178 |
| Catalyft Labs, Inc.               | 0x093E |
| Catapult Group International Ltd  | 0x0C1A |
| Caterpillar Inc                   | 0x01E3 |
| CATEYE Co., Ltd.                  | 0x0D0A |
| Cear, Inc.                        | 0x0D9D |
| Cedarware, Corp.                  | 0x0D22 |

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| Cell2Jack LLC   | 0x0604 |
| CellAssist, LLC   | 0x08C4 |
| CELLCONTROL, INC.   | 0x0B5E |
| Cello Hill, LLC   | 0x0986 |
| Cennox Group Limited                                      | 0x0D21 |
| Center ID Corp.   | 0x052F |
| Centre Suisse d'Electronique et de Microtechnique SA      | 0x09BD |
| Centrica Connected Home                                   | 0x0487 |
| CeoTronics AG   | 0x06D2 |
| Cerebrum Sensor Technologies Inc.                         | 0x0AFC |
| Cerevast Medical  | 0x04F3 |
| Cerevo  | 0x0268 |
| Ceruus  | 0x019E |
| Cesar Systems Ltd.  | 0x07F7 |
| CHACON  | 0x0B28 |
| Chandler Systems Inc.                                     | 0x073A |
| Changsha JEMO IC Design Co.,Ltd                           | 0x0751 |
| Changzhou Sound Dragon Electronics and Acoustics Co., Ltd | 0x068C |
| Changzhou Yongse Infotech Co., Ltd.                       | 0x012A |
| Channel Enterprises (HK) Ltd.                             | 0x01A0 |
| CHAR-BROIL, LLC   | 0x0BDB |
| Chargelib   | 0x02A9 |
| Chargifi Limited  | 0x0423 |
| CHARGTRON IOT PRIVATE LIMITED                             | 0x0C78 |
| Chargy Technologies, SL                                   | 0x06F0 |
| Check Technology Solutions LLC                            | 0x08B8 |
| ChefSteps, Inc.   | 0x0159 |
| Chemtronics   | 0x02BD |
| Chengdu Aich Technology Co.,Ltd                           | 0x0AC7 |
| Chengdu Ambit Technology Co., Ltd.                        | 0x0AFA |
| Chengdu CSCT Microelectronics Co., Ltd.                   | 0x0DF8 |
| ChengDu ForThink Technology Co., Ltd.                     | 0x0AE1 |
| Chengdu Synwing Technology Ltd                            | 0x01CD |
| Cherry GmbH   | 0x0687 |
| Chess Wise B.V.   | 0x09D0 |
| Chicony Electronics Co., Ltd.                             | 0x0108 |

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| Chip-ing AG   | 0x03E4 |
| CHIPOLO d.o.o.  | 0x08C3 |
| Chipsea Technologies (ShenZhen) Corp.                             | 0x06A7 |
| Chrono Therapeutics   | 0x02B8 |
| CHUO Electronics CO., LTD.  | 0x0317 |
| Church & Dwight Co., Inc  | 0x028F |
| CIMTechniques, Inc.   | 0x07C3 |
| Cinetix   | 0x00AF |
| Circus World Displays Limited                                     | 0x0CDB |
| Ciright   | 0x0146 |
| Cirrus Research plc   | 0x0DC2 |
| Cisco Systems, Inc  | 0x021B |
| Citiseed Solutions, SL  | 0x0B92 |
| Citizen Holdings Co., Ltd.  | 0x02EE |
| CLABER S.P.A.   | 0x02B3 |
| Clarinox Technologies Pty. Ltd.                                   | 0x00B3 |
| Clarion Co. Inc.  | 0x012F |
| Clarius Mobile Health Corp.                                       | 0x02FB |
| Classified Cycling  | 0x0C3C |
| CLB B.V.  | 0x097D |
| CleanBands Systems Ltd.   | 0x0BFA |
| CleanSpace Technology Pty Ltd                                     | 0x0B67 |
| Clarity, LLC  | 0x05F4 |
| Cleer Limited   | 0x0A80 |
| CLEIO Inc.  | 0x0CC1 |
| Cleveron AS   | 0x0A01 |
| CLIM8 LIMITED   | 0x053E |
| CliniCloud Inc  | 0x0291 |
| CLINK   | 0x03F0 |
| Closed Joint Stock Company "Zavod Flometr" ("Zavod Flometr" CJSC) | 0x0972 |
| Closed Joint Stock Company NVP BOLID                              | 0x0D6F |
| Cloudleaf, Inc  | 0x0192 |
| Clover Network, Inc.  | 0x0721 |
| CME PTE. LTD.   | 0x0825 |
| CO-AX Technology, Inc.  | 0x040F |
| COBI GmbH   | 0x0338 |





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|---|--------|
| Coburn Technology, LLC                        | 0x08AB |
| Cochlear Bone Anchored Solutions AB           | 0x01BB |
| Cochlear Limited                              | 0x0497 |
| Code Blue Communications                      | 0x0583 |
| Code Corporation                              | 0x01D8 |
| Code Gears LTD                                | 0x028B |
| code-Q  | 0x08DD |
| Codecoup sp. z o.o. sp. k.                    | 0x05C4 |
| Codefabrik GmbH                               | 0x0ADA |
| Codegate Ltd                                  | 0x010A |
| Codenex Oy                                    | 0x0467 |
| CODIUM  | 0x0AC4 |
| Cognosos, Inc.                                | 0x0852 |
| Coiler Corporation                            | 0x043D |
| Cokiya Incorporated                           | 0x019C |
| Colorfy, Inc.                                 | 0x009C |
| Comarch SA                                    | 0x0224 |
| CombiQ AB                                     | 0x0A1E |
| Combustion, LLC                               | 0x09C7 |
| Comcast Cable                                 | 0x07A3 |
| COMELIT GROUP S.P.A.                          | 0x0C20 |
| Comm-N-Sense Corp DBA Verigo                  | 0x03AF |
| Commil Ltd                                    | 0x0033 |
| Comodule GMBH                                 | 0x020F |
| Companion Medical, Inc.                       | 0x048E |
| CompanyDeep Ltd                               | 0x0DB9 |
| COMPEGPS TEAM,SOCIEDAD LIMITADA               | 0x085F |
| Compumedics Limited                           | 0x0322 |
| Computer Access Technology Corporation (CATC) | 0x0034 |
| Computime International Ltd                   | 0x0AAA |
| Comtel Systems Ltd.                           | 0x0BE3 |
| conbee GmbH                                   | 0x07A8 |
| Conexant Systems Inc.                         | 0x001C |
| Confidex                                      | 0x09FC |
| connectBlue AB                                | 0x0071 |
| Connected Yard, Inc.                          | 0x02E7 |



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|---|--------|
| ConnecteDevice Ltd.   | 0x0097 |
| Conneqtech B.V.   | 0x0833 |
| Connovate Technology Private Limited                                    | 0x0172 |
| CONSORCIO TRUST CONTROL - NETTEL  | 0x0C6A |
| CONSTRUKTS, INC.  | 0x0C07 |
| Consumer Sleep Solutions LLC  | 0x0570 |
| Contec Medical Systems Co., Ltd.  | 0x063C |
| Continental Automotive Systems  | 0x004B |
| CONTRINEX S.A.  | 0x03CE |
| Control Solutions LLC   | 0x0C41 |
| Control-J Pty Ltd   | 0x0472 |
| Controlid Industria, Comercio de Hardware e Servicos de Tecnologia Ltda | 0x0884 |
| Convergence Systems Limited   | 0x04F8 |
| CONVERTRONIX TECHNOLOGIES AND SERVICES LLP                              | 0x0B57 |
| CONWISE Technology Corporation Ltd                                      | 0x0042 |
| CONZUMEX INDUSTRIES PRIVATE LIMITED                                     | 0x0B34 |
| Cool Webthings Limited  | 0x01F5 |
| Cooler Pro, LLC   | 0x0D2D |
| Copeland Cold Chain LP  | 0x016A |
| CORAL-TAIYI Co. Ltd.  | 0x0BED |
| Coravin, Inc.   | 0x0650 |
| CORE CORPORATION  | 0x097A |
| Core Health and Fitness LLC   | 0x0830 |
| CORE Lighting Ltd   | 0x0186 |
| core sensing GmbH   | 0x0CF8 |
| CORE TRANSPORT TECHNOLOGIES NZ LIMITED                                  | 0x0566 |
| COREIOT PTY LTD   | 0x0719 |
| CORE vision BV  | 0x08B1 |
| Coroflo Limited   | 0x0BDD |
| CoroWare Technologies, Inc  | 0x020C |
| CORROHM   | 0x0C18 |
| Corsair   | 0x0A82 |
| CORVENT MEDICAL, INC.   | 0x0CE2 |
| Corvex Connected Safety   | 0x0771 |
| Cosmed s.r.l.   | 0x0C10 |
| Cosmicnode BV   | 0x0C36 |



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|---------------------------------------|--------|
| CoSTAR TEchnologies                   | 0x02FA |
| Countrymate Technology Limited        | 0x0964 |
| Courtney Thorne Limited               | 0x033B |
| COWBELL ENGINEERING CO.,LTD.          | 0x08EA |
| COWBOY                                | 0x05E8 |
| Coyotta                               | 0x09D7 |
| CP Electronics Limited                | 0x048B |
| CPAC Systems AB                       | 0x0D41 |
| CPS AS                                | 0x09E4 |
| CRADERS,CO.,LTD                       | 0x0AF1 |
| Crane Payment Innovations, Inc.       | 0x0D6B |
| Creative Technology Ltd.              | 0x0076 |
| CRESCO Wireless, Inc.                 | 0x0532 |
| Crestron Electronics, Inc.            | 0x04BA |
| Cricut, Inc.                          | 0x0792 |
| CRONO CHIP, S.L.                      | 0x07B5 |
| Cronologics Corporation               | 0x037C |
| CRONUS ELECTRONICS LTD                | 0x0801 |
| Crookwood                             | 0x0635 |
| Crosscan GmbH                         | 0x087C |
| Crowd Connected Ltd                   | 0x08E5 |
| CrowdGlow Ltd                         | 0x09C9 |
| Crownstone B.V.                       | 0x038E |
| CROXEL, INC.                          | 0x0A14 |
| Crystal Alarm AB                      | 0x00FA |
| CSIRO                                 | 0x0A51 |
| CSR Building Products Limited         | 0x04B9 |
| CST ELECTRONICS (PROPRIETARY) LIMITED | 0x079B |
| CTEK Sweden AB                        | 0x097B |
| CUBE TECHNOLOGIES                     | 0x03EE |
| CUBETECH s.r.o.                       | 0x019B |
| Cucumber Lighting Controls Limited    | 0x0CB7 |
| Cue                                   | 0x0777 |
| Cumulus Digital Systems, Inc          | 0x08EF |
| Curie Point AB                        | 0x0691 |
| Currant, Inc.                         | 0x029A |



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|---|--------|
| Current Lighting Solutions LLC          | 0x0897 |
| CuteCircuit LTD                         | 0x01ED |
| CV. NURI TEKNIK                         | 0x0CED |
| CVS Health                              | 0x019D |
| Cyber Transport Control GmbH            | 0x0776 |
| CYBERDYNE Inc.                          | 0x0C59 |
| Cybex GmbH                              | 0x078D |
| CycleLabs Solutions inc.                | 0x0466 |
| CycLock                                 | 0x0D38 |
| Cyclops Marine Ltd                      | 0x0CCA |
| Cypress Semiconductor                   | 0x0131 |
| D&M Holdings Inc.                       | 0x0531 |
| D-Link Corp.                            | 0x083F |
| Dai Nippon Printing Co., Ltd.           | 0x0255 |
| Daihatsu Motor Co., Ltd.                | 0x0D7E |
| DAIICHIKOSHO CO., LTD.                  | 0x0A22 |
| Dairy Tech, LLC                         | 0x0732 |
| DaisyWorks, Inc                         | 0x04EF |
| DAKATECH                                | 0x085A |
| DALI Alliance                           | 0x0AE4 |
| Dallas Logic Corporation                | 0x04A7 |
| Danfoss A/S                             | 0x042F |
| Danlers Ltd                             | 0x00E1 |
| Darkglass Electronics Oy                | 0x08FB |
| Dash Robotics                           | 0x02C0 |
| DashLogic, Inc.                         | 0x09AB |
| Data Sciences International             | 0x0BA0 |
| Dataflow Systems Limited                | 0x059B |
| Datalogic S.r.l.                        | 0x0D07 |
| Datalogic USA, Inc.                     | 0x0D08 |
| DATAMARS, Inc.                          | 0x0903 |
| DATANG SEMICONDUCTOR TECHNOLOGY CO.,LTD | 0x0A60 |
| DDS, Inc.                               | 0x0264 |
| Deako                                   | 0x0C97 |
| DECATHLON SE                            | 0x0B18 |
| Deco Enterprises, Inc.                  | 0x0675 |

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| Deepfield Connect GmbH   | 0x0BE4 |
| DEFA AS  | 0x027B |
| deister electronic GmbH  | 0x099C |
| DEKA Research & Development Corp.  | 0x026B |
| DEKRA TESTING AND CERTIFICATION, S.A.U.                                    | 0x0980 |
| DELABIE  | 0x0A3D |
| DeLaval  | 0x043C |
| Delcom Products Inc.   | 0x06BF |
| Dell Computer Corporation  | 0x041E |
| DeLorme Publishing Company, Inc.   | 0x0080 |
| Delphi Corporation   | 0x00FC |
| DelpSys, s.r.o.  | 0x0A8C |
| DELSEY SA  | 0x0422 |
| Delta Cycle Corporation  | 0x0A75 |
| Delta Development Team, Inc  | 0x0D2F |
| Delta Electronics, Inc.  | 0x069E |
| Delta Faucet Company   | 0x0DF5 |
| Delta Systems, Inc   | 0x02EC |
| Delta T Corporation  | 0x045C |
| Demant A/S   | 0x0107 |
| DEN Smart Home B.V.  | 0x0C66 |
| Dendro Technologies, Inc.  | 0x0DE7 |
| Dension Elektronikai Kft.  | 0x0871 |
| Density Inc.   | 0x03D1 |
| DENSO AIRCOOL CORPORATION  | 0x0C29 |
| Denso Corporation  | 0x08EC |
| DENSO TEN Limited  | 0x010D |
| Derichs GmbH   | 0x0587 |
| Dermal Photonics Corporation   | 0x08F6 |
| Dermalapps, LLC  | 0x0684 |
| Detect Blue Limited  | 0x051E |
| Deublin Company, LLC   | 0x09B0 |
| DEV TECNOLOGIA INDUSTRIA, COMERCIO E MANUTENCAO DE EQUIPAMENTOS LTDA. - ME | 0x0486 |
| Devdata S.r.l.   | 0x030D |
| Develco Products A/S   | 0x046F |

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|---|--------|
| Devialet SA                             | 0x0258 |
| DeviceDrive AS                          | 0x0782 |
| Deviceworx                              | 0x030E |
| DeVilbiss Healthcare LLC                | 0x0A1F |
| DeWalch Technologies, Inc.              | 0x02DC |
| DewertOkin GmbH                         | 0x066B |
| DEXATEK Technology LTD                  | 0x0DE6 |
| Dexcom, Inc.                            | 0x00D0 |
| DHL                                     | 0x0DC5 |
| Diagnoptics Technologies                | 0x04B6 |
| Dialog Semiconductor B.V.               | 0x00D2 |
| Diamond Kinetics, Inc.                  | 0x061E |
| DIAODIAO (Beijing) Technology Co., Ltd. | 0x0749 |
| DIC Corporation                         | 0x0AA3 |
| DIG Corporation                         | 0x06CD |
| Digi International Inc (R)              | 0x02DB |
| Digianswer A/S                          | 0x000C |
| Digibale Pty Ltd                        | 0x079D |
| DIGISINE ENERGYTECH CO. LTD.            | 0x07F3 |
| Digital Matter Pty Ltd                  | 0x064F |
| DIM3                                    | 0x081B |
| Direct Communication Solutions, Inc.    | 0x07F9 |
| DISCOVERY SOUND TECHNOLOGY, LLC         | 0x04A9 |
| Dish Network LLC                        | 0x0640 |
| DiUS Computing Pty Ltd                  | 0x0734 |
| DIVAN TRADING CO., LTD.                 | 0x0D52 |
| DiveNav, Inc.                           | 0x0313 |
| Divesoft s.r.o.                         | 0x0BCB |
| DJO Global                              | 0x01F6 |
| Djup AB                                 | 0x0DB5 |
| Dmac Mobile Developments, LLC           | 0x076A |
| DME Microelectronics                    | 0x01C4 |
| Dmet Products Corp.                     | 0x04C2 |
| DML LLC                                 | 0x0742 |
| DNANUDGE LIMITED                        | 0x0847 |
| Dodam Enersys Co., Ltd                  | 0x0BFB |

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| Dodge Industrial, Inc.                   | 0x0B3C |
| Dolby Labs                               | 0x0309 |
| DOM Sicherheitstechnik GmbH & Co. KG     | 0x04CF |
| Dometic Corporation                      | 0x0845 |
| Domintell s.a.                           | 0x0803 |
| Domster Tadeusz Szydowski                | 0x026C |
| DONGGUAN HELE ELECTRONICS CO., LTD       | 0x071E |
| Dongguan Liesheng Electronic Co.Ltd      | 0x071F |
| Dongguan SmartAction Technology Co.,Ltd. | 0x06CC |
| Dongguan Yougo Electronics Co.,Ltd.      | 0x0CE8 |
| donutrobotics Co., Ltd.                  | 0x0A03 |
| Dopple Technologies B.V.                 | 0x0849 |
| Doppler Lab                              | 0x02AA |
| dormakaba Holding AG                     | 0x0C64 |
| Doro AB                                  | 0x0E04 |
| DOTT Limited                             | 0x0219 |
| doubleO Co., Ltd.                        | 0x0D06 |
| Douglas Dynamics L.L.C.                  | 0x0ADF |
| Douglas Lighting Controls Inc.           | 0x0911 |
| Down Range Systems LLC                   | 0x0840 |
| DPTechnics                               | 0x05F6 |
| Draegerwerk AG & Co. KGaA                | 0x04BC |
| Dragonchip Limited                       | 0x069B |
| Dragonfly Energy Corp.                   | 0x0C9F |
| Drayson Technologies (Europe) Limited    | 0x0436 |
| Dream Labs GmbH                          | 0x06C4 |
| DreamVisions co., Ltd.                   | 0x02F7 |
| Dreem SAS                                | 0x0B94 |
| Drekker Development Pty. Ltd.            | 0x0343 |
| dricos, Inc.                             | 0x096A |
| DSEA A/S                                 | 0x0082 |
| DualNetworks SA                          | 0x0D77 |
| Ducere Technologies Pvt Ltd              | 0x0312 |
| Duke Manufacturing Co                    | 0x0B2F |
| Duracell U.S. Operations Inc.            | 0x057B |
| Durag GmbH                               | 0x0BD0 |



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| Duravit AG  | 0x0ADC |
| Dyeware, LLC  | 0x06CB |
| Dymo  | 0x0B6A |
| DYNAKODE TECHNOLOGY PRIVATE LIMITED                                       | 0x06D4 |
| Dynamic Controls  | 0x0175 |
| Dynamic Devices Ltd   | 0x01E5 |
| DYNAMOX S/A   | 0x0D6D |
| Dynometrics Inc.  | 0x0480 |
| DyOcean   | 0x049C |
| DYPHI   | 0x09B2 |
| Dyson Technology Limited  | 0x0A12 |
| e-moola.com Pty Ltd   | 0x07F0 |
| E.F. Johnson Company  | 0x0D98 |
| E.G.O. Elektro-Geraetebau GmbH  | 0x0276 |
| e.solutions   | 0x0115 |
| EAGLE DETECTION SA  | 0x074E |
| EAGLE KINGDOM TECHNOLOGIES LIMITED  | 0x0AD1 |
| EAR TEKNIK ISITME VE ODIOMETRI CIHAZLARI SANAYI VE TICARET ANONIM SIRKETI | 0x09D6 |
| Earda Technologies Co.,Ltd  | 0x0AFE |
| Earfun Technology (HK) Limited  | 0x0D72 |
| Eargo, Inc.   | 0x0329 |
| Earlens Corporation   | 0x01AE |
| Easee AS  | 0x0C2E |
| Eaton Corporation   | 0x035C |
| Eberspaecher Climate Control Systems GmbH                                 | 0x0CB4 |
| eBest IOT Inc.  | 0x0437 |
| EC sense co., Ltd   | 0x0C1E |
| ECCEL CORPORATION SAS   | 0x0C9E |
| Eccrine Systems, Inc.   | 0x0690 |
| ECCT  | 0x0A09 |
| ECD Electronic Components GmbH Dresden                                    | 0x0807 |
| Echoflex Solutions Inc.   | 0x0773 |
| Eclipse (HQ Espana) S.L.  | 0x0035 |
| ecobee Inc.   | 0x07D6 |
| Ecolab Inc.   | 0x0BB0 |



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| Ecotest                                | 0x0088 |
| Edamic                                 | 0x021D |
| Eden Software Consultants Ltd.         | 0x00E5 |
| Edifier International Limited          | 0x07E0 |
| EDPS                                   | 0x051C |
| Eello LLC                              | 0x0A9B |
| Efento                                 | 0x0DAB |
| Ehong Technology Co.,Ltd               | 0x0DE5 |
| Eijkelkamp Soil & Water                | 0x02CC |
| EISST Ltd                              | 0x0298 |
| Ekomini inc.                           | 0x027A |
| ELA Innovation                         | 0x0757 |
| ELAD srl                               | 0x01D5 |
| Elatec GmbH                            | 0x0752 |
| Elcometer Limited                      | 0x00F6 |
| Elecs Industry Co.,Ltd.                | 0x05B6 |
| Electrocompaniet A.S.                  | 0x0332 |
| Electronic Design Lab                  | 0x032A |
| Electronic Sensors, Inc.               | 0x0B45 |
| Electronic Temperature Instruments Ltd | 0x0376 |
| Electronic Theatre Controls            | 0x095D |
| ELECTRONICA INTEGRAL DE SONIDO S.A.    | 0x0636 |
| Electronics Tomorrow Limited           | 0x02C7 |
| Electronics4All Inc.                   | 0x0D1D |
| ElectronX design                       | 0x0CFC |
| Elekon AG                              | 0x0936 |
| Element Products, Inc.                 | 0x070B |
| Elemental Machines, Inc.               | 0x05E3 |
| Eli Lilly and Company                  | 0x0728 |
| ELIAS GmbH                             | 0x0294 |
| Elics Basis Ltd.                       | 0x0BD9 |
| Elimo Engineering Ltd                  | 0x09BA |
| Ellenby Technologies, Inc.             | 0x0AB4 |
| EllieGrid                              | 0x04E2 |
| Ellisys                                | 0x030A |
| ELPRO-BUCHS AG                         | 0x0982 |

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| Elstat Electronics Ltd.                            | 0x0AB5 |
| Eltako GmbH  | 0x0683 |
| EM Microelectronic-Marin SA                        | 0x005A |
| Embecta Corp.                                      | 0x0C28 |
| Embedded Devices Co. Company                       | 0x089C |
| Embedded Electronic Solutions Ltd. dba e2Solutions | 0x0385 |
| Embedded Engineering Solutions LLC                 | 0x0C75 |
| Embedded Fitness B.V.                              | 0x084F |
| EMBEINT INC  | 0x0DE4 |
| Ember Technologies, Inc.                           | 0x03C1 |
| emberlight   | 0x0169 |
| EMBR labs, INC                                     | 0x090B |
| Embrava Pty Ltd                                    | 0x0A1B |
| Emergency Lighting Products Limited                | 0x0865 |
| Emerja Corporation                                 | 0x0C68 |
| Emerson Electric Co.                               | 0x04DF |
| Emlid Limited                                      | 0x0A7A |
| Emlid Tech Kft.                                    | 0x0CBB |
| Emotion Fitness GmbH & Co. KG                      | 0x0B54 |
| Empatica Srl                                       | 0x02D1 |
| EMS Integrators, LLC                               | 0x0B4B |
| Endress+Hauser                                     | 0x0245 |
| Enequi AB  | 0x06FA |
| ENERGOUS CORPORATION                               | 0x01A7 |
| Energy Technology and Control Limited              | 0x0D05 |
| Enerpac Tool Group Corp.                           | 0x0B1B |
| Eneso Tecnologia de Adaptacion S.L.                | 0x08E6 |
| Enflux Inc.  | 0x04CC |
| ENGAGENOW DATA SCIENCES PRIVATE LIMITED            | 0x09A2 |
| Engineered Audio, LLC.                             | 0x04DB |
| Engineered Medical Technologies                    | 0x076B |
| Enlighted Inc                                      | 0x0335 |
| EnOcean GmbH                                       | 0x03DA |
| EnPointe Fencing Pty Ltd                           | 0x0888 |
| Ensemble Tech Private Limited                      | 0x0579 |
| ENSESO LLC   | 0x093B |

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| Ensto Oy                               | 0x0628 |
| Enterlab ApS                           | 0x031D |
| EntWick Co.                            | 0x0BC2 |
| EPIC S.R.L.                            | 0x07BB |
| Epic Systems Co., Ltd.                 | 0x08A2 |
| EPIFIT                                 | 0x0894 |
| Epona Biotec Limited                   | 0x07B9 |
| Epsilon Electronics, Inc               | 0x0C47 |
| EQOM SSC B.V.                          | 0x0CD2 |
| Equinosis, LLC                         | 0x0C3A |
| Equinix AG                             | 0x0086 |
| ER Lab LLC                             | 0x0BF4 |
| Eran Financial Services LLC            | 0x0A25 |
| Ergodrive Inc                          | 0x0CFF |
| ERi, Inc                               | 0x010B |
| Ericsson AB                            | 0x0000 |
| ERM Electronic Systems LTD             | 0x04AE |
| EROAD                                  | 0x01A3 |
| ESCEA LIMITED                          | 0x0C52 |
| ESEMBER LIMITED LIABILITY COMPANY      | 0x0783 |
| eSenseLab LTD                          | 0x081F |
| Esmé Solutions                         | 0x0BFD |
| ESNAH                                  | 0x0DD0 |
| Espressif Systems (Shanghai) Co., Ltd. | 0x02E5 |
| Esrille Inc.                           | 0x03A8 |
| ESS Embedded System Solutions Inc.     | 0x06FD |
| essentim GmbH                          | 0x05DD |
| Essex Electronics                      | 0x0327 |
| Essity Hygiene and Health Aktiebolag   | 0x0707 |
| Estimote, Inc.                         | 0x015D |
| ESTOM Infotech Kft.                    | 0x08D0 |
| ESYLUX                                 | 0x032B |
| ETA SA                                 | 0x0231 |
| ETABLISSEMENTS GEORGES RENAULT         | 0x07B7 |
| eTactica ehf                           | 0x0999 |
| Etekciti Corporation                   | 0x06D0 |



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| Etesian Technologies LLC                     | 0x0341 |
| ETHEORY PTY LTD                              | 0x0BBB |
| ETO GRUPPE TECHNOLOGIES GmbH                 | 0x0DC8 |
| Etymotic Research, Inc.                      | 0x0838 |
| Eugster Frismag AG                           | 0x0319 |
| Eurotronik Kranj d.o.o.                      | 0x066E |
| Eve Systems GmbH                             | 0x00CE |
| Everykey Inc.                                | 0x0174 |
| Evident Corporation                          | 0x0CAE |
| Evluma                                       | 0x00C9 |
| EVVA Sicherheitstechnologie GmbH             | 0x0869 |
| Ex Makhina Inc.                              | 0x0D44 |
| Exeger Operations AB                         | 0x0C33 |
| EXEO TECH CORPORATION                        | 0x08A1 |
| EXFO, Inc.                                   | 0x052D |
| Exon Sp. z o.o.                              | 0x03AA |
| exoTIC Systems                               | 0x071D |
| Expai Solutions Private Limited              | 0x0676 |
| Expain AS                                    | 0x0375 |
| Exponential Power, Inc.                      | 0x0B5C |
| Extron Design Services                       | 0x018D |
| Eyefi, Inc.                                  | 0x031E |
| F.I.P. FORMATURA INIEZIONE POLIMERI - S.P.A. | 0x0D61 |
| F5 Sports, Inc                               | 0x071C |
| Fabtronics Australia Pty Ltd                 | 0x0447 |
| Fanstel Corp                                 | 0x0634 |
| Fantini Cosmi s.p.a.                         | 0x073B |
| Farm Jenny LLC                               | 0x05D8 |
| farmunited GmbH                              | 0x0DC9 |
| FarSite Communications Limited               | 0x0478 |
| Fasetto, Inc.                                | 0x0C14 |
| Fathom Systems Inc.                          | 0x0463 |
| Fatigue Science                              | 0x0417 |
| Fauna Audio GmbH                             | 0x0976 |
| Favero Electronics Srl                       | 0x0364 |
| FAZEPRO LLC                                  | 0x0AA4 |

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|--------------------------------------|--------|
| FAZUA GmbH                           | 0x0B06 |
| FDK CORPORATION                      | 0x0191 |
| FedEx Services                       | 0x0141 |
| Feedback Sports LLC                  | 0x0983 |
| Felion Technologies Company Limited  | 0x0DBC |
| Fen Systems Ltd.                     | 0x0DA1 |
| Fender Musical Instruments           | 0x0410 |
| FengFan (BeiJing) Technology Co, Ltd | 0x0234 |
| FESTINA LOTUS SA                     | 0x0D1E |
| Fetch My Pet                         | 0x01CB |
| ffly4u                               | 0x03E5 |
| FIAMM                                | 0x01A1 |
| FIBRO GmbH                           | 0x0514 |
| Fidure Corp.                         | 0x0C6D |
| FIELD DESIGN INC.                    | 0x0B78 |
| FiftyThree Inc.                      | 0x0247 |
| Finch Technologies Ltd.              | 0x0780 |
| Finder S.p.A.                        | 0x0561 |
| FINSECUR                             | 0x03D7 |
| FIOR & GENTZ                         | 0x06CE |
| Fireflies Systems                    | 0x018F |
| First Design System Inc.             | 0x0AF8 |
| First Light Technologies Ltd.        | 0x0947 |
| Fisher & Paykel Healthcare           | 0x059F |
| Fitz Inc.                            | 0x0DEB |
| Five Interactive, LLC dba Zendo      | 0x025B |
| FiveCo Sarl                          | 0x070E |
| Fjorden Electra AS                   | 0x0BB2 |
| Flaircomm Microelectronics Inc.      | 0x0B00 |
| Flender GmbH                         | 0x0BB3 |
| FLEURBAEY BVBA                       | 0x026E |
| Flexoptix GmbH                       | 0x0AC5 |
| Flextronic GmbH                      | 0x0DED |
| Flextronics International USA Inc.   | 0x0813 |
| Fliegl Agrartechnik GmbH             | 0x02D9 |
| FlightSafety International           | 0x01AD |



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| Flint Rehabilitation Devices, LLC           | 0x02DD |
| Flipnavi Co.,Ltd.                           | 0x056A |
| FLIR Systems AB                             | 0x0AE9 |
| Flosonics Medical                           | 0x0A04 |
| FlowMotion Technologies AS                  | 0x069F |
| Flowscape AB                                | 0x03F3 |
| Fluke Corporation                           | 0x025E |
| FMW electronic Futterer u. Maier-Wolf OHG   | 0x0605 |
| Focus fleet and fuel management inc         | 0x0427 |
| Focus Ingenieria SRL                        | 0x0A68 |
| Focus Systems Corporation                   | 0x0139 |
| Foil, Inc.                                  | 0x0A98 |
| Follow Sense Europe B.V.                    | 0x0A52 |
| foology GmbH                                | 0x03EF |
| Footmarks                                   | 0x0516 |
| Force Impact Technologies                   | 0x0769 |
| Forciot Oy                                  | 0x0620 |
| Ford Motor Company                          | 0x0723 |
| Form Athletica Inc.                         | 0x067D |
| Form Lifting, LLC                           | 0x01FB |
| Fortiori Design LLC                         | 0x0631 |
| FORTRONIK storitve d.o.o.                   | 0x054E |
| Forward Thinking Systems LLC.               | 0x0CBF |
| Foshan Viomi Electrical Technology Co., Ltd | 0x0C21 |
| Foster Electric Company, Ltd                | 0x0230 |
| Foundation Engineering LLC                  | 0x050F |
| FoundersLane GmbH                           | 0x0B7D |
| Fourth Evolution Inc                        | 0x0603 |
| Foxble, LLC                                 | 0x0831 |
| Fracarro Radioindustrie SRL                 | 0x058C |
| FRAGRANCE DELIVERY TECHNOLOGIES LTD         | 0x0843 |
| Franceschi Marina snc                       | 0x04DA |
| Franklin Control Systems                    | 0x0DB4 |
| FRANKLIN TECHNOLOGY INC                     | 0x055B |
| Franz Kaldewei GmbH&Co KG                   | 0x0AD8 |
| Fraunhofer IIS                              | 0x08A9 |

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| Frecce LLC                                 | 0x07EC |
| FREDERIQUE CONSTANT SA                     | 0x03B9 |
| Free2move AB                               | 0x0053 |
| Freedman Electronics Pty Ltd               | 0x0A7D |
| Freedom Innovations                        | 0x01E4 |
| FREELAP SA                                 | 0x0363 |
| Freescale Semiconductor, Inc.              | 0x01FF |
| Freshtemp                                  | 0x00E6 |
| Fresnel Technologies, Inc.                 | 0x0BE7 |
| Friday Home Aps                            | 0x09E3 |
| Friday Labs Limited                        | 0x041A |
| frogblue TECHNOLOGY GmbH                   | 0x05D2 |
| Frontiergadget, Inc.                       | 0x0534 |
| Frost Solutions, LLC                       | 0x0D3A |
| FUBA Automotive Electronics GmbH           | 0x06D7 |
| Fugoo, Inc.                                | 0x0101 |
| FUJI INDUSTRIAL CO.,LTD.                   | 0x0307 |
| Fuji Xerox Co., Ltd                        | 0x05ED |
| Fujian Newland Auto-ID Tech. Co., Ltd.     | 0x0B5D |
| FUJIFILM Corporation                       | 0x04D8 |
| FUJIMIC NIIGATA, INC.                      | 0x078E |
| FUJITSU COMPONENT LIMITED                  | 0x0D28 |
| Fujitsu Limited                            | 0x02EA |
| Fullpower Technologies, Inc.               | 0x01EF |
| FUN FACTORY GmbH                           | 0x0B51 |
| Funai Electric Co., Ltd.                   | 0x0090 |
| Fundacion Tecnalía Research and Innovation | 0x0924 |
| FUSEAWARE LIMITED                          | 0x0AFF |
| FUTEK ADVANCED SENSOR TECHNOLOGY, INC      | 0x0AEC |
| G-wearables inc.                           | 0x01D6 |
| G24 Power Limited                          | 0x0256 |
| GA   | 0x0971 |
| Galileo Technology Limited                 | 0x0A3B |
| Gallagher Group                            | 0x03C9 |
| Gantner Electronic GmbH                    | 0x0403 |
| Garage Smart, Inc.                         | 0x0509 |

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| Garmin International, Inc.                    | 0x0087 |
| Garnet Instruments Ltd.                       | 0x0CC0 |
| GASTEC CORPORATION                            | 0x0795 |
| GB Solution co.,Ltd                           | 0x088C |
| GCT Semiconductor                             | 0x002D |
| GD Midea Air-Conditioning Equipment Co., Ltd. | 0x06A8 |
| GEAR RADIO ELECTRONICS CORP.                  | 0x09D5 |
| GEARBAC TECHNOLOGIES INC.                     | 0x0DC3 |
| Geberit International AG                      | 0x0602 |
| Gecko Health Innovations, Inc.                | 0x0181 |
| Geeknet, Inc.                                 | 0x0B72 |
| Geeksme S.L.                                  | 0x07E4 |
| Gelliner Limited                              | 0x01F7 |
| GeLo Inc                                      | 0x00C8 |
| Gema Switzerland GmbH                         | 0x0670 |
| Gemalto                                       | 0x026A |
| Gemstone Lights Canada Ltd.                   | 0x0C95 |
| GEMU  | 0x0C1C |
| Genedrive Diagnostics Ltd                     | 0x07BD |
| Geneq Inc.                                    | 0x00C2 |
| Generac Corporation                           | 0x0DA6 |
| General Electric Company                      | 0x01B7 |
| General Laser GmbH                            | 0x0DE9 |
| General Luminaire (Shanghai) Co., Ltd.        | 0x0841 |
| General Motors                                | 0x0068 |
| Genetus inc.                                  | 0x0D51 |
| Genevac Ltd                                   | 0x02BC |
| Genum Corporation                             | 0x003B |
| Gentex Corporation                            | 0x0B47 |
| Gentle Energy Corp.                           | 0x0B8E |
| Geocene Inc.                                  | 0x0D88 |
| Geoforce Inc.                                 | 0x009D |
| Geopal system A/S                             | 0x0A64 |
| GEOPH, LLC                                    | 0x0DCB |
| Geophysical Technology Inc.                   | 0x01AA |
| Georg Fischer AG                              | 0x0692 |





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| Geosatis SA                    | 0x052C |
| Geotab                         | 0x0275 |
| GERTEC BRASIL LTDA.            | 0x0342 |
| Geva Sol B.V.                  | 0x0C15 |
| GEWISS S.p.A.                  | 0x0A40 |
| Giatec Scientific Inc.         | 0x0301 |
| Gibson Guitars                 | 0x0062 |
| GIGA-TMS INC                   | 0x088E |
| GigaDevice Semiconductor Inc.  | 0x0C2B |
| GIGALANE.CO.,LTD               | 0x01A2 |
| Gigaset Technologies GmbH      | 0x0180 |
| Gill Electronics               | 0x01D2 |
| GILSON SAS                     | 0x0C6B |
| Gilvader                       | 0x02DA |
| Gimbal Inc.                    | 0x008C |
| Gimer medical                  | 0x0895 |
| GimmiSys GmbH                  | 0x094C |
| GiP Innovation Tools GmbH      | 0x0637 |
| GiPStech S.r.l.                | 0x0A93 |
| Gira Giersiepen GmbH & Co. KG  | 0x0584 |
| GISMAN                         | 0x0B9B |
| GISTIC                         | 0x0336 |
| GL Solutions K.K.              | 0x0962 |
| Glacial Ridge Technologies     | 0x0262 |
| Glamo Inc.                     | 0x0C22 |
| Glass Security Pte Ltd         | 0x0738 |
| Glenview Software Corporation  | 0x077F |
| Global Satellite Engineering   | 0x0DD3 |
| GlobalMed                      | 0x0AE3 |
| Globalstar, Inc.               | 0x0576 |
| Globalworx GmbH                | 0x06A2 |
| Globe (Jiangsu) Co., Ltd       | 0x0945 |
| GLOWFORGE INC.                 | 0x0BA8 |
| GLP German Light Products GmbH | 0x0AEF |
| GN Audio A/S                   | 0x0067 |
| GN Hearing A/S                 | 0x0089 |



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| GoerTek Dynaudio Co., Ltd.                           | 0x05AC |
| Goodnet, Ltd   | 0x021E |
| Goeee Limited  | 0x04D5 |
| Google   | 0x00E0 |
| Google LLC   | 0x018E |
| Gooligum Technologies Pty Ltd                        | 0x0926 |
| GOOOLED S.R.L.                                       | 0x04CE |
| GoPro, Inc.  | 0x02F2 |
| Gordon Murray Design Limited                         | 0x0C11 |
| Gosuncn Technology Group Co., Ltd.                   | 0x0D43 |
| Gozio Inc.   | 0x01FA |
| GPSI Group Pty Ltd                                   | 0x0128 |
| Graesslin GmbH                                       | 0x076D |
| Granchip IoT Technology (Guangzhou) Co.,Ltd          | 0x0DD8 |
| Grand Centrix GmbH                                   | 0x0448 |
| Grandex International Corporation                    | 0x0BAB |
| Granite River Solutions, Inc.                        | 0x07AB |
| Granwin IoT Technology (Guangzhou) Co.,Ltd           | 0x0C46 |
| Grape Systems Inc.                                   | 0x0142 |
| Gravaa B.V.  | 0x0D80 |
| Great Dane LLC                                       | 0x0D11 |
| GREE Electric Appliances, Inc. of Zhuhai             | 0x0D23 |
| Green Throttle Games                                 | 0x00AC |
| Greennote Inc,                                       | 0x0A84 |
| greenTEG AG  | 0x0BF6 |
| Greenwald Industries                                 | 0x0685 |
| Gremsy JSC   | 0x0A63 |
| Grob Technologies, LLC                               | 0x03DF |
| Grote Industries                                     | 0x05C2 |
| Group Lotus Limited                                  | 0x0B9F |
| Group Sense Ltd.                                     | 0x0073 |
| Grundfos A/S   | 0x0328 |
| GS TAG   | 0x05F5 |
| GT-tronics HK Ltd                                    | 0x04A3 |
| GuangDong Oppo Mobile Telecommunications Corp., Ltd. | 0x079A |
| Guangzhou FiiO Electronics Technology Co.,Ltd        | 0x04A5 |

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| GuangZhou KuGou Computer Technology Co.Ltd            | 0x0748 |
| Guangzhou SuperSound Information Technology Co.,Ltd   | 0x0724 |
| Guard RFID Solutions Inc.                             | 0x0B16 |
| Guardtec, Inc.  | 0x04E0 |
| Guide ID B.V.   | 0x096B |
| Guilin Zhishen Information Technology Co.,Ltd.        | 0x085D |
| Guillemot Corporation                                 | 0x02C2 |
| Gunakar Private Limited                               | 0x0696 |
| Gunnebo Aktiebolag                                    | 0x0D5A |
| Gunwerks, LLC   | 0x096D |
| GV Concepts Inc.                                      | 0x07B0 |
| GWA Hygiene GmbH                                      | 0x072C |
| Gycom Svenska AB                                      | 0x05EC |
| Gymstory B.V.   | 0x0B98 |
| H G M Automotive Electronics, Inc.                    | 0x0B55 |
| H+B Hightech GmbH                                     | 0x0C96 |
| H.P. Shelby Manufacturing, LLC.                       | 0x0B5A |
| HabitAware, LLC                                       | 0x027E |
| Hach - Danaher  | 0x0693 |
| Hager   | 0x0506 |
| HagerEnergy GmbH                                      | 0x0D93 |
| Hagleitner Hygiene International GmbH                 | 0x05F9 |
| HAINBUCH GMBH SPANNENDE TECHNIK                       | 0x0A8A |
| Hala Systems, Inc.                                    | 0x0B32 |
| Hamilton Professional Services of Canada Incorporated | 0x0750 |
| HANA Micron   | 0x01B9 |
| Hangzhou BroadLink Technology Co., Ltd.               | 0x0B93 |
| Hangzhou iMagic Technology Co., Ltd                   | 0x0524 |
| Hangzhou NationalChip Science & Technology Co.,Ltd    | 0x0DC4 |
| Hangzhou Tuya Information Technology Co., Ltd         | 0x07D0 |
| Hangzhou Yaguan Technology Co. LTD                    | 0x09F9 |
| Hangzhou Zhaotong Microelectronics Co., Ltd.          | 0x0DF7 |
| Hanlynn Technologies                                  | 0x007B |
| Hanna Instruments, Inc.                               | 0x078F |
| Hans Dinslage GmbH                                    | 0x0613 |
| HANSHIN ELECTRIC RAILWAY CO.,LTD.                     | 0x02B5 |



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| HAPPIEST BABY, INC.                    | 0x0A69 |
| Happy Health, Inc.                     | 0x0C04 |
| happybrush GmbH                        | 0x06F9 |
| Hapttech, Inc.                         | 0x0DFE |
| HARADA INDUSTRY CO., LTD.              | 0x0B73 |
| Harbortronics, Inc.                    | 0x04AB |
| Hardcoder Oy                           | 0x0B7B |
| HARMAN CO.,LTD.                        | 0x075A |
| Harman International Industries, Inc.  | 0x0057 |
| HASWARE Inc.                           | 0x01C6 |
| Hatch Baby, Inc.                       | 0x0434 |
| Havells India Limited                  | 0x0B40 |
| HAYWARD INDUSTRIES, INC.               | 0x0CEA |
| hDrop Technologies Inc.                | 0x0DF3 |
| Healthwear Technologies (Changzhou)Ltd | 0x0326 |
| Hearing Lab Technology                 | 0x0585 |
| HeartHero, inc.                        | 0x09D3 |
| Heartland Payment Systems              | 0x034F |
| hearX Group (Pty) Ltd                  | 0x0BA7 |
| Heath Consultants Inc.                 | 0x0C42 |
| Heavys Inc                             | 0x0C8B |
| Hefei Yunlian Semiconductor Co., Ltd   | 0x0A3E |
| Hekatron Vertriebs GmbH                | 0x055E |
| Helge Kaiser GmbH                      | 0x0D6A |
| Helios Sports, Inc.                    | 0x0855 |
| HELLA GmbH & Co. KGaA                  | 0x0DBE |
| Hello Inc.                             | 0x03EA |
| Helvar Ltd                             | 0x0438 |
| HENDON SEMICONDUCTORS PTY LTD          | 0x058F |
| Hendrickson USA , L.L.C                | 0x0D66 |
| Henway Technologies, LTD.              | 0x0938 |
| Herbert Waldmann GmbH & Co. KG         | 0x04A4 |
| HerdDogg, Inc                          | 0x0959 |
| Hero Workout GmbH                      | 0x0940 |
| HERUTU ELECTRONICS CORPORATION         | 0x0CAB |
| Hestan Smart Cooking Inc.              | 0x03F1 |



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|---|--------|
| Hewlett Packard Enterprise                  | 0x011B |
| Hexagon Aura Reality AG                     | 0x0DAF |
| HEXAGON METROLOGY DIVISION ROMER            | 0x0829 |
| Hexology                                    | 0x0AE6 |
| HHO (Hangzhou) Digital Technology Co., Ltd. | 0x0CD6 |
| HID Global                                  | 0x0124 |
| Hill-Rom                                    | 0x08FC |
| Hilti AG                                    | 0x030C |
| HIMSA II K/S                                | 0x0BBF |
| Hiotech AB                                  | 0x0218 |
| HiSilicon Technologies CO., LIMITED         | 0x010F |
| Hitachi Ltd                                 | 0x0029 |
| HITIQ LIMITED                               | 0x0740 |
| HitSeed Oy                                  | 0x06BE |
| HiViz Lighting, Inc.                        | 0x0C54 |
| HLI Solutions Inc.                          | 0x06DF |
| HLP Controls Pty Limited                    | 0x0786 |
| HM Electronics, Inc.                        | 0x034C |
| HMD Global Oy                               | 0x0CC3 |
| HMS Industrial Networks AB                  | 0x06AB |
| Hoffmann SE                                 | 0x08A3 |
| Holman Industries                           | 0x0374 |
| HoloKit, Inc.                               | 0x0798 |
| Honda Lock Mfg. Co.,Ltd.                    | 0x0B0E |
| Honda Motor Co., Ltd.                       | 0x0915 |
| Honeywell International Inc.                | 0x0526 |
| Hong Kong Bouffalo Lab Limited              | 0x07AF |
| HONGKONG NANO IC TECHNOLOGIES CO., LIMITED  | 0x0525 |
| Hongkong OnMicro Electronics Limited        | 0x01BF |
| Honor Device Co., Ltd.                      | 0x09C6 |
| hoots classic GmbH                          | 0x07D5 |
| HOP Ubiquitous                              | 0x0182 |
| HORIBA, Ltd.                                | 0x0C40 |
| Hormann KG Antriebstechnik                  | 0x07B4 |
| Hosiden Corporation                         | 0x00DD |
| Houston Radar LLC                           | 0x06EB |

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| HOUWA SYSTEM DESIGN, k.k.                       | 0x01CE |
| HP Tuners                                       | 0x0DA4 |
| HP, Inc.  | 0x0065 |
| HQ Inc  | 0x031B |
| HTC Corporation                                 | 0x02ED |
| Huami (Shanghai) Culture Communication CO., LTD | 0x022F |
| HUAWEI Technologies Co., Ltd.                   | 0x027D |
| Hubei Yuan Times Technology Co., Ltd.           | 0x0BD1 |
| Huf Hülsbeck & Fürst GmbH & Co. KG              | 0x070A |
| Hug Technology Ltd                              | 0x066F |
| Hugo Muller GmbH & Co KG                        | 0x0632 |
| HUIZHOU DESAY SV AUTOMOTIVE CO., LTD.           | 0x014D |
| Human, Incorporated                             | 0x05E1 |
| HungYi Microelectronics Co.,Ltd.                | 0x09C5 |
| Hunter Douglas Inc                              | 0x0819 |
| Hunter Industries Incorporated                  | 0x0D95 |
| Huso, INC                                       | 0x0BBA |
| Husqvarna AB                                    | 0x0426 |
| HWM-Water Limited                               | 0x0DBF |
| Hx Engineering, LLC                             | 0x09CB |
| Hydro-Gear Limited Partnership                  | 0x0887 |
| Hygiene IQ, LLC.                                | 0x0B22 |
| Hyginex, Inc.                                   | 0x02B4 |
| Hykso Inc.                                      | 0x0C58 |
| HYPER ICE, INC.                                 | 0x08BA |
| Hyundai Motor Company                           | 0x0826 |
| HYUPSUNG MACHINERY ELECTRIC CO., LTD.           | 0x0D59 |
| Häfele GmbH & Co KG                             | 0x07E9 |
| i+D3 S.L.                                       | 0x01B8 |
| i-developer IT Beratung UG                      | 0x0400 |
| i-focus Co.,Ltd                                 | 0x0D76 |
| I-PERCUT  | 0x0B04 |
| i-SENS, inc.                                    | 0x089E |
| I-SYST inc.                                     | 0x0177 |
| I.FARM, INC.                                    | 0x067B |
| i.Tech Dynamic Global Distribution Ltd.         | 0x0099 |



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| IACA electronique                         | 0x0303 |
| iaconicDesign Inc.                        | 0x07C7 |
| IAI Corporation                           | 0x0521 |
| iApartment co., ltd.                      | 0x0474 |
| IBA Dosimetry GmbH                        | 0x0970 |
| IBM Corp.                                 | 0x0003 |
| iCOGNIZE GmbH                             | 0x06B7 |
| Icom inc.                                 | 0x0475 |
| Icon Health and Fitness                   | 0x01A5 |
| iconmobile GmbH                           | 0x05E9 |
| ICP Systems B.V.                          | 0x0B4E |
| ICU tech GmbH                             | 0x0B7F |
| IDEC                                      | 0x0BD2 |
| Identiv, Inc.                             | 0x0263 |
| iDesign s.r.l.                            | 0x0470 |
| IDIBAIX engineering                       | 0x0718 |
| IF, LLC                                   | 0x028D |
| ifLink Open Community                     | 0x09AF |
| ifly                                      | 0x08CD |
| iFLYTEK (Suzhou) Technology Co., Ltd.     | 0x0DF1 |
| ifm electronic gmbh                       | 0x0D58 |
| Igarashi Engineering                      | 0x0489 |
| igloohome                                 | 0x05BA |
| Iguanavation, Inc.                        | 0x0733 |
| IK Multimedia Production srl              | 0x0214 |
| ikeGPS                                    | 0x0210 |
| ILLUMAGEAR, Inc.                          | 0x0B2C |
| Illusory Studios LLC                      | 0x074A |
| Illuxtron international B.V.              | 0x02A7 |
| iLOQ Oy                                   | 0x064D |
| iLumi Solutions Inc.                      | 0x03BF |
| imagiLabs AB                              | 0x0880 |
| IMAGINATION TECHNOLOGIES LTD              | 0x02F9 |
| Imagine Marketing Limited                 | 0x0CD1 |
| IMATRIX SYSTEMS, INC.                     | 0x0AE2 |
| IMI Hydronic Engineering International SA | 0x08ED |



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| iMicroMed Incorporated                           | 0x042B |
| Imostar Technologies Inc.                        | 0x0C50 |
| Impact Biosystems, Inc.                          | 0x0B3A |
| Impossible Camera GmbH                           | 0x02A0 |
| Impulse Wellness LLC                             | 0x0D9E |
| In2things Automation Pvt. Ltd.                   | 0x03CA |
| INCITAT ENVIRONNEMENT                            | 0x0B43 |
| Incotex Co. Ltd.                                 | 0x0A3A |
| INCUS PERFORMANCE LTD.                           | 0x082D |
| Indagem Tech LLC                                 | 0x02F5 |
| Indigo Diabetes                                  | 0x0A58 |
| Indistinguishable From Magic, Inc.               | 0x0D75 |
| indoormap  | 0x032E |
| InDreamer Techsol Private Limited                | 0x04F2 |
| Industrial Network Controls, LLC                 | 0x06DC |
| INEO ENERGY& SYSTEMS                             | 0x05E5 |
| INEO-SENSE                                       | 0x0914 |
| Ineos Automotive Limited                         | 0x0B90 |
| Inexess Technology Simma KG                      | 0x0299 |
| Infineon Technologies AG                         | 0x0009 |
| Infinitegra, Inc.                                | 0x0BAA |
| iNFORM Technology GmbH                           | 0x081E |
| INFOTECH s.r.o.                                  | 0x0390 |
| Ingchips Technology Co., Ltd.                    | 0x06AC |
| Ingenieur-Systemgruppe Zahn GmbH                 | 0x00AB |
| Ingenieurbuero Birnfeld UG (haftungsbeschraenkt) | 0x0892 |
| INGICS TECHNOLOGY CO., LTD.                      | 0x082C |
| Ingy B.V.  | 0x080C |
| INIA   | 0x05AD |
| Inmite s.r.o.                                    | 0x0158 |
| inMusic Brands, Inc                              | 0x00E3 |
| Innblue Consulting                               | 0x01DB |
| INNER RANGE PTY. LTD.                            | 0x0AB3 |
| Innocent Technology Co., Ltd.                    | 0x0CC9 |
| InnoCon Medical ApS                              | 0x0770 |
| Innohome Oy                                      | 0x0A73 |



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| Innokind, Inc.                           | 0x091D |
| Innolux Corporation                      | 0x0B63 |
| Innophase Incorporated                   | 0x0873 |
| Innoseis                                 | 0x05FD |
| Innova Ideas Limited                     | 0x0673 |
| INNOVA S.R.L.                            | 0x0C51 |
| Innovacionnye Resheniya                  | 0x0BF8 |
| INNOVAG PTY. LTD.                        | 0x0BB8 |
| InnovaSea Systems Inc.                   | 0x06AD |
| Innovation First, Inc.                   | 0x0677 |
| Innovative Design Labs Inc.              | 0x0A5C |
| Innovative Yachtter Solutions            | 0x0106 |
| Innoware Development AB                  | 0x09DD |
| Inor Process AB                          | 0x0595 |
| INOVA Geophysical, Inc.                  | 0x0821 |
| Inovonics Corp                           | 0x08D7 |
| INPEAK S.C.                              | 0x0A1C |
| InPlay, Inc.                             | 0x0505 |
| inQs Co., Ltd.                           | 0x0686 |
| INSIGMA INC.                             | 0x046A |
| Insta GmbH                               | 0x04C6 |
| Instabeat, Inc                           | 0x03DB |
| instagrid GmbH                           | 0x08F8 |
| Instamic, Inc.                           | 0x0A2F |
| Instinct Performance                     | 0x057D |
| Insulet Corporation                      | 0x0360 |
| Integra Optics Inc                       | 0x08C6 |
| Integral Memroy Plc                      | 0x0575 |
| Integrated Silicon Solution Taiwan, Inc. | 0x0041 |
| Integrated System Solution Corp.         | 0x0039 |
| Intel Corp.                              | 0x0002 |
| Intelletto Technologies Inc.             | 0x0190 |
| Intelligenceworks Inc.                   | 0x08A6 |
| Intellithings Ltd.                       | 0x06DD |
| Intemo Technologies                      | 0x02F6 |
| INTER ACTION Corporation                 | 0x0615 |



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| Interactio                            | 0x04F9 |
| Intermotive, Inc.                     | 0x0832 |
| International Forte Group LLC         | 0x0465 |
| Interplan Co., Ltd                    | 0x0212 |
| Intricon                              | 0x03C6 |
| Intuity Medical                       | 0x0A7F |
| Inugo Systems Limited                 | 0x0A55 |
| Inuheat Group AB                      | 0x04B4 |
| Inventas AS                           | 0x0ABD |
| Inventel                              | 0x001E |
| Inventronics GmbH                     | 0x0DA9 |
| InventureTrack Systems                | 0x02A1 |
| Invisalert Solutions, Inc.            | 0x0DB0 |
| InvisionHeart Inc.                    | 0x0209 |
| InVue Security Products Inc           | 0x0AB1 |
| iodyne, LLC                           | 0x0E06 |
| IONA Tech LLC                         | 0x0BB7 |
| IONIQ Skincare GmbH & Co. KG          | 0x08B3 |
| iopool s.a.                           | 0x074C |
| IORA Technology Development Ltd. Sti. | 0x0B02 |
| IoSA                                  | 0x0C12 |
| IoT Instruments Oy                    | 0x03E6 |
| IOT Invent GmbH                       | 0x090D |
| IOT Pot India Private Limited         | 0x03D2 |
| iota Biosciences, Inc.                | 0x0D73 |
| lotera Inc                            | 0x0244 |
| lotGizmo Corporation                  | 0x0D4C |
| IOTOOLS                               | 0x0B13 |
| IOTTIVE (OPC) PRIVATE LIMITED         | 0x04DC |
| iParking Ltd.                         | 0x01DC |
| IPextreme, Inc.                       | 0x003D |
| iProtoXi Oy                           | 0x0441 |
| IPS Group Inc.                        | 0x01E7 |
| IQAir AG                              | 0x060A |
| iQsquare BV                           | 0x0717 |
| Irdeto                                | 0x0AF7 |

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| iRhythm Technologies, Inc.                    | 0x0B23 |
| iRiding(Xiamen)Technology Co.,Ltd.            | 0x0352 |
| IRIS OHYAMA CO.,LTD.                          | 0x08DF |
| iRobot Corporation                            | 0x0600 |
| ise Individuelle Software und Elektronik GmbH | 0x0ACB |
| ISEKI FRANCE S.A.S                            | 0x0D54 |
| ISEMAR S.R.L.                                 | 0x097F |
| ISEO Serrature S.p.a.                         | 0x0B3E |
| ista International GmbH                       | 0x0A9F |
| iSwip   | 0x07B8 |
| ITALTRACTOR ITM S.P.A.                        | 0x0DAC |
| ITEC corporation                              | 0x0280 |
| Iton Technology Corp.                         | 0x03F6 |
| Itron, Inc.                                   | 0x01F2 |
| Itude   | 0x02A3 |
| ITZ Innovations- und Technologiezentrum GmbH  | 0x0652 |
| IVT Wireless Limited                          | 0x03A0 |
| IZITHERM                                      | 0x0592 |
| J Neades Ltd                                  | 0x06ED |
| J&M Corporation                               | 0x0052 |
| J-J.A.D.E. Enterprise LLC                     | 0x089D |
| J. Wagner GmbH                                | 0x08C5 |
| Jaguar Land Rover Limited                     | 0x020B |
| James Walker RotaBolt Limited                 | 0x0930 |
| Jana Care Inc.                                | 0x040B |
| janova GmbH                                   | 0x0CB3 |
| Japan Display Inc.                            | 0x0D24 |
| JAPAN TOBACCO INC.                            | 0x09C3 |
| Jawbone                                       | 0x008A |
| JBX Designs Inc.                              | 0x0704 |
| JCM TECHNOLOGIES S.A.                         | 0x0A8D |
| JCT Healthcare Pty Ltd                        | 0x06D6 |
| JDRF Electromag Engineering Inc               | 0x0B70 |
| JEPICO Corporation                            | 0x093F |
| JetBeep Inc.                                  | 0x068D |
| Jetro AS                                      | 0x028A |

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| Jewelbots   | 0x0321 |
| Jiangsu Qinheng Co., Ltd.                         | 0x0739 |
| Jiangsu Teranovo Tech Co., Ltd.                   | 0x068B |
| Jiangsu Toppower Automotive Electronics Co., Ltd. | 0x009B |
| Jiangxi Innotech Technology Co., Ltd              | 0x0A20 |
| Jigowatts Inc.                                    | 0x03EC |
| JIN CO, Ltd                                       | 0x0239 |
| JLD Technology Solutions, LLC                     | 0x09DE |
| JLG Industries, Inc.                              | 0x0753 |
| JMR embedded systems GmbH                         | 0x072A |
| John Deere  | 0x0606 |
| Johnson Controls, Inc.                            | 0x00B9 |
| Johnson Health Tech NA                            | 0x07C4 |
| Johnson Outdoors Inc                              | 0x0278 |
| Jolla Ltd   | 0x01E1 |
| Jolly Logic, LLC                                  | 0x00ED |
| Joovv, Inc.                                       | 0x08F0 |
| Joule IQ, INC.                                    | 0x07ED |
| JRC Mobility Inc.                                 | 0x0A48 |
| JRM Group Limited                                 | 0x068F |
| JSB TECH PTE LTD                                  | 0x0923 |
| JSK CO., LTD.                                     | 0x07FD |
| JT INNOVATIONS LIMITED                            | 0x08CB |
| JUJU JOINTS CANADA CORP.                          | 0x0848 |
| Julbo   | 0x0954 |
| Julius Blum GmbH                                  | 0x09CE |
| Jumo GmbH & Co. KG                                | 0x0A72 |
| June Life, Inc.                                   | 0x07C5 |
| Jungheinrich Aktiengesellschaft                   | 0x058D |
| JURA Elektroapparate AG                           | 0x0C25 |
| JUSTMORPH PTE. LTD.                               | 0x0A66 |
| JVC KENWOOD Corporation                           | 0x0D10 |
| Kabushikigaisha HANERON                           | 0x09E7 |
| KAGA FEI Co., Ltd.                                | 0x0DDB |
| KAHA PTE. LTD.                                    | 0x0921 |
| Kano Computing Limited                            | 0x07D4 |

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|--------------------------------------|--------|
| Kapsch TrafficCom AB                 | 0x0388 |
| Kartographers Technologies Pvt. Ltd. | 0x04B1 |
| Katerra Inc.                         | 0x075E |
| Kathrein Solutions GmbH              | 0x0DEA |
| Kawantech                            | 0x00D4 |
| Kayamatics Limited                   | 0x08AD |
| KC Technology Inc.                   | 0x0016 |
| KCCS Mobile Engineering Co., Ltd.    | 0x0ABC |
| KD CIRCUITS LLC                      | 0x07BC |
| KEAN ELECTRONICS PTY LTD             | 0x09EB |
| KEBA Energy Automation GmbH          | 0x0C60 |
| KEBA Handover Automation GmbH        | 0x0A7E |
| Keep Technologies, Inc.              | 0x09FD |
| KEEPEN                               | 0x0D01 |
| Keepin Co., Ltd.                     | 0x0AC8 |
| Keiser Corporation                   | 0x0102 |
| Kemppi Oy                            | 0x0203 |
| Kensington Computer Products Group   | 0x00A0 |
| Kent Displays Inc.                   | 0x00F3 |
| Kenzen, Inc.                         | 0x0AC3 |
| Kerlink                              | 0x0956 |
| Kesseböhmer Ergonomietechnik GmbH    | 0x0C92 |
| Ketronixs Sdn Bhd                    | 0x08FE |
| KEYes                                | 0x08D5 |
| Keynes Controls Ltd                  | 0x052A |
| KeySafe-Cloud                        | 0x0608 |
| KEYTEC, Inc.                         | 0x0C23 |
| KHN Solutions LLC                    | 0x09A8 |
| Kickmaker                            | 0x0827 |
| KIDO SPORTS CO., LTD.                | 0x0BF0 |
| KidzTek LLC                          | 0x07EE |
| Kiiroo BV                            | 0x05A5 |
| Kimberly-Clark                       | 0x03FC |
| Kindeva Drug Delivery L.P.           | 0x094B |
| Kindhome                             | 0x0D70 |
| KINDOO LLP                           | 0x0C31 |

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|---|--------|
| King I Electronics.Co.,Ltd                    | 0x06C3 |
| Kinsa, Inc                                    | 0x0123 |
| Kiteras Inc.                                  | 0x0D71 |
| KiteSpring Inc.                               | 0x0934 |
| KIWI.KI GmbH                                  | 0x0DA2 |
| KKM COMPANY LIMITED                           | 0x0A53 |
| Klipsch Group, Inc.                           | 0x07FA |
| KloudNation                                   | 0x01F0 |
| Knick Elektronische Messgeraete GmbH & Co. KG | 0x0548 |
| KNOG PTY. LTD.                                | 0x0DE0 |
| KOAMTAC INC.                                  | 0x0778 |
| KOBATA GAUGE MFG. CO., LTD.                   | 0x0ACE |
| Kobian Canada Inc.                            | 0x0445 |
| Kocomojo, LLC                                 | 0x0173 |
| Kodimo Technologies Company Limited           | 0x08F4 |
| Koha.,Co.Ltd                                  | 0x02BB |
| Kohler Company                                | 0x0594 |
| Kohler Mira Limited                           | 0x038A |
| Koizumi Lighting Technology corp.             | 0x0BE0 |
| Koki Holdings Co., Ltd.                       | 0x0695 |
| Kolibree                                      | 0x0460 |
| Komatsu Ltd.                                  | 0x0B9C |
| Komfort IQ, Inc.                              | 0x07E7 |
| KOMPAN A/S                                    | 0x0790 |
| Konami Sports Life Co., Ltd.                  | 0x05FA |
| Konftel AB                                    | 0x087D |
| Konica Minolta, Inc.                          | 0x018B |
| Koninklijke Philips N.V.                      | 0x01DD |
| Konova  | 0x0D7F |
| Kontakt Micro-Location Sp. z o.o.             | 0x01FD |
| Kopi  | 0x0672 |
| Kopin Corporation                             | 0x041F |
| KOQOON GmbH & Co.KG                           | 0x0DD4 |
| Kord Defence Pty Ltd                          | 0x0CCC |
| Kosi Limited                                  | 0x04F0 |
| KOUKAAM a.s.                                  | 0x00FB |

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| Koya Medical, Inc.                            | 0x099F |
| KOZO KEIKAKU ENGINEERING Inc.                 | 0x08E1 |
| Krog Systems LLC                              | 0x085E |
| KROHNE Messtechnik GmbH                       | 0x0555 |
| Kromek Group Plc                              | 0x063B |
| Kronos Incorporated                           | 0x0383 |
| KRUXWorks Technologies Private Limited        | 0x064E |
| KS Technologies                               | 0x00E7 |
| KTS GmbH                                      | 0x04D1 |
| KUBU SMART LIMITED                            | 0x0DCF |
| KUMHO ELECTRICS, INC                          | 0x09A4 |
| Kupson spol. s r.o.                           | 0x029E |
| KUUKANJYOKIN Co.,Ltd.                         | 0x0A6D |
| Kynesim Ltd                                   | 0x0468 |
| KYS   | 0x035D |
| L.S. Research, Inc.                           | 0x00E4 |
| LAAS ApS                                      | 0x0D90 |
| Lab Sensor Solutions                          | 0x031C |
| LaceClips llc                                 | 0x0A5E |
| Laerdal Medical AS                            | 0x01CA |
| Laird Connectivity LLC                        | 0x0077 |
| LAMPLIGHT Co., Ltd.                           | 0x05D4 |
| LAONZ Co.,Ltd                                 | 0x0866 |
| LAPIS Semiconductor Co.,Ltd                   | 0x0179 |
| Lautsprecher Teufel GmbH                      | 0x0AD2 |
| LAVAZZA S.p.A.                                | 0x0393 |
| Laxmi Therapeutic Devices, Inc.               | 0x0D30 |
| Lazlo326, LLC.                                | 0x0599 |
| LDL TECHNOLOGY                                | 0x063F |
| Leaftronix Analogic Solutions Private Limited | 0x06BB |
| LECO Corporation                              | 0x0810 |
| Lectronix, Inc.                               | 0x01E2 |
| LED Smart Inc.                                | 0x0C06 |
| Ledlenser GmbH & Co. KG                       | 0x0654 |
| LEDVANCE GmbH                                 | 0x052E |
| Ledworks S.r.l.                               | 0x0BDC |



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|---|--------|
| Leggett & Platt, Incorporated               | 0x092D |
| LEGIC Identsystems AG                       | 0x0A5B |
| LEGO System A/S                             | 0x0397 |
| LEGRAND                                     | 0x0586 |
| Leica Camera AG                             | 0x051A |
| Leica Geosystems AG                         | 0x0D09 |
| Lely  | 0x055C |
| Lenovo (Singapore) Pte Ltd.                 | 0x02C5 |
| lesswire AG                                 | 0x0079 |
| Letsense s.r.l.                             | 0x0340 |
| Leupold & Stevens, Inc.                     | 0x0AF0 |
| LEVEL, s.r.o.                               | 0x0AE8 |
| Levita                                      | 0x0DC6 |
| Leviton Mfg. Co., Inc.                      | 0x05BC |
| LEVOLOR INC                                 | 0x0885 |
| Lexmark International Inc.                  | 0x025D |
| LG Electronics                              | 0x00C4 |
| Libratone A/S                               | 0x034B |
| Lichtvision Engineering GmbH                | 0x09FE |
| Lierda Science & Technology Group Co., Ltd. | 0x02FE |
| Life Laboratory Inc.                        | 0x0306 |
| LifeBEAM Technologies                       | 0x0227 |
| LifePlus, Inc.                              | 0x0A9E |
| LifeScan Inc                                | 0x016D |
| LifeStyle Lock, LLC                         | 0x044C |
| Lighting Science Group Corp.                | 0x0573 |
| Lightning Protection International Pty Ltd  | 0x0414 |
| Lightricity Ltd                             | 0x0A96 |
| lilbit ODM AS                               | 0x0B71 |
| LIMBOID LLC                                 | 0x0D1C |
| Limited Liability Company "Mikrotiks"       | 0x094F |
| limited liability company "Red"             | 0x0C08 |
| LIMNO Co. Ltd.                              | 0x06A4 |
| LINAK A/S                                   | 0x00A4 |
| LINCOGN TECHNOLOGY CO. LIMITED              | 0x0AA1 |
| Lindab AB                                   | 0x05D1 |



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|---|--------|
| Lindinvent AB                                     | 0x08C2 |
| LINE Corporation                                  | 0x02C1 |
| Linear Circuits                                   | 0x07DD |
| Link Labs, Inc.                                   | 0x0A1A |
| LinkedSemi Microelectronics (Xiamen) Co., Ltd     | 0x093A |
| LINKIO SAS  | 0x04AA |
| LINKSYS USA, INC.                                 | 0x0BEE |
| linktop   | 0x0DAD |
| Linkura AB  | 0x0961 |
| Linough Inc.                                      | 0x054A |
| Lintech GmbH                                      | 0x0144 |
| Lippert Components, INC                           | 0x05C7 |
| Lismore Instruments Limited                       | 0x095B |
| Listen Technologies Corporation                   | 0x09FA |
| Liteboxer Technologies Inc.                       | 0x08C8 |
| Littelfuse  | 0x03FE |
| littleBits  | 0x0369 |
| Livanova USA, Inc.                                | 0x0669 |
| LIVNEX Co.,Ltd.                                   | 0x07D3 |
| LIXIL Corporation                                 | 0x0A0F |
| LL Tec Group LLC                                  | 0x0BCF |
| LLC "MEGA-F service"                              | 0x0380 |
| LLC Navitek                                       | 0x0737 |
| LM Technologies Ltd                               | 0x01B6 |
| LMT Mercer Group, Inc                             | 0x0495 |
| Lockn Technologies Private Limited                | 0x0A4D |
| Lockswitch Sdn Bhd                                | 0x0C5A |
| Locoroll, Inc                                     | 0x0503 |
| Locus Positioning                                 | 0x0345 |
| LOGICDATA Electronic & Software Entwicklungs GmbH | 0x0547 |
| LogiLube, LLC                                     | 0x095C |
| LogiLube, LLC                                     | 0x0953 |
| Logitech International SA                         | 0x01DA |
| LogTag North America Inc.                         | 0x0AB7 |
| Lone Star Marine Pty Ltd                          | 0x0D3B |
| Long Range Systems, LLC                           | 0x056C |



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|---------------------------------|--------|
| Look Cycle International        | 0x0D6E |
| Loomanet, Inc.                  | 0x0C02 |
| Loop Devices, Inc               | 0x0302 |
| Loopshore Oy                    | 0x0779 |
| Louis Vuitton                   | 0x0A26 |
| LoupeDeck Oy                    | 0x07AC |
| Loy Tec electronics GmbH        | 0x0AA0 |
| LSI ADL Technology              | 0x0270 |
| LTIMINDTREE LIMITED             | 0x006A |
| Lucent                          | 0x0007 |
| LucentWear LLC                  | 0x05CB |
| Lucie Labs                      | 0x07E1 |
| Lucimed                         | 0x0901 |
| Ludus Helsinki Ltd.             | 0x0084 |
| LUGLOC LLC                      | 0x04D6 |
| Luidia Inc                      | 0x0411 |
| Lukoton Experience Oy           | 0x0215 |
| lulabytes S.L.                  | 0x037E |
| Lumen UAB                       | 0x0529 |
| Lumenetix, Inc                  | 0x0459 |
| LumenRadio AB                   | 0x09E9 |
| Lumens For Less, Inc            | 0x0756 |
| Lumi United Technology Co., Ltd | 0x0B27 |
| LumiGeek LLC                    | 0x0208 |
| LUMINOAH, INC.                  | 0x0D3E |
| Luminostics, Inc.               | 0x091B |
| Lumo Bodytech Inc.              | 0x0251 |
| Lumos Health Inc.               | 0x0985 |
| Luna Health, Inc.               | 0x0BEB |
| Luna XIO, Inc.                  | 0x0736 |
| Lunatico Astronomia SL          | 0x062A |
| Lund Motion Products, Inc.      | 0x096F |
| Lunera Lighting Inc.            | 0x0528 |
| Lupine                          | 0x022D |
| Luster Leaf Products Inc        | 0x021F |
| Lutron Electronics Co., Inc.    | 0x04DE |



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|---------------------------------|--------|
| Luxer Corporation               | 0x0A34 |
| Luxtistica Group S.p.A          | 0x0D53 |
| LVI Co.                         | 0x0C1F |
| LX SOLUTIONS PTY LIMITED        | 0x0638 |
| Lynxemi Pte Ltd                 | 0x0493 |
| LYS TECHNOLOGIES LTD            | 0x0581 |
| LytX, INC.                      | 0x0A65 |
| M-Way Solutions GmbH            | 0x024D |
| MAATEL                          | 0x0DBD |
| MAC SRL                         | 0x0741 |
| Machfu Inc.                     | 0x0BAC |
| Macnica Inc.                    | 0x020A |
| Macrogiga Electronics           | 0x059C |
| Macronix International Co. Ltd. | 0x002C |
| MadgeTech, Inc                  | 0x0CEE |
| MADS Inc                        | 0x0132 |
| MADSGlobalINZ Ltd.              | 0x0162 |
| Magnitude Lighting Converters   | 0x030B |
| MagniWare Ltd.                  | 0x0358 |
| Magnus Technology Sdn Bhd       | 0x09DF |
| Mahr GmbH                       | 0x06FE |
| MAINBOT                         | 0x0B2B |
| makita corporation              | 0x0643 |
| MakuSafe Corp                   | 0x0D03 |
| Mammut Sports Group AG          | 0x0B82 |
| MAMORIO.inc                     | 0x0518 |
| Mannkind Corporation            | 0x0680 |
| Mansella Ltd                    | 0x0021 |
| Mantis Tech LLC                 | 0x0761 |
| Mantracourt Electronics Limited | 0x04C3 |
| Manus Machina BV                | 0x0220 |
| Map Large, Inc.                 | 0x0A4A |
| MAQUET GmbH                     | 0x0CA3 |
| MARELLI EUROPE S.P.A.           | 0x00A9 |
| Marquardt GmbH                  | 0x0B05 |
| Marvell Technology Group Ltd.   | 0x0048 |

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| Masbando GmbH  | 0x05FC |
| Masimo Corp  | 0x0243 |
| Masonite Corporation   | 0x09E6 |
| Master Lock  | 0x014B |
| Matrix Inc.  | 0x035B |
| Mattel   | 0x03B6 |
| Matting AB   | 0x0490 |
| Maturix ApS  | 0x0D1A |
| Maven Machines, Inc.   | 0x0283 |
| Maveric Automation LLC   | 0x0193 |
| MAX-co., ltd   | 0x0B76 |
| Maxell, Ltd.   | 0x0A19 |
| Maxim Integrated Products  | 0x058B |
| MAXON INDUSTRIES, INC.   | 0x0C84 |
| maxon motor ltd.   | 0x07FF |
| Maxscend Microelectronics Company Limited                        | 0x03BA |
| Maytronics Ltd   | 0x0893 |
| Maztech Industries, LLC  | 0x0CD7 |
| MBARC LABS Inc   | 0x0715 |
| MbientLab Inc  | 0x067E |
| MC10   | 0x00CA |
| McIntosh Group Inc   | 0x0C30 |
| McLear Limited   | 0x04F6 |
| MCOT INC.  | 0x0BC3 |
| McWong International, Inc.                                       | 0x0CE6 |
| Measurlogic Inc.   | 0x06C2 |
| MEBSTER s.r.o.   | 0x0D62 |
| MED-EL   | 0x0647 |
| Medallion Instrumentation Systems                                | 0x05B1 |
| Medela AG  | 0x0538 |
| Medela, Inc  | 0x03A6 |
| Media-Cartec GmbH  | 0x0BFE |
| MEDIATECH S.R.L.   | 0x074F |
| MediaTek, Inc.   | 0x0046 |
| MEDIRLAB Orvosbiologiai Fejlesztó Korlátolt Felelősségű Társaság | 0x07F4 |
| Medtronic Inc.   | 0x01F9 |

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| Megger Ltd                             | 0x0CA6 |
| Meggitt SA                             | 0x0653 |
| Meizhou Guo Wei Electronics Co., Ltd   | 0x0A57 |
| Meizu Technology Co., Ltd.             | 0x03AB |
| Melange Systems Pvt. Ltd.              | 0x09E8 |
| Melbot Studios, Sociedad Limitada      | 0x091E |
| MemCachier Inc.                        | 0x042E |
| Mendeltron, Inc.                       | 0x0C0C |
| Mequonic Engineering, S.L.             | 0x098B |
| Mercedes-Benz Group AG                 | 0x017C |
| Mereltron bv                           | 0x0C0D |
| Merlinia A/S                           | 0x0226 |
| Merry Electronics (S) Pte Ltd          | 0x0D14 |
| MERRY ELECTRONICS CO., LTD.            | 0x0D13 |
| Mesh Systems LLC                       | 0x0B50 |
| Mesh-Net Ltd                           | 0x014C |
| Meshtech AS                            | 0x042D |
| Meshtronix Limited                     | 0x0657 |
| Meso international                     | 0x00B6 |
| Meta Platforms Technologies, LLC       | 0x058E |
| Meta Platforms, Inc.                   | 0x01AB |
| Meta Watch Ltd.                        | 0x00A3 |
| MetaLogics Corporation                 | 0x0537 |
| Metanate Limited                       | 0x0444 |
| MetaSystem S.p.A.                      | 0x031F |
| METER Group, Inc. USA                  | 0x0498 |
| Metormote AB                           | 0x0368 |
| Metronom Health Europe                 | 0x0949 |
| MewTel Technology Inc.                 | 0x002F |
| Meyer Sound Laboratories, Incorporated | 0x06D1 |
| MG Energy Systems B.V.                 | 0x0A5D |
| MGM WIRELESSS HOLDINGS PTY LTD         | 0x0C5C |
| MHL Custom Inc                         | 0x05CA |
| micas AG                               | 0x015A |
| Michael Parkin                         | 0x0754 |
| MiCommand Inc.                         | 0x0063 |

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| Micro-Design, Inc.                  | 0x07D9 |
| Microchip Technology Inc.           | 0x00CD |
| MICRODIA Ltd.                       | 0x037D |
| Microoled                           | 0x08F2 |
| Micropower Group AB                 | 0x0D33 |
| Microsemi Corporation               | 0x04FF |
| Microsoft                           | 0x0006 |
| MICROSON S.A.                       | 0x0A74 |
| Microtronics Engineering GmbH       | 0x024E |
| Midmark                             | 0x0CF1 |
| Midwest Instruments & Controls      | 0x03B3 |
| Miele & Cie. KG                     | 0x0BC1 |
| Mievo Technologies Private Limited  | 0x0CA9 |
| Mighty Cast, Inc.                   | 0x0147 |
| Milestone AV Technologies LLC       | 0x06E1 |
| Milwaukee Electric Tools            | 0x0165 |
| Minami acoustics Limited            | 0x0CD9 |
| MindMaze SA                         | 0x0D7B |
| MindPeace Safety LLC                | 0x0714 |
| MindRhythm, Inc.                    | 0x0B3F |
| Minebea Intec GmbH                  | 0x0DDA |
| MinebeaMitsumi Inc.                 | 0x062B |
| Minelab Electronics Pty Limited     | 0x01DE |
| Mini Solution Co., Ltd.             | 0x0458 |
| MINIBREW HOLDING B.V                | 0x078C |
| Minut, Inc.                         | 0x07E5 |
| MIRA, Inc.                          | 0x03CF |
| Miracle-Ear, Inc.                   | 0x0BEC |
| Miridia Technology Incorporated     | 0x08DA |
| Misfit Wearables Corp               | 0x00DF |
| MISHIK Pte Ltd                      | 0x0166 |
| miSport Ltd.                        | 0x02A8 |
| Mist Systems, Inc.                  | 0x0542 |
| MistyWest Energy and Transport Ltd. | 0x0A4B |
| MITACHI CO.,LTD.                    | 0x0D78 |
| Mitel Semiconductor                 | 0x0010 |

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| MITSUBISHI ELECTRIC AUTOMATION (THAILAND) COMPANY LIMITED  | 0x0B66 |
| Mitsubishi Electric Corporation                            | 0x0014 |
| MITSUBISHI ELECTRIC LIGHTING CO, LTD                       | 0x0CA4 |
| Mitutoyo Corporation                                       | 0x082A |
| MIWA LOCK CO.,Ltd  | 0x0543 |
| MiX Telematics International (PTY) LTD                     | 0x0C98 |
| MIYAKAWA ELECTRIC WORKS LTD.                               | 0x0D29 |
| MIYOSHI ELECTRONICS CORPORATION                            | 0x047B |
| MIZUNO Corporation   | 0x0879 |
| MML US, Inc  | 0x0D9F |
| Mobicomm Inc   | 0x021C |
| mobike (Hong Kong) Limited                                 | 0x04B3 |
| Mobile Action Technology Inc.                              | 0x09F6 |
| Mobilian Corporation                                       | 0x0037 |
| Mobilogix  | 0x09E5 |
| Mobiquity Networks Inc                                     | 0x0221 |
| Mobitrace  | 0x09CA |
| MOCA System Inc.   | 0x0B2E |
| Mode Lighting Limited                                      | 0x0661 |
| Modul-System HH AB   | 0x07CA |
| MODULAR MEDICAL, INC.                                      | 0x0DD6 |
| modum.io AG  | 0x05D7 |
| Moeco IOT Inc.   | 0x07B2 |
| MOKO TECHNOLOGY Ltd  | 0x0A62 |
| Molex Corporation  | 0x039F |
| Molnlycke Health Care AB                                   | 0x0D65 |
| Monadnock Systems Ltd.                                     | 0x08C7 |
| Monarch International Inc.                                 | 0x0A91 |
| Monidor  | 0x05A9 |
| Monitra SA   | 0x033E |
| Monster, LLC   | 0x0070 |
| Montage Connect, Inc.                                      | 0x0C05 |
| Moonbird BV  | 0x0963 |
| MooreSilicon Semiconductor Technology (Shanghai) Co., LTD. | 0x0CD0 |
| Mopeka Products LLC  | 0x0C7C |
| Morningstar Corporation                                    | 0x0DB7 |

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| MORNINGSTAR FX PTE. LTD.                                     | 0x0DC7 |
| Morse Project Inc.   | 0x00F2 |
| Moticon ReGo AG  | 0x08AE |
| Motion Instruments Inc.                                      | 0x05E6 |
| Motionalysis, Inc.   | 0x0A42 |
| Motiv, Inc.  | 0x036F |
| MOTIVE TECHNOLOGIES, INC.                                    | 0x036E |
| Motorola   | 0x0008 |
| Motorola Solutions   | 0x04EC |
| MOTREX   | 0x0B8C |
| Motsai Research  | 0x0274 |
| Movano Inc.  | 0x0D4F |
| Movella Technologies B.V.                                    | 0x0886 |
| Movesense Oy   | 0x0C93 |
| MQA Limited  | 0x0C00 |
| MSA Innovation, LLC  | 0x01A4 |
| MSHeli s.r.l.  | 0x0237 |
| MStar Semiconductor, Inc.                                    | 0x007A |
| Mstream Technologies., Inc.                                  | 0x0812 |
| MTD Products Inc & Affiliates                                | 0x08F7 |
| MTG Co., Ltd.  | 0x0523 |
| MTI Ltd  | 0x0216 |
| Muguang (Guangdong) Intelligent Lighting Technology Co., Ltd | 0x0B88 |
| Mul-T-Lock   | 0x0333 |
| Multi Care Systems B.V.                                      | 0x0483 |
| Multibit Oy  | 0x0290 |
| Muoverti Limited   | 0x0229 |
| Murata Manufacturing Co., Ltd.                               | 0x013C |
| Musen Connect, Inc.  | 0x07A6 |
| Mutrack Co., Ltd   | 0x0DF6 |
| Muzik LLC  | 0x00DE |
| My Smart Blinds  | 0x0596 |
| MYLAPS B.V.  | 0x06C9 |
| MYSHERA  | 0x016C |
| mywerk system GmbH   | 0x0479 |
| Myzee Technology   | 0x091F |



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| NACHI-FUJIKOSHI CORP.                           | 0x0DC1 |
| NACON   | 0x0C82 |
| Nagravision SA                                  | 0x09DA |
| Nain Inc.                                       | 0x044B |
| Nalu Medical, Inc.                              | 0x05C0 |
| Nanjing Qinheng Microelectronics Co., Ltd       | 0x07D7 |
| Nanjing Xinxiangyuan Microelectronics Co., Ltd. | 0x0D57 |
| NanoFlex Power Corporation                      | 0x0A28 |
| Nanohex Corp                                    | 0x0D89 |
| Nanoleaf Canada Limited                         | 0x080B |
| Nanoleq AG                                      | 0x0B1C |
| NANOLINK APS                                    | 0x028C |
| NantSound, Inc.                                 | 0x0802 |
| Naonext   | 0x08E8 |
| NAOS JAPAN K.K.                                 | 0x0B15 |
| Narhwall Inc.                                   | 0x09AD |
| Nathan Rhoades LLC                              | 0x03DE |
| National Instruments                            | 0x0554 |
| Nations Technologies Inc.                       | 0x0D16 |
| Nautilus Inc.                                   | 0x00F4 |
| Navcast, Inc.                                   | 0x06DE |
| Naya Health, Inc.                               | 0x035E |
| ndd Medizintechnik AG                           | 0x0BD4 |
| Neatebox Ltd                                    | 0x04BB |
| NEC Corporation                                 | 0x0022 |
| NEC Lighting, Ltd.                              | 0x0095 |
| Nectar  | 0x0184 |
| Nemik Consulting Inc                            | 0x0456 |
| Neo Materials and Consulting Inc.               | 0x0967 |
| NEOKOHM SISTEMAS ELETRONICOS LTDA               | 0x0D96 |
| NeoSensory, Inc.                                | 0x07CF |
| Neosfar   | 0x02D8 |
| NEOWRK SISTEMAS INTELIGENTES S.A.               | 0x0C01 |
| Nerbio Medical Software Platforms Inc           | 0x0912 |
| NeST  | 0x039A |
| Nest Labs Inc.                                  | 0x01B5 |



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| Nestlé Nespresso S.A.  | 0x0225 |
| NETATMO  | 0x0155 |
| Netclearance Systems, Inc.   | 0x0394 |
| NetEase Hangzhou Network co.Ltd.                                       | 0x025C |
| NETGEAR, Inc.  | 0x0446 |
| NETGRID S.N.C. DI BISSOLI MATTEO, CAMPOREALE SIMONE, TOGNETTI FEDERICO | 0x067F |
| Netizens Sp. z o.o.  | 0x01B1 |
| Netwake GmbH   | 0x0B95 |
| NEURINNOV  | 0x0CAF |
| Neurocity, Inc.  | 0x0BCE |
| Neuvatek Inc.  | 0x0BC9 |
| Nevro Corp.  | 0x0A31 |
| New Audio LLC  | 0x099A |
| New Cosmos USA, Inc.   | 0x0BB4 |
| New H3C Technologies Co.,Ltd   | 0x07AD |
| Newcon Optik   | 0x0559 |
| Newlab S.r.l.  | 0x01D4 |
| Newlogic   | 0x0017 |
| NewTec GmbH  | 0x05B0 |
| Nexis Link Technology Co., Ltd.  | 0x0DBB |
| Nexite Ltd   | 0x0823 |
| Nextivity Inc.   | 0x0C88 |
| NextMind   | 0x0997 |
| Nextscape Inc.   | 0x0A50 |
| nFore Technology Co., Ltd.   | 0x0B44 |
| NGK SPARK PLUG CO., LTD.   | 0x0A36 |
| NIBROTECH LTD  | 0x0B25 |
| NICHIEI INTEC CO., LTD.  | 0x0890 |
| NIHON DENGYO KOUSAKU   | 0x06E6 |
| NIKAT SOLUTIONS PRIVATE LIMITED  | 0x0D4E |
| Nike, Inc.   | 0x0078 |
| Niko nv  | 0x05FE |
| Nikon Corporation  | 0x0399 |
| Nima Labs  | 0x03DC |
| Nimble Devices Oy  | 0x0129 |

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| NINGBO FOTILE KITCHENWARE CO., LTD.                        | 0x0D50 |
| NingBo klite Electric Manufacture Co.,LTD                  | 0x0B64 |
| Nintendo Co., Ltd.   | 0x0553 |
| NIO USA, Inc.  | 0x0B48 |
| Nippon Ceramic Co.,Ltd.                                    | 0x09A9 |
| Nippon Seiki Co., Ltd.                                     | 0x0110 |
| NIPPON SMT.CO.,Ltd   | 0x032C |
| NIPPON SYSTEMWARE CO.,LTD.                                 | 0x02D7 |
| Niruha Systems Private Limited                             | 0x077A |
| Nissan Motor Co., Ltd.                                     | 0x0BA6 |
| Nisshinbo Micro Devices Inc.                               | 0x085B |
| NITTO DENKO ASIA TECHNICAL CENTRE PTE. LTD.                | 0x0767 |
| NITTO KOGYO CORPORATION                                    | 0x0BAF |
| Nixie Labs, Inc.   | 0x0372 |
| NNOXX, Inc   | 0x0C61 |
| NO CLIMB PRODUCTS LTD                                      | 0x0D55 |
| NO SMD LIMITED   | 0x0919 |
| Nod, Inc.  | 0x013E |
| Nofence AS   | 0x05AB |
| Noke   | 0x038B |
| Nokia Mobile Phones  | 0x0001 |
| Nokian Renkaat Oyj   | 0x0896 |
| Nome Oy  | 0x08D6 |
| Nomono AS  | 0x0B4A |
| Noodle Technology inc                                      | 0x076C |
| Noomi AB   | 0x069C |
| Noordung d.o.o.  | 0x0621 |
| Nordic Semiconductor ASA                                   | 0x0059 |
| Nordic Strong ApS  | 0x0AD0 |
| Noritz Corporation.  | 0x0C38 |
| North Pole Engineering                                     | 0x0330 |
| NorthStar Battery Company, LLC                             | 0x040D |
| Norwood Systems  | 0x002E |
| NOTHING TECHNOLOGY LIMITED                                 | 0x0CCB |
| NOVABASE S.R.L.  | 0x07EB |
| NOVAFON - Electromedical devices limited liability company | 0x0DCE |



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| Novalogy LTD                  | 0x0419 |
| Novartis AG                   | 0x052B |
| Novatel Wireless              | 0x0145 |
| NOVEA ENERGIES                | 0x0B62 |
| Novel Bits, LLC               | 0x08D3 |
| Noventa AG                    | 0x08C9 |
| Novidan, Inc.                 | 0x0A44 |
| Novo Nordisk A/S              | 0x04CB |
| Novoferm tormatic GmbH        | 0x0DA7 |
| Novotec Medical GmbH          | 0x0359 |
| Nox Medical                   | 0x03FB |
| NS Tech, Inc.                 | 0x0522 |
| NTEO Inc.                     | 0x0138 |
| NTT docomo                    | 0x02E2 |
| NTT sonority, Inc.            | 0x0C9B |
| NUANCE HEARING LTD            | 0x095F |
| Nubia Technology Co.,Ltd.     | 0x08CA |
| Nuheara Limited               | 0x043A |
| Numa Products, LLC            | 0x0CD5 |
| Nura Operations Pty Ltd       | 0x0533 |
| Nuviz, Inc.                   | 0x045E |
| Nuvoton                       | 0x0ACC |
| nVisti, LLC                   | 0x049B |
| NXP B.V.                      | 0x0025 |
| Nymbus, LLC                   | 0x06A3 |
| nymea GmbH                    | 0x0AD6 |
| Nymi Inc.                     | 0x01B2 |
| Nytec, Inc.                   | 0x01B3 |
| O. E. M. Controls, Inc.       | 0x05A4 |
| O2 Micro, Inc.                | 0x0785 |
| OBIQ Location Technology Inc. | 0x06A0 |
| Oblamatik AG                  | 0x091C |
| Occlly LLC                    | 0x047D |
| OCEASOFT                      | 0x0273 |
| OCOSMOS Co., Ltd.             | 0x0384 |
| Oculeve, Inc.                 | 0x0720 |



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| Odeon, Inc.                                  | 0x0D45 |
| Odic Incorporated                            | 0x086A |
| ODM Technology, Inc.                         | 0x0096 |
| OFF Line Co., Ltd.                           | 0x051D |
| OFF Line Japan Co., Ltd.                     | 0x0C1D |
| Off-Highway Powertrain Services Germany GmbH | 0x0CE4 |
| Offcode Oy                                   | 0x0B7E |
| Ohsung Electronics                           | 0x0957 |
| OJ Electronics A/S                           | 0x0CF6 |
| OJMAR SA                                     | 0x09EE |
| OKI Electric Industry Co., Ltd               | 0x09F5 |
| Olumee                                       | 0x0B14 |
| Olympic Ophthalmics, Inc.                    | 0x0A6B |
| Olympus Corporation                          | 0x04D0 |
| OM Digital Solutions Corporation             | 0x09F1 |
| Omegawave Oy                                 | 0x00AE |
| OMNI Remotes                                 | 0x057A |
| Omni-ID USA, INC.                            | 0x0AC0 |
| Omnisense Limited                            | 0x0920 |
| Omnivoltaic Energy Solutions Limited Company | 0x0B37 |
| OMRON Corporation                            | 0x02D5 |
| Omron Healthcare Co., LTD                    | 0x020E |
| ON Semiconductor                             | 0x0362 |
| OnAsset Intelligence, Inc.                   | 0x0614 |
| OnBeep                                       | 0x0151 |
| ONCELABS LLC                                 | 0x0C44 |
| OnePlus Electronics (Shenzhen) Co., Ltd.     | 0x072F |
| OneSpan                                      | 0x02C8 |
| ONKYO Corporation                            | 0x062F |
| Onset Computer Corporation                   | 0x00C5 |
| OObIK Inc.                                   | 0x0A94 |
| Ooma   | 0x0A70 |
| Oort Technologies LLC                        | 0x02B7 |
| Open Bionics Ltd.                            | 0x0ABA |
| Open Interface                               | 0x0027 |
| Open Platform Systems LLC                    | 0x072E |

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|-----------------------------------|--------|
| Open Research Institute, Inc.     | 0x064A |
| Open Road Solutions, Inc.         | 0x0CC5 |
| Openbrain Technologies, Co., Ltd. | 0x0113 |
| OPEX Corporation                  | 0x0A41 |
| OPPLE Lighting Co., Ltd           | 0x0539 |
| Optalert                          | 0x0881 |
| Optec, LLC                        | 0x0D4D |
| Optek                             | 0x0800 |
| OPTEX CO.,LTD.                    | 0x06E5 |
| Optikam Tech Inc.                 | 0x078B |
| OPTIMUSIOT TECH LLP               | 0x090E |
| Optivolt Labs, Inc.               | 0x0D8E |
| OR Technologies Pty Ltd           | 0x0747 |
| OrangeMicro Limited               | 0x0DD1 |
| Oras Oy                           | 0x0A08 |
| ORB Innovations Ltd               | 0x0C3B |
| ORBCOMM                           | 0x0371 |
| ORBIS Inc.                        | 0x09D4 |
| Orlan LLC                         | 0x024B |
| Orpyx Medical Technologies Inc.   | 0x0C4C |
| ORSO Inc.                         | 0x084C |
| OrthoAccel Technologies           | 0x041B |
| OrthoSensor, Inc.                 | 0x0544 |
| OS42 UG (haftungsbeschraenkt)     | 0x0616 |
| OSM HK Limited                    | 0x0AAC |
| OSRAM GmbH                        | 0x050C |
| Ossur hf.                         | 0x0814 |
| OTC engineering                   | 0x0BE2 |
| OTF Distribution, LLC             | 0x0BC8 |
| OTF Product Sourcing, LLC         | 0x0C2D |
| OTL Dynamics LLC                  | 0x00A5 |
| Otodata Wireless Network Inc.     | 0x03B1 |
| Otodynamics Ltd                   | 0x0556 |
| Otter Products, LLC               | 0x0206 |
| OttoQ Inc                         | 0x032F |
| Oura Health Ltd                   | 0x0304 |

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| Oura Health Oy                                | 0x02B2 |
| OurHub Dev IvS                                | 0x047E |
| Outshiny India Private Limited                | 0x0DE1 |
| OV LOOP, INC.                                 | 0x05AF |
| ovrEngineered, LLC                            | 0x04A2 |
| Owl Labs Inc.                                 | 0x03F7 |
| Oxford Metrics plc                            | 0x05BB |
| Oxstren Wearable Technologies Private Limited | 0x0476 |
| Ozo Edu, Inc.                                 | 0x03EB |
| P.I.Engineering                               | 0x05C1 |
| Pac Sane Limited                              | 0x0A6E |
| PaceBait IVS                                  | 0x0A2B |
| Pacific Bioscience Laboratories, Inc          | 0x04EA |
| Pacific Coast Fishery Services (2003) Inc.    | 0x0CEC |
| Pacific Lock Company                          | 0x02A4 |
| Pacific Track, LLC                            | 0x086B |
| Packetcraft, Inc.                             | 0x07E8 |
| PAFERS TECH                                   | 0x0701 |
| Pal Electronics                               | 0x0C27 |
| PAL Technologies Ltd                          | 0x03F4 |
| Palago AB                                     | 0x0469 |
| Pambor Ltd.                                   | 0x046E |
| Pamex Inc.                                    | 0x0A95 |
| Panasonic Holdings Corporation                | 0x003A |
| Panda Ocean Inc.                              | 0x00A6 |
| Panduit Corp.                                 | 0x065D |
| Pangaea Solution                              | 0x0787 |
| Parabit Systems, Inc.                         | 0x05B3 |
| Paradox Engineering SA                        | 0x080F |
| Parakey AB                                    | 0x0C6F |
| Parker Hannifin Corp                          | 0x0248 |
| PARROT AUTOMOTIVE SAS                         | 0x0043 |
| Parsyl Inc                                    | 0x0857 |
| Parthus Technologies Inc.                     | 0x000E |
| Particle Industries, Inc.                     | 0x0662 |
| Passif Semiconductor Corp                     | 0x00B0 |



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|-----------------------------------|--------|
| PassiveBolt, Inc.                 | 0x094E |
| PAUL HARTMANN AG                  | 0x0ABF |
| Paxton Access Ltd                 | 0x0196 |
| Paybuddy ApS                      | 0x09A7 |
| Payex Norge AS                    | 0x0658 |
| PayPal, Inc.                      | 0x00F0 |
| PayRange Inc.                     | 0x02C9 |
| PB INC.                           | 0x0B1E |
| PCB Piezotronics, Inc.            | 0x0789 |
| PCH International                 | 0x0163 |
| PCI Private Limited               | 0x092C |
| PEAG, LLC dba JLab Audio          | 0x0CE9 |
| Pebble Technology                 | 0x0154 |
| PEEQ DATA                         | 0x0311 |
| PEG PEREGO SPA                    | 0x03D4 |
| Pegasus Technologies, Inc.        | 0x09B6 |
| Pektron Group Limited             | 0x0853 |
| Pella Corp                        | 0x0D5E |
| Peloton Interactive Inc.          | 0x0768 |
| PentaLock Aps.                    | 0x09B4 |
| Pepperl + Fuchs GmbH              | 0x0844 |
| Perfect Company                   | 0x0A8E |
| Performance Electronics, Ltd.     | 0x0C26 |
| Perimeter Technologies, Inc.      | 0x0BCA |
| Pertech Industries Inc            | 0x0B8D |
| Perytons Ltd.                     | 0x0149 |
| Peter Systemtechnik GmbH          | 0x00AD |
| petPOMM, Inc                      | 0x03B5 |
| Petronics Inc.                    | 0x05DC |
| PetVoice Co., Ltd.                | 0x0D0E |
| Petzl                             | 0x0296 |
| PF SCHWEISSTECHNOLOGIE GMBH       | 0x08B2 |
| Pharynks Corporation              | 0x022C |
| PHC Corporation                   | 0x0726 |
| phg Peter Hengstler GmbH + Co. KG | 0x0C63 |
| Phiaton Corporation               | 0x0C62 |





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| Philadelphia Scientific (U.K.) Limited | 0x0623 |
| Philia Technology                      | 0x08E0 |
| Philip Morris Products S.A.            | 0x0223 |
| Phillips Connect Technologies LLC      | 0x087F |
| Phillips-Medisize A/S                  | 0x035A |
| PHONEPE PVT LTD                        | 0x0629 |
| PHOTODYNAMIC INCORPORATED              | 0x09AA |
| Photron Limited                        | 0x0682 |
| Phrame Inc.                            | 0x061F |
| PHYPLUS Inc                            | 0x0504 |
| Physical Enterprises Inc.              | 0x0189 |
| PhysioLogic Devices, Inc.              | 0x0D2A |
| Piaggio Fast Forward                   | 0x083B |
| Pico Technology Inc.                   | 0x03C4 |
| Pieps GmbH                             | 0x0351 |
| PIKOLIN S.L.                           | 0x0763 |
| Pillsy Inc.                            | 0x0433 |
| Pinnacle Technology, Inc.              | 0x0A32 |
| Pinpoint GmbH                          | 0x0E07 |
| Pinpoint Innovations Limited           | 0x0908 |
| Pioneer Corporation                    | 0x0150 |
| Pirelli Tyre S.P.A.                    | 0x04F5 |
| pironex GmbH                           | 0x01C0 |
| Pison Technology, Inc.                 | 0x0D5C |
| Pitius Tec S.L.                        | 0x015C |
| Pitpatpet Ltd                          | 0x0236 |
| PixArt Imaging Inc.                    | 0x065C |
| PIXELA CORPORATION                     | 0x0DA5 |
| Pixie Dust Technologies, Inc.          | 0x0998 |
| Planmeca Oy                            | 0x0D0C |
| PlantChoir Inc.                        | 0x0799 |
| Plantronics, Inc.                      | 0x0055 |
| Plastimold Products, Inc               | 0x08FF |
| Playbrush                              | 0x0254 |
| PlayerData Limited                     | 0x09B8 |
| Playfinity AS                          | 0x0612 |



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| Plejd AB                                 | 0x0377 |
| Plume Design Inc                         | 0x0A17 |
| PLUS Location Systems Pty Ltd            | 0x0104 |
| PMD Solutions                            | 0x046B |
| PNI Sensor Corporation                   | 0x04A1 |
| Podo Labs, Inc                           | 0x016F |
| POGS B.V.                                | 0x0CEF |
| PointGuard, LLC                          | 0x0966 |
| Pointr Labs Limited                      | 0x08D9 |
| Pokkels                                  | 0x0A6C |
| Polar Electro Europe B.V.                | 0x00D1 |
| Polar Electro OY                         | 0x006B |
| Polaris IND                              | 0x0501 |
| Polidea Sp. z o.o.                       | 0x08AF |
| Poly-Control ApS                         | 0x01C8 |
| Polycom, Inc.                            | 0x059E |
| Polymap Wireless                         | 0x0357 |
| Polymorphic Labs LLC                     | 0x0496 |
| PONE BIOMETRICS AS                       | 0x0BF3 |
| Popit Oy                                 | 0x0973 |
| Popper Pay AB                            | 0x049F |
| Porsche AG                               | 0x0120 |
| POS Tuning Udo Vosshenrich GmbH & Co. KG | 0x0482 |
| Potrykus Holdings and Development LLC    | 0x081D |
| Powercast Corporation                    | 0x02D3 |
| POWERMAT LTD                             | 0x047C |
| Pozyx NV                                 | 0x09AE |
| PPRS                                     | 0x0951 |
| Praxis Dynamics                          | 0x0222 |
| Precision Outcomes Ltd                   | 0x0382 |
| Precision Triathlon Systems Limited      | 0x0B03 |
| Precor                                   | 0x071B |
| Preddio Technologies Inc.                | 0x09E0 |
| Presidio Medical, Inc.                   | 0x0B84 |
| PressurePro                              | 0x05E7 |
| Prestigio Plaza Ltd.                     | 0x0137 |



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| Prevayl Limited                       | 0x08BC |
| Prevent Biometrics                    | 0x0347 |
| Pricer AB                             | 0x0CBD |
| Primus Inter Pares Ltd                | 0x01D0 |
| Princess Cruise Lines, Ltd.           | 0x0CA5 |
| Private limited company "Teltonika"   | 0x089A |
| Pro-Mark, Inc.                        | 0x047F |
| Procept                               | 0x062E |
| Procon Analytics, LLC                 | 0x0BD3 |
| Procter & Gamble                      | 0x00DC |
| prodigy                               | 0x053B |
| Produal Oy                            | 0x06AA |
| Prolojik Limited                      | 0x063A |
| Prolon Inc.                           | 0x0429 |
| Promethean Ltd.                       | 0x0126 |
| Proof Diagnostics, Inc.               | 0x09A0 |
| Propagation Systems Limited           | 0x03B2 |
| Propeller Health                      | 0x0378 |
| PROSYS DEV LIMITED                    | 0x0E02 |
| PROTECH S.A.S. DI GIRARDI ANDREA & C. | 0x055F |
| Protect Animals With Satellites LLC   | 0x0CFA |
| PS Engineering, Inc.                  | 0x0AAE |
| PS GmbH                               | 0x092E |
| PSA Peugeot Citroen                   | 0x0A88 |
| PSIKICK, INC.                         | 0x0571 |
| PSP - Pauli Services & Products GmbH  | 0x08F3 |
| PSYONIC, Inc.                         | 0x0882 |
| PT SADAMAYA GRAHA TEKNOLOGI           | 0x0C7B |
| Puff Corp                             | 0x0C03 |
| Pulsate Mobile Ltd.                   | 0x01BE |
| Pune Scientific LLP                   | 0x079F |
| Pur3 Ltd                              | 0x0590 |
| PURA SCENTS, INC.                     | 0x0BD8 |
| Puratap Pty Ltd                       | 0x0BE6 |
| Pure International Limited            | 0x0665 |
| Qblinks                               | 0x016B |



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| Qingdao Eastsoft Communication Technology Co.,Ltd | 0x0C86 |
| Qingdao Haier Technology Co., Ltd.                | 0x0929 |
| Qingdao Realtime Technology Co., Ltd.             | 0x046C |
| Qingdao Yeelink Information Technology Co., Ltd.  | 0x0164 |
| Qingping Technology (Beijing) Co., Ltd.           | 0x0781 |
| Qorvo Utrecht B.V.                                | 0x0453 |
| Qrio Inc  | 0x0235 |
| QT Medical INC.                                   | 0x05DE |
| Qualcomm  | 0x001D |
| Qualcomm Connected Experiences, Inc.              | 0x00D8 |
| Qualcomm Innovation Center, Inc. (QuIC)           | 0x00B8 |
| Qualcomm Labs, Inc.                               | 0x011A |
| Qualcomm Life Inc                                 | 0x03E3 |
| Qualcomm Technologies International, Ltd. (QTIL)  | 0x000A |
| Qualcomm Technologies, Inc.                       | 0x00D7 |
| Quectel Wireless Solutions Co., Ltd.              | 0x0D87 |
| Queercon, Inc                                     | 0x04D3 |
| Quha oy   | 0x0B68 |
| Quintic Corp                                      | 0x008E |
| Quintrax Limited                                  | 0x0481 |
| quip NYC Inc.                                     | 0x07F8 |
| Quuppa Oy.  | 0x00C7 |
| R F Micro Devices                                 | 0x0028 |
| R-DAS, s.r.o.                                     | 0x0ABB |
| R.O. S.R.L.                                       | 0x09F8 |
| R.W. Beckett Corporation                          | 0x061A |
| R9 Technology, Inc.                               | 0x04ED |
| RAB Lighting, Inc.                                | 0x07A5 |
| RACHIO, INC.                                      | 0x0D1B |
| Racketry, d. o. o.                                | 0x0CB5 |
| Radar Automobile Sales(Shandong)Co.,Ltd.          | 0x0C8F |
| Raden Inc   | 0x02B1 |
| Radiance Technologies                             | 0x0439 |
| Radiawave Technologies Co.,Ltd.                   | 0x090C |
| Radinn AB   | 0x07C2 |
| Radio Sound                                       | 0x0CF3 |



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| Radio Systems Corporation                                | 0x01FE |
| RadioPulse Inc   | 0x0597 |
| Radioworks Microelectronics PTY LTD                      | 0x0AF4 |
| radius co., ltd.   | 0x077C |
| Radius Networks, Inc.                                    | 0x0118 |
| Rafaelfmicro   | 0x0864 |
| Ralink Technology Corporation                            | 0x005B |
| RandomLab SAS  | 0x0699 |
| rapitag GmbH   | 0x0598 |
| Rashidov ltd   | 0x08E4 |
| Ratio Electric BV  | 0x0BFF |
| RATOC Systems, Inc.                                      | 0x0B60 |
| Raven Industries   | 0x023E |
| Rayden.Earth LTD   | 0x08C1 |
| Raytac Corporation                                       | 0x068A |
| Razer Inc.   | 0x068E |
| RB Controls Co., Ltd.                                    | 0x0515 |
| RCP Software Oy  | 0x05A0 |
| RDA Microelectronics                                     | 0x0061 |
| React Accessibility Limited                              | 0x07D2 |
| React Mobile   | 0x0B6E |
| REACTEC LIMITED  | 0x04E1 |
| READY FOR SKY LLP  | 0x0BC0 |
| Real Time Automation, Inc.                               | 0x045F |
| Real-World-Systems Corporation                           | 0x05BF |
| Realityworks, inc.                                       | 0x0AA6 |
| Realme Chongqing Mobile Telecommunications Corp., Ltd.   | 0x08A4 |
| RealMega Microelectronics technology (Shanghai) Co. Ltd. | 0x0AC2 |
| Realtek Semiconductor Corporation                        | 0x005D |
| RealThingks GmbH   | 0x0937 |
| REALTIMEID AS  | 0x0B3D |
| Reconnect, Inc.  | 0x0935 |
| Red 100 Lighting Co., ltd.                               | 0x0B39 |
| Red-M (Communications) Ltd                               | 0x0032 |
| REDARC ELECTRONICS PTY LTD                               | 0x0B2D |
| Redbird Flight Simulations                               | 0x02BF |

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| Redmond Industrial Group LLC             | 0x056D |
| Redpine Signals Inc                      | 0x06FF |
| REEKON TOOLS INC.                        | 0x0DF4 |
| Reelables, Inc.                          | 0x0ADB |
| Reflow Pty Ltd                           | 0x0A07 |
| Refrigerated Transport Electronics, Inc. | 0x0D49 |
| Regal Beloit America, Inc.               | 0x0CE1 |
| Regent Beleuchtungskorper AG             | 0x07A0 |
| REGULA Ltd.                              | 0x07BF |
| REHABTRONICS INC.                        | 0x04E7 |
| Reiner Kartengerate GmbH & Co. KG.       | 0x03E8 |
| Relations Inc.                           | 0x0401 |
| Remedee Labs                             | 0x07DB |
| Remote Solution Co., LTD.                | 0x075F |
| Renault SA                               | 0x07FC |
| Renesas Electronics Corporation          | 0x0036 |
| Renishaw PLC                             | 0x0655 |
| Reoqoo IoT Technology Co., Ltd.          | 0x0CD4 |
| Republic Wireless, Inc.                  | 0x08E3 |
| Research Products Corporation            | 0x0D0B |
| RESIDEO TECHNOLOGIES, INC.               | 0x0B01 |
| Resmed Ltd                               | 0x038D |
| Resolution Products, Ltd.                | 0x0134 |
| Respiri Limited                          | 0x0713 |
| RESPONSE TECHNOLOGIES, LTD.              | 0x0CDE |
| Revenue Collection Systems FRANCE SAS    | 0x0641 |
| Revol Technologies Inc                   | 0x0484 |
| REVSMART WEARABLE HK CO LTD              | 0x071A |
| Revvo Technologies, Inc.                 | 0x086C |
| RF Code, Inc.                            | 0x0286 |
| RF Creations                             | 0x0CB1 |
| RF Digital Corp                          | 0x028E |
| RF Electronics Limited                   | 0x0D8D |
| RF INNOVATION                            | 0x0457 |
| RFID Global by Softwork SrL              | 0x05BE |
| RHA TECHNOLOGIES LTD                     | 0x0664 |



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|---|--------|
| Rheem Sales Company, Inc.                   | 0x0C56 |
| RHOMBUS SYSTEMS, INC.                       | 0x075D |
| Ribbiot, INC.                               | 0x0C9D |
| Ricoh Company Ltd                           | 0x065F |
| RIDE VISION LTD                             | 0x0A16 |
| Rigado LLC                                  | 0x0202 |
| RIIG AI Sp. z o.o.                          | 0x0314 |
| RIKEN KEIKI CO., LTD.,                      | 0x0834 |
| Rinnai Corporation                          | 0x02B9 |
| Rion Co., Ltd.                              | 0x056B |
| Rivata, Inc.                                | 0x0A83 |
| Rivian Automotive, LLC                      | 0x0941 |
| Rivieh, Inc.                                | 0x0B5F |
| RivieraWaves S.A.S                          | 0x0060 |
| RJ Brands LLC                               | 0x05CD |
| RM Acquisition LLC                          | 0x04D9 |
| Roabee Corporation                          | 0x06A6 |
| Roambotics, Inc.                            | 0x0BAD |
| Robert Bosch GmbH                           | 0x02A6 |
| Robkoo Information & Technologies Co., Ltd. | 0x0ABE |
| Roca Sanitario, S.A.                        | 0x0B1A |
| Roche Diabetes Care AG                      | 0x0170 |
| Rochester Sensors, LLC                      | 0x0C7F |
| Rockchip Electronics Co., Ltd.              | 0x0C1B |
| Rockford Corp.                              | 0x03F8 |
| Rockpile Solutions, LLC                     | 0x0D4A |
| ROCKWELL AUTOMATION, INC.                   | 0x0D86 |
| Rocky Mountain ATV/MC Jake Wilson           | 0x0D02 |
| Rohde & Schwarz GmbH & Co. KG               | 0x0019 |
| Roku, Inc.                                  | 0x07A2 |
| ROL Ergo                                    | 0x0153 |
| Roland Corporation                          | 0x0A0E |
| Rookery Technology Ltd                      | 0x0607 |
| ROOQ GmbH                                   | 0x0927 |
| Rosewill                                    | 0x09C1 |
| Rotor Bike Components                       | 0x0323 |



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|------------------------------|--------|
| Rotronic AG                  | 0x0B89 |
| RTB Elektronik GmbH & Co. KG | 0x02AC |
| RTC Industries, Inc.         | 0x0660 |
| RTX A/S                      | 0x0015 |
| Runteq Oy Ltd                | 0x02F8 |
| Runtime, Inc.                | 0x05C3 |
| Ruuvi Innovations Ltd.       | 0x0499 |
| ruwido austria gmbh          | 0x027F |
| Rx Networks, Inc.            | 0x02AD |
| Ryeex Technology Co.,Ltd.    | 0x0649 |
| RYSE INC.                    | 0x0409 |
| S-Labs Sp. z o.o.            | 0x048D |
| S-Power Electronics Limited  | 0x00BB |
| SAAB Aktiebolag              | 0x0BBE |
| SABIK Offshore GmbH          | 0x0678 |
| safactory GmbH               | 0x0A35 |
| SAFEGUARD EQUIPMENT, INC.    | 0x0DB6 |
| SafeLine Sweden AB           | 0x06EA |
| SafePort                     | 0x084D |
| Safera Oy                    | 0x072D |
| Safetech Products LLC        | 0x04CD |
| SafeTrust Inc.               | 0x034E |
| Safety Swim LLC              | 0x0DEE |
| Safetytest GmbH              | 0x0BEF |
| SALTO SYSTEMS S.L.           | 0x0199 |
| SaluStim Group Oy            | 0x0BB9 |
| Salutica Allied Solutions    | 0x0127 |
| Sam Labs Ltd.                | 0x01CC |
| Samsara Networks, Inc        | 0x0B6B |
| Samsung Electronics Co. Ltd. | 0x0075 |
| Samsung SDS Co., Ltd.        | 0x02DE |
| Sanistaal A/S                | 0x0B0B |
| Sankyo Air Tech Co.,Ltd.     | 0x0B79 |
| SANlight GmbH                | 0x0A8B |
| Sano, Inc.                   | 0x01E9 |
| Sanofi                       | 0x0743 |



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| SANYO DENKO Co.,Ltd.                 | 0x0B0D |
| Saphe International                  | 0x0367 |
| Sapphire Circuits LLC                | 0x0250 |
| Sappl Verwaltungs- und Betriebs GmbH | 0x092A |
| Saris Cycling Group, Inc             | 0x00B1 |
| Sarita CareTech APS                  | 0x0560 |
| Sartorius AG                         | 0x06FB |
| Saravid Software Solutions LLP       | 0x074B |
| Saucon Technologies                  | 0x089B |
| Savant Systems LLC                   | 0x01D9 |
| Savitech Corp.,                      | 0x053A |
| SAVOY ELECTRONIC LIGHTING            | 0x09B9 |
| Saxonar GmbH                         | 0x0AED |
| SB C&S Corp.                         | 0x0CC7 |
| Scale-Tec, Ltd                       | 0x064B |
| Scandinavian Health Limited          | 0x0C13 |
| Scangrip A/S                         | 0x0B7C |
| SCARAB SOLUTIONS LTD                 | 0x0C70 |
| Schawbel Technologies LLC            | 0x0266 |
| SHELL GmbH & Co. KG                  | 0x0DD9 |
| Schneider Electric                   | 0x02B6 |
| Schneider Schreibgeräte GmbH         | 0x024F |
| SchoolBoard Limited                  | 0x039E |
| Schrader Electronics                 | 0x0601 |
| SCIENTERRA LIMITED                   | 0x0D20 |
| sclak s.r.l.                         | 0x088A |
| SCM Group                            | 0x0B81 |
| Scope Logistical Solutions           | 0x0906 |
| Scosche Industries, Inc.             | 0x0791 |
| Screenovate Technologies Ltd         | 0x053C |
| Scribble Design Inc.                 | 0x0A6A |
| Scuf Gaming International, LLC       | 0x057F |
| SDATAWAY                             | 0x0395 |
| Sears Holdings Corporation           | 0x0402 |
| SEAT es                              | 0x0125 |
| seca GmbH & Co. KG                   | 0x0CB9 |

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|---|--------|
| SECOM CO., LTD.   | 0x0442 |
| Security Enhancement Systems, LLC   | 0x09A5 |
| Secuyou ApS   | 0x02D4 |
| SECVRE GmbH   | 0x0261 |
| Seekwave Technology Co.,ltd.  | 0x0C4D |
| Seers Technology Co., Ltd.  | 0x007D |
| SeeScan   | 0x05F3 |
| SEFAM   | 0x0412 |
| Seguro Technology Sp. z o.o.  | 0x02BE |
| Seibert Williams Glass, LLC   | 0x04C5 |
| Seiko Epson Corporation   | 0x0040 |
| Seiko Instruments Inc.  | 0x0B8A |
| Seitec Elektronik GmbH  | 0x0746 |
| Selekt Bilgisayar, İletisim Urunleri Insaat Sanayi ve Ticaret Limited Sirketi | 0x095A |
| Selfly BV   | 0x00C6 |
| SELVE GmbH & Co. KG   | 0x05C5 |
| Semilink Inc  | 0x00E2 |
| Sena Technologies Inc.  | 0x0960 |
| Sencilion Oy  | 0x06B4 |
| Send Solutions  | 0x02D6 |
| Sendum Wireless Corporation   | 0x099B |
| Sengled Co., Ltd.   | 0x08B4 |
| Senic Inc.  | 0x0C09 |
| SenionLab AB  | 0x01BC |
| Senix Corporation   | 0x040C |
| SENNHEISER electronic GmbH & Co. KG   | 0x0494 |
| SENOSPACE LLC   | 0x0CCE |
| Senquip Pty Ltd   | 0x0A71 |
| SENS Innovation ApS   | 0x061D |
| Sens.ai Incorporated  | 0x0AB8 |
| Sensa LLC   | 0x0C6E |
| SensaRx   | 0x0260 |
| SENSATEC Co., Ltd.  | 0x09F7 |
| Senscomm Semiconductor Co., Ltd.  | 0x0B8F |
| SenseQ Inc.   | 0x06AE |
| Sensibo, Inc.   | 0x0898 |

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| Sensirion AG  | 0x06D5 |
| Sensitech, Inc.                                     | 0x0B6C |
| Senso4s d.o.o.                                      | 0x09CC |
| Sensoan Oy  | 0x03E2 |
| Sensogram Technologies, Inc.                        | 0x02E9 |
| Sensolus  | 0x0A11 |
| Sensome   | 0x054D |
| Sensoria Holdings LTD                               | 0x0B9D |
| Sensority, s.r.o.                                   | 0x077D |
| Sensormate AG                                       | 0x0BE8 |
| Sensoryx AG   | 0x0D2B |
| Sensovium Inc.                                      | 0x08D1 |
| SensTek   | 0x0A97 |
| Sentek Pty Ltd                                      | 0x0B61 |
| Sentrax GmbH  | 0x0B41 |
| SentriLock  | 0x0176 |
| Sera4 Ltd.  | 0x02A2 |
| Seraphim Sense Ltd                                  | 0x0187 |
| SERENE GROUP, INC                                   | 0x07F2 |
| Serial Technology Corporation                       | 0x0CC6 |
| Server Technology Inc.                              | 0x00EB |
| SES-Imagotag  | 0x0A89 |
| Sesam Solutions BV                                  | 0x065B |
| Setec Pty Ltd                                       | 0x051F |
| SetPoint Medical                                    | 0x036A |
| SEW-EURODRIVE GmbH & Co KG                          | 0x0D85 |
| SFS unimarket AG                                    | 0x0899 |
| SGL Italia S.r.l.                                   | 0x0310 |
| SGV Group Holding GmbH & Co. KG                     | 0x0646 |
| ShadeCraft, Inc                                     | 0x06B8 |
| Shake-on B.V.                                       | 0x050A |
| Shanghai All Link Microelectronics Co.,Ltd          | 0x0AF2 |
| Shanghai Flyco Electrical Appliance Co., Ltd.       | 0x04C8 |
| Shanghai Frequen Microelectronics Co., Ltd.         | 0x02FC |
| Shanghai high-flying electronics technology Co.,Ltd | 0x0A99 |
| Shanghai InGeek Cyber Security Co., Ltd.            | 0x0759 |

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| Shanghai Kfcube Inc                                | 0x08A8 |
| Shanghai Mountain View Silicon Co.,Ltd.            | 0x06D9 |
| Shanghai MXCHIP Information Technology Co., Ltd.   | 0x0922 |
| Shanghai Panchip Microelectronics Co., Ltd         | 0x07D1 |
| Shanghai Proxy Network Technology Co., Ltd.        | 0x0CB8 |
| Shanghai Smart System Technology Co., Ltd          | 0x0A87 |
| Shanghai Suisheng Information Technology Co., Ltd. | 0x0828 |
| ShangHai Super Smart Electronics Co. Ltd.          | 0x0072 |
| Shanghai Top-Chip Microelectronics Tech. Co., LTD  | 0x07CE |
| Shanghai wuqi microelectronics Co.,Ltd             | 0x0A06 |
| Shanghai Xiaoyi Technology Co.,Ltd.                | 0x05A1 |
| Shanghai Yidian Intelligent Technology Co., Ltd.   | 0x0A0C |
| ShapeLog, Inc.                                     | 0x07EA |
| Sharknet srl                                       | 0x0541 |
| SharkNinja Operating LLC                           | 0x0C4F |
| Sharp Corporation                                  | 0x0381 |
| Shenzhen Aimore. Co.,Ltd                           | 0x0AD9 |
| SHENZHEN AUKEY E BUSINESS CO., LTD                 | 0x08DC |
| Shenzhen CESI Information Technology Co., Ltd.     | 0x0CCF |
| SHENZHEN CHENYUN ELECTRONICS CO., LTD              | 0x0CDF |
| Shenzhen Chuangyuan Digital Technology Co., Ltd    | 0x0DB8 |
| Shenzhen Conex                                     | 0x081A |
| Shenzhen CoolKit Technology Co., Ltd               | 0x0ACA |
| SHENZHEN DNS INDUSTRIES CO., LTD.                  | 0x0DDE |
| Shenzhen DOKE Electronic Co., Ltd                  | 0x0D47 |
| Shenzhen EBELONG Technology Co., Ltd.              | 0x0DAA |
| Shenzhen eMeet technology Co.,Ltd                  | 0x0E03 |
| Shenzhen Excelsecu Data Technology Co.,Ltd         | 0x00C1 |
| Shenzhen Feasycom Technology Co., Ltd.             | 0x0A2D |
| shenzhen fitcare electronics Co.,Ltd               | 0x082B |
| Shenzhen Goodix Technology Co., Ltd                | 0x04F7 |
| Shenzhen Grandsun Electronic Co.,Ltd.              | 0x0A90 |
| Shenzhen Gwell Times Technology Co. , Ltd          | 0x0C76 |
| Shenzhen H&T Intelligent Control Co., Ltd          | 0x0A2C |
| Shenzhen ImagineVision Technology Limited          | 0x0B5B |
| Shenzhen iMCO Electronic Technology Co.,Ltd        | 0x0379 |

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| Shenzhen Injoinic Technology Co., Ltd.                       | 0x0BD6 |
| Shenzhen Jahport Electronic Technology Co., Ltd.             | 0x0DC0 |
| Shenzhen Jingxun Technology Co., Ltd.                        | 0x0AC1 |
| SHENZHEN KAADAS INTELLIGENT TECHNOLOGY CO.,Ltd               | 0x0B53 |
| Shenzhen KTC Technology Co.,Ltd.                             | 0x0B7A |
| SHENZHEN LEMONJOY TECHNOLOGY CO., LTD.                       | 0x03E9 |
| Shenzhen Lunci Technology Co., Ltd                           | 0x0DDF |
| Shenzhen Malide Technology Co.,Ltd                           | 0x0B6F |
| Shenzhen Matches IoT Technology Co., Ltd.                    | 0x0DFA |
| Shenzhen Minew Technologies Co., Ltd.                        | 0x0639 |
| Shenzhen MODSEMI Co., Ltd                                    | 0x0DE3 |
| Shenzhen Openhearing Tech CO., LTD .                         | 0x0CAD |
| Shenzhen Poseidon Network Technology Co., Ltd                | 0x0CAA |
| Shenzhen Qianfenyi Intelligent Technology Co., LTD           | 0x0B08 |
| SHENZHEN REFLYING ELECTRONIC CO., LTD                        | 0x0DB3 |
| Shenzhen Shokz Co.,Ltd.                                      | 0x0CAC |
| Shenzhen Simo Technology co. LTD                             | 0x08E2 |
| SHENZHEN SOUNDSOUL INFORMATION TECHNOLOGY CO.,LTD            | 0x0E00 |
| Shenzhen SuLong Communication Ltd                            | 0x0233 |
| Shenzhen Sunricher Technology Limited                        | 0x0A78 |
| Shenzhen Tingting Technology Co. LTD                         | 0x0CEB |
| Shenzhen TonliScience and Technology Development Co.,Ltd     | 0x07F6 |
| Shenzhen Uascent Technology Co., Ltd                         | 0x0AA5 |
| Shenzhen Yopeak Optoelectronics Technology Co., Ltd.         | 0x0A3F |
| Shenzhen Zhongguang Infotech Technology Development Co., Ltd | 0x06CA |
| Shibutani Co., Ltd.  | 0x06F1 |
| SHIMANO INC.   | 0x044A |
| Shindengen Electric Manufacturing Co., Ltd.                  | 0x0BE9 |
| SHINKAWA Sensor Technology, Inc.                             | 0x0CB2 |
| Shoof Technologies   | 0x06AF |
| Shortcut Labs  | 0x030F |
| Shrooly Inc  | 0x0D94 |
| Shure Inc  | 0x04AD |
| SIA Mesh Group   | 0x0CD8 |
| SIANA Systems  | 0x0A0B |
| Sibel Inc.   | 0x09ED |

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| SiChuan Homme Intelligent Technology co.,Ltd. | 0x0D5F |
| SICK AG                                       | 0x0DA0 |
| Siemens AG                                    | 0x022E |
| SiFli Technologies (shanghai) Inc.            | 0x0A4C |
| SIG SAUER, INC.                               | 0x0B17 |
| Sigma Connectivity AB                         | 0x03D3 |
| Sigma Designs, Inc.                           | 0x0355 |
| SignalFire Telemetry, Inc.                    | 0x0D40 |
| SignalQuest, LLC                              | 0x0C37 |
| Signia Technologies, Inc.                     | 0x001B |
| Signify Netherlands B.V.                      | 0x060F |
| Signtle Inc.                                  | 0x0BC7 |
| Sigur   | 0x06EC |
| SIKOM AS                                      | 0x05EF |
| SIL System Integration Laboratory GmbH        | 0x0D2C |
| Silergy Corp                                  | 0x053F |
| silex technology, inc.                        | 0x061B |
| Silicon Laboratories                          | 0x02FF |
| Silicon Wave                                  | 0x000B |
| Silk Labs, Inc.                               | 0x0432 |
| Silvair, Inc.                                 | 0x0136 |
| SILVER TREE LABS, INC.                        | 0x0B97 |
| Silver Wolf Vehicles Inc.                     | 0x0B31 |
| SilverPlus, Inc                               | 0x0540 |
| Simm Tronic Limited                           | 0x06C6 |
| SimpliSafe, Inc.                              | 0x06B1 |
| Simplo Technology Co., LTD                    | 0x020D |
| Simply Embedded Inc.                          | 0x0D8A |
| SING SUN TECHNOLOGY (INTERNATIONAL) LIMITED   | 0x0DEF |
| Sinnoz  | 0x054F |
| Sino Wealth Electronic Ltd.                   | 0x0121 |
| Sinosun Technology Co., Ltd.                  | 0x047A |
| SINTEF  | 0x0B36 |
| SIRC Co., Ltd.                                | 0x08BF |
| SiRF Technology, Inc.                         | 0x0050 |
| SIRONA Dental Systems GmbH                    | 0x0D3C |



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| SISTEMAS KERN, SOCIEDAD ANÓNIMA           | 0x0808 |
| Site IQ LLC                               | 0x0BF1 |
| Siteco GmbH                               | 0x0A3C |
| Sitecom Europe B.V.                       | 0x0DD2 |
| Situne AS                                 | 0x049A |
| Sivantos GmbH                             | 0x0295 |
| Six Guys Labs, s.r.o.                     | 0x0619 |
| SK Telecom                                | 0x0289 |
| SKC Inc                                   | 0x0815 |
| SKF (U.K.) Limited                        | 0x040E |
| SKF France                                | 0x0D63 |
| SKIDATA AG                                | 0x0485 |
| Skoda Auto a.s.                           | 0x011E |
| Skullcandy, Inc.                          | 0x07C9 |
| Sky UK Limited                            | 0x079C |
| Sky Wave Design                           | 0x01D3 |
| SkyHawke Technologies                     | 0x0B49 |
| SkyStream Corporation                     | 0x09BB |
| Skytech Creations Limited                 | 0x0D9C |
| Smablo LTD                                | 0x03AC |
| SmallLoop, LLC                            | 0x0428 |
| Smart Animal Training Systems, LLC        | 0x05C6 |
| Smart Component Technologies Limited      | 0x0535 |
| Smart Parks B.V.                          | 0x0A61 |
| Smart Products Connection, S.A.           | 0x0D60 |
| Smart Sensor Devices AB                   | 0x075B |
| Smart Solution Technology, Inc.           | 0x04E6 |
| Smart Technologies and Investment Limited | 0x0549 |
| Smart Wave Technologies Canada Inc        | 0x07CD |
| SMART-INNOVATION.inc                      | 0x02EF |
| Smartbotics Inc.                          | 0x0205 |
| SMARTD TECHNOLOGIES INC.                  | 0x0C24 |
| SmartDrive                                | 0x0862 |
| Smartifier Oy                             | 0x00F5 |
| Smartloxx GmbH                            | 0x079E |
| SmartMovt Technology Co., Ltd             | 0x03A3 |

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| SmartResQ ApS                        | 0x0876 |
| SmartSensor Labs Ltd                 | 0x0861 |
| SmartSnugg Pty Ltd                   | 0x070D |
| SmartWireless GmbH & Co. KG          | 0x0891 |
| SMK Corporation                      | 0x0265 |
| SMT ELEKTRONIK GmbH                  | 0x0AFB |
| Snap-on Incorporated                 | 0x07DF |
| Snapchat Inc                         | 0x03C2 |
| SnapStyk Inc.                        | 0x0430 |
| SNIFF LOGIC LTD                      | 0x0C6C |
| Snowball Technology Co., Ltd.        | 0x0A85 |
| Snuza (Pty) Ltd                      | 0x00DB |
| Sociometric Solutions, Inc.          | 0x06B6 |
| Société des Produits Nestlé S.A.     | 0x037F |
| Socket Mobile                        | 0x0044 |
| SOCOMEK                              | 0x0744 |
| SODA GmbH                            | 0x0416 |
| Software Development, LLC            | 0x0D8B |
| SOJI ELECTRONICS JOINT STOCK COMPANY | 0x0DFC |
| Soliton Systems K.K.                 | 0x088D |
| SOLUM CO., LTD                       | 0x0B6D |
| SOLUTIONS AMBRA INC.                 | 0x07D8 |
| SOLUX PTY LTD                        | 0x0CF4 |
| Soma Labs LLC                        | 0x0BAE |
| Somatix Inc                          | 0x06C7 |
| SOMFY SAS                            | 0x05C8 |
| SomnoMed Limited                     | 0x0C17 |
| Sonas, Inc.                          | 0x0CA8 |
| SONICOS ENTERPRISES, LLC             | 0x0BA5 |
| SonicSensory Inc                     | 0x097E |
| SONO ELECTRONICS. CO., LTD           | 0x0320 |
| Sonos Inc                            | 0x05A7 |
| Sonova AG                            | 0x0282 |
| Sonova Consumer Hearing GmbH         | 0x0BA3 |
| Sontheim Industrie Elektronik GmbH   | 0x0A5A |
| Sony Corporation                     | 0x012D |





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| Sony Ericsson Mobile Communications    | 0x0056 |
| soonisys                               | 0x0B09 |
| Soprod SA                              | 0x0512 |
| Soraa Inc.                             | 0x04B8 |
| SOREX - Wireless Solutions GmbH        | 0x0491 |
| Sospitas, s.r.o.                       | 0x04C1 |
| Sound ID                               | 0x006F |
| SOUNDBOKS                              | 0x0858 |
| Soundbrenner Limited                   | 0x07B6 |
| Soundmax Electronics Limited           | 0x06A9 |
| Soundwave Hearing, LLC                 | 0x0D4B |
| South Silicon Valley Microelectronics  | 0x039B |
| Southco                                | 0x0D64 |
| Southwire Company, LLC                 | 0x0A05 |
| SPACEEK LTD                            | 0x045B |
| Spacelabs Medical Inc.                 | 0x08F9 |
| Span.IO, Inc.                          | 0x09BF |
| Spark                                  | 0x0D15 |
| Spark Technology Labs Inc.             | 0x0667 |
| Sparkage Inc.                          | 0x077E |
| Sparkpark AS                           | 0x0D00 |
| Spartek Systems Inc.                   | 0x0D12 |
| Spaulding Clinical Research            | 0x0593 |
| SPD Development Company Ltd            | 0x03E1 |
| Specifi-Kali LLC                       | 0x0502 |
| Spectrum Brands, Inc.                  | 0x0356 |
| Spectrum Technologies, Inc.            | 0x09F4 |
| Sphinx Electronics GmbH & Co KG        | 0x0454 |
| SPICA SYSTEMS LLC                      | 0x0816 |
| Spicebox LLC                           | 0x0168 |
| Spinlock Ltd                           | 0x06E3 |
| Spintly, Inc.                          | 0x0AA9 |
| SportIQ                                | 0x012B |
| Sports Tracking Technologies Ltd.      | 0x007E |
| Spreadtrum Communications Shanghai Ltd | 0x01EC |
| SQL Technologies Corp.                 | 0x0A54 |



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|-----------------------------------|--------|
| Squadrone Systems Inc.            | 0x01D7 |
| Square Panda, Inc.                | 0x0625 |
| Square, Inc.                      | 0x0AEB |
| SR-Medizinelektronik              | 0x00A1 |
| SRAM                              | 0x0933 |
| SSV Software Systems GmbH         | 0x0AD3 |
| ST Microelectronics               | 0x0030 |
| St. Jude Medical, Inc.            | 0x03C5 |
| STABILO International             | 0x04E8 |
| Staccato Communications, Inc.     | 0x004D |
| Stages Cycling LLC                | 0x01BA |
| STALKIT AS                        | 0x0727 |
| Stalmart Technology Limited       | 0x00BF |
| Stamer Musikanlagen GMBH          | 0x022A |
| Stanley Black and Decker          | 0x00FE |
| stAPPtronics GmbH                 | 0x05E2 |
| Star Micronics Co., Ltd.          | 0x01B0 |
| Star Technologies                 | 0x0589 |
| Starkey Hearing Technologies      | 0x00BA |
| StarLeaf Ltd                      | 0x0796 |
| STARLITE Co., Ltd.                | 0x07DA |
| START TODAY CO.,LTD.              | 0x058A |
| Stasis Labs, Inc.                 | 0x0651 |
| Statsports International          | 0x04C0 |
| Status Audio LLC                  | 0x0D68 |
| Steelcase, Inc.                   | 0x0473 |
| Steelseries ApS                   | 0x0111 |
| Steinel Solutions AG              | 0x09EF |
| Steinel Vertrieb GmbH             | 0x0563 |
| Steiner-Optik GmbH                | 0x04CA |
| Stemco Products Inc               | 0x0697 |
| STEMP Inc.                        | 0x0207 |
| Step One Limited                  | 0x099E |
| StepUp Solutions ApS              | 0x0C5D |
| steute Schaltgerate GmbH & Co. KG | 0x0279 |
| StickNFind                        | 0x00F9 |



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| Stinger Equipment, Inc.  | 0x0C3F |
| STIR   | 0x01E8 |
| STL  | 0x0AB9 |
| Stogger B.V.   | 0x0D5D |
| StoneL   | 0x0281 |
| Stonestreet One, LLC   | 0x005E |
| storm power ltd  | 0x0297 |
| Storz & Bickel GmbH & Co. KG                                   | 0x06C8 |
| Straininstall Ltd  | 0x019F |
| Streamit B.V.  | 0x0AD5 |
| StreetCar ORV, LLC   | 0x0C72 |
| Structural Health Systems, Inc.                                | 0x03C7 |
| stryker  | 0x0A5F |
| SUBARU Corporation   | 0x0A10 |
| Subeca, Inc.   | 0x0851 |
| Successful Endeavours Pty Ltd                                  | 0x076F |
| Summit Data Communications, Inc.                               | 0x006E |
| SUNCORPORATION   | 0x0904 |
| Sunplus Technology Co., Ltd.                                   | 0x0AE7 |
| Sunrise Micro Devices, Inc.                                    | 0x01AF |
| Sunstone-RTLS Ipari Szolgaltato Korlatolt Felelossegu Tarsasag | 0x0C9C |
| Super B Lithium Power B.V.                                     | 0x0BD5 |
| Surefire, LLC  | 0x0308 |
| SUREPULSE MEDICAL LIMITED                                      | 0x0E05 |
| Suunto Oy  | 0x009F |
| Suzhou Pairlink Network Technology                             | 0x05B9 |
| Svantek Sp. z o.o.   | 0x04C7 |
| Svep Design Center AB  | 0x0452 |
| SwaraLink Technologies   | 0x0729 |
| Swedlock AB  | 0x0AC9 |
| Swiftronix AB  | 0x04B5 |
| SwiftSensors   | 0x0292 |
| SwingLync L. L. C.   | 0x04FC |
| SwipeSense, Inc.   | 0x0CB0 |
| Swipp ApS  | 0x0305 |
| Swirl Networks   | 0x00B5 |



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| Swiss Audio SA                      | 0x0407 |
| SWISSINNO SOLUTIONS AG              | 0x0BBB |
| Swissprime Technologies AG          | 0x02BA |
| Sylero                              | 0x0551 |
| Sylvac sa                           | 0x0BCC |
| Symbol Technologies, Inc.           | 0x002A |
| Synapse Electronics                 | 0x0284 |
| Synaptics Incorporated              | 0x0A76 |
| SYNCHRON, INC.                      | 0x0D31 |
| Synergy Tecnologia em Sistemas Ltda | 0x09D8 |
| Syng Inc                            | 0x0A15 |
| Synkopi, Inc.                       | 0x0D1F |
| Synopsys, Inc.                      | 0x0031 |
| Syntronix Corporation               | 0x0038 |
| SYSDEV Srl                          | 0x03CB |
| System Elite Holdings Group Limited | 0x0D25 |
| Systemic Games, LLC                 | 0x0D39 |
| Systems and Chips, Inc              | 0x003E |
| Syzzone Co., Ltd                    | 0x01BD |
| SZ DJI TECHNOLOGY CO.,LTD           | 0x08AA |
| T&A Laboratories LLC                | 0x0694 |
| T&D                                 | 0x0392 |
| T+A elektroakustik GmbH & Co.KG     | 0x0BFC |
| T-Mobile USA                        | 0x0C8C |
| T2REALITY SOLUTIONS PRIVATE LIMITED | 0x0BBC |
| T5 tek, Inc.                        | 0x0BF5 |
| TACHIKAWA CORPORATION               | 0x0D92 |
| Taco, Inc.                          | 0x0C53 |
| Tactile Engineering, Inc.           | 0x0C4E |
| Tacx b.v.                           | 0x0689 |
| Taelek Oy                           | 0x048A |
| TAG HEUER SA                        | 0x0CE7 |
| Tag-N-Trac Inc                      | 0x09E1 |
| Taiga Motors Inc.                   | 0x0B83 |
| Taiko Audio B.V.                    | 0x0D7D |
| Tait International Limited          | 0x088F |

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| Taiwan Fuhsing                                   | 0x0CE3 |
| Taiwan Intelligent Home Corp.                    | 0x08E9 |
| Taixingbang Technology (HK) Co., LTD.            | 0x00D3 |
| Taiyo Yuden Co., Ltd                             | 0x05E4 |
| TAMADIC Co., Ltd.                                | 0x0DE2 |
| Tamblue Oy                                       | 0x0CF9 |
| Tandem Diabetes Care                             | 0x059D |
| Tangerine, Inc.                                  | 0x014E |
| Tangshan HongJia electronic technology co., LTD. | 0x0842 |
| Taobao   | 0x01A8 |
| Tap Sound System                                 | 0x0854 |
| Tapcentive Inc.                                  | 0x0204 |
| Tapkey GmbH                                      | 0x04FD |
| Target Corporation                               | 0x0520 |
| TASER International, Inc.                        | 0x034D |
| taskit GmbH                                      | 0x017B |
| TATTCOM LLC                                      | 0x080E |
| tatwah SA  | 0x0818 |
| TBS Electronics B.V.                             | 0x05C9 |
| TCL COMMUNICATION EQUIPMENT CO.,LTD.             | 0x0BC6 |
| TDK Corporation                                  | 0x060D |
| TE Connectivity Corporation                      | 0x08DE |
| TEAC Corporation                                 | 0x0C77 |
| TeAM Hutchins AB                                 | 0x04C4 |
| Tec4med LifeScience GmbH                         | 0x0A13 |
| TecBakery GmbH                                   | 0x0420 |
| Tech-Venom Entertainment Private Limited         | 0x0B29 |
| Tech4home, Lda                                   | 0x0217 |
| Technicolor USA Inc.                             | 0x02AF |
| Technocon Engineering Ltd.                       | 0x0C8E |
| Technogym SPA                                    | 0x026D |
| Technology Solutions (UK) Ltd                    | 0x01E6 |
| Technosphere Labs Pvt. Ltd.                      | 0x0918 |
| TechSwipe  | 0x0CD3 |
| TECHTICS ENGINEERING B.V.                        | 0x0BC4 |
| Techtronic Power Tools Technology Limited        | 0x02C3 |

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| Tedee Sp. z o.o.                                  | 0x0725 |
| Teenage Engineering AB                            | 0x0450 |
| TEGAM, Inc.                                       | 0x05D5 |
| TekHome   | 0x092B |
| TEKTRO TECHNOLOGY CORPORATION                     | 0x0D42 |
| TEKZITEL PTY LTD                                  | 0x06A5 |
| TELE System Communications Pte. Ltd.              | 0x0DB1 |
| Telecom Design                                    | 0x0B96 |
| Telecon Mobile Limited                            | 0x05A6 |
| Teledyne Lecroy, Inc.                             | 0x059A |
| Telemonitor, Inc.                                 | 0x017A |
| Telenor ASA                                       | 0x0991 |
| Telink Semiconductor Co. Ltd                      | 0x0211 |
| Telit Wireless Solutions GmbH                     | 0x008F |
| TEMEC Instruments B.V.                            | 0x012C |
| TEMKIN ASSOCIATES, LLC                            | 0x0A9A |
| Temperature Sensitive Solutions Systems Sweden AB | 0x09D2 |
| Tencent Holdings Ltd.                             | 0x013A |
| Tendyron Corporation                              | 0x02A5 |
| Tenovis   | 0x002B |
| Tentacle Sync GmbH                                | 0x043F |
| TeraTron GmbH                                     | 0x0984 |
| TerOpta Ltd                                       | 0x0762 |
| Tertium Technology                                | 0x08DB |
| TESA SA   | 0x053D |
| Tesla, Inc.                                       | 0x022B |
| Testo SE & Co. KGaA                               | 0x0D84 |
| Teva Branded Pharmaceutical Products R&D, Inc.    | 0x02CE |
| Texas Instruments Inc.                            | 0x000D |
| TGM TECHNOLOGY CO., LTD.                          | 0x08CC |
| TGR 1.618 Limited                                 | 0x08A7 |
| Thales Simulation & Training AG                   | 0x0D46 |
| Thalamic Labs Inc.                                | 0x0562 |
| The Apache Software Foundation                    | 0x0B65 |
| The Chamberlain Group, Inc.                       | 0x0878 |
| The Coca-Cola Company                             | 0x0794 |

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| THE EELECTRIC MACARON LLC                  | 0x0CB6 |
| The Energy Conservatory, Inc.              | 0x067A |
| The Goodyear Tire & Rubber Company         | 0x0B99 |
| The Hablab ApS                             | 0x06B3 |
| The Idea Cave, LLC                         | 0x02F1 |
| The Indoor Lab, LLC                        | 0x063E |
| The Kroger Co.                             | 0x07AA |
| The L.S. Starrett Company                  | 0x08F1 |
| The Linux Foundation                       | 0x05F1 |
| The Shadow on the Moon                     | 0x04B2 |
| The University of Tokyo                    | 0x01F3 |
| The Wand Company Ltd                       | 0x0A47 |
| The Wildflower Foundation                  | 0x078A |
| Theben AG                                  | 0x04F1 |
| Thermo Fisher Scientific                   | 0x0315 |
| Thermokon-Sensortechnik GmbH               | 0x0C35 |
| Thermomedics, Inc.                         | 0x043E |
| ThermoWorks, Inc.                          | 0x0B11 |
| Thetatronics Ltd                           | 0x0398 |
| ThingOS GmbH & Co KG                       | 0x07DC |
| Thingsquare AB                             | 0x0391 |
| THINKERLY SRL                              | 0x03A9 |
| ThinkOptics, Inc.                          | 0x0092 |
| Thirdwayv Inc.                             | 0x0772 |
| Thomas Dynamics, LLC                       | 0x07B1 |
| Thorley Industries, LLC                    | 0x097C |
| Thornwave Labs Inc                         | 0x04C9 |
| THOTAKA TEKHNOLOGIES INDIA PRIVATE LIMITED | 0x0CF0 |
| Thule Group AB                             | 0x0CFE |
| Ticto N.V.                                 | 0x042C |
| TIGER CORPORATION                          | 0x0C39 |
| Tile, Inc.                                 | 0x067C |
| Timebirds Australia Pty Ltd                | 0x0D0F |
| TimeKeeping Systems, Inc.                  | 0x0083 |
| Timer Cap Co.                              | 0x015F |
| Timex Group USA, Inc.                      | 0x00D6 |



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|---------------------------------------|--------|
| TireCheck GmbH                        | 0x0BA2 |
| TITUM AUDIO, INC.                     | 0x0DAE |
| TiVo Corp                             | 0x0471 |
| Tivoli Audio, LLC                     | 0x014A |
| TKH Security B.V.                     | 0x0B20 |
| tkLABS INC.                           | 0x094D |
| ToGetHome Inc.                        | 0x0408 |
| TOITU CO., LTD.                       | 0x09FB |
| TOKAI-DENSHI INC                      | 0x0B58 |
| Tokai-rika co.,ltd.                   | 0x08BB |
| Token Zero Ltd                        | 0x03A4 |
| Tokenize, Inc.                        | 0x083D |
| Tom Allebrandi Consulting             | 0x05A8 |
| Tom Communication Industrial Co.,Ltd. | 0x06FC |
| Tome, Inc.                            | 0x0877 |
| TomTom International BV               | 0x0100 |
| tonies GmbH                           | 0x0C8D |
| Toor Technologies LLC                 | 0x057C |
| Topcon Positioning Systems, LLC       | 0x008B |
| TOPPAN FORMS CO.,LTD.                 | 0x0354 |
| Topre Corporation                     | 0x08AC |
| Torrox GmbH & Co KG                   | 0x0269 |
| Toshiba Corp.                         | 0x0004 |
| TOTO LTD.                             | 0x0A8F |
| TouchTronics, Inc.                    | 0x0AB2 |
| Touché Technology Ltd                 | 0x06F4 |
| ToughBuilt Industries LLC             | 0x0B12 |
| TourBuilt, LLC                        | 0x0A59 |
| Toyo Electronics Corporation          | 0x05D9 |
| TOYOTA motor corporation              | 0x0977 |
| Toytec Corporation                    | 0x0A4E |
| Tozoa LLC                             | 0x0DDD |
| TPV Technology Limited                | 0x033D |
| TRACKTING S.R.L.                      | 0x0C67 |
| Trackunit A/S                         | 0x086F |
| TRACMO, INC.                          | 0x05F7 |





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| Trade FIDES a.s.                    | 0x0681 |
| Traineseense Ltd.                   | 0x0424 |
| Trakm8 Ltd                          | 0x0238 |
| Tramex Limited                      | 0x05AA |
| Transcranial Ltd                    | 0x0249 |
| Transducers Direct, LLC             | 0x010C |
| Transenergooil AG                   | 0x01C2 |
| TransferFi                          | 0x08B5 |
| Transilica, Inc.                    | 0x0018 |
| TRANSSION HOLDINGS LIMITED          | 0x0942 |
| Trapper Data AB                     | 0x06F2 |
| TraqFreq LLC                        | 0x0700 |
| Treegreen Limited                   | 0x0874 |
| Trek Bicycle                        | 0x0B86 |
| TreLab Ltd                          | 0x00B7 |
| Triax Technologies Inc              | 0x060B |
| Tricorder Arraay Technologies LLC   | 0x088B |
| Triductor Technology (Suzhou), Inc. | 0x0C7A |
| TrikThom                            | 0x0CC8 |
| Trimble Inc.                        | 0x03FD |
| Trineo Sp. z o.o.                   | 0x01B4 |
| Triple W Japan Inc.                 | 0x0B75 |
| TriTeq Lock and Security, LLC       | 0x06D3 |
| Trivedi Advanced Technologies LLC   | 0x08B0 |
| Trividia Health, Inc.               | 0x01AC |
| TRON Forum                          | 0x019A |
| Troo Corporation                    | 0x08FA |
| Trotec GmbH                         | 0x0DCC |
| TROX GmbH                           | 0x0CBC |
| TRSystems GmbH                      | 0x050D |
| TRUE Fitness Technology             | 0x03E7 |
| True Wearables, Inc.                | 0x0577 |
| Trulli Audio                        | 0x0809 |
| Truma Gerätetechnik GmbH & Co. KG   | 0x0C73 |
| Try and E CO.,LTD.                  | 0x05F2 |
| TSC Auto-ID Technology Co., Ltd.    | 0x0902 |



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| TSE BRAKES, INC.                               | 0x0987 |
| TSI  | 0x0B42 |
| TTPCom Limited                                 | 0x001A |
| TTS Tooltechnic Systems AG & Co. KG            | 0x044F |
| Tucker International LLC                       | 0x0443 |
| Tunstall Nordic AB                             | 0x0451 |
| Tussock Innovation 2013 Limited                | 0x06B2 |
| TVS Motor Company Ltd.                         | 0x0CF7 |
| Twenty Five Seven, prodaja in storitve, d.o.o. | 0x0BEA |
| Twocanoes Labs, LLC                            | 0x0228 |
| twopounds gmbh                                 | 0x0C49 |
| TWS Srl  | 0x06BC |
| txtr GmbH                                      | 0x00DA |
| TYKEE PTY. LTD.                                | 0x0C16 |
| Tymtix Technologies Private Limited            | 0x08F5 |
| Typo Products, LLC                             | 0x00FF |
| TYRI Sweden AB                                 | 0x0806 |
| Tyromotion GmbH                                | 0x0CFB |
| Tyto Life LLC                                  | 0x0519 |
| Tzero Technologies, Inc.                       | 0x0051 |
| U-Shin Ltd.                                    | 0x08B9 |
| Uber Technologies Inc                          | 0x0415 |
| Ubiquitous Computing Technology Corporation    | 0x0105 |
| ubisys technologies GmbH                       | 0x08BE |
| Uhlmann & Zacher GmbH                          | 0x049D |
| UKC Technosolution                             | 0x0252 |
| ULC Robotics Inc.                              | 0x05BD |
| Ultea Technology (Shenzhen) Limited            | 0x0D8C |
| Ultune Technologies                            | 0x0648 |
| umanSense AB                                   | 0x0758 |
| UMEHEAL Ltd                                    | 0x08A5 |
| Undagrid B.V.                                  | 0x04AC |
| Under Armour                                   | 0x04E3 |
| UNEEG medical A/S                              | 0x0C57 |
| UNI-ELECTRONICS, INC.                          | 0x0510 |
| Unico RBC                                      | 0x0188 |

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| Unify Software and Solutions GmbH & Co. KG                   | 0x0425 |
| Unikey Technologies, Inc.                                    | 0x015E |
| UniqAir Oy   | 0x0A7B |
| Unisto AG  | 0x0AF9 |
| Unitech Electronic Inc.                                      | 0x0AF5 |
| Univations Limited   | 0x061C |
| Universal Audio, Inc.  | 0x09C2 |
| Universal Biosensors Pty Ltd                                 | 0x0A81 |
| Universal Electronics, Inc.                                  | 0x0093 |
| Universidad Politecnica de Madrid                            | 0x0D35 |
| University of Applied Sciences Valais/Haute Ecole Valaisanne | 0x025A |
| University of Michigan                                       | 0x02E0 |
| Unlimited Engineering SL                                     | 0x07DE |
| UnSeen Technologies Oy                                       | 0x0659 |
| unu GmbH   | 0x0AE5 |
| Unwire   | 0x02E6 |
| UpRight Technologies LTD                                     | 0x0735 |
| Urban Compass, Inc   | 0x06C5 |
| Urbanista AB   | 0x0AA7 |
| Urbanminded Ltd  | 0x0805 |
| User Hello, LLC  | 0x0907 |
| USound GmbH  | 0x0846 |
| UTC Fire and Security  | 0x01F4 |
| UVISIO   | 0x09C4 |
| Uwanna, Inc.   | 0x02FD |
| Uwatec AG  | 0x024A |
| V-ZUG Ltd  | 0x05CE |
| Vaddio   | 0x034A |
| Vakaros LLC  | 0x069D |
| Valencell, Inc.  | 0x0440 |
| ValenceTech Limited  | 0x00FD |
| VALEO MANAGEMENT SERVICES                                    | 0x0C48 |
| Valeo Service  | 0x01EE |
| Valve Corporation  | 0x055D |
| VANMOOF Global Holding B.V.                                  | 0x0A4F |
| VC Inc.  | 0x090F |

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| Vectronix AG                                       | 0x048C |
| VEGA Grieshaber KG                                 | 0x044D |
| VELCO  | 0x0D82 |
| Velentium, LLC                                     | 0x0AEE |
| velocitux  | 0x0D27 |
| VELUX A/S  | 0x06E7 |
| Vemcon GmbH  | 0x0D48 |
| VENGIT Korlatolt Felelossegu Tarsasag              | 0x0198 |
| Vensi, Inc.  | 0x02F4 |
| Venso EcoSolutions AB                              | 0x066D |
| Venture Research Inc.                              | 0x0A49 |
| Veo Technologies ApS                               | 0x0DBA |
| Verifone Systems Pte Ltd. Taiwan Branch            | 0x0200 |
| verisilicon  | 0x05B5 |
| Vernier Software & Technology                      | 0x0152 |
| Versa Group B.V.                                   | 0x0B59 |
| Versa Networks, Inc.                               | 0x0550 |
| VersaMe  | 0x0349 |
| Vertex International, Inc.                         | 0x0405 |
| Vertu Corporation Limited                          | 0x00A2 |
| Verve InfoTec Pty Ltd                              | 0x0CA7 |
| Vervent Audio Group                                | 0x0BA4 |
| Vessel Ltd.  | 0x09BE |
| vhf elektronik GmbH                                | 0x0461 |
| Viasat Group S.p.A.                                | 0x0591 |
| VIBRADORM GmbH                                     | 0x03B0 |
| Vibrissa Inc.                                      | 0x050B |
| ViCentra B.V.                                      | 0x023D |
| Viceroy Devices Corporation                        | 0x0AE0 |
| Victron Energy BV                                  | 0x02E1 |
| Vigil Technologies Inc.                            | 0x06F5 |
| VIMANA TECH PTY LTD                                | 0x0B85 |
| Vimar SpA  | 0x0760 |
| Vinetech Co., Ltd                                  | 0x04A6 |
| VINFAST TRADING AND PRODUCTION JOINT STOCK COMPANY | 0x0BD7 |
| Viper Design LLC                                   | 0x05E0 |

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| Vire Health Oy                        | 0x0C99 |
| Virscient Limited                     | 0x08D2 |
| VIRTUALCLINIC.DIRECT LIMITED          | 0x05DF |
| Virtuosys                             | 0x033C |
| Visiontronic s.r.o.                   | 0x0AB0 |
| Visteon Corporation                   | 0x00A7 |
| Visuallex Sport International Limited | 0x0ACD |
| Visybl Inc.                           | 0x0112 |
| VIT Initiative, LLC                   | 0x04BF |
| Vitulo Plus BV                        | 0x06F6 |
| Vivint, Inc.                          | 0x0DE8 |
| VIVIWARE JAPAN, Inc.                  | 0x0D79 |
| vivo Mobile Communication Co., Ltd.   | 0x0837 |
| VivoSensMedical GmbH                  | 0x09D9 |
| Vizio, Inc.                           | 0x0058 |
| VIZPIN INC.                           | 0x056E |
| Vocera Communications, Inc.           | 0x0ADE |
| VODALOGIC PTY LTD                     | 0x0CE0 |
| Vogels Products B.V.                  | 0x0D3F |
| Volan Technology Inc.                 | 0x0A0A |
| Volantic AB                           | 0x016E |
| Volkswagen AG                         | 0x011F |
| Vonkil Technologies Ltd               | 0x03CC |
| Vorwerk Elektrowerke GmbH & Co. KG    | 0x086E |
| VOS Systems, LLC                      | 0x09A1 |
| Vossloh-Schwabe Deutschland GmbH      | 0x062D |
| Voxx International                    | 0x0765 |
| Voyetra Turtle Beach                  | 0x00D9 |
| VSN Technologies, Inc.                | 0x00F7 |
| VT42 Pty Ltd                          | 0x0994 |
| Vtrack Systems                        | 0x00E9 |
| Vuzix Corporation                     | 0x060C |
| Vyassoft Technologies Inc             | 0x03FA |
| Vypin, LLC                            | 0x04A0 |
| Wabilogic Ltd.                        | 0x06B5 |
| Wacker Neuson SE                      | 0x0BF7 |

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| WAFERLOCK                                       | 0x0A7C |
| Wahoo Fitness, LLC                              | 0x01FC |
| WAKO CO.,LTD                                    | 0x0C65 |
| Wally Ventures S.L.                             | 0x0287 |
| Walt Disney                                     | 0x0183 |
| Wangi Lai PLT                                   | 0x0633 |
| Wangs Alliance Corporation                      | 0x0817 |
| Warehouse Innovations                           | 0x0130 |
| WARES   | 0x08D8 |
| Warner Bros.                                    | 0x0A6F |
| Watchdog Systems LLC                            | 0x0C83 |
| WatchGas B.V.                                   | 0x09F0 |
| Water-i.d. GmbH                                 | 0x0797 |
| WaterGuru, Inc.                                 | 0x041C |
| Watteam Ltd                                     | 0x03D0 |
| WATTS ELECTRONICS                               | 0x05CC |
| WavePlus Technology Co., Ltd.                   | 0x0023 |
| WaveRF, Corp.                                   | 0x0DFF |
| WaveWare Technologies Inc.                      | 0x023F |
| Waybeyond Limited                               | 0x07E6 |
| Wazombi Labs OÜ                                 | 0x0370 |
| WBS PROJECT H PTY LTD                           | 0x0B19 |
| Wearable Link Limited                           | 0x0948 |
| WeatherFlow, Inc.                               | 0x02AE |
| Weba Sport und Med. Artikel GmbH                | 0x04B0 |
| Webasto SE                                      | 0x0A79 |
| Weber Sensors, LLC                              | 0x0AFD |
| Weber-Stephen Products LLC                      | 0x0DF2 |
| WEG S.A.  | 0x0627 |
| Wellang.Co.,Ltd                                 | 0x0D56 |
| Wellington Drive Technologies Ltd               | 0x0578 |
| Wellinks Inc.                                   | 0x0361 |
| Wellnomics Ltd                                  | 0x05FF |
| Weltek Technologies Company Limited             | 0x0C87 |
| Wernher von Braun Center for ASdvanced Research | 0x0706 |
| WESCO AG  | 0x0C90 |

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| West Pharmaceutical Services, Inc.    | 0x07CB |
| Western Digital Technologies, Inc.    | 0x0867 |
| WHERE, Inc.                           | 0x03F5 |
| Whirl Inc                             | 0x0344 |
| Whirlpool                             | 0x0DB2 |
| White Horse Scientific ltd            | 0x05B4 |
| Wicentric, Inc.                       | 0x005F |
| Widcomm, Inc.                         | 0x0011 |
| Widex A/S                             | 0x01E0 |
| WIKA Alexander Wiegand SE & Co.KG     | 0x0989 |
| Wildlife Acoustics, Inc.              | 0x0730 |
| Wiliot LTD.                           | 0x0500 |
| WILKA Schliesstechnik GmbH            | 0x06F7 |
| Wille Engineering                     | 0x01A6 |
| Willowbank Electronics Ltd            | 0x0288 |
| Wilo SE                               | 0x018C |
| Wilson Sporting Goods                 | 0x02C4 |
| Wimoto Technologies Inc               | 0x0117 |
| WindowMaster A/S                      | 0x03F2 |
| WINKEY ENTERPRISE (HONG KONG) LIMITED | 0x0BDF |
| Wintersteiger AG                      | 0x0883 |
| WIOsense GmbH & Co. KG                | 0x0868 |
| Wireless Cables Inc                   | 0x0413 |
| WirelessWERX                          | 0x013D |
| WiSilica Inc.                         | 0x0197 |
| WISYCOM S.R.L.                        | 0x0B38 |
| Withings                              | 0x03FF |
| Witron Technology Limited             | 0x00F1 |
| Witschi Electronic Ltd                | 0x089F |
| WIZCONNECTED COMPANY LIMITED          | 0x0617 |
| Wize Technology Co., Ltd.             | 0x0119 |
| WIZNOVA, Inc.                         | 0x0745 |
| WMF AG                                | 0x0A33 |
| Woan Technology (Shenzhen) Co., Ltd.  | 0x0969 |
| Wolf Steel ltd                        | 0x0CDA |
| Woncan (Hong Kong) Limited            | 0x0DF0 |

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| Wood IT Security, LLC                            | 0x0698 |
| Woodenshark                                      | 0x04E4 |
| Woosim Systems Inc.                              | 0x04FE |
| Workaround Gmbh                                  | 0x0B07 |
| World Moto Inc.                                  | 0x0300 |
| Worthcloud Technology Co.,Ltd                    | 0x0A29 |
| WOWTech Canada Ltd.                              | 0x0285 |
| Wristcam Inc.                                    | 0x05EE |
| WRLDS Creations AB                               | 0x07C8 |
| Wrmth Corp.                                      | 0x0C3D |
| WTO Werkzeug-Einrichtungen GmbH                  | 0x0666 |
| Wuhan Linptech Co.,Ltd.                          | 0x09E2 |
| Wuhan Woncan Construction Technologies Co., Ltd. | 0x0CFD |
| Wuhu Mengbo Technology Co., Ltd.                 | 0x0E01 |
| WuQi technologies, Inc.                          | 0x076E |
| Wurth Elektronik eiSos GmbH & Co. KG             | 0x031A |
| Wuxi Linkpower Microelectronics Co.,Ltd          | 0x0C5F |
| WuXi Vimicro                                     | 0x0081 |
| www.vtracksystems.com                            | 0x00EA |
| WWZN Information Technology Company Limited      | 0x0764 |
| Wyler AG   | 0x0213 |
| Wynd Technologies, Inc.                          | 0x03CD |
| Wyze Labs, Inc                                   | 0x0870 |
| Wyzelink Systems Inc.                            | 0x03D5 |
| x-Senso Solutions Kft                            | 0x0232 |
| XANTHIO  | 0x0889 |
| Xenoma Inc.                                      | 0x093C |
| Xensr  | 0x0114 |
| Xenter, Inc.                                     | 0x0AB6 |
| Xi'an Fengyu Information Technology Co., Ltd.    | 0x0A9C |
| Xiamen Eholder Electronics Co.Ltd                | 0x0722 |
| Xiamen Everesports Goods Co., Ltd                | 0x0567 |
| Xiamen Intretech Inc.                            | 0x0D7A |
| Xiamen Mage Information Technology Co., Ltd.     | 0x07A4 |
| Xian Yisuobao Electronic Technology Co., Ltd.    | 0x0C32 |
| Xiant Technologies, Inc.                         | 0x0DD7 |



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| Xiaomi Inc.  | 0x038F |
| Xicato Inc.  | 0x0253 |
| XIHAO INTELLIGENT TECHNOLOGY CO., LTD                    | 0x0D36 |
| XiQ  | 0x03AD |
| Xirgo Technologies, LLC                                  | 0x0BB5 |
| XMI Systems SA   | 0x0267 |
| Xradio Technology Co.,Ltd.                               | 0x063D |
| XSENSE LTD   | 0x0CA2 |
| XTel Wireless ApS  | 0x017F |
| Xtrava Inc.  | 0x044E |
| XUNTONG  | 0x09C8 |
| Yale   | 0x0BDE |
| Yamaha Corporation                                       | 0x0A2A |
| YAMAHA MOTOR CO.,LTD.                                    | 0x0CA1 |
| Yandex Services AG                                       | 0x0905 |
| YanFeng Visteon(Chongqing) Automotive Electronic Co.,Ltd | 0x0CCD |
| Yardarm Technologies                                     | 0x025F |
| Yashu Systems  | 0x0C91 |
| Yealink (Xiamen) Network Technology Co.,LTD              | 0x0850 |
| Yeasound (Xiamen) Hearing Technology Co., Ltd            | 0x0D9A |
| Yellowcog  | 0x0507 |
| Yichip Microelectronics (Hangzhou) Co.,Ltd.              | 0x050E |
| yikes  | 0x0161 |
| YKK AP Inc.  | 0x099D |
| Yo-tronics Technology Co., Ltd.                          | 0x0863 |
| Yota Devices LTD   | 0x03D6 |
| Ypsomed AG   | 0x0CDC |
| Yukai Engineering Inc.                                   | 0x0925 |
| Yukon advanced optics worldwide, UAB                     | 0x09EC |
| yupiteru   | 0x0C74 |
| ZanCompute Inc.  | 0x04F4 |
| Zebra Technologies Corporation                           | 0x01F1 |
| Zeevo, Inc.  | 0x0012 |
| Zeku Technology (Shanghai) Corp., Ltd.                   | 0x0C2C |
| Zen-Me Labs Ltd  | 0x03D8 |
| Zencontrol Pty Ltd                                       | 0x0AA8 |

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| Zerene Inc.                                | 0x0D37 |
| zero1.tv GmbH                              | 0x0098 |
| ZF OPENMATICS s.r.o.                       | 0x040A |
| Zhejiang Huanfu Technology Co., LTD        | 0x0D97 |
| ZhuHai AdvanPro Technology Company Limited | 0x0656 |
| Zhuhai Hoksi Technology CO.,LTD            | 0x090A |
| Zhuhai Jieli technology Co.,Ltd            | 0x05D6 |
| Zhuhai Pantum Electronisc Co., Ltd         | 0x0AD4 |
| Zhuhai Smartlink Technology Co., Ltd       | 0x0C79 |
| ZifferEins GmbH & Co. KG                   | 0x0978 |
| ZIIP Inc                                   | 0x0B52 |
| ZILLIOT TECHNOLOGIES PRIVATE LIMITED       | 0x0D34 |
| ZIMI CORPORATION                           | 0x08CE |
| Zimi Innovations Pty Ltd                   | 0x07F1 |
| Zintouch B.V.                              | 0x0C55 |
| Zipcar                                     | 0x036C |
| Zliide Technologies ApS                    | 0x06DA |
| Zmartfun Electronics, Inc.                 | 0x06E9 |
| Zomm, LLC                                  | 0x0074 |
| Zorachka LTD                               | 0x083E |
| Zound Industries International AB          | 0x065A |
| ZRF, LLC                                   | 0x087A |
| Zscan Software                             | 0x008D |
| ZTE Corporation                            | 0x0958 |
| Ztove ApS                                  | 0x066C |
| ZTR Control Systems LLC                    | 0x0536 |
| Zuli                                       | 0x0195 |
| Zuma Array Limited                         | 0x0A2E |
| Zume, Inc.                                 | 0x07A7 |
| Zumtobel Group AG                          | 0x064C |
| Zwift, Inc.                                | 0x094A |
| ZWILLING J.A. Henckels Aktiengesellschaft  | 0x0BE5 |

## 8 References

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- [1] 3D Synchronization Profile Version 1.0.3 or later.
- [2] Audio/Video Control Transport Protocol Version 1.4 or later.
- [3] Audio/Video Distribution Transport Protocol Version 1.3 or later.
- [4] Bluetooth Core Specification Version 5.4 or later.
- [5] Bluetooth Network Encapsulation Protocol Version 1.0 or later.
- [6] Common ISDN Access Profile Version v1.0 or later.
- [7] Environmental Sensing Service Version 1.0 or later.
- [8] Extended Service Discovery Profile for UPnP Version 1.1.1 or later.
- [9] Hardcopy Cable Replacement Profile Version v1.2 or later.
- [10] Health Device Profile Version v1.1 or later.
- [11] Human Interface Device Profile Version 1.1.1 or later.
- [12] Internet Protocol Support Profile Version 1.0.0 or later.
- [13] IrDA Interoperability Version v2.0 or later.
- [14] Mesh Binary Large Object Transfer Model Version 1.0.
- [15] Mesh Device Firmware Update Model Version 1.0.
- [16] Mesh Model Version 1.0.1 or later.
- [17] Mesh Profile Version 1.0.1 or later.
- [18] Mesh Protocol Version 1.1.
- [19] Object Transfer Service Version v1.0 or later.
- [20] Personal Area Networking Profile Version v1.0 or later.
- [21] RFCOMM Version v12 or later.
- [22] Supplement to the Bluetooth Core Specification Version 10 or later.
- [23] Telephony Control Protocol Version v1.1 or later.
- [24] Unrestricted Digital Information Profile.
- [25] User Data Service Version 1.1 or later.
- [26] WAP Bearer Version v1.0 or later.