



FeasyBeacon Advertising Protocol

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v1.1

Shenzhen Feasycom Co., Ltd.

Chapter 1

Introduction

FeasyBeacon device is capable of advertising up to 10 frames of advertisement simultaneously, therefore, if the developers use an mobile app or an central device to scan the nearby FeasyBeacon device, they may receive more than one advertising frame.

FeasyBeacon mobile SDK and app are designed to be able to parse all of the FeasyBeacon Advertising Frames, the FeasyBeacon mobile SDK and app are completely free and would be kept updating periodically by Feasycom.

Chapter 2

General Advertising Frame

FeasyBeacon General Advertising Frame includes content like Firmware Version, MAC Address, Battery Life and so on. This advertisement is not configurable, it's readonly advertisement.

General Advertising Frame can be find in Service Data(Tag 0x16):

Len(1Byte)	Tag(1Byte)	Service(2Bytes)	Model(1Byte)	Version(2Bytes)	Feature(1Byte)	MAC (6Byte)	Battery Level(1Byte)
0x0D	0x16	0xFFFF0					

Len : 1 byte, the length of the frame that exclude the Len word.

Tag : 1 byte, type of frame, 0x16 represents General Advertising Frame

Service : 2 bytes, 0xFFFF0

Model : 1 byte, device model number:

Value	Model Number
0x15	FSC-BP102
0x19	FSC-BP109
0x1A	FSC-BP103
0x1B	FSC-BP104
0x1C	FSC-BP201
0x1D	FSC-BP106
0x1E	FSC-BP101
0x24	FSC-BP120
0x27	FSC-BP108
0x28	FSC-BP108N

Version : 2 bytes, device firmware version

Feature : 1 byte, features that are supported:

Bits	Description	Definition
Bit0 ~ bit1	Connectivity state	0: Not connectable 1: Connectable, no password required 2: Connectable, password required
Bit2 ~ bit3	Reserved	must set to 0
Bit4	LED availability	0: No LED applied 1: LED is applied
Bit5	buzzer availability	0: No buzzer applied 1: Buzzer is applied
Bit6	G-sensor availability	0: No G-sensor applied 1: G-sensor is applied
Bit7	Button availability	0: No button applied 1: Button is applied

MAC : 6 bytes, the MAC address of the device

Battery Level : 1 byte, the current battery level

Value	Model Number
0x00 -0x64	0~100%
0x65	non-battery power supply

An advertisement that containing General Advertising Frame

Byte offset	value	Description	Properties
0	0x02	Data length -2 bytes	readonly
1	0x01	Data type -flags	readonly
2	0x06	LE and BR/EDR flag	readonly
3 Note1	0x0E	Data length -26 bytes	readonly
4	0x16	Data type - manufacturer specific data	readonly
5	0xF0	16-bit Service UUID 1st byte	readonly
6	0xFF	16-bit Service UUID 2nd byte	readonly
7	0x1A Note2	Model Number	readonly
8	0x02	Firmware version 1st byte	readonly
9	0x05	Firmware version 2nd byte	readonly
10	0x02	Feature	readonly
11	0xDC	MAC address 1st byte	readonly
12	0x0D	MAC address 2nd byte	readonly
13	0x30	MAC address 3rd byte	readonly
14	0x00	MAC address 4th byte	readonly
15	0x1F	MAC address 5th byte	readonly
16	0xA5	MAC address 6th byte	readonly
17	0x64	Battery level	readonly

Note1 : From byte 3 to byte 17 is the data block of General Advertising Frame, the byte order of it is constant, but the byte order of the whole advertisement may vary by model.

Note2 : Bytes like model number, firmware version, feature, MAC, and battery level may vary by beacon.

Chapter 3

iBeacon Advertising Frame

iBeacon Advertising packet structure

Byte offset	Default value	Description	Properties
0	0x02	Data length - 2 bytes	constant preamble
1	0x01	Data type - flags	constant preamble
2	0x06	LE and BR/EDR flag	constant preamble
3	0x1A	Data length - 26 bytes	constant preamble
4	0xFF	Data type - manufacturer specific data	constant preamble
5	0x4C	Manufacturer data	constant preamble
6	0x00	Manufacturer data	constant preamble
7	0x02	Manufacturer data	constant preamble
8	0x15	Manufacturer data	constant preamble
9	0xFD	Proximity UUID 1st byte	set user UUID
10	0xA5	Proximity UUID 2nd byte	set user UUID
11	0x06	Proximity UUID 3rd byte	set user UUID
12	0x93	Proximity UUID 4th byte	set user UUID
13	0xA4	Proximity UUID 5th byte	set user UUID
14	0xE2	Proximity UUID 6th byte	set user UUID
15	0x4F	Proximity UUID 7th byte	set user UUID
16	0xB1	Proximity UUID 8th byte	set user UUID
17	0xAF	Proximity UUID 9th byte	set user UUID
18	0xCF	Proximity UUID 10th byte	set user UUID
19	0xC6	Proximity UUID 11th byte	set user UUID

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Byte offset	Default value	Description	Properties
20	0xEB	Proximity UUID 12th byte	set user UUID
21	0x07	Proximity UUID 13th byte	set user UUID
22	0x64	Proximity UUID 14th byte	set user UUID
23	0x78	Proximity UUID 15th byte	set user UUID
24	0x25	Proximity UUID 16th byte	set user UUID
25	0x27	Major 1st byte	set major value
26	0x51	Major 2nd byte	set major value
27	0x65	Minor 1st byte	set minor value
28	0xC1	Minor 2nd byte	set minor value
29	0xB5	Signal power (calibrated RSSI@1m)	signal power value

Chapter 4

Eddystone Advertising Frame

You can read the complete specification of all Eddystone packets on Google's GitHub (<https://github.com/google/eddystone>).

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Chapter 5

Sensor Data Frame

Sensor Data Frame includes content like temperature, humidity and so on. This advertisement is not configurable, it's read-only advertisement.

General Advertising Frame can be found in vendor specified field (Tag 0xFF) :

Len (1 Byte)	Tag (1 Byte)	Company (2 Bytes)	Version (1 Byte)	Data (N Bytes)
	0xFF	0xFFF0	0x01	Tag1 + Tag2 + ...

Len : 1 byte, the length of the frame that exclude the Len word.

Tag : 1 byte, type of frame, 0xFF represents vendor specified field

Company : 2 bytes, 0xFFF0

Version : 1 byte, protocol version, start from 0x01

Data : N bytes, sensor data, use Tag structure (len + tag + data)

5.1 Temperature and Humidity Sensor

Len (1 Byte)	Tag (1 Byte)	Temperature (2 Bytes)	Humidity (2 Bytes)
0x05	0x01		

Len : 1 byte, the length of the tag-frame that exclude the Len word.

Tag : 1 byte, type of frame, 0x01 represents temperature and humidity.

Temperature : 2 bytes, the first byte represents the integer portion and it's a signed number (can be negative or positive), the second byte represents the fractional portion, the unit is centigrade.

Humidity : 2 bytes, the first byte represents the integer portion, the second byte represents the fractional portion, the unit is percentage.

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Chapter 6

Appendix

6.1 PDF Download

- FeasyBeacon Advertising Protocol (PDF)

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