

FRAMES SPECIFICATIONS



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1. BLUETOOTH GENERAL INFORMATION

General information	https://www.bluetooth.com/bluetooth-technology
BLE Specifications	https://www.bluetooth.com/specifications
BLE Services et Characteristics	https://www.bluetooth.com/specifications/gatt

2. APPLICABLE PRODUCT



Blue PUCK ID IDF25240X
Blue PUCK T IDF25241X
Blue PUCK RHT IDF25242X
Blue PUCK MAG IDF25243X
Blue PUCK MOV IDF25244X
Blue PUCK BUZZ IDF25245X
Blue PUCK DI IDF25246X
Blue PUCK AI IDF25248X
Blue PUCK DO IDF25247X
Blue PUCK T EN12830 IDF30241X
Blue PUCK T Probe IDF25250X
Blue PUCK PIR IDF25249X

Blue COIN ID IDF10240X
Blue COIN T IDF10241X
Blue COIN MAG IDF10243X
Blue COIN MOV IDF10244X

Blue SLIM ID IDF03240X



Blue WATCH ID IDP27240X



Blue LITE ID IDF28240X

3. GENERAL INFORMATION

BLE protocol fixes the length of BLE packets to 47 Bytes maximum among which a maximum of 37 are define by the user and are generally referred as the **payload**.

In this payload, the 6 first bytes are reserved for the advertiser address (mac address), the following 3 are used to flag the type of advertising frame and the 29 remaining contains actual datas of interest. Position, types and length of data defines **the frame format** that must be known on the scanner side in order to decode the payload. This document provide the information of available frame format in ELA INNOVATION tag as well as the information require to request a full custom frame format.

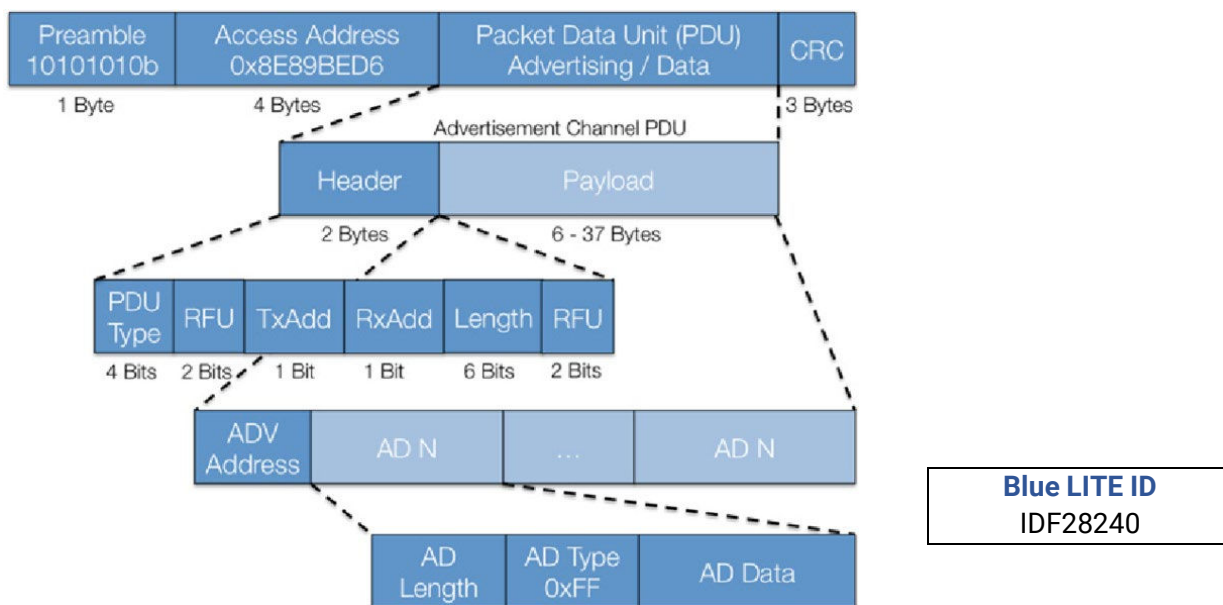


Figure 1 : Advertising frame format as per BLE SIG specifications

a. "Services Data" and "Manufacturer specific Datas"

Historical ELA tag frame format uses "Service data" identification of data type following BLE core specification. Starting from firmware version 2.0.0, it is possible to send ELA sensor and ID data through « Manufacturer Specific Data » identification of types type. The Manufacturer Specific data are specific Bluetooth frame fields that are unique to a company, that can be used to add custom data into advertising packets. If Manufacturer Specific data are not enabled, all sensor data will be sent into the Bluetooth Services data.

To enable it, it is necessary to set to « True » the configuration field « *Mfr. Data Enable* » in the NFC configuration.

Configure Tag

Parameters

Firmware Version :	2.0.0
Name :	ELA ID
Enable :	True
Power BLE :	0
Format :	RHT
Advertising interval :	1
Log interval :	10
Logger Enable :	False
Acc. Threshold :	0100
Mfr. Data Enable :	False
Mfr. Data ID :	010203040506

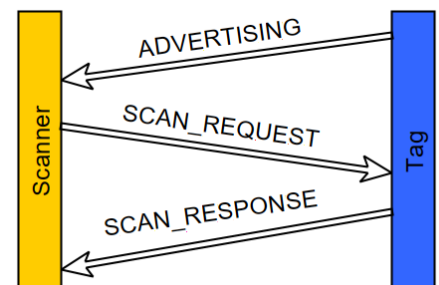
For a tag firmware below 2.0.0, the data advertised is always into Service datas.

b. « Scan Response » frame

In some formats and versions, the tag can send a frame called « Scan Response frame ».

Once an advertising packet has been received by a scanner, further information can be requested. Then the tag responds with the “scan response” frame.

This frame is located right after the advertising frame, and contains different data depending on the version and format. The data sent in “Scan response” frame is also formatted either in Service mode or in Manufacturer Specific mode.



c. Custom Frames

Starting from version 4.0.0, ELA INNOVATION tags can be configured in factory with any frame format upon request.

4. RELEASE NOTE

1.0.0 Version

- When the battery drops below 15% capacity, the *Battery Service* is sent in the "Scan Response" frame for all formats.
- Nordic UART Service (NUS) is no longer sent in the Scan Response frame.

2.0.0 Version

- In iBeacon/Eddystone formats, the tag name is sent in the "SR" frame (after the battery info).
- The Company Identifier (CIN) number of ELA Innovation is 0x0757.
- In Manufacturer Specific Data mode, in ELA_ID and DIGI_OUT formats, it is possible to enter a hexadecimal number (max 0xFFFFFFFFFFFF) that will be sent in the frame. This field is called "ID Manufacturer Data" in the NFC configuration. This number is called "MFR_Num" in the frame formats of this document.

2.1.0 Version

- The names of the TOR IN and TOR OUT formats have been changed to Digi IN and Digi OUT respectively.

2.2.0 Version

- The Battery data is now sent in the Battery Level service feature (0x2A19).
- The MAC address type of the tag is changed from **Random** to **Public**.

3.0.0 Version

- Ability to transmit the battery voltage in the Scan Response via an NFC parameter.

4.0.0 Version

- Custom Frame format available on request
- Predefine custom format: iBeacon with sensor data in scan response, Eddystone with sensor data in scan response, Geotab T, Geotab RHT, Geotab MAG.

5. BATTERY INFORMATION

Battery capacity

ELA Innovation's tags are based on the transmission of battery information in the Scan Response when the capacity of the battery falls below 15%. The formatting of the information is as follows:

Frame type		Service Data	Service Data	Mfr. Spec. Data
Version		1.0.0, 2.0.0, 2.1.x	≥2.2.0	≥2.0.0
Transmission		Batt. capacity < 15%	Batt. capacity < 15%	Batt. capacity < 15%
Frame bytes	1	Length : 0x04	Length: 0x04	Length : 0x05
	2	Type : 0x16	Type : 0x16	Type : 0xFF
	3	Battery Serv. LSB : 0x0F	Battery Serv. LSB : 0x19	ELA_CIN_LSB : 0x57
	4	Battery Serv. MSB : 0x18	Battery Serv. MSB : 0x2A	ELA_CIN_MSB: 0x07
	5	Batt. data (%)	Batt. data (%)	BATT_DATA_ID: 0xF1
	6	Not used	Not used	Batt. data (%)
	7	Not used	Not used	Not used

Battery voltage

From version 3.0.0 onwards, it is possible to transmit battery voltage information for all formats. For this purpose, the "**Battery voltage presence**" option must be configured in the NFC memory.

When the option is activated, the tag no longer transmits battery capacity information below 15%.

NFC Features

TAG Version : 3.0.0

TAG Technology : Bluetooth

ELA

help	value	valid
?	Advertising Name : ELA_ID	✓
?	TAG Enable State : True	✓
?	TAG Power : 0	✓
?	TAG Format : Id	✓
?	Battery voltage presence : 0	✓

Once the option is enabled, the battery voltage information is transmitted in the "Scan Response" frame with the following formatting:

Frame type		All
Version		≥3.0.0
Transmission		Battery voltage presence = 1
Frame Bytes	1	Length : 0x06
	2	Type : 0xFF
	3	ELA_CIN_LSB : 0x57
	4	ELA_CIN_MSB: 0x07
	5	BATT_DATA_ID: 0xF2
	6	Batt. voltage (mV) LSB
	7	Batt. voltage (mV) MSB

Frame examples:

Received frame : ELA ID, Service Data, v3.0.0 Battery voltage presence = 0			Received frame : ELA T, MFR Spec. Data, v3.0.0 Battery voltage presence = 0																													
Name	BE_BATTERY		Name	BE_BATTERY																												
			Measured temp.	27.12°C (0x0A98)																												
Battery cap.	13% (0x0D)		Battery cap	13% (0x0D)																												
Raw data: 0x0201060B0942455F424154544552590 416192A0D			Raw data: 0x02010606FF570712980A0B0942455F4 241545445525905FF5707F10D																													
Details: <table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>11</td><td>0x09</td><td>0x42455F42415454455259</td></tr><tr><td>4</td><td>0x16</td><td>0x192A0D</td></tr></table>			LEN.	TYPE	VALUE	2	0x01	0x06	11	0x09	0x42455F42415454455259	4	0x16	0x192A0D	Details: <table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>6</td><td>0xFF</td><td>0x570712980A</td></tr><tr><td>11</td><td>0x09</td><td>0x42455F42415454455259</td></tr><tr><td>5</td><td>0xFF</td><td>0x5707F10D</td></tr></table>			LEN.	TYPE	VALUE	2	0x01	0x06	6	0xFF	0x570712980A	11	0x09	0x42455F42415454455259	5	0xFF	0x5707F10D
LEN.	TYPE	VALUE																														
2	0x01	0x06																														
11	0x09	0x42455F42415454455259																														
4	0x16	0x192A0D																														
LEN.	TYPE	VALUE																														
2	0x01	0x06																														
6	0xFF	0x570712980A																														
11	0x09	0x42455F42415454455259																														
5	0xFF	0x5707F10D																														

T° Data

Name

Battery cap.
(SR Frame)

In Eddystone and iBeacon formats, the battery information is located before the Tag Name :

Received frame : iBeacon, v2.1.0			Received frame : Eddystone, v3.0.0 Battery voltage presence = 0		
Name	BE_BATTERY		Name	BE_BATTERY	
Battery cap.	13% (0x0D)		Battery cap.	13% (0x0D)	
Raw data:			Raw data:		
0x0201061AFF4C0002150102030405060708090A0B0C0D0E0F10020B010AC404160F180D0B0942455F42415454455259			0x0201060303AAFE1716AAFE00ED0102030405060708090A010203040A0B00000416192A0D0B0942455F42415454455259		
Details:			Details:		
LEN.	TYPE	VALUE	LEN.	TYPE	VALUE
2	0x01	0x06	2	0x01	0x06
26	0xFF	0x4C0002150102030405060708090A0B0C0D0E0F10020B010AC4	3	0x03	0xAAFE
4	0x16	0x0F180D	23	0x16	0xAAFE00ED0102030405060708090A010203040A0B0000
11	0x09	0x42455F42415454455259	4	0x16	0x192A0D
			11	0x09	0x42455F42415454455259

Received frame : iBeacon, v3.0.0 Battery voltage presence = 1		Received frame : ELA T, Service Data, v3.0.0 Battery voltage presence = 1	
Name	BE_BATTERY	Name	BE_BATTERY
Batt. voltage	2.478V (0x09AE)	Measured temp	21.87°C (0x088B)
		Batt. voltage	2.988 V (0x0BAC)

Raw data:

0x0201061AFF4C0002150102030405060708090A0B0C0D0E0F10020B010AC406FF5707F2AE090B0942455F42415454455259

iBeacon field

T° Data

Name

Batt. Voltage (SR Frame)

Name (SR Frame)

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
26	0xFF	0x4C0002150102030405060708090A0B0C0D0E0F10020B010AC4
6	0xFF	0x5707F2AE09
11	0x09	0x42455F42415454455259

Raw data:

0x02010605166E2A8B080B0942455F4241545445525906FF5707F2AC0B

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
5	0x16	0x6E2A8B08
11	0x09	0x42455F42415454455259
6	0xFF	0x5707F2AC0B

6. FRAME FORMAT

General information of this document

To improve the readability of the screen formats, this document presents :

- The fixed Bluetooth fields highlighted in **blue**.
- The Variable Bluetooth fields highlighted in **orange**.
- User-defined fields highlighted in **green**.

The screenshots have been taken on the nRF Connect application, developed by Nordic Semiconductors.

The screenshots show examples of frame decoding of information sent in advertising by ELA Innovation's products. There is also sample software code developed by the ELA Innovation team that can be used to decode frame information.

These samples code are available at the following address:

<https://github.com/elainnovation>

a. "ID" Format

Frame type	Service Data	Mfr Spec. Data
Version	All	≥2.0.0
Frame Bytes	1 Length : 0x02	Length : 0x02
	2 Type : 0x01	Type : 0x01
	3 Data : 0x06	Data : 0x06
	4 Length : ≤0x10	Length : 0x0A
	5 Type : 0x09	Type: 0xFF
	6 Name[0]	ELA_CIN_LSB: 0x57
	7 Name[1]	ELA_CIN_MSB: 0x07
	8 Name[2]	MFR_ID : 0x06
	9 Name[3]	MFR_Num[0]
	10 Name[4]	MFR_Num[1]
	11 Name[5]	MFR_Num[2]
	12 Name[6]	MFR_Num[3]
	13 Name[7]	MFR_Num[4]
	14 Name[8]	MFR_Num[5]
	15 Name[9]	Length : ≤0x10
	16 Name 10]	Type : 0x09
	17 Name[11]	Name[0]
	18 Name[12]	Name[1]
	19 Name[13]	Name[2]
	20 Name[14]	Name[3]
	21 Not used	Name[4]
	22 Not used	Name[5]
	23 Not used	Name[6]
	24 Not used	Name[7]
	25 Not used	Name[8]
	26 Not used	Name[9]
	27 Not used	Name[10]
	28 Not used	Name[11]
	29 Not used	Name[12]
	30 Not used	Name[13]
	31 Not used	Name[14]

Frame example

Received frame : ELA ID, Service Data			Received frame : ELA ID, MFR Spec. Data																							
Name	BE_TEST_K ID A9		Name	BE_TEST_ID																						
			MFR_Num	0xAABBCCDDEEFF																						
Raw data: 0x020106100942455F544553545F4B204944204139			Raw data: 0x0201060AFF570706AABBCCDDEEFF0B0942455F544553545F4944																							
Details: <table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>16</td><td>0x09</td><td>0x42455F544553545F4B204944204139</td></tr></table>			LEN.	TYPE	VALUE	2	0x01	0x06	16	0x09	0x42455F544553545F4B204944204139	Details: <table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>10</td><td>0xFF</td><td>0x570706AABBCCDDEEFF</td></tr><tr><td>11</td><td>0x09</td><td>0x42455F544553545F4944</td></tr></table>			LEN.	TYPE	VALUE	2	0x01	0x06	10	0xFF	0x570706AABBCCDDEEFF	11	0x09	0x42455F544553545F4944
LEN.	TYPE	VALUE																								
2	0x01	0x06																								
16	0x09	0x42455F544553545F4B204944204139																								
LEN.	TYPE	VALUE																								
2	0x01	0x06																								
10	0xFF	0x570706AABBCCDDEEFF																								
11	0x09	0x42455F544553545F4944																								
ID Mfr Data																										
Name																										

b. "iBeacon" Format

Frame type		Service & Mfr Spec. Data	Service & Mfr Spec. Data
Version		1.0.0, 2.0.0	≥2.1.0
Frame Bytes	1	Length : 0x02	Length : 0x02
	2	Type : 0x01	Type : 0x01
	3	Data: 0x04	Data : 0x06
	4	Length : 0x1A	Length : 0x1A
	5	Type : 0xFF	Type : 0xFF
	6	Apple CIN_LSB : 0x4C	Apple CIN_LSB : 0x4C
	7	Apple CIN_MSB : 0x00	Apple CIN_MSB : 0x00
	8	Beacon type : 0x02	Beacon type : 0x02
	9	Data size : 0x15	Data size : 0x15
	10	UUID[0]	UUID[0]
	11	UUID[1]	UUID[1]
	12	UUID[2]	UUID[2]
	13	UUID[3]	UUID[3]
	14	UUID[4]	UUID[4]
	15	UUID[5]	UUID[5]
	16	UUID[6]	UUID[6]
	17	UUID[7]	UUID[7]
	18	UUID[8]	UUID[8]
	19	UUID[9]	UUID[9]
	20	UUID[10]	UUID[10]
	21	UUID[11]	UUID[11]
	22	UUID[12]	UUID[12]
	23	UUID[13]	UUID[13]
	24	UUID[14]	UUID[14]
	25	UUID[15]	UUID[15]
	26	Major[0]	Major[0]
	27	Major[1]	Major[1]
	28	Minor[0]	Minor[0]
	29	Minor[1]	Minor[1]
	30	Power TX at 1m	Power TX at 1m
	31	Not used	Not used

For the iBeacon format, the Tag Name is transmitted into the Scan Response.

Frame type		Scan Response
Version		All
Frame Bytes	1	Length : ≤0x10
	2	Type : 0x09
	3	Name[0]
	4	Name[1]
	5	Name[2]
	6	Name[3]
	7	Name[4]
	8	Name[5]
	9	Name[6]
	10	Name[7]
	11	Name[8]
	12	Name[9]
	13	Name[10]
	14	Name[11]
	15	Name[12]
	16	Name[13]
	17	Name[14]

Frame example

Received frame : iBeacon, V2.1.0															
Name	P ID 002BEA														
UUID	0xFF02030405FF0708090AA00C0D0E0F11														
Major	0x5555	Minor	0xAAAA												
Raw data: 0x0201061AFF4C000215FF02030405FF0708090AA00C0D0E0F115555AAAAC40C095020494420303032424541 iBeacon field Name (SR Frame) Details:<table><thead><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr></thead><tbody><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>26</td><td>0xFF</td><td>0x4C000215FF02030405FF0708090AA00C0D0E0F115555AAAAC4</td></tr><tr><td>12</td><td>0x09</td><td>0x5020494420303032424541</td></tr></tbody></table>				LEN.	TYPE	VALUE	2	0x01	0x06	26	0xFF	0x4C000215FF02030405FF0708090AA00C0D0E0F115555AAAAC4	12	0x09	0x5020494420303032424541
LEN.	TYPE	VALUE													
2	0x01	0x06													
26	0xFF	0x4C000215FF02030405FF0708090AA00C0D0E0F115555AAAAC4													
12	0x09	0x5020494420303032424541													

c. "Eddystone" Format

Frame type		Service & Mfr Spec. Data
Version		All
Frame Bytes	1	Length : 0x02
	2	Type : 0x01
	3	Data : 0x06
	4	Length : 0x03
	5	Type : 0x03
	6	Eddystone_UUID_LSB : 0xAA
	7	Eddystone_UUID_MSB : 0xFE
	8	Length : 0x17
	9	Type : 0x16
	10	Eddystone_UUID_LSB : 0xAA
	11	Eddystone_UUID_MSB : 0xFE
	12	Frame type UUID : 0x00
	13	Power TX à 0m
	14	NID[0]
	15	NID[1]
	16	NID[2]
	17	NID[3]
	18	NID[4]
	19	NID[5]
	20	NID[6]
	21	NID[7]
	22	NID[8]
	23	NID[9]
	24	BID[0]
	25	BID[1]
	26	BID[2]
	27	BID[3]
	28	BID[4]
	29	BID[5]
	30	Reserved
	31	Reserved

For the Eddystone format, the Tag Name is transmitted into the Scan Response.

Frame type		Scan Response
Version		All
Frame Bytes	1	Length : ≤0x10
	2	Type : 0x09
	3	Name[0]
	4	Name[1]
	5	Name[2]
	6	Name[3]
	7	Name[4]
	8	Name[5]
	9	Name[6]
	10	Name[7]
	11	Name[8]
	12	Name[9]
	13	Name[10]
	14	Name[11]
	15	Name[12]
	16	Name[13]
	17	Name[14]

Frame example

Received frame : Eddystone, V3.0.0																
Name	P ID 002BEA															
NID	AA020FF40506070809FF															
BID	01FA03BB05DD															
Raw data: 0x0201060303AAFE1716AAFE00EDAA02 0FF40506070809FF01FA03BB05DD00000 C095020494420303032424541 Details: <table><thead><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr></thead><tbody><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>3</td><td>0x03</td><td>0xAAFE</td></tr><tr><td>23</td><td>0x16</td><td>0xAAFE00EDAA020FF40506070809 FF01FA03BB05DD0000</td></tr><tr><td>12</td><td>0x09</td><td>0x5020494420303032424541</td></tr></tbody></table> Eddystone field Name (SR Frame)		LEN.	TYPE	VALUE	2	0x01	0x06	3	0x03	0xAAFE	23	0x16	0xAAFE00EDAA020FF40506070809 FF01FA03BB05DD0000	12	0x09	0x5020494420303032424541
LEN.	TYPE	VALUE														
2	0x01	0x06														
3	0x03	0xAAFE														
23	0x16	0xAAFE00EDAA020FF40506070809 FF01FA03BB05DD0000														
12	0x09	0x5020494420303032424541														

d. "T", "T EN", "T Probe" format

Frame type		Service Data	Mfr Spec. Data
Version		≥1.0.0	≥2.0.0
Frame bytes	1	Length : 0x02	Length : 0x02
	2	Type : 0x01	Type : 0x01
	3	Data: 0x06	Data : 0x06
	4	Length : 0x05	Length : 0x06
	5	Type : 0x16	Type: 0xFF
	6	Temperature carac. LSB : 0x6E	ELA_CIN_LSB : 0x57
	7	Temperature carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8	T° Data (0,01°C) LSB	TEMP_ID: 0x12
	9	T° Data (0,01°C) MSB	T° Data (0,01°C) LSB
	10	Length : ≤0x10	T° Data (0,01°C) MSB
	11	Type : 0x09	Length : ≤0x10
	12	Name[0]	Type : 0x09
	13	Name[1]	Name[0]
	14	Name[2]	Name[1]
	15	Name[3]	Name[2]
	16	Name[4]	Name[3]
	17	Name[5]	Name[4]
	18	Name[6]	Name[5]
	19	Name[7]	Name[6]
	20	Name[8]	Name[7]
	21	Name[9]	Name[8]
	22	Name[10]	Name[9]
	23	Name[11]	Name[10]
	24	Name[12]	Name[11]
	25	Name[13]	Name[12]
	26	Name[14]	Name[13]
	27	Not used	Name[14]
	28	Not used	Not used
	29	Not used	Not used
	30	Not used	Not used
	31	Not used	Not used

Frame example

Received frame : ELA T, Service Data			Received frame : ELA T, MFR Spec. Data																										
Name	P T 801803		Name	P T 801803																									
Measured Temp.	0x0A6C = 26.68°C		Measured Temp.	0x0A85 = 26.93°C																									
Raw data: 0x02010605166E2A6C0A0B0950205420383031383033			Raw data: 0x02010606FF570712850A0B0950205420383031383033																										
Details:<table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>5</td><td>0x16</td><td>0x6E2A6C0A</td></tr><tr><td>11</td><td>0x09</td><td>0x50205420383031383033</td></tr></table>			LEN.	TYPE	VALUE	2	0x01	0x06	5	0x16	0x6E2A6C0A	11	0x09	0x50205420383031383033	Details:<table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>6</td><td>0xFF</td><td>0x570712850A</td></tr><tr><td>11</td><td>0x09</td><td>0x50205420383031383033</td></tr></table>			LEN.	TYPE	VALUE	2	0x01	0x06	6	0xFF	0x570712850A	11	0x09	0x50205420383031383033
LEN.	TYPE	VALUE																											
2	0x01	0x06																											
5	0x16	0x6E2A6C0A																											
11	0x09	0x50205420383031383033																											
LEN.	TYPE	VALUE																											
2	0x01	0x06																											
6	0xFF	0x570712850A																											
11	0x09	0x50205420383031383033																											

e. "RHT" format

Frame type	Service Data	Mfr Spec. Data
Version	≥1.0.0	≥2.0.0
Frame bytes	1 Length : 0x02	Length : 0x02
	2 Type : 0x01	Type : 0x01
	3 Data : 0x06	Data : 0x06
	4 Length : 0x05	Length : 0x08
	5 Type : 0x16	Type: 0xFF
	6 Temperature carac. LSB : 0x6E	ELA_CIN_LSB : 0x57
	7 Temperature carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8 T° Data (0,01°C) LSB	RHT_DATA_ID: 0x21
	9 T° Data (0,01°C) MSB	RH Data (%)
	10 Length : 0x04	TEMP_DATA_ID: 0x12
	11 Type : 0x16	T° Data (0,01°C) LSB
	12 Humidity carac. LSB : 0x6F	T° Data (0,01°C) MSB
	13 Humidity carac. MSB : 0x2A	Length : ≤0x10
	14 RH Data (%)	Type : 0x09
	15 Length : ≤0x10	Name[0]
	16 Type : 0x09	Name[1]
	17 Name[0]	Name[2]
	18 Name[1]	Name[3]
	19 Name[2]	Name[4]
	20 Name[3]	Name[5]
	21 Name[4]	Name[6]
	22 Name[5]	Name[7]
	23 Name[6]	Name[8]
	24 Name[7]	Name[9]
	25 Name[8]	Name[10]
	26 Name[9]	Name[11]
	27 Name[10]	Name[12]
	28 Name[11]	Name[13]
	29 Name[12]	Name[14]
	30 Name[13]	Not used
	31 Name[14]	Not used

Frame example

Received frame : ELA RHT, Service Data				Received frame : ELA RHT, MFR Spec. Data					
Name		P RHT 900459		Name		P RHT 900459			
Measured Temp		26.98°C	Measured RH	47%	Measured Temp		27.44°C	Measured RH	48%
Raw data:					Raw data:				
0x02010605166E2A8A0A04166F2A2F0D09502052485420393030343539					0x02010608FF5707213012B80A0D09502052485420393030343539				
Details:					Details:				
LEN.	TYPE	VALUE			LEN.	TYPE	VALUE		
2	0x01	0x06			2	0x01	0x06		
5	0x16	0x6E2A8A0A			8	0xFF	0x5707213012B80A		
4	0x16	0x6F2A2F			13	0x09	0x502052485420393030343539		
13	0x09	0x502052485420393030343539							

T° Data

RH Data

RH & T° Data

Name

f. "MAG" format

Frame type	Service Data	Service Data	Mfr Spec. Data
Version	1.0.0	≥2.0.0	≥2.0.0
Frame Bytes	1 Length: 0x02	Length : 0x02	Length : 0x02
	2 Type: 0x01	Type : 0x01	Type : 0x01
	3 Data : 0x06	Data : 0x06	Data : 0x06
	4 Length: 0x05	Length : 0x05	Length : 0x06
	5 Type: 0x16	Type : 0x16	Type: 0xFF
	6 Alert Level carac. LSB : 0x06	Alert Level carac. LSB : 0x06	ELA_CIN_LSB : 0x57
	7 Alert Level carac. MSB : 0x2A	Alert Level carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8 MAG Data (cnt + state) LSB	MAG Data (cnt + state) LSB	MAG_DATA_ID: 0x32
	9 MAG Data (cnt + state) MSB	MAG Data (cnt + state) MSB	MAG Data (cnt + state) LSB
	10 Length : ≤0x10	Length : 0x04	MAG Data (cnt + state) MSB
	11 Type: 0x09	Type : 0x16	Length: ≤0x10
	12 Name[0]	Alert Status carac. LSB : 0x3F	Type : 0x09
	13 Name[1]	Alert Status carac. MSB: 0x2A	Name[0]
	14 Name[2]	Data : 0x00	Name[1]
	15 Name[3]	Length : ≤0x10	Name[2]
	16 Name[4]	Type : 0x09	Name[3]
	17 Name[5]	Name[0]	Name[4]
	18 Name[6]	Name[1]	Name[5]
	19 Name[7]	Name[2]	Name[6]
	20 Name[8]	Name[3]	Name[7]
	21 Name[9]	Name[4]	Name[8]
	22 Name[10]	Name[5]	Name[9]
	23 Name[11]	Name[6]	Name[10]
	24 Name[12]	Name[7]	Name[11]
	25 Name[13]	Name[8]	Name[12]
	26 Name[14]	Name[9]	Name[13]
	27 Not used	Name[10]	Name[14]
	28 Not used	Name[11]	Not used
	29 Not used	Name[12]	Not used
	30 Not used	Name[13]	Not used
	31 Not used	Name[14]	Not used

Frame example

Received frame : ELA MAG, V3.0.0, Service Data				Received frame : ELA MAG, V3.0.0, MFR Spec. Data			
Name	P MAG C0062E			Name	P MAG C0062E		
Event Counter	4	Magnet state	present	Event Counter	5	Magnet state	absent
Raw data:				Raw data:			
0x0201060516062A0900004163F2A000D0950204D414720433030363245				0x02010606FF5707320A000D0950204D414720433030363245			
Details:				Details:			
LEN.	TYPE	VALUE		LEN.	TYPE	VALUE	
2	0x01	0x06		2	0x01	0x06	
5	0x16	0x062A0900		6	0xFF	0x5707320A00	
4	0x16	0x3F2A00		13	0x09	0x50204D414720433030363245	
13	0x09	0x50204D414720433030363245					

```

graph TD
    MAGData[MAG Data]
    ELAMAGID[ELA MAG ID]
    Name[Name]
    MAGData --- ELAMAGID
    ELAMAGID --- Name
    
```

g. "MOV" format

Frame type		Service Data	Service Data	Mfr Spec. Data
Version		1.0.0	≥2.0.0	≥2.0.0
Frame bytes	1	Length : 0x02	Length : 0x02	Length : 0x02
	2	Type : 0x01	Type : 0x01	Type : 0x01
	3	Data : 0x06	Data : 0x06	Data : 0x06
	4	Length : 0x05	Length : 0x05	Length : 0x06
	5	Type : 0x16	Type : 0x16	Type: 0xFF
	6	Alert Level carac. LSB : 0x06	Alert Level carac. LSB : 0x06	ELA_CIN_LSB : 0x57
	7	Alert Level carac. MSB : 0x2A	Alert Level carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8	MOV Data (cnt + state) LSB	MOV Data (cnt + state) LSB	MOV_DATA_ID: 0x42
	9	MOV Data (cnt + state) MSB	MOV Data (cnt + state) MSB	MOV Data (cnt + state) LSB
	10	Length : ≤0x10	Length : 0x04	MOV Data (cnt + state) MSB
	11	Type : 0x09	Type : 0x16	Length : ≤0x10
	12	Name[0]	Alert Status carac. LSB : 0x3F	Type : 0x09
	13	Name[1]	Alert Status carac. MSB: 0x2A	Name[0]
	14	Name[2]	Data : 0x01	Name[1]
	15	Name[3]	Length : ≤0x10	Name[2]
	16	Name[4]	Type : 0x09	Name[3]
	17	Name[5]	Name[0]	Name[4]
	18	Name[6]	Name[1]	Name[5]
	19	Name[7]	Name[2]	Name[6]
	20	Name[8]	Name[3]	Name[7]
	21	Name[9]	Name[4]	Name[8]
	22	Name[10]	Name[5]	Name[9]
	23	Name[11]	Name[6]	Name[10]
	24	Name[12]	Name[7]	Name[11]
	25	Name[13]	Name[8]	Name[12]
	26	Name[14]	Name[9]	Name[13]
	27	Not used	Name[10]	Name[14]
	28	Not used	Name[11]	Not used
	29	Not used	Name[12]	Not used
	30	Not used	Name[13]	Not used
	31	Not used	Name[14]	Not used

Frame example

Received frame : ELA MOV, V3.0.0, Service Data				Received frame : ELA MOV, V3.0.0, MFR Spec. Data			
Name		P MOV B00557		Name		P MOV B00557	
Event counter	3	Mvt state	In progress	Event counter	6	Mvt state	No mvt
Raw data:				Raw data:			
0x0201060516062A070004163F2A010D0950204D4F5620423030353537				0x02010606FF5707420C000D0950204D4F5620423030353537			
Details:				Details:			
LEN.	TYPE	VALUE		LEN.	TYPE	VALUE	
2	0x01	0x06		2	0x01	0x06	
5	0x16	0x062A0700		6	0xFF	0x5707420C00	
4	0x16	0x3F2A01		13	0x09	0x50204D4F5620423030353537	
13	0x09	0x50204D4F5620423030353537					

h. "ANG" format

Frame type		Service Data	Mfr Spec. Data
Version		≥1.0.0	≥2.0.0
Frame bytes	1	Length : 0x02	Length : 0x02
	2	Type : 0x01	Type : 0x01
	3	Data : 0x06	Data : 0x06
	4	Length : 0x09	Length : 0x0A
	5	Type : 0x16	Type: 0xFF
	6	MAG 3D carac. LSB : 0xA1	ELA_CIN_LSB : 0x57
	7	MAG 3D carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8	Accel. Data X axis (mg) LSB	ANG_DATA_ID: 0x56
	9	Accel. Data X axis (mg) MSB	Accel. Data X axis (mg) LSB
	10	Accel. Data Y axis (mg) LSB	Accel. Data X axis (mg) MSB
	11	Accel. Data Y axis (mg) MSB	Accel. Data Y axis (mg) LSB
	12	Accel. Data Z axis (mg) LSB	Accel. Data Y axis (mg) MSB
	13	Accel. Data Z axis (mg) MSB	Accel. Data Z axis (mg) LSB
	14	Length : ≤0x10	Accel. Data Z axis (mg) MSB
	15	Type : 0x09	Length : ≤0x10
	16	Name[0]	Type : 0x09
	17	Name[1]	Name[0]
	18	Name[2]	Name[1]
	19	Name[3]	Name[2]
	20	Name[4]	Name[3]
	21	Name[5]	Name[4]
	22	Name[6]	Name[5]
	23	Name[7]	Name[6]
	24	Name[8]	Name[7]
	25	Name[9]	Name[8]
	26	Name[10]	Name[9]
	27	Name[11]	Name[10]
	28	Name[12]	Name[11]
	29	Name[13]	Name[12]
	30	Name[14]	Name[13]
	31	Not used	Name[14]

Frame example

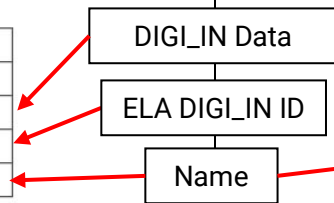
Received frame : ELA ANG, Service Data		Received frame : ELA ANG, MFR Spec. Data																									
Name	P MOV B00557	Name	P MOV B00557																								
Accel. X axis	0xFFB9 = -71 mg	Accel. X axis	0xFFB8 = -72mg																								
Accel. Y axis	0x0007 = 7 mg	Accel. Y axis	0xFFEC = -20mg																								
Accel. Z axis	0x0484 = 1156 mg	Accel. Z axis	0xFCAC = -852 mg																								
Raw data: 0x0201060916A12AB9FF070084040D095 0204D4F5620423030353537		Raw data: 0x0201060AFF570756B8FFECFFACFC0D0 950204D4F5620423030353537																									
Details: <table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>9</td><td>0x16</td><td>0xA12AB9FF07008404</td></tr><tr><td>13</td><td>0x09</td><td>0x50204D4F5620423030353537</td></tr></table>		LEN.	TYPE	VALUE	2	0x01	0x06	9	0x16	0xA12AB9FF07008404	13	0x09	0x50204D4F5620423030353537	Details: <table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>10</td><td>0xFF</td><td>0x570756B8FFECFFACFC</td></tr><tr><td>13</td><td>0x09</td><td>0x50204D4F5620423030353537</td></tr></table>		LEN.	TYPE	VALUE	2	0x01	0x06	10	0xFF	0x570756B8FFECFFACFC	13	0x09	0x50204D4F5620423030353537
LEN.	TYPE	VALUE																									
2	0x01	0x06																									
9	0x16	0xA12AB9FF07008404																									
13	0x09	0x50204D4F5620423030353537																									
LEN.	TYPE	VALUE																									
2	0x01	0x06																									
10	0xFF	0x570756B8FFECFFACFC																									
13	0x09	0x50204D4F5620423030353537																									
ANG Data Name																											

i. "DIGI IN" format

Frame type	Service Data	Mfr Spec. Data
Version	≥2.0.0	≥2.0.0
Frame bytes	1 Length : 0x02	Length : 0x02
	2 Type : 0x01	Type : 0x01
	3 Data : 0x06	Data : 0x06
	4 Length : 0x05	Length : 0x06
	5 Type : 0x16	Type: 0xFF
	6 Alert Level carac. LSB : 0x06	ELA_CIN_LSB : 0x57
	7 Alert Level carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8 DI Data (cnt + state) LSB	DIGI_IN_DATA_ID: 0x62
	9 DI Data (cnt + state) MSB	DI Data (cnt + state) LSB
	10 Length : 0x04	DI Data (cnt + state) MSB
	11 Type : 0x16	Length : ≤0x10
	12 Alert Status carac. LSB : 0x3F	Type : 0x09
	13 Alert Status carac. MSB: 0x2A	Name[0]
	14 Data : 0x02	Name[1]
	15 Length : ≤0x10	Name[2]
	16 Type : 0x09	Name[3]
	17 Name[0]	Name[4]
	18 Name[1]	Name[5]
	19 Name[2]	Name[6]
	20 Name[3]	Name[7]
	21 Name[4]	Name[8]
	22 Name[5]	Name[9]
	23 Name[6]	Name[10]
	24 Name[7]	Name[11]
	25 Name[8]	Name[12]
	26 Name[9]	Name[13]
	27 Name[10]	Name[14]
	28 Name[11]	Not used
	29 Name[12]	Not used
	30 Name[13]	Not used
	31 Name[14]	Not used

Frame example

Received frame : ELA DI, V3.0.0, Service Data				Received frame : ELA DI, V3.0.0, MFR Spec. Data			
Name	BE_TEST_TORIN			Name	BE_TEST_TORIN		
Evt. counter	5	Input state	Released	Evt. counter	5	Input state	Released
Raw data:				Raw data:			
0x0201060516062A0A0004163F2A020E0942455F544553545F544F52494E				0x02010606FF5707620A000E0942455F544553545F544F52494E			
Details:				Details:			
LEN.	TYPE	VALUE		LEN.	TYPE	VALUE	
2	0x01	0x06		2	0x01	0x06	
5	0x16	0x062A0A00		6	0xFF	0x5707620A00	
4	0x16	0x3F2A02		14	0x09	0x42455F544553545F544F52494E	
14	0x09	0x42455F544553545F544F52494E					



j. "Analog IN" format

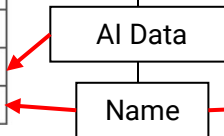
Frame type		Service Data	Mfr Spec. Data
Version		≥2.0.0	≥2.0.0
Frame bytes	1	Length : 0x02	Length : 0x02
	2	Type : 0x01	Type : 0x01
	3	Data : 0x06	Data : 0x06
	4	Length : 0x05	Length : 0x06
	5	Type : 0x16	Type: 0xFF
	6	Analog Out carac. LSB : 0x58	ELA_CIN_LSB : 0x57
	7	Analog Out carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8	Analog. Data measure (mV) LSB	AN_IN_DATA_ID: 0x72
	9	Analog. Data measure (mV) MSB	Analog. Data measure (mV) LSB
	10	Length : ≤0x10	Analog. Data measure (mV) MSB
	11	Type : 0x09	Length : ≤0x10
	12	Name[0]	Type : 0x09
	13	Name[1]	Name[0]
	14	Name[2]	Name[1]
	15	Name[3]	Name[2]
	16	Name[4]	Name[3]
	17	Name[5]	Name[4]
	18	Name[6]	Name[5]
	19	Name[7]	Name[6]
	20	Name[8]	Name[7]
	21	Name[9]	Name[8]
	22	Name[10]	Name[9]
	23	Name[11]	Name[10]
	24	Name[12]	Name[11]
	25	Name[13]	Name[12]
	26	Name[14]	Name[13]
	27	Not used	Name[14]
	28	Not used	Not used
	29	Not used	Not used
	30	Not used	Not used
	31	Not used	Not used

Frame example

Received frame : ELA AI, Service Data			Received frame : ELA AI, MFR Spec. Data		
Name		P AI 00003F	Name		P AI 00003F
Measured voltage		1975mV	Measured voltage		1975mV
Raw data:			Raw data:		
0x0201060516582AB7070C095020414920303030303346			0x02010606FF570772B7070C095020414920303030303346		
Details:			Details:		
LEN.	TYPE	VALUE	LEN.	TYPE	VALUE
2	0x01	0x06	2	0x01	0x06
5	0x16	0x582AB707	6	0xFF	0x570772B707
12	0x09	0x5020414920303030303346	12	0x09	0x5020414920303030303346

AI Data

Name



k. "DIGI OUT" format

Frame type	Service Data	Service Data	Mfr Spec. Data
Version	2.0.0, 2.1.x	≥2.2.0	≥2.0.0
Frame bytes	1	Length : 0x02	Length : 0x02
	2	Type : 0x01	Type : 0x01
	3	Data : 0x06	Data : 0x06
	4	Length : 0x04	Length : 0x04
	5	Type : 0x16	Type : 0x16
	6	Alert Status carac. LSB : 0x3F	Alert Status carac. LSB : 0x3F
	7	Alert Status carac. MSB : 0x2A	Alert Status carac. MSB : 0x2A
	8	Data : 0x03	Data : 0x00
	9	Length : ≤0x10	Length : ≤0x10
	10	Type : 0x09	Type : 0x09
	11	Name[0]	MFR_Num[2]
	12	Name[1]	MFR_Num[3]
	13	Name[2]	MFR_Num[4]
	14	Name[3]	MFR_Num[5]
	15	Name[4]	Length : ≤0x10
	16	Name[5]	Type : 0x09
	17	Name[6]	Name[0]
	18	Name[7]	Name[1]
	19	Name[8]	Name[2]
	20	Name[9]	Name[3]
	21	Name[10]	Name[4]
	22	Name[11]	Name[5]
	23	Name[12]	Name[6]
	24	Name[13]	Name[7]
	25	Name[14]	Name[8]
	26	Not used	Name[9]
	27	Not used	Name[10]
	28	Not used	Name[11]
	29	Not used	Name[12]
	30	Not used	Name[13]
	31	Not used	Name[14]

Frame example

Received frame : ELA DO, V3.0.0, Service Data			Received frame : ELA DO, V3.0.0, MFR Spec. Data																										
Name	P DO 000037		Name	P DO 000037																									
			MFR_Num	BABA102030FF																									
Raw data: 0x02010604163F2A000C095020444F20303030303337			Raw data: 0x0201060AFF570786BABA102030FF0C095020444F20303030303337																										
Details: <table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>4</td><td>0x16</td><td>0x3F2A00</td></tr><tr><td>12</td><td>0x09</td><td>0x5020444F20303030303337</td></tr></table>			LEN.	TYPE	VALUE	2	0x01	0x06	4	0x16	0x3F2A00	12	0x09	0x5020444F20303030303337	Details: <table><tr><th>LEN.</th><th>TYPE</th><th>VALUE</th></tr><tr><td>2</td><td>0x01</td><td>0x06</td></tr><tr><td>10</td><td>0xFF</td><td>0x570786BABA102030FF</td></tr><tr><td>12</td><td>0x09</td><td>0x5020444F20303030303337</td></tr></table>			LEN.	TYPE	VALUE	2	0x01	0x06	10	0xFF	0x570786BABA102030FF	12	0x09	0x5020444F20303030303337
LEN.	TYPE	VALUE																											
2	0x01	0x06																											
4	0x16	0x3F2A00																											
12	0x09	0x5020444F20303030303337																											
LEN.	TYPE	VALUE																											
2	0x01	0x06																											
10	0xFF	0x570786BABA102030FF																											
12	0x09	0x5020444F20303030303337																											

I. "PIR" format

Frame type		Service Data	Mfr Spec. Data
Version		≥3.0.1	≥3.0.1
Octets frame	1	Length: 0x02	Length: 0x02
	2	Type : 0x01	Type : 0x01
	3	Data : 0x06	Data : 0x06
	4	Length: 0x05	Length: 0x06
	5	Type : 0x16	Type: 0xFF
	6	Rainfall Carac. LSB : 0x78	ELA_CIN_LSB : 0x57
	7	Rainfall Carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8	PIR Data (cnt + state) LSB	PIR_DATA_ID: 0x92
	9	PIR Data (cnt + state) MSB	PIR Data (cnt + state) LSB
	10	Length: ≤0x0F	PIR Data (cnt + state) MSB
	11	Type : 0x09	Length: ≤0x0F
	12	Name[0]	Type : 0x09
	13	Name[1]	Name[0]
	14	Name[2]	Name[1]
	15	Name[3]	Name[2]
	16	Name[4]	Name[3]
	17	Name[5]	Name[4]
	18	Name[6]	Name[5]
	19	Name[7]	Name[6]
	20	Name[8]	Name[7]
	21	Name[9]	Name[8]
	22	Name[10]	Name[9]
	23	Name[11]	Name[10]
	24	Name[12]	Name[11]
	25	Name[13]	Name[12]
	26	Name[14]	Name[13]
	27	Not used	Name[14]
	28	Not used	Not used
	29	Not used	Not used
	30	Not used	Not used
	31	Not used	Not used

Frame example

Received frame : ELA PIR, V3.0.1, Service Data				Received frame : ELA PIR, V3.0.1, MFR Spec. Data			
Name		ELA_PUCK_PIR_01		Name		ELA_PUCK_PIR_01	
Evt. counter	13	Mouvement state	Detected	Evt. counter	78	Mouvement state	Not detected
Raw data:				Raw data:			
0x0201060516782A1B001009454C415F5055434B5F5049525F3031				0x02010608FF5707929C0000001009454C415F5055434B5F5049525F3031			
Details:				Details:			
LEN.	TYPE	VALUE		LEN.	TYPE	VALUE	
2	0x01	0x06		2	0x01	0x06	
5	0x16	0x782A1B00		8	0xFF	0x5707929C000000	
16	0x09	0x454C415F5055434B5F5049525F3031		16	0x09	0x454C415F5055434B5F5049525F3031	

m. "Touch" format

Frame type	Service Data	Mfr Spec. Data
Version	≥4.0.0	≥4.0.0
Octets frame	1 Length: 0x02	Length: 0x02
	2 Type : 0x01	Type : 0x01
	3 Data : 0x06	Data : 0x06
	4 Length: 0x05	Length: 0x06
	5 Type : 0x16	Type: 0xFF
	6 Altitude Carac. LSB : 0xB3	ELA_CIN_LSB : 0x57
	7 Altitude Carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8 Touch Data (cnt + state) LSB	TOUCH_DATA_ID: 0x61
	9 Touch Data (cnt + state) MSB	Touch Data (cnt + state) LSB
	10 Length: ≤0x0F	Touch Data (cnt + state) MSB
	11 Type : 0x09	Length: ≤0x0F
	12 Name[0]	Type : 0x09
	13 Name[1]	Name[0]
	14 Name[2]	Name[1]
	15 Name[3]	Name[2]
	16 Name[4]	Name[3]
	17 Name[5]	Name[4]
	18 Name[6]	Name[5]
	19 Name[7]	Name[6]
	20 Name[8]	Name[7]
	21 Name[9]	Name[8]
	22 Name[10]	Name[9]
	23 Name[11]	Name[10]
	24 Name[12]	Name[11]
	25 Name[13]	Name[12]
	26 Name[14]	Name[13]
	27 Not used	Name[14]
	28 Not used	Not used
	29 Not used	Not used
	30 Not used	Not used
	31 Not used	Not used

Frame example

Received frame : ELA Touch, V4.0.0, Service Data				Received frame : ELA Touch, V4.0.0, MFR Spec. Data			
Name	BE_LITE_TOUCH			Name	BE_LITE_TOUCH		
Evt. counter	9	Button state	Pressed	Evt. counter	21	Button state	Released
Raw data:				Raw data:			
0x0201060516B32A13000E0942455F4C4954455F544F554348				0x02010606FF5707612A000E0942455F4C4954455F544F554348			
Details:				Details:			
LEN.	TYPE	VALUE		LEN.	TYPE	VALUE	
2	0x01	0x06		2	0x01	0x06	
5	0x16	0xB32A1300		6	0xFF	0x5707612A00	
14	0x09	0x42455F4C4954455F544F554348		14	0x09	0x42455F4C4954455F544F554348	

TOUCH Data

Name

n. "PROXIR format

Frame type		Service Data	Mfr Spec. Data
Version		≥4.0.0	≥4.0.0
Octets frame	1	Length: 0x02	Length: 0x02
	2	Type : 0x01	Type : 0x01
	3	Data : 0x06	Data : 0x06
	4	Length: 0x05	Length: 0x06
	5	Type : 0x16	Type: 0xFF
	6	Altitude Carac. LSB : 0x8E	ELA_CIN_LSB : 0x57
	7	Altitude Carac. MSB : 0x2A	ELA_CIN_MSB: 0x07
	8	Distance Data (mm) + integrity bit LSB	PROXIR_DATA_ID: 0x91
	9	Distance Data (mm) MSB	Distance Data (mm) + integrity bit LSB
	10	Length: ≤0x0F	Distance Data (mm) MSB
	11	Type : 0x09	Length: ≤0x0F
	12	Name[0]	Type : 0x09
	13	Name[1]	Name[0]
	14	Name[2]	Name[1]
	15	Name[3]	Name[2]
	16	Name[4]	Name[3]
	17	Name[5]	Name[4]
	18	Name[6]	Name[5]
	19	Name[7]	Name[6]
	20	Name[8]	Name[7]
	21	Name[9]	Name[8]
	22	Name[10]	Name[9]
	23	Name[11]	Name[10]
	24	Name[12]	Name[11]
	25	Name[13]	Name[12]
	26	Name[14]	Name[13]
	27	Not used	Name[14]
	28	Not used	Not used
	29	Not used	Not used
	30	Not used	Not used
	31	Not used	Not used

7. CUSTOM FRAME

a. Specification Rules

Firmware version $\geq 4.0.0$ offers the possibility to customize entirely the frame format of the advertising and scan response payloads. The custom frame format are defined during the tag production and will remain identical all over the operation of the tag.

Custom frame format specification follow the following rules:

- Frames are split in blocks that in turns, define the value of several bytes. A maximum of 5 blocks can be defined for each of the Advertising and Scan Response frame.
- Blocks are ordered which means that the bytes defined by the first block will be on the most significant side, the bytes defined by the second block will follow and so on.
- Block can be conditional which means that a block can be included in the payload only if a condition on sensor data is verified. A maximum of 2 conditional blocks per frame can be defined. For each conditions, the block can be defined when the condition is valid or invalid.
- If the sum of the number of bytes over all blocks must not exceed 28 - number of blocks, extra bytes are discarded
- Bloc type must be defined among the list of table 1
- Data included in a block can be of following types (table 1)
 - o A static hexadecimal value (table 1)
 - o Sensor data (table 1)
- Sensor value can be specifically rescaled and formatted (table 1)

Bloc type	Conditions	Data type			Scaling	Data format
		hex	Local naming	Sensor		
Incomplete List of UUID16	Always present	CIN_UUID1	NAME	T	X1000	uint8
Complete List of UUID16	Strictly inferior		MFR_ID	RH	X100	int8
Incomplete List of UUID32	Strictly superior		Eddystone NID	MAG (cpt + état)	X10	uint16 LSB
Complete List of UUID32	Equal to		Eddystone BID	MOV (cpt + état)	X1	uint16 MSB
Incomplete List of UUID128	In between		iBeacon UUID	ACC_X	/10	int16 LSB
Complete List of UUID128	Outside		iBeacon MAJOR	ACC_Y	/100	int16 MSB
Shortened Local Name			iBeacon MINOR	ACC_Z	/1000	uint32 [0-7]
Complete Local Name				DI (cpt + état)		uint32 [8-15]
TX Power level				AI		uint32 [16-23]
Solicited list of UUID16				PIR (cpt + état)		uint32 [24-31]
Solicited list of UUID128				CHOC		int32 [0-7]
Service Data 16				Tension pile		int32 [8-15]
Service Data 32				Capacité pile (%)		int32 [16-23]
Service Data 128				Puissance TX à 0m		int32 [24-31]
Manufacturer Specific Data				Puissance TX à 1m		FP32 [0-7]
				Compteur MAG		FP32 [8-15]
				Etat MAG		FP32 [16-23]
				Compteur MOV		FP32 [24-31]
				Etat MOV		FP24 [0-7]
				Compteur DI		FP24 [8-15]
				Etat DI		FP24 [16-23]
				Compteur PIR		
				Etat PIR		
				Puissance TX brute		
				Touch (cpt + état)		
				Compteur TOUCH		
				Etat TOUCH		
				Distance (PROXIR)		

Specifications could be modified without any notification. Non-contractual document.

b. Examples

Temperature sensor data with standard “Service data” type with constant ASCII string as “complete local name”

In this first example, the advertising frame is specified as follow:

N° Block	Conditionality	Type	N° Byte within block	Data type and scaling	Value or data format
1	Always present	Service data 16	1	Static value	6E
			2		2A
			3	Sensor T x100	In16 LSB
			4		Int16 MSB
2	Always present	Complete local name	1	Static value	E
			2		L
			3		A
			4		(space)
			5		I
			6		N
			7		N
			8		O
			9		V
			10		A
			11		T
			12		I
			13		O
			14		N

As a result the advertising payload will be the following (27°C):

Raw data:

0x02010605166E2AAB0A0F09454C4120494E4E
4F564154494F4E

Details :

LEN.	TYPE	VALUE
2	0x01	0x06
5	0x16	0x6E2AAB0A
11	0x09	0x454C4120494E4E4F564154494F4E

0x6E2A : Temperature service

T° data:

- 0xAB : LSB
- 0x0A : MSB

T° = 0xAAB = 2731 * 0.01 = 27.31°C

Name (ASCII) : ELA INNOVATION

Note: For a negative temperature, data is sent in 2-complement: for example, -27.31°C is 6E2A55F5

Magnetic sensor data with "Manufacturer Specific data" data type (ELA specific), name with "service data type" and conditional name block

In this first example, the advertising frame is specified as follow:

N° Block	Conditionality	Type	Length	N° Byte	Data type	Value / format
1	Always present	Manufacturer data	5	1	Static value	57
				2		07
				3	Static value	32
				4	Sensor MAG (Event + counter)	In16 LSB
				5		Int16 MSB
2	Conditional MAG State value =1	Complete local name	5	1	Static value	C
				2		L
				3		O
				4		S
				5		E
	Complementary (MAG State value = 0)	Complete local name	4	1	Static Value	O
				2		P
				3		E
				4		N

As a result the advertising payload will be the following:

Case 1: The magnetic sensor detect a magnetic field

Raw data:

0x02010606FF570732FB0A0609434c4f5345

Details :

LEN.	TYPE	VALUE
2	0x01	0x06
5	0xFF	0x570732FB0A
6	0x09	0x434c4f5345

CLOSE (ASCII)

0x5707 : ELA Innovation Compagny Identifier
0x32 : Magnetic sensor data (ELA Mfr Specific data type)

MAG data:

- 0xFB : LSB
- 0x0A : MSB

Hexa.	0	A	F	B
Binary	0000	1010	1111	1011

- ⇒ 1: instantaneous sensor state (magnet present)
- ⇒ 1010 1111 101: event counter value on 15 bits, 1405 in this example

Case 2: The magnetic sensor detects a magnetic field

Raw data:

0x02010606FF570732FA0A05094f50454e

Details :

LEN.	TYPE	VALUE
2	0x01	0x06
5	0xFF	0x570732FA0A
5	0x09	0x4f50454e

OPEN (ASCII)

0x5707 : ELA Innovation Compagny Identifier
0x32 : Magnetic sensor data (ELA Mfr Specific data type)

MAG data:

- 0xFA : LSB
- 0x0A : MSB

Hexa.	0	A	F	A
Binary	0000	1010	1111	1010

- ⇒ 0: instantaneous sensor state (magnet present)
- ⇒ 1010 1111 101: event counter value on 15 bits, 1405 in this example