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 IDF25240 / IDF26240
Blue PUCK T EN12830 IDF25241 / IDF26241
Blue PUCK RHT IDF25242
Blue PUCK MAG IDF25243 / IDF26243
Blue PUCK MOV IDF25244
Blue PUCK BUZZ IDF25245
Blue PUCK DI IDF25246
Blue PUCK T Probe IDF25250
Blue PUCK PIR IDF25249
Blue PUCK ID+ IDF25253

Blue COIN ID / AERO ID IDF10240
Blue COIN T IDF10241
Blue COIN MAG IDF10243
Blue COIN MOV IDF10244
Blue COIN ID+ IDF10253

Blue SLIM ID IDF03240

Blue LITE ID IDF28240
Blue LITE ID+ IDF28253
Blue LITE TOUCH IDF28255

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.

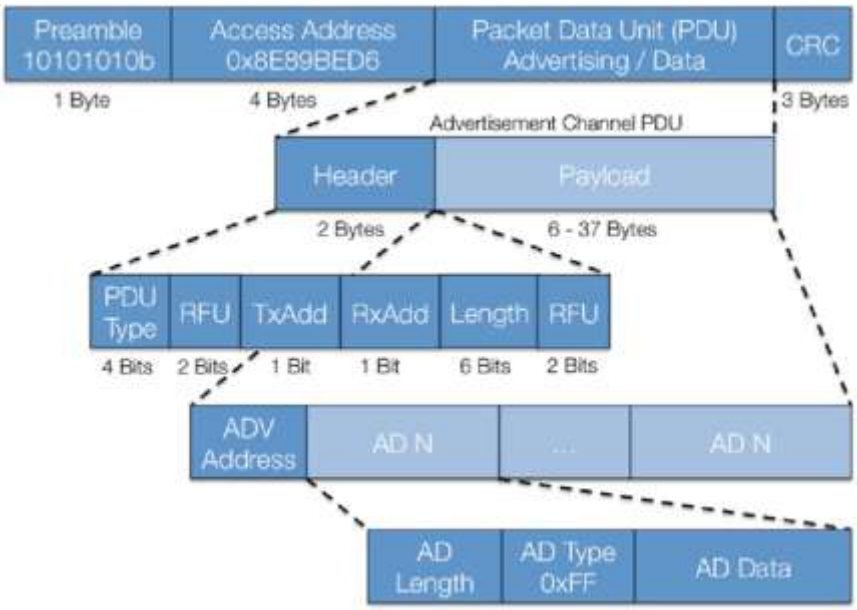
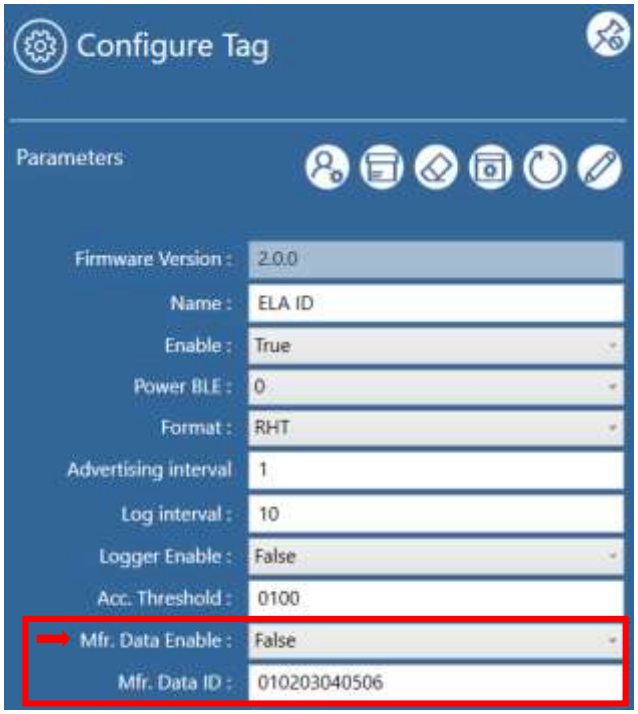


Figure 1 : Advertising frame format as per BLE SIG specifications

a. “Services Data” and “Manufacturer specific Data”

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 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.



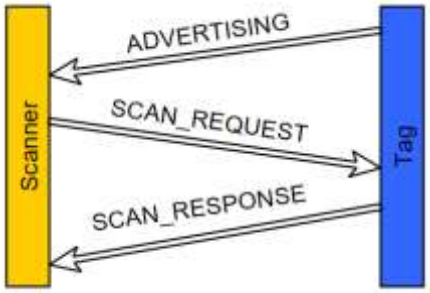
For a tag firmware below 2.0.0, the data advertised is always into Service datas.

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. More information at https://www.ela-innovation.com/

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%.

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	
Name	*BE_BATTERY*
Battery cap.	*13% (0x0D)*

Raw data:

0x0201060B0942455F424154544552590416192A0D

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
11	0x09	0x42455F42415454455259
4	0x16	0x192A0D

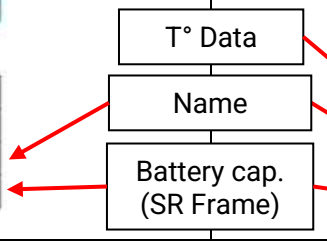
Received frame : ELA T, MFR Spec. Data, v3.0.0 Battery voltage presence = 0	
Name	*BE_BATTERY*
Measured temp.	*27.12°C (0x0A98)*
Battery cap	*13% (0x0D)*

Raw data:

0x02010606FF570712980A0B0942455F4241545445525905FF5707F10D

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
6	0xFF	0x570712980A
11	0x09	0x42455F42415454455259
5	0xFF	0x5707F10D



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

Received frame : iBeacon, v2.1.0, MFR Spec. Data Battery voltage presence = 0	
Name	*BE_BATTERY*
Battery cap.	*13% (0x0D)*

Raw data:

0x0201061AFF4C000215010203040506070809 0A0B0C0D0E0F10020B010AC404160F180D0B0942455F42415454455259

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
26	0xFF	0x4C000215010203040506070809 0A0B0C0D0E0F10020B010AC4
4	0x16	0x0F180D
11	0x09	0x42455F42415454455259

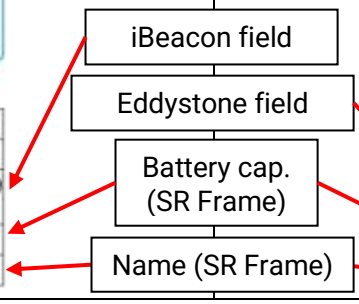
Received frame : Eddystone, v3.0.0 Battery voltage presence = 0	
Name	*BE_BATTERY*
Battery cap.	*13% (0x0D)*

Raw data:

0x0201060303AAFE1716AAFE00ED0102030405060708090A010203040A0B000004 16192A0D0B0942455F42415454455259

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
3	0x03	0xAAFE
23	0x16	0xAAFE00ED010203040506070809 0A010203040A0B0000
4	0x16	0x192A0D
11	0x09	0x42455F42415454455259



Received frame : iBeacon, v3.0.0 Battery voltage presence = 1	
Name	*BE_BATTERY*
Batt. voltage	*2.478V (0x09AE)*

Raw data:

0x0201061AFF4C000215010203040506070809 0A0B0C0D0E0F10020B010AC406FF5707F2AE090B0942455F424154544552 59

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
26	0xFF	0x4C000215010203040506070809 0A0B0C0D0E0F10020B010AC4
6	0xFF	0x5707F2AE09
11	0x09	0x42455F42415454455259

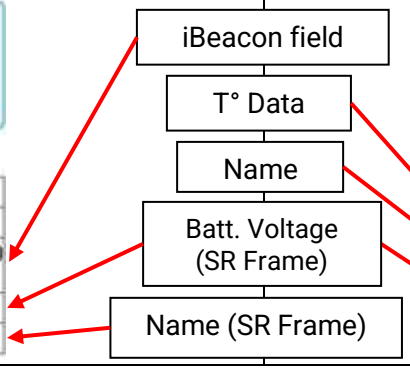
Received frame : ELA T, Service Data, v3.0.0 Battery voltage presence = 1	
Name	*BE_BATTERY*
Measured temp	*21.87°C (0x088B)*
Batt. voltage	*2.988 V (0x0BAC)*

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.

a. “ID”, “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

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
16	0x09	0x42455F544553545F4B204944204139

ID Mfr Data

Name

Raw data:

0x0201060AFF570706AABBCCDDEEFF0B0942455F544553545F4944

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
10	0xFF	0x570706AABBCCDDEEFF
11	0x09	0x42455F544553545F4944

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:

0x0201061AFF4C000215FF02030405FF0
708090AA00C0D0E0F115555AAAAC40C0
9502049442030303242454 1

iBeacon field

Name (SR Frame)

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
26	0xFF	0x4C000215FF02030405FF0708090 AA00C0D0E0F115555AAAAC4
12	0x09	0x502049442030303242454 1

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
C0950204944203030324245 41

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
3	0x03	0xAAFE
23	0x16	0xAAFE00EDAA020FF40506070809 FF01FA03BB05DD0000
12	0x09	0x5020494420303032424541

Eddystone field

Name (SR Frame)

i. “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	
Name	*P T 801803*
Measured Temp.	*0x0A6C = 26.68°C*

Raw data:

0x02010605166E2A6C0A0B09502054203
83031383033

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
5	0x16	0x6E2A6C0A
11	0x09	0x50205420383031383033

Received frame : ELA T, MFR Spec. Data	
Name	*P T 801803*
Measured Temp.	*0x0A85 = 26.93°C*

Raw data:

0x02010606FF570712850A0B095020542
0383031383033

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
6	0xFF	0x570712850A
11	0x09	0x50205420383031383033

T° Data

Name

d. “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:

0x02010605166E2A8A0A04166F2A2F0D0
9502052485420393030343539

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
5	0x16	0x6E2A8A0A
4	0x16	0x6F2A2F
13	0x09	0x5020524854203930303435 39

T° Data

RH Data

RH & T° Data

Name

Raw data:

0x02010608FF5707213012B80A0D09502
05248542039303034 3539

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
8	0xFF	0x5707213012B80A
13	0x09	0x5020524854203930303435 39

e. “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:

0x0201060516062A090004163F2A000D0
950204D414720433030363245

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
5	0x16	0x062A0900
4	0x16	0x3F2A00
13	0x09	0x50204D414720433030363245

MAG Data

ELA MAG ID

Name

Raw data:

0x02010606FF5707320A000D0950204D4
14720433030363245

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
6	0xFF	0x5707320A00
13	0x09	0x50204D414720433030363245

f. “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			
Name	*P MOV B00557*		
Event counter	***3***	***Mvt state***	*In progress*

Raw data:

0x0201060516062A070004163F2A010D0
950204D4F5620423030353537

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
5	0x16	0x062A0700
4	0x16	0x3F2A01
13	0x09	0x50204D4F5620423030353537

MOV Data

ELA MOV ID

Name

Received frame : ELA MOV, V3.0.0, MFR Spec. Data			
Name	*P MOV B00557*		
Event counter	***6***	***Mvt state***	*No mvt*

Raw data:

0x02010606FF5707420C000D0950204D4
F5620423030353537

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
6	0xFF	0x5707420C00
13	0x09	0x50204D4F5620423030353537

g. “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

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
9	0x16	0xA12AB9FF07008404
13	0x09	0x50204D4F5620423030353537

ANG Data

Name

Raw data:

0x0201060AFF570756B8FFECFFACFC0D0
950204D4F5620423030353537

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
10	0xFF	0x570756B8FFECFFACFC
13	0x09	0x50204D4F5620423030353537

h. “DI” format (Digital Input)

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			
Name	*BE_TEST_TORIN*		
Evt. counter	*5*	***Input state***	*Released*

Raw data:

0x0201060516062A0A0004163F2A020E0
942455F544553545F544F52494E

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
5	0x16	0x062A0A00
4	0x16	0x3F2A02
14	0x09	0x42455F544553545F544F52494E

DIGI_IN Data

ELA DIGI_IN ID

Name

Received frame : ELA DI, V3.0.0, MFR Spec. Data			
Name	*BE_TEST_TORIN*		
Evt. counter	*5*	***Input state***	*Released*

Raw data:

0x02010606FF5707620A000E0942455F5
44553545F544F52494E

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
6	0xFF	0x5707620A00
14	0x09	0x42455F544553545F544F52494E

i. “PIR” format

Frame type		Service Data	Mfr Spec. Data
Version		≥3.0.1	≥3.0.1
Octets trame	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			
Name	*ELA_PUCK_PIR_01*		
Evt. counter	*13*	***Mouvement state***	*Detected*

Raw data:

0x0201060516782A1B001009454C415F50554 34B5F5049525F3031

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
5	0x16	0x782A1B00
16	0x09	0x454C415F5055434B5F5049525F3031

Received frame : ELA PIR, V3.0.1, MFR Spec. Data			
Name	*ELA_PUCK_PIR_01*		
Evt. counter	*78*	***Mouvement state***	*Not detected*

Raw data:

0x02010606FF5707929C001009454C415F505 5434B5F5049525F3031

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
6	0xFF	0x5707929C00
16	0x09	0x454C415F5055434B5F5049525F3031

PIR Data

Name

j. “Touch” format

Frame type		Service Data (Legacy)	Mfr Spec. Data (Legacy)	iBeacon format
Version		≥4.1.1	≥4.1.1	≥4.1.1
Octets trame	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: 0x06	Length : 0x1A
	5	Type : 0x16	Type: 0xFF	Type : 0xFF
	6	*Altitude* Carac. LSB : 0xB3	ELA_CIN_LSB : 0x57	Apple CIN_LSB : 0x4C
	7	*Altitude* Carac. MSB : 0x2A	ELA_CIN_MSB: 0x07	Apple CIN_MSB : 0x00
	8	Touch Data (cnt + state) LSB	TOUCH_DATA_ID: 0xB2	Beacon type : 0x02
	9	Touch Data (cnt + state) MSB	Touch Data (cnt + state) LSB	Data size : 0x15
	10	Length: ≤0x0F	Touch Data (cnt + state) MSB	Touch_Fixed_ID[0]: 0x45
	11	Type : 0x09	Length: ≤0x0F	Touch_Fixed_ID[1]: 0x4C
	12	Name[0]	Type : 0x09	Touch_Fixed_ID[2]: 0x41
	13	Name[1]	Name[0]	Touch_Fixed_ID[3]: 0x20
	14	Name[2]	Name[1]	Touch_Fixed_ID[4]: 0x49
	15	Name[3]	Name[2]	Touch_Fixed_ID[5]: 0x4E
	16	Name[4]	Name[3]	Touch_Fixed_ID[6]: 0x4E
	17	Name[5]	Name[4]	Touch_Fixed_ID[7]: 0x4F
	18	Name[6]	Name[5]	Touch_Fixed_ID[8]: 0x56
	19	Name[7]	Name[6]	Touch_Fixed_ID[9]: 0x41
	20	Name[8]	Name[7]	Touch_Fixed_ID[10]: 0x54
	21	Name[9]	Name[8]	Touch_Fixed_ID[11]: 0x49
	22	Name[10]	Name[9]	Touch_Fixed_ID[12]: 0x4F
	23	Name[11]	Name[10]	Touch_Fixed_ID[13]: 0x4E
	24	Name[12]	Name[11]	Touch_Fixed_ID[14]: 0x20
	25	Name[13]	Name[12]	Touch_State
	26	Name[14]	Name[13]	Touch_Major[0]: 0x32
	27	Not used	Name[14]	Touch_Major[1]: 0x34
	28	Not used	Not used	Touch_Serial_ID[0]
	29	Not used	Not used	Touch_Serial_ID[1]
	30	Not used	Not used	Power TX at 1m
	31	Not used	Not used	Not used

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 : ELA iBeacon Touch, V4.1.1			
Name	*L TO 000001*		
Serial ID	*0x4227*	***Button state***	*Pressed*

Raw data:

```
0x0201061AFF4C000215454C4120494E4E4F5
64154494F4E200132344227C410094C20544F
2030303030303100000000
```

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
26	0xFF	0x4C000215454C4120494E4E4F564154494F4E200132344227C4
16	0x09	0x4C20544F2030303030303100000000

Received frame : ELA iBeacon Touch, V4.1.1			
Name	*L TO 000001*		
Serial ID	*0x4270*	***Button state***	*Released*

Raw data:

```
0x0201061AFF4C000215454C4120494E4E4F5
64154494F4E200032344270C410094C20544F
2030303030303100000000
```

Details:

LEN.	TYPE	VALUE
2	0x01	0x06
26	0xFF	0x4C000215454C4120494E4E4F564154494F4E200032344270C4
16	0x09	0x4C20544F2030303030303100000000

TOUCH Data

Name