

## RFID tags and badges

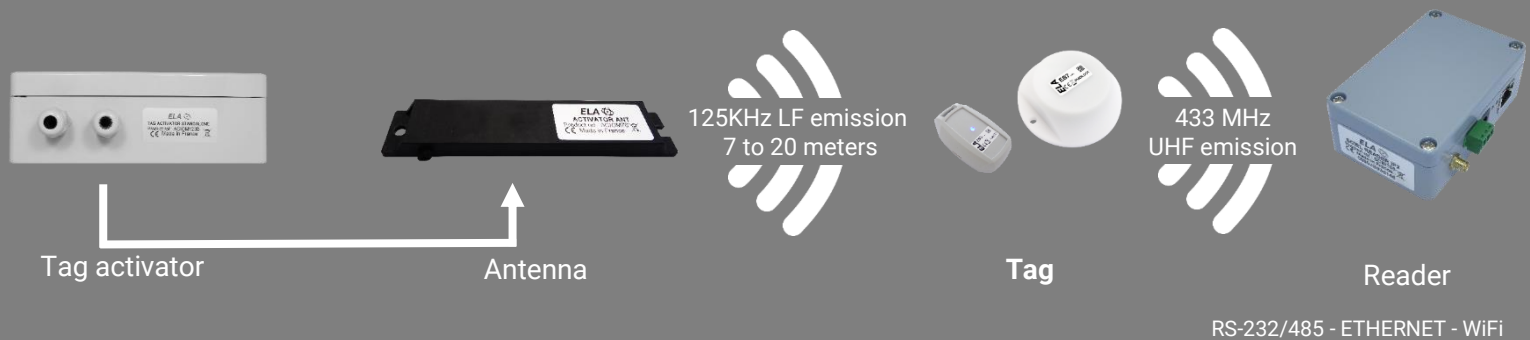
### PUCK DOT Ref. IDF2570



#### High-precision tracking and localization

- Active RFID tag with dual-band LF and UHF
- Low-frequency detection distance from **7 to 20 meters**, depending on antenna type
- Highly accurate distance detection** (+/- 7%)
- Long UHF emission range: up to **150 meters** free field
- Long battery life: **8 to 14 years**
- Robust industrial casing – **Waterproof rating: IP68**

**PUCK DOT** is an active RFID tag that operates on **two frequencies: 125 KHz for reception and 433 MHz for emission**. Low-frequency reception enables **extremely accurate distance measurement**, compatible with even highly metallic environments. UHF emission offers greater detection distance, reaching over 100 meters. PUCK DOT has **long battery life** and **robust, waterproof casing**.



## Principle

Architecture for the **DOT identification system** is comprised of the TAG ACTIVATOR module, emitting a stable and precise magnetic field periodically at low-frequency (LF), and the TAG DOT, whose long-range UHF RFID emission is activated in response to the magnetic field. All RFID receivers in the standard ELA Innovation product line can collect emissions from activated DOT TAGS.

**Two omnidirectional, 360°, LF antenna models** are available for **TAG ACTIVATOR**: the medium range ACTIVATOR ANT reaching up to about 7 meters, and the long-range ACTIVATOR PANEL ANT for range up to 20 meters.

## 1 TECHNICAL SPECIFICATIONS

### TECHNICAL SPECIFICATIONS

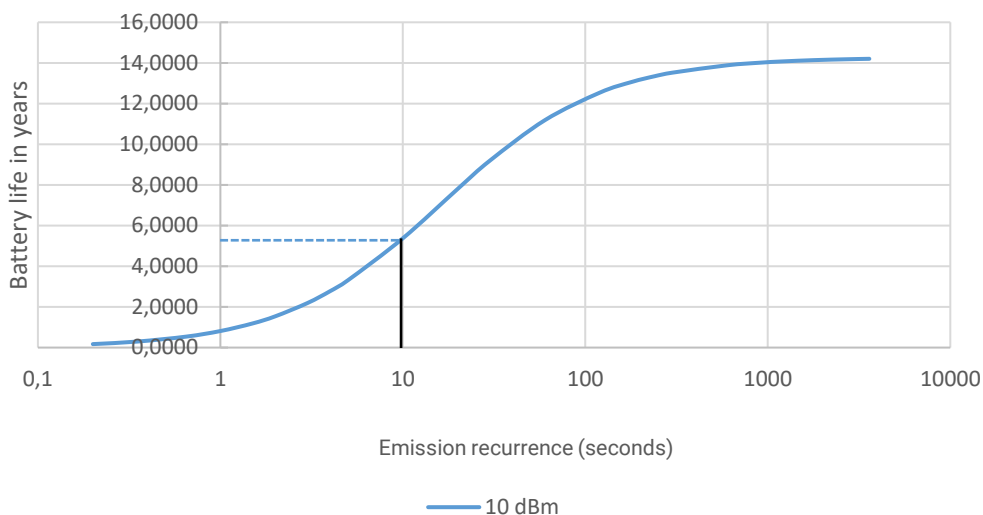
|                         |                                                                                                                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply            | 3.6 VDC – Internal battery (Li-SOCl <sub>2</sub> )                                                                                                                                   |
| Frequency               | 433.92 MHz emission                                                                                                                                                                  |
| Emission settings       | 24 bits or 32 bits: ID tag, LF reception level, ID ACTIVATOR                                                                                                                         |
| Compatible readers      | SCIEL READER products                                                                                                                                                                |
| Configuration           | EDOT software with SCIEL PROG IR tool                                                                                                                                                |
| Maximum range emission  | 150 m (free field and 10 dBm output power)                                                                                                                                           |
| Frequency               | 125 KHz reception                                                                                                                                                                    |
| Maximum range reception | 7 m to ACTIVATOR (free field) with included antenna<br>20 m to ACTIVATOR (free field) with external antenna                                                                          |
| Indicative duration     | 8 years (10 sec. transmission rate)<br>Maximum 14 years                                                                                                                              |
| Duty cycle              | Depends on ACTIVATOR emission cycle                                                                                                                                                  |
| Indicator               | Red LED indicates reception of LF activation signal                                                                                                                                  |
| Operating temperature   | -40°C to +85°C                                                                                                                                                                       |
| Protection index        | IP68 – Protected from long term immersion                                                                                                                                            |
| Battery management      | Specific code sent at end of battery's life                                                                                                                                          |
| Casing                  | Ø 57 mm base - height 18 mm - IP 68 waterproof –<br>Weight: 36 g<br>DELRIN (POM C) - Compatible with food products<br>(90/128/EEC)<br>2 mounting holes, Ø 4 mm center distance 49 mm |
| Weight                  | 36g                                                                                                                                                                                  |
| Standards               | EN 301 489-3: 2013 V1.6.1;<br>EN 300 220-2012: V2.4.1;<br>CE; RoHS                                                                                                                   |
| Accessory               | PUCK HOLDER (ACIOM117) – Not included                                                                                                                                                |



**PUCK DOT** with its **PUCK HOLDER** mount

## 2 AUTONOMY

Average PUCK DOT battery life based on period



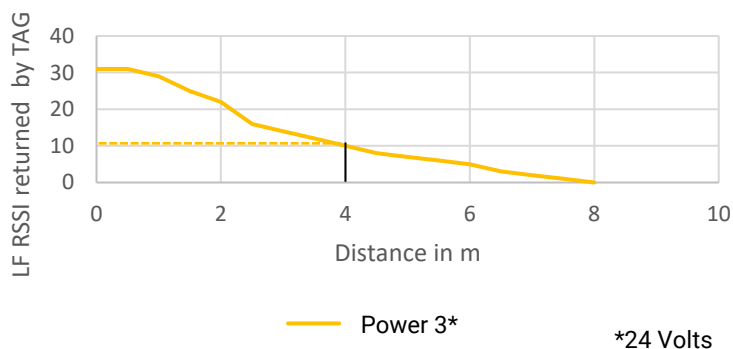
### Sample calculation for PUCK DOT battery life

- For 10 sec. emission cycle, tag battery life at 10 dBm is 5 years.
- For 60 sec. emission cycle, tag battery life at 10 dBm is 11 years.
- Tag configurable for 0 dBm or 10 dBm.

Average PUCK DOT battery life based on average emission period

## 3 LOW-FREQUENCY DETECTION DISTANCE

ACTIVATOR ANT  
LF RSSI based on distance



### Sample calculation of LF RSSI level for ACTIVATOR ANT

#### Adjustment level of magnetic LF field range

Power 3\*: Max from 0 to 7 m

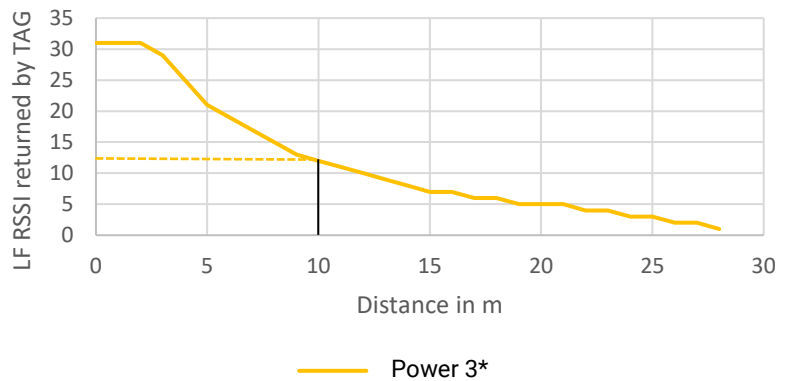
#### Sample RSSI LF value returned by badge at 4 meters

Power 3\*: 10

\* Power curve 3 available only for ACTIVATOR powered by 24 VDC  
RSSI: LF signal strength received by badge  
Maximum values measured in unconstrained laboratory conditions

Signal power value returned based on distance and type of LF antenna

### ACTIVATOR PANEL ANT LF RSSI based on distance



\*24 Volts

### Sample calculation of LF RSSI level for ACTIVATOR PANEL ANT

Adjustment level of magnetic LF field range

Power 3\*: Max from 0 to 28 m

Sample RSSI LF value returned by badge at 10 meters

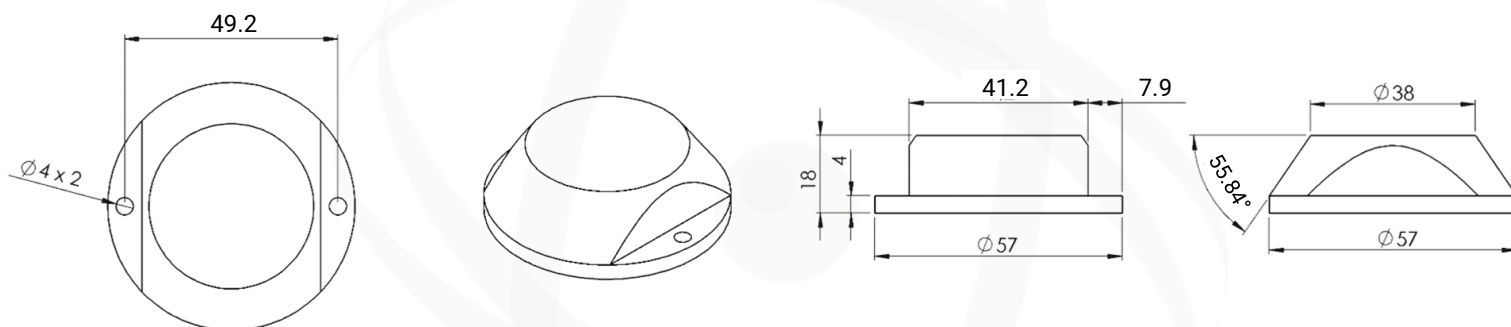
Power 3\*: 12

\* Power curve 3 available only for ACTIVATOR powered by 24 VDC

RSSI: LF signal strength received by badge

Maximum values measured in unconstrained laboratory conditions

## 4 MECHANICAL DIMENSIONS



Mechanical dimensions (mm)



PUCK DOT in situation

## 5 REFERENCES AND VERSIONS

| MODEL                                               | P/N<br>REFERENCE | SPECIFICATIONS                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#"><u>TAG ACTIVATOR<br/>STANDALONE</u></a> | <b>ACIOM123B</b> | Electronic DOT badge activation module; 1 integrated antenna; 2 antenna outputs with cable glands; 12 or 24 VDC power supply; IP65 waterproof polycarbonate casing, 160 x 100 x 60 mm; configuration with USB setup cable and EDOT software                                                                                    |
| <a href="#"><u>TAG ACTIVATOR</u></a>                | <b>ACIOM75B</b>  | Version in casing, without antenna                                                                                                                                                                                                                                                                                             |
| <a href="#"><u>TAG ACTIVATOR<br/>OEM</u></a>        | <b>ACIOM43B</b>  | Electronic board version without casing, with mounted antenna                                                                                                                                                                                                                                                                  |
| <a href="#"><u>TAG DOT</u></a>                      | <b>IDF2470</b>   | LF and UHF 433 MHz dual-band activatable badge; ABS casing, 60 x 40 x 18 mm; user-replaceable battery; key ring or neck strap loop; LED activation indicator; configuration using SCIEL PROG IR tool and EDOT software                                                                                                         |
| <a href="#"><u>PUCK DOT</u></a>                     | <b>IDF2570</b>   | LF and UHF 433 MHz dual-band activatable tag; long-range UHF emission up to 150 meters; long battery life; LF detection range from 7 to 15 meters, depending on the antenna; white DELRIN casing; IP68 waterproof; diameter 56 mm; thickness: 19 mm; 2 mounting holes; configuration with SCIEL PROG IR tool and EDOT software |
| <a href="#"><u>ACTIVATOR ANT</u></a>                | <b>ACIOM76</b>   | Activation antenna with 5-meter cable; 2-point terminal connector; dimensions 145 x 26 x 12 mm; 2 mounting holes; black ABS casing, potted, waterproof                                                                                                                                                                         |
| <a href="#"><u>ACTIVATOR PANEL<br/>ANT</u></a>      | <b>ACIOM113</b>  | DOT Activator Antenna; long-range; ABS casing; dimensions 130 x 278 x 558 mm; 4-switch for antenna connection; IP67 waterproof; 2 cable glands; 1 SMA connector for RFID antenna                                                                                                                                               |
| <a href="#"><u>SETUP CABLE</u></a>                  | <b>ACIOM89</b>   | USB configuration cable for Tag ACTIVATOR                                                                                                                                                                                                                                                                                      |