

Active RFID tags and badges

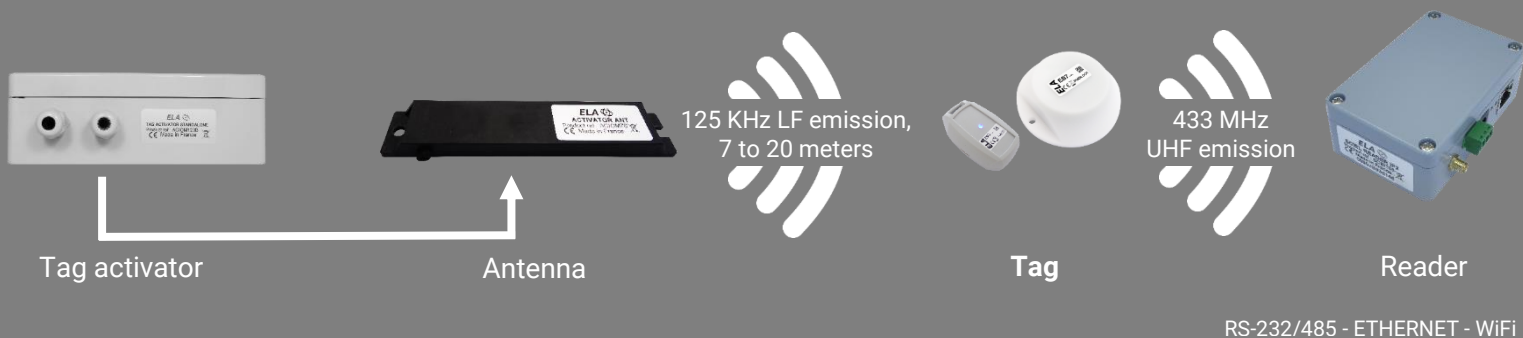
TAG DOT Ref. IDF2470



High-precision tracking and localization

- 🕒 Active RFID tag with dual-band LF and UHF
- 🕒 Configurable TAG identifier (R/W)
- 🕒 Low-frequency detection distance from **7 to 20 meters**, depending on antenna type
- 🕒 **Highly accurate distance detection** (+/- 7%)
- 🕒 Long UHF emission range: up to **90 meters** free field
- 🕒 Battery life: up to **3 yrs.** (based on settings)
- 🕒 Robust industrial casing – **Waterproof rating: IP65**

TAG DOT is an active RFID tag that operates on **two frequencies: 125 MHz 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, in the range of about **90 meters**.



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 DOT TAG, 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.

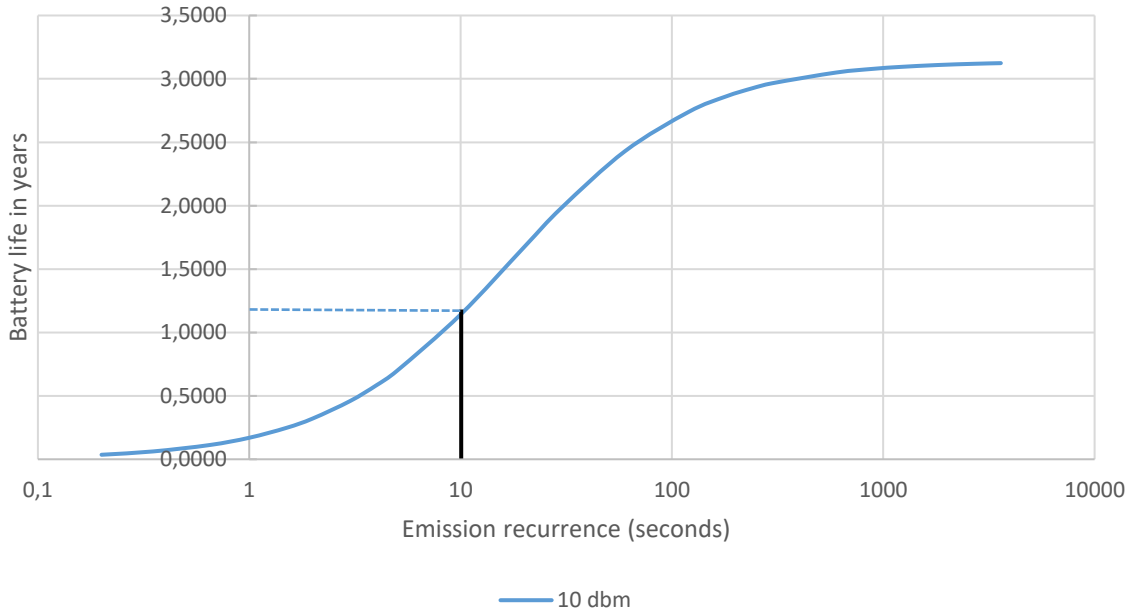
1 TECHNICAL SPECIFICATIONS

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Power supply	3 VDC – Internal battery (CR2032) – user replaceable
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	90 m (free field and 10 dBm output power)
Frequency	125 KHz reception
Maximum range reception	7 m to ACTIVATOR (free field) with included antenna 20 m to ACTIVATOR (free field) with external antenna
Indicative duration	3 years (depending on transmission rate)
Duty cycle	Depends on ACTIVATOR emission cycle
LED indicator	Red LED indicates reception of LF activation signal
Battery management	Low battery ID code (configurable), emission alternated with tag ID
Casing	Loop for key ring or neck strap Length 60 mm, width 40 mm, height 18 mm, weight 30 g, ABS plastic
Weight	27g
Protection index	IP65 – Protected against water jets
Operating temperature	-40°C to +85°C
Standards	EN 301 489 – 3: 2002 V1.4.1; EN 300 220 – 2007: V2.1.2; CE; RoHS

2 AUTONOMY

Average TAG DOT battery life based on period

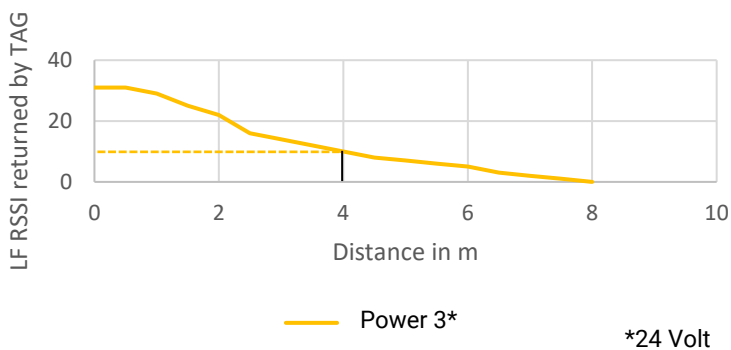


Sample calculation for TAG DOT battery life

- For 10 sec. emission cycle, tag battery life at 10 dBm is 1.1 years
- For 60 sec. emission cycle, tag battery life at 10 dBm is 2.4 years
- Tag configurable for 0 dBm or 10 dBm.

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

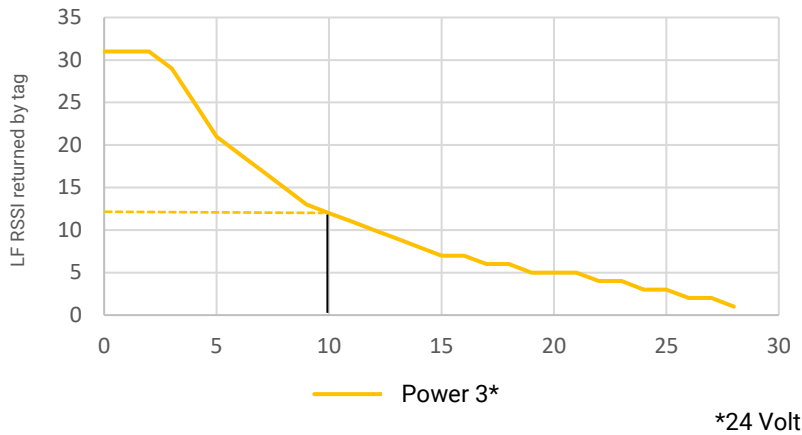
Sample RSSI LF value returned by badge at 4 meters

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

ACTIVATOR PANEL ANT
LF RSSI based on distance



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

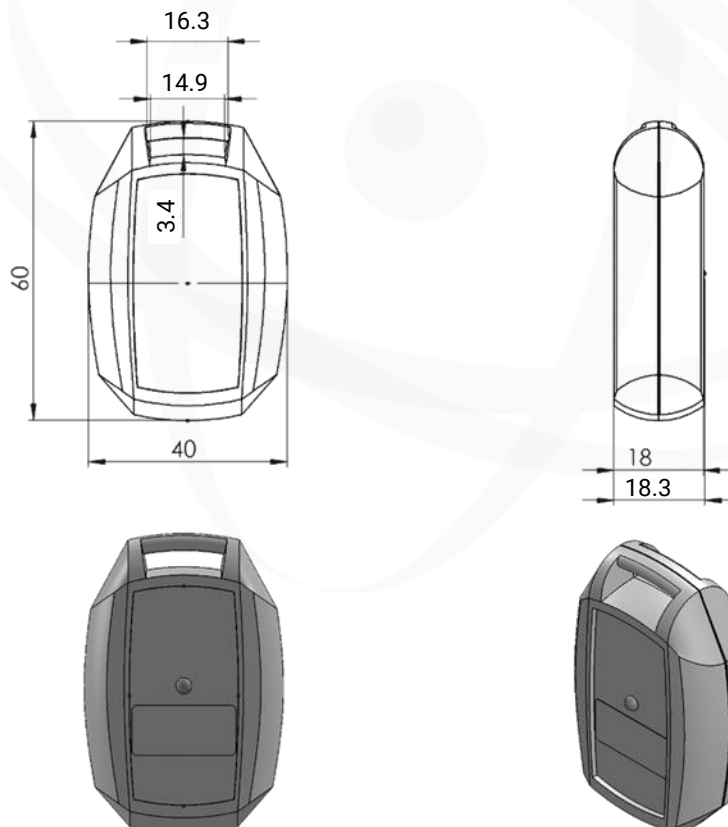
* Power curve 3 available only for ACTIVATOR powered by 24 VDC

RSSI: LF signal strength received by badge

Maximum values measured in unconstrained laboratory conditions

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

4 MECHANICAL DIMENSIONS



Mechanical dimensions (mm)

5 REFERENCES AND VERSIONS

<i>MODEL</i>	<i>P/N REFERENCE</i>	<i>SPECIFICATIONS</i>
<u>TAG ACTIVATOR STANDALONE</u>	ACIOM123B	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
<u>TAG ACTIVATOR</u>	ACIOM75B	Version in casing, without antenna
<u>TAG ACTIVATOR OEM</u>	ACIOM43B	Electronic board version without casing, with mounted antenna
<u>TAG DOT</u>	IDF2470	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
<u>PUCK DOT</u>	IDF2570	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
<u>ACTIVATOR ANT</u>	ACIOM76	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
<u>ACTIVATOR PANEL ANT</u>	ACIOM113	DOT Activator Antenna; long-range; ABS casing; dimensions 130 x 278 x 558 mm; 4 antenna adjustment switches; IP67 waterproof; 2 cable glands; 1 SMA connector for RFID antenna
<u>SETUP CABLE</u>	ACIOM89	USB configuration cable for Tag ACTIVATOR