



TÜV SÜD, Octagon House,
Concorde Way, Segensworth North, Fareham,
Hampshire, United Kingdom, PO15 5RL
Tel: +44 (0) 1489 558100
Website: www.tuv-sud.co.uk

COMMERCIAL-IN-CONFIDENCE

SAR EXCLUSION DOCUMENT

Document 75945973-10 Issue 01

Fortecho RFID Tag 433MHz Transmitter Version:

FCC Standalone SAR Test Exclusion Considerations (KDB 447498 D01 v06) Section 4.3.1 a)

100 MHz – 6 GHz – Separation Distance $\leq$ 50 mm

The 1g SAR Test exclusion thresholds for 100 MHz to 6 GHz test separation distances $\leq$ 50 mm are determined by:

$[(\text{max power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] [\sqrt{f} \text{ (GHz)}] \leq 3.0$ for 1g SAR and ≤ 7.5 for 10g extremity SAR.

- f (GHz) is the RF channel transmit frequency in GHz.
- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison
- When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied.

SAR Exclusion Result:

Frequency (GHz)	Power Output mW	Duty Cycle %	Maximum Power (Tune up Value) *	Test Separation Distance (mm)	SAR Test Exclusion Threshold	Limit**	SAR Test Exclusion (Yes/No)
0.43305	10	100	10	10	0.7	3.0	Yes
0.43479	10	100	10	10	0.7	3.0	Yes

* Maximum power including tolerance of the time averaged declared conducted output power of the device.

** Select ≤ 3.0 for 1g SAR and ≤ 7.5 for 10g extremity SAR.

The SAR exclusion threshold has been evaluated using the formula described above from information supplied by the manufacturer below. Based on the calculation above, the EUT is categorically excluded from SAR testing.

Approved by

Jonathan Kenny
Authorised Signatory

Date 26 November 2019



Manufacturer's Declaration of Product Information:

Equipment Description

Technical Description: <i>(Please provide a brief description of the intended use of the equipment)</i>	Fortecho RFID Tag 433MHz
Manufacturer:	Fortecho Solutions Ltd
Model:	FST-433
Part Number:	PC-0048-003-03-Cx

If more than one frequency band is supported, please confirm which combinations of bands are capable of Simultaneous Transmit.

None – single band only

Frequency Band 1: ISM

Antenna length: Internal 1.4 cm
Bottom frequency: 433.05 MHz
Middle frequency: 433.92 MHz
Top frequency: 434.790 MHz

Maximum power (input to the antenna including a tolerance): 10m W
Antenna gain (or maximum gain allowed): 2 dBi

Separation distance from antenna to the user/bystander: 1 Cm
Transmitter Duty Cycle: 100 %

Note: the maximum time averaged conducted output power shown in the low power exclusion result is given by:

$$P_{EIRP} = P_o \times \text{Duty Factor}$$

$$P_{EIRP} = 10 \text{ mW} \times 1 = 10 \text{ mW}$$

Where:

$$P_o = 10 \text{ mW}$$

$$\text{Duty factor} = 100\%/100 = 1$$