

FCC SAR exemption letter according KDB 447498 D01 v06

Customer	Product	Model	Type	HW status	SW status
hard&softWERK GmbH Bahnhofstraße 10 78112 St. Georgen Germany	Bluetooth Beacon	Outdoor Extreme 4000 MKII	-	1100-004	006.011_1100-004
		365FarmNet MKII			

Declared minimum distance to human body according to customer = 0.5 cm according external document "20230209_MPE Information Requirements EU.pdf" provided by customer.

According to KDB 447498 D01 General RF Exposure Guidance V06 SAR testing can be exempted if the following exclusion threshold are met:

4.3. General SAR test exclusion guidance

4.3.1. Standalone SAR test exclusion considerations

- a) For 100 MHz to 6 GHz and *test separation distances* ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{GHz}}}] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR,}^{30} \text{ where}$$

- f_{GHz} is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation³¹
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

The test exclusions are applicable only when the minimum *test separation distance* is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

Calculation based on external document "20230209_MPE Information Requirements EU.pdf".

FCC General SAR test exclusion acc. KDB 447498 D01 v06						
Frequency (MHz)	Max. power incl. Tune-up tolerance (dBm)	Max. power incl. Tune-up tolerance (mW)	Threshold 1-g SAR Limit < 3.0	Threshold 10-g SAR Limit < 7.5	1-G SAR Exemption fulfilled	10-g SAR Exemption fulfilled
2402.0	6.0	3.9811	1.2340	1.2340	yes	yes
2440.0	6.0	3.9811	1.2437	1.2437	yes	yes
2480.0	6.0	3.9811	1.2539	1.2539	yes	yes

The user manual must list the given usage position.

B.Eng. Martin Nunier

Dipl.-Ing. Ninovic Perez

Version	Applied changes	Date of release
--	Initial release	2023-May-11