

COMMERCIAL-IN-CONFIDENCE

SAR EXCLUSION DOCUMENT

Document 75943122-03 Issue 01

915 MHz Transmitter:

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

100 MHz – 6 GHz – Separation Distance >50 mm

The SAR Test exclusion thresholds for 100 MHz to 1500 MHz test separation distances >50 mm are determined by:

Step a) Threshold result from Formula in Section 4.3.1 a):

Step b) requires formula to be re-arranged to give power allowed at numeric threshold at 50 mm test separation distance:

Power Allowed At Numeric Threshold = $\{(\text{Numeric Threshold} / \sqrt{f_{\text{(GHz)}}}) \times 50 \text{ mm Separation Distance}\}$ mW

- Numeric threshold = 3 for Head/Body or 7.5 for Extremities
- 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

Step b) 2) 1500MHz to 6GHz

Power threshold = $\{[\text{Power allowed at numeric threshold for 50 mm \{Formula Step A\}}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW

- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison

Approved by



Simon Bennett
Authorised Signatory

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SAR Exclusion Result:

Frequency (MHz)	Maximum Power (Tune up Value) * (mW)	Test Separation Distance (mm)	SAR Exclusion Power Threshold (mW)	SAR Test Exclusion (Yes/No)
902	995	200	1059.9	Yes
928	995	200	1083.7	Yes

*Tune-up value is the maximum declared output power of the device (conducted output power).

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.

Manufacturer's Declaration of Product information (extract):

Antenna length (cm):	30.5	Centimetres (cm)
Frequency range:		
Bottom frequency:	902	MHz
Middle frequency:	915	MHz
Top frequency:	928	MHz
Maximum power (input to the antenna including a tolerance):	29.98 ^{Note 1}	dBm
Antenna gain (or maximum gain allowed):	9	dBi

Note 1: Manufacturer has declared that power output of 30 dBm $\pm$ 0.5 dB is reduced by:

- Connector loss 0.4 dB
- LMR 240 cable loss (minimum length 0.5 m) $0.5 \times 0.24 \text{ dB/m} = 0.12 \text{ dB}$

Maximum power input to antenna: $30 \text{ dBm} + 0.5 \text{ dB (tolerance)} - 0.4 \text{ dB} - 0.12 \text{ dB} = 29.98 \text{ dBm}$ or 995 mW.