

Appendix I- RF Exposure statement

Evaluate standard : FCC KDB # 447498 D01 V06
 RSS-102 Issue 5

Calculated Output Power

The maximum measured transmitter power is the following:

Frequency [GHz]	Field Strength of Fundamental Emissions [dBuV/m]	Field Strength of Fundamental Emissions [dBm]	Field Strength of Fundamental Emissions [mW]
0.908400	87.874	-7.354	0.184

Note: Relation between power, electric field strength, E

A simple relation can be established for perfect, ideal cases (which means free space, far field conditions) between E(V/m), D distance between the transmitting radio equipment and the point of measurement (m), e.i.r.p.(W).

$$E = \sqrt{\frac{30(e.i.r.p.)}{D}}$$

This represents a site gain of 4dB. The field strength as E(V/m) can be converted to dB(uV/m) as follows:

$$E(dB(uV / m)) = 120 + 20 \log E$$

Evaluation for FCC

According to FCC KDB # 447498 D01 V06, Clause 4.3.1

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

$$\frac{(\text{max. power of channel, including tune - up tolerance, mW})}{(\text{min. test separation distance, mm})} \times \sqrt{f(\text{GHz})}$$

≤ 3.0 , for 1-g SAR, and ≤ 7.5 , for 10-g extremity SAR

So, the max allowed power for 1-g SAR with distance 5mm at 0.908400GHz is 15.73811mW

And the max allowed power for 10-g extremity SAR with distance 5mm at 0.908400GHz is 39.34529mW

The maximum conducted output power of the EUT is: 0.184mW which is totally lower than the SAR test exclusion thresholds.

Evaluation for IC

According to table 1 and note 4 of RSS-102 Issue 5, March 2015

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance^{4,5}

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

For frequencies (835 MHz to 1900 MHz), the conservative limit of 1900MHz can be used for exemption limits.

So, the max allowed power for 1-g SAR with distance 5mm at 908.400MHz is 7mW

The maximum conducted output power of the EUT is: 0.184mW which is totally lower than the SAR test exclusion thresholds.

Conclusion

Since the distance of the device in generally using is lower than 5mm, so a distance of 5mm is applied to determine SAR test exclusion.
 SAR data is not required for either FCC or IC.