

FCCID: 2AMOAHT-860

RF Exposure evaluation

According to 447498 D01 General RF Exposure Guidance v06

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

³⁰ This is equivalent to the formula written as: $[(\text{max. power of channel, including tune-up tolerance, mW}) / (60 / \sqrt{f(\text{GHz})} \text{ mW})] \cdot [20 \text{ mm} / (\text{min. test separation distance, mm})] \leq 1.0$ for 1-g SAR; also see Appendix A for approximate exclusion threshold numerical values at selected frequencies and distances.

$$\text{eirp} = \text{pt} \times \text{gt} = (\text{EXd})^2 / 30$$

where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, --- $10^{[(\text{dBuV/m})/20]}/10^6$

d = measurement distance in meters (m)---3m

$$\text{So pt} = (\text{EXd})^2 / 30 \times \text{gt}$$

RF Exposure evaluation

Copied from the FCC test report:

Radiated spurious emissions:

615.000 MHz, Horizontal							
Spurious Emission Frequency (MHz)	Read value (dBm)	Cable Loss (dB)	Antenna Factor (dB)	1-18GHz Pre-amplifier (dB)	Ture value (dBm)	Limit/ dBm	Margin(dB)
Fundamental: 615.0	-25.1	2.8	19.2	0	-3.1	24	-27.1
1230.0	-21.1	4.5	24.2	30	-22.4	-13	-9.4
3075.0	-28.5	7.6	30.3	30	-20.6	-13	-7.6
615.000 MHz, Vertical							
Fundamental: 615.0	-25.8	2.8	19.2	0	-3.8	24	-27.8
1230.0	-28.2	4.5	24.2	30	-29.5	-13	-16.5
3075.0	-27.1	7.6	30.3	30	-19.2	-13	-6.2
654.500, Horizontal							
Fundamental: 654.5	-25.1	2.9	19.3	0	-2.9	24	-26.9
1306.0	-20.0	4.6	24.4	30	-21.0	-13	-8.0
3261.0	-27.3	7.7	30.6	30	-19.0	-13	-6.0
654.500, Vertical							
Fundamental: 654.5	-25.7	2.9	19.3	0	-3.5	24	-27.5
1306.0	-28.1	4.6	24.4	30	-29.1	-13	-16.1
3261.0	-25.6	7.7	30.6	30	-17.3	-13	-4.3

659.750 MHz, Horizontal							
Fundamental: 659.8	-25.7	3.0	19.4	0	-3.3	24	-27.3
1319.5	-21.4	4.7	24.6	30	-22.1	-13	-9.1
3298.8	-30.8	7.8	30.8	30	-22.2	-13	-9.2
659.750 MHz, Vertical							
Fundamental: 659.8	-26.3	3.0	19.4	0	-3.9	24	-27.9
1319.5	-28.8	4.7	24.6	30	-29.5	-13	-16.5
3298.8	-26.5	7.8	30.8	30	-17.9	-13	-4.9

The Factual Level is ERP value.

tune-up tolerance= ± 1 dB,

min. test separation distance = 5 mm, since the min distance from the antenna to the outer = 3 mm

The max Field strength = -2.9 dBm in 654.500 MHz

Max. power of channel after included tune-up tolerance

Field strength = -1.9 dBm= 0.65 mW in 654.500 MHz (**ERP value**)

= -1.9 dBm + 2.15 dB = 0.25dBm= 1.06 mW in 654.500 MHz (**EIRP value**)

So (1.06 mW)/5.0mm)x $\sqrt{0.654500}$ GHz = 0.172 <3

Then SAR evaluation is not required