

RF Exposure evaluation

According to 447498 D01 General RF Exposure Guidance v05

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

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

$f(\text{GHz})$ 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

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

where:

pt = transmitter output power in watts,

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

E = electric field strength in V/m, --- $10((\text{dBuV/m})/20)/106$

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

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

RF Exposure evaluation for M-308

Copied from the FCC test report:

Carrier Frequency (MHz)	Factual Level dBm (mW)
76.200	-6.85 dBm(i.e. 0.21 mW)
86.700	-7.85 dBm(i.e. 0.16 mW)
87.800	-7.45 dBm(i.e. 0.18 mW)

tune-up tolerance = ± 1 dB,

min. test separation distance = the min distance from the antenna to the outer = 7.0 mm

Field strength = -6.85 dBm=0.21 mW in 76.200MHz

Field strength = -7.85 dBm=0.16 mW in 86.700MHz

Field strength = -7.45 dBm=0.18 mW in 87.800MHz

Max. power of channel after included tune-up tolerance

Field strength = -5.85 dBm=0.26 mW in 76.200MHz

Field strength = -6.85 dBm=0.21 mW in 86.700MHz

Field strength = -6.45 dBm=0.23 mW in 87.800MHz

$$\text{So } (0.26 \text{ mW}) / (7.0 \text{ mm}) \times \sqrt{0.076200 \text{ GHz}} = 0.0103 < 3$$

$$\text{So } (0.21 \text{ mW}) / (7.0 \text{ mm}) \times \sqrt{0.086700 \text{ GHz}} = 0.0087 < 3$$

$$\text{So } (0.23 \text{ mW}) / (7.0 \text{ mm}) \times \sqrt{0.087800 \text{ GHz}} = 0.0096 < 3$$

Then SAR evaluation is not required