

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

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

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

$$\text{So Pt} = (\text{E} \times \text{d})^2 / 30 \times \text{gt}$$

Field strength: Slave: 81.62 dBuV/m @3m

Ant gain = 0dBi; so Ant numeric gain=1

$$\text{For slave, Pt} = \{[(10^{(81.62/20)} / 10^6) \times 3]^2 / 30 \times 1\} \times 1000 \text{mW} = 0.044 \text{ mW}$$
$$(0.044 \text{ mW} / 5 \text{mm}) \times \sqrt{2.44} = 0.014 < 3$$

Then SAR evaluation is not required