

RF exposure evaluation

According to 447498 D01 General RF Exposure Guidance v05r02 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

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

Worse case for 2.4G Tx as below:

Field strength = 68.66 dBuV/m @3m (highest channel=2470MHz)

So $P_t = \{ [10^{(68.66/20)} / 10^{(6/30)}]^2 \times 1000 \text{ mW} = 0.0022035 \text{ mW}$

$(0.0022035 \text{ mW} / 5\text{mm}) \cdot [\sqrt{2.470(\text{GHz})}] = 0.0007 < 3$ for 1-g SAR