

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, --- $10^{(\text{dBuV/m})/20} / 10^6$
d = measurement distance in meters (m) --- 3m
So $\text{pt} = (\text{Exd})^2 / 30 \times \text{gt}$

Field strength = 86.87 dBuV/m @ 3m

Ant gain -1 dBi; so Ant numeric gain = 0.794

So $\text{pt} = \{ [10^{(86.87/20)} / 10^6 \times 3]^2 / 30 \times 0.794 \} \times 1000 \text{ mW} = 0.184 \text{ mW}$
So $(0.184 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.409 \text{ GHz}} = 0.053 < 3$

Then SAR evaluation is not required