

RF Exposure evaluation

According to KDB 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:
[(max. power of channel, including tune-up tolerance, mW) / (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),
 $\text{E} = \text{electric field strength in V/m, --- } 10^{(\text{dBuV/m})/20} / 10^6$
d = measurement distance in meters (m) --- 3m
So $\text{pt} = (\text{E} \times \text{d})^2 / 30 \times \text{gt}$

Field strength = 96.57dBuV/m @3m

Ant gain 2.12dBi; so Ant numeric gain=1.63

So $\text{pt} = \{ [10^{(96.57/20)} / 10^6 \times 3]^2 / (30 \times 1.63) \} \times 1000 \text{mW} = 0.835 \text{mW}$

So $(0.835 \text{mW} / 5 \text{mm}) \times \sqrt{2.402 \text{GHz}} = 0.26 < 3$

Then SAR evaluation is not required