

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 \leq 50 mm are determined by:

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

$f(\text{GHz})$ 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

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

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

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

RF Exposure evaluation for KP1TA

Field strength = 91.0 dBuV/m @3mΟ.7MHz,

Antenna min distance to the shell: 20 mm

Ant gain =2dBi ;so Ant numeric gain= 1.58

$$E = 10^{[(91.0)/20]} / (10^6) = 0.03548$$

$$\text{So pt} = \{(0.03548 \times 3)^2 / 30\} \times 1.58 \times 1000 \text{ mW} = 0.597 \text{ mW}$$

$$\text{So } (0.597 \text{ mW} / 20 \text{ mm}) \times \sqrt{0.9277 \text{ GHz}} = 0.0288 < 3$$

Then SAR evaluation is not required