

## 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  $\leq 50$  mm are determined by:

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

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

The worse case below:

Field strength = 92.77dBuV/m @3m

Ant gain 2.14dBi; so Ant numeric gain=1.64

$$\text{So pt} = \{ [10^{(92.77/20)} / 10^6 \times 3]^2 / (30 \times 1.64) \} \times 1000 \text{mW} = 0.346 \text{mW}$$

$$\text{So } (0.346 \text{mW} / 5 \text{mm}) \times \sqrt{2.4458 \text{GHz}} = 0.108 < 3.0 \text{ for 1-g SAR}$$

Then SAR evaluation is not required