

SAR exclusion threshold justification

The SAR exclusion threshold is calculated according to KDB 447498 D01 4.3.1.1:

Formula:

$$(\text{power of channel, mW})/(\text{min. test separation distance, mm}) [\text{vf(GHz)}] \leq 3.0$$

Power of channel is calculated by use of maximum conducted peak power measured (=16.4dBm).

Duty cycle correction (=30.6dB) is applied to calculate the average value.

Both values are taken out of test report T39567-00-01JP.

Antenna gain (=3dBi) is taken out of the antenna data sheet Laird – RD2458 (ANT-SPEC-RD2458-0408) for the 2.4GHz band.

Calculation:

Radiated power of channel

$$\begin{aligned} 16.4\text{dBm}-30.6\text{dB}+3\text{dBi} &= -11.2\text{dBm} \\ -11.2\text{dBm} &= 0.08\text{mW} \end{aligned}$$

Calculation of exclusion threshold

$$(0.08\text{mW}/5\text{mm}) \times 2.48\text{GHz} = 0.04$$

Result

The calculation shows that the 1-g SAR exclusion threshold of 3.0 is kept at a distance of 5mm and at the highest used frequency of 2480MHz.