



RF Exposure Evaluation

According to KDB 447498 D01 General RF Exposure Guidance v06 and part 2.1093, Unless specifically required by the *published RF exposure KDB procedures*, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding *SAR Test Exclusion Threshold* condition(s), listed below, is (are) satisfied.

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

$$\text{EIRP} = E_{\text{meas}} + 20\log(d_{\text{meas}}) - 104.7$$

EIRP: is the equivalent isotropically radiated power in dBm

E_{Meas} : is the field strength of the emission at the measurement distance. in dBuV/m

d_{Meas} : is the measurement distance. in m

Here,

For 2.4GWiFi & 433MHz

Mode	Max Power (dBm)	Tune-up power (dBm)	Max Power (mW)	Frequency(MHz)	Min. Distance (mm)	Calc. thresholds	limit
802.11b	7.00	6±1	5.01	2437	5	1.56	3.0
433MHz	-6.86	-6±1	0.32	433.92	5	1.32	3.0

$$\text{EIRP} = 88.30 + 20\log(3) - 104.7 = -6.86 \text{ dBm}$$

The device could not support transmission with WIFI and 433MHz simultaneously.

Remark: 2.4GWIFI Antenna gain=0.89dBi, 433MHz Antenna gain=0dBi

$\text{MPE} = \text{MPE}_{1/3} + \text{MPE}_{2/3} = 0.52 + 0.44 = 0.96 < 1$, So a SAR test is not required