



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

Here,

ANT 1

BLE						
Mode	Max Power(dBm)	Max Power(mW)	Frequency(MHz)	Min. distance(mm)	Calc. thresholds	limit
GFSK	1.372	1.372	2402	5	0.425	3.0

ANT 2

2.4G WI-FI Mode						
Mode	Max Power(dBm)	Max Power(mW)	Frequency(MHz)	Min. distance(mm)	Calc. thresholds	limit
802.11b	6.812	4.800	2437	5	1.499	3.0
802.11g	7.221	5.274	2462	5	1.655	3.0
802.11n20	7.611	5.769	2462	5	1.810	3.0
802.11n40	8.175	6.569	2437	5	2.051	3.0



ANT 2

5.2G WI-FI Mode						
Mode	Max Power(dBm)	Max Power(mW)	Frequency(MHz)	Min. distance(mm)	Calc. thresholds	limit
802.11a	5.590	3.622	5180	5	1.649	3.0
802.11n20	5.372	3.445	5180	5	1.568	3.0
802.11n40	6.661	4.636	5230	5	2.120	3.0
802.11ac20	5.906	3.896	5180	5	1.773	3.0
802.11ac40	6.631	4.604	5230	5	2.106	3.0
802.11ac80	6.968	4.975	5210	5	2.271	3.0

Remark: The same antenna cannot transmit at the same time, ANT1 & ANT2 can transmit at the same time,
So the worst simultaneous transmitting consideration:

The ratio = $\text{ANT1 MPE}_{(\text{MAX})} / \text{limit} + \text{ANT2 MPE}_{(\text{MAX})} / \text{limit} = 0.425 / 3 + 2.271 / 3 = 0.8987 < 1.0$

So a SAR test is not required.