

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 ≤ 5 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,

	Mode	Frequency (MHz)	Max Power (dBm)	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Max Power (mW)	Min. Distance (mm)	Calc. thresholds	limit
BLE	GFSK	2402	4.52	4 ± 1.0	5	3.1623	5.00	0.9802	3.0
		2440	4.98	4 ± 1.0	5	3.1623	5.00	0.9879	3.0
		2480	4.58	4 ± 1.0	5	3.1623	5.00	0.9960	3.0
Wifi5.8g	802.11a	5745	4.75	5 ± 1.0	6	3.9811	5.00	1.9051	3.0
		5785	5.31	5 ± 1.0	6	3.9811	5.00	1.9151	3.0
		5825	4.82	5 ± 1.0	6	3.9811	5.00	1.9217	3.0
	802.11n20	5745	4.81	5 ± 1.0	6	3.9811	5.00	1.9051	3.0
		5785	5.47	5 ± 1.0	6	3.9811	5.00	1.9151	3.0
		5825	5.02	5 ± 1.0	6	3.9811	5.00	1.9217	3.0
	802.11ac20	5745	4.78	5 ± 1.0	6	3.9811	5.00	1.9051	3.0
		5785	5.44	5 ± 1.0	6	3.9811	5.00	1.9151	3.0
		5825	5.06	5 ± 1.0	6	3.9811	5.00	1.9217	3.0
	802.11n40	5755	4.45	4 ± 1	5	3.1623	5.00	1.5172	3.0
		5795	4.61	4 ± 1	5	3.1623	5.00	1.5225	3.0
	802.11ac40	5755	4.49	4 ± 1	5	3.1623	5.00	1.5172	3.0
		5795	4.55	4 ± 1	5	3.1623	5.00	1.5225	3.0
	802.11ac80	5775	5.15	5 ± 1.0	6	3.9811	5.00	1.9134	3.0

In the case of simultaneous launches for wifi and BT:

The Max Calc. Thresholds : BLE:1.63 dBi, Wifi5.8: 2.50dBi

Calc. Thresholds : $1.9217/3 + 0.9960/3 = 0.6405 + 0.332 = 0.97256 \leq 1$

So a SAR test is not required