

Standalone SAR test exclusion considerations

RF feature	Mode (Worst case)	Transmitting Frequency(MHz)	Test separation distance (mm)	ANT Gain (dBi)	Max. power with tune-up tolerance (dBm) ^{Note1}	Max. power with tune-up tolerance (mW)	Power thresholds	SAR test exclusion thresholds
Bluetooth	1Mbps	2 480.0	38.90	0.30	17.85	60.953 7	2.47	3.00
BLE	1Mbps	2 480.0	38.90	0.30	5.00	3.162 3	0.13	3.00
Mesh	OQPSK(Ant1)	2 475.0	36.50	0.76	18.00	63.095 7	2.72	3.00
Mesh	OQPSK(Ant2)	2 475.0	34.30	0.53	18.00	63.095 7	2.89	3.00

Note1. Please refer to the operation description for Max Tune-up power.

Note2. For bluetooth, duty factor was applied to max tune-up Burst Power.

Max Time Avg. Power = Max Tune Power(Burst power) + Duty factor

Duty factor = $10 \times \log(\text{TX on time} / \text{Tx on+off time}) = 10 \times \log(2.88\text{ms}/3.75\text{ms}) = -1.15 \text{ dB}$

KDB 447498 D01 clause 4.3.1 Step 1) SAR test exclusion thresholds for 100MHz to 6GHz at test separation distances $\leq 50 \text{ mm}$

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1g SAR and ≤ 7.5 for 10g extremity SAR

Sample Calculation

$$= [(60.9537\text{mW} / 38.9\text{mm})] \times [\sqrt{2.48\text{GHz}}] = 2.47$$

Note. The calculation result was rounded to two decimal place for comparison.

Conclusion : SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required