

Standalone SAR test exclusion considerations

RF feature	Mode (Worst case)	Transmitting Frequency(MHz)	Test separation distance (mm)	ANT Gain (dBi)	Max. Tune-up burst power (dBm) ^{Note1}	Duty Factor(dB) ^{Note2}	Max Power (dBm)	Max Power (mW)	Power thresholds	SAR test exclusion thresholds
Bluetooth	1Mbps	2 480.0	36.20	0.50	7.00	-	7.00	5.011 9	0.22	3.00
Bluetooth LE	1Mbps	2 480.0	36.20	0.50	-4.00	-	-4.00	0.398 1	0.02	3.00
Mesh	O-QPSK	2 475.0	26.50	1.00	18.00	-17.64	0.36	1.086 4	0.06	3.00

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

Note2. For mesh mode, max power tune-up for Burst on time is 18dBm. And the worst case duty cycle is 1.7%. (Transmit on time: 0.7ms, Transmit on+off time: 40.7ms)

Thus the source based time average output power is 0.36dBm.

KDB 447498 D01 clause 4.3.1 Step 1) SAR test exclusion thresholds for 100MHz to 6GHz at test separation distances ≤ 50 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

$$= [(5.0119\text{mW} / 36.2\text{mm})] \times [\sqrt{2.48\text{GHz}}] = 0.22$$

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