

6. Measurement Data (continued)

6.9. Public Exposure to Radio Frequency Energy Levels (1.1307 (b)(1))

6.9.1. SAR Test Exclusion for UWB transmitter

Requirement: Portable devices are subject to radio frequency radiation exposure requirements as explained in FCC KDB 447498 D01 General RF Exposure Guidance v06, dated October 23, 2015.

For a 1-g SAR, the test exclusion result must be ≤ 3.0 and ≤ 7.5 for 10-g extremity SAR.

Test Notes: The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by the following formula:

$$\text{SAR Test Exclusion} = \frac{P_{\text{MAX}}}{d_{\text{MIN}}} \times \sqrt{f_{(\text{GHz})}} \quad (1)$$

P_{MAX} mW Maximum power of channel, including tune-up tolerance
 d_{MIN} mm Minimum test separation distance, mm (≤ 50 mm)
 $f_{(\text{GHz})}$ GHz $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz (>100 MHz and <6 GHz)
 Power and distance are rounded to the nearest mW and mm before calculation
 The result is rounded to one decimal place for comparison
 The values 3.0 and 7.5 are referred to as numeric thresholds below

Per KDB 447498 Appendix A SAR Exclusion Threshold at 50 mm is 224 mW at 450 MHz.

Extremity SAR is 2.5 times this value or 560 mW at 450 MHz.

The EUT transmits -0.58 dBm EIRP or 0.870 mW at 429 MHz and therefore meets the SAR Test Exclusion.

WiFi Module

		WiFi Module Radio			GPR	
Input:	P_{MAX}	100.00	25.70	77.63	0.87	mW
	d_{MIN}	50.00	50.00	50.00	50.00	mm
	$f_{(\text{GHz})}$	2.437	5.260	5.745	0.43	GHz
Test Exclusion:		3.12	1.18	3.72	0.01	
Limit Exemption:		7.50	7.50	7.50	7.50	

Worse Case combined (WiFi & GPR) 3.73 vs 7.50 limit exemption