

RF EXPOSURE EVALUATION METHOD

FCC ID:2AFSS-WIFISPK

SAR Test Exclusion Thresholds for 100 MHz - 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ 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

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Maximum measured transmitter power.

WIFI:

TX 802.11b Mode				
Test Channel	Frequency	Maximum Peak Conducted Output Power (PK)	Maximum Peak Conducted Output Power (AV)	Maximum Peak Conducted Output Power (AV)
	(MHz)	(dBm)	(dBm)	mW
CH01	2412	12.21	9.36	8.630
CH06	2437	12.31	9.49	8.892
CH11	2462	12.02	9.2	8.318
TX 802.11g Mode				
CH01	2412	11.88	8.75	7.499
CH06	2437	11.69	8.56	7.178
CH11	2462	11.56	8.43	6.966
TX 802.11n(20) Mode				
CH01	2412	10.77	8.54	7.145
CH06	2437	10.89	8.66	7.345
CH11	2462	10.74	8.51	7.096
TX 802.11n(40) Mode				
CH03	2422	9.83	7.41	5.508
CH06	2437	9.54	7.12	5.152
CH09	2452	9.33	6.91	4.909

BT 3.0

1Mbps			
Test Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)
CH00	2402	-0.22	0.951
CH39	2441	-0.08	0.982
CH78	2480	-0.48	0.895
2Mbps			
CH00	2402	-0.53	0.885
CH39	2441	-0.48	0.895
CH78	2480	-0.79	0.834
3Mbps			
CH00	2402	-0.23	0.948
CH39	2441	-0.10	0.977
CH78	2480	-0.56	0.879

Remark: The best case gain of the antenna is 1.0dBi.

1.0 dBi logarithmic terms convert to numeric result is nearly 1.26

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:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \left[\sqrt{f(\text{GHz})} \right]$$

WIFI:

Test Channel	Range	tune up max power (dBm)	[(max. power of channel, including tune-up tolerance, mW)]	(min. test separation distance, mm)]	[f(GHz)]	Result	Limit
TX 802.11b Mode							
CH01	7.6~9.6	9.6	9.120	5	2.412	2.83	3
CH06	7.6~9.6	9.6	9.120	5	2.437	2.85	3
CH11	7.6~9.6	9.6	9.120	5	2.462	2.86	3
TX 802.11g Mode							
CH01	7.0~9.0	9.0	7.943	5	2.412	2.47	3
CH06	7.0~9.0	9.0	7.943	5	2.437	2.48	3
CH11	7.0~9.0	9.0	7.943	5	2.462	2.49	3
TX 802.11n-HT20 Mode							
CH01	7.0~9.0	9.0	7.943	5	2.412	2.47	3
CH06	7.0~9.0	9.0	7.943	5	2.437	2.48	3
CH11	7.0~9.0	9.0	7.943	5	2.462	2.49	3
TX 802.11n-HT40 Mode							
CH03	6.0~8.0	8.0	6.310	5	2.422	1.96	3

CH06	6.0~8.0	8.0	6.310	5	2.437	1.97	3
CH09	6.0~8.0	8.0	6.310	5	2.452	1.98	3

BT 3.0

Test Channel	Range	tune up max power (dBm)	[(max. power of channel, including tune-up tolerance, mW)	(min. test separation distance,mm)]	[f(GHz)]	Result	Limit
1Mbps							
CH00	-2~0	0	1.000	5	2.402	0.310	3
CH39	-2~0	0	1.000	5	2.441	0.312	3
CH78	-2~0	0	1.000	5	2.480	0.315	3
2Mbps							
CH00	-2~0	0	1.000	5	2.402	0.310	3
CH39	-2~0	0	1.000	5	2.441	0.312	3
CH78	-2~0	0	1.000	5	2.480	0.315	3
3Mbps							
CH00	-2~0	0	1.000	5	2.402	0.310	3
CH39	-2~0	0	1.000	5	2.441	0.312	3
CH78	-2~0	0	1.000	5	2.480	0.315	3

The test Result is less than 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR.

Conclusion: No SAR is required.