

RF EXPOSURE EVALUATION METHOD

FCC ID:2AFGS-S16

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	12.58	9.53	8.974
CH06	2437	12.67	9.59	9.099
CH11	2462	12.59	9.51	8.933
TX 802.11g Mode				
CH01	2412	11.26	8.25	6.683
CH06	2437	11.03	8.02	6.339
CH11	2462	10.97	7.96	6.252
TX 802.11n(20) Mode				
CH01	2412	9.98	7.34	5.420
CH06	2437	10.01	7.37	5.458
CH11	2462	9.87	7.23	5.284
TX 802.11n(40) Mode				
CH03	2422	8.97	6.55	4.519
CH06	2437	8.69	6.27	4.236
CH09	2452	8.81	6.39	4.355

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1Mbps			
Test Channel	Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)
CH00	2402	2.21	1.663
CH39	2441	2.96	1.977
CH78	2480	2.10	1.622
2Mbps			
CH00	2402	-0.59	0.873
CH39	2441	0.19	1.045
CH78	2480	-0.63	0.865
3Mbps			
CH00	2402	-2.29	0.590
CH39	2441	-1.45	0.716
CH78	2480	-2.20	0.603

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:

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

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	6.0~8.0	8.0	6.310	5	2.412	1.96	3
CH06	6.0~8.0	8.0	6.310	5	2.437	1.97	3
CH11	6.0~8.0	8.0	6.310	5	2.462	1.98	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

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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	1~3	3	1.995	5	2.402	0.618	3
CH39	1~3	3	1.995	5	2.441	0.623	3
CH78	1~3	3	1.995	5	2.480	0.628	3
2Mbps							
CH00	-1~1	1	1.259	5	2.402	0.390	3
CH39	-1~1	1	1.259	5	2.441	0.393	3
CH78	-1~1	1	1.259	5	2.480	0.397	3
3Mbps							
CH00	-2~-1	-1	0.794	5	2.402	0.246	3
CH39	-2~-1	-1	0.794	5	2.441	0.248	3
CH78	-2~-1	-1	0.794	5	2.480	0.250	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.