

RF EXPOSURE EVALUATION METHOD

FCC ID: 2ACYO-M104A

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	12.64	9.67	9.268
CH06	2437	12.57	9.61	9.141
CH11	2462	12.42	9.65	9.226
TX 802.11g Mode				
CH01	2412	11.82	8.77	7.534
CH06	2437	11.79	8.74	7.482
CH11	2462	11.72	8.67	7.362
TX 802.11n(20) Mode				
CH01	2412	10.88	8.61	7.261
CH06	2437	10.76	8.48	7.047
CH11	2462	10.72	8.44	6.982
TX 802.11n(40) Mode				
CH03	2422	9.99	7.62	5.781
CH06	2437	9.94	7.57	5.715
CH09	2452	9.88	7.51	5.636

BT3.0:

1Mbps			
Test Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)
CH00	2402	4.32	2.704
CH39	2441	4.77	2.999
CH78	2480	4.88	3.076
2Mbps			
CH00	2402	3.79	2.393
CH39	2441	4.20	2.630
CH78	2480	4.35	2.723
3Mbps			
CH00	2402	3.77	2.382
CH39	2441	4.20	2.630
CH78	2480	4.31	2.698

BT 4.0

Test Channe	Frequency	Maximum Conducted Output Power	Maximum Conducted Output Power
	(MHz)	(dBm)	mW
CH01	2402	-3.14	0.485
CH20	2440	-2.83	0.521
CH39	2480	-2.63	0.546

Remark: The best case gain of the antenna is 2.5dBi.

2.5 dBi logarithmic terms convert to numeric result is nearly 1.78

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:

Mode	[(max. power of channel, including tune-up tolerance, mW)]	(min. test separation distance,mm)]	[√ f(GHz)]	Result	Limit
802.11b					
CH01	9.268	5	2.412	2.88	3
CH06	9.141	5	2.437	2.85	3
CH11	9.226	5	2.462	2.90	3
802.11g					
CH01	7.534	5	2.412	2.34	3
CH06	7.482	5	2.437	2.34	3
CH11	7.362	5	2.462	2.31	3
802.11n(20)					
CH01	7.261	5	2.412	2.26	3
CH06	7.047	5	2.437	2.20	3
CH11	6.982	5	2.462	2.19	3
802.11n(40)					
CH03	5.781	5	2.422	1.80	3
CH06	5.715	5	2.437	1.78	3
CH09	5.636	5	2.452	1.77	3

BT3.0:

Mode	[(max. power of channel, including tune-up tolerance, mW)]	(min. test separation distance,mm)]	[√ f(GHz)]	Result	Limit
1Mbps					
CH00	2.704	5	2.402	0.838	3
CH39	2.999	5	2.441	0.937	3
CH78	3.076	5	2.480	0.969	3
2Mbps					
CH00	2.393	5	2.402	0.742	3
CH39	2.630	5	2.441	0.822	3
CH78	2.723	5	2.480	0.858	3
3Mbps					
CH00	2.382	5	2.402	0.738	3
CH39	2.630	5	2.441	0.822	3
CH78	2.698	5	2.480	0.850	3

BT4.0:

Mode	[(max. power of channel, including tune-up tolerance, mW)	(min. test separation distance,mm)]	[\sqrt{f} (GHz)]	Result	Limit
1Mbps					
CH00	0.485	5	2.402	0.150	3
CH19	0.521	5	2.440	0.163	3
CH39	0.546	5	2.480	0.172	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.