

RF EXPOSURE EVALUATION METHOD

FCC ID: 2AEQ6ZA-407

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:

Test Channel	Frequency	Maximum Conducted Output Power(PK)	Average Power(dBm)	Average Power(dBm)
	(MHz)	(dBm)	(dBm)	(mW)
TX 802.11b Mode				
CH01	2412	12.95	9.58	9.078
CH06	2437	12.91	9.54	8.995
CH11	2462	12.89	9.52	8.954
TX 802.11g Mode				
CH01	2412	12.35	9.22	8.356
CH06	2437	12.39	9.26	8.433
CH11	2462	12.31	9.18	8.279
TX 802.11n-HT20 Mode				
CH01	2412	12.05	9.22	8.356
CH06	2437	12.07	9.24	8.395
CH11	2462	12.05	9.22	8.356
TX 802.11n-HT40 Mode				
CH03	2422	11.88	9.46	8.831
CH06	2437	11.94	9.52	8.954
CH09	2452	11.95	9.53	8.974

BT

1Mbps			
Test Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)
CH00	2402	5.85	3.846
CH39	2441	5.94	3.926
CH78	2480	5.85	3.846
2Mbps			
CH00	2402	3.99	2.506
CH39	2441	3.97	2.495
CH78	2480	3.92	2.466
3Mbps			
CH00	2402	3.23	2.104
CH39	2441	3.63	2.307
CH78	2480	3.61	2.296

BLE

Test Channel	Frequency	Maximum Conducted Output Power(PK)	Maximum Conducted Output Power(PK)
	(MHz)	(dBm)	mW
CH00	2402	5.25	3.350
CH19	2440	5.14	3.266
CH39	2480	5.18	3.296

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	7.6~9.6	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 802.11n-HT20 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 802.11n-HT40 Mode							
CH03	7.6~9.6	9.6	9.120	5	2.422	2.83	3
CH06	7.6~9.6	9.6	9.120	5	2.437	2.85	3
CH09	7.6~9.6	9.6	9.120	5	2.452	2.86	3

BT

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	4~6	6	3.981	5	2.402	1.234	3
CH39	4~6	6	3.981	5	2.441	1.244	3
CH78	4~6	6	3.981	5	2.480	1.254	3
2Mbps							
CH00	3~5	5	3.162	5	2.402	0.980	3
CH39	3~5	5	3.162	5	2.441	0.988	3
CH78	3~5	5	3.162	5	2.480	0.996	3
3Mbps							
CH00	3~5	5	3.162	5	2.402	0.980	3
CH39	3~5	5	3.162	5	2.441	0.988	3
CH78	3~5	5	3.162	5	2.480	0.996	3

BLE

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
CH00	4~6	6	3.981	5	2.402	1.234	3
CH39	4~6	6	3.981	5	2.441	1.244	3
CH78	4~6	6	3.981	5	2.480	1.254	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.