## FCC ID: 2AATL-F89ESSM23

## **RF EXPOSURE TEST**

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## 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.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	SAR Test Exclusion
1900	11	22	33	44	54	Threshold (mW)
2450	10	19	29	38	48	Time Galleries (int v. )
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	
MHz	30	35	40	45	50	mm
						******
150	232	271	310	349	387	
150 300						
	232	271	310	349	387	
300	232 164	271 192	310 219	349 246	387 274	
300 450	232 164 134	271 192 157	310 219 179	349 246 201	387 274 224	
300 450 835	232 164 134 98	271 192 157 115	310 219 179 131	349 246 201 148	387 274 224 164	SAR Test
300 450 835 900	232 164 134 98 95	271 192 157 115 111	310 219 179 131 126	349 246 201 148 142	387 274 224 164 158	SAR Test Exclusion
300 450 835 900 1500	232 164 134 98 95 73	271 192 157 115 111 86	310 219 179 131 126 98	349 246 201 148 142 110	387 274 224 164 158 122	SAR Test
300 450 835 900 1500 1900	232 164 134 98 95 73 65	271 192 157 115 111 86 76	310 219 179 131 126 98 87	349 246 201 148 142 110 98	387 274 224 164 158 122 109	SAR Test Exclusion
300 450 835 900 1500 1900 2450	232 164 134 98 95 73 65 57	271 192 157 115 111 86 76 67	310 219 179 131 126 98 87 77	349 246 201 148 142 110 98 86	387 274 224 164 158 122 109 96	SAR Test Exclusion
300 450 835 900 1500 1900 2450 3600	232 164 134 98 95 73 65 57 47	271 192 157 115 111 86 76 67 55	310 219 179 131 126 98 87 77 63	349 246 201 148 142 110 98 86 71	387 274 224 164 158 122 109 96 79	SAR Test Exclusion
300 450 835 900 1500 1900 2450 3600 5200	232 164 134 98 95 73 65 57 47 39	271 192 157 115 111 86 76 67 55 46	310 219 179 131 126 98 87 77 63 53	349 246 201 148 142 110 98 86 71 59	387 274 224 164 158 122 109 96 79 66	SAR Test Exclusion

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances

$\leq$ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] •
[ $\sqrt{f_{\text{(GHz)}}}$ ] $\leq$ 3.0 for 1-g SAR and $\leq$ 7.5 for 10-g extremity SAR,16 where
$\square$ f <sub>(GHz)</sub> is the RF channel transmit frequency in GHz
☐ Power and distance are rounded to the nearest mW and mm before calculation₁7
☐ The result is rounded to one decimal place for comparison
The test exclusions are applicable only when the minimum <i>test separation distance</i> is $\leq 50$ mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum <i>test separation</i>

distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

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For user manual RF Power:

<9.0dBm@11n,<9.8dBm@11b,<9.5dBm@11g

The max.output power E.I.R.P is 9.8dBm=9.55mW, Frequency is 2.462GHz

So (9.55/5)\* √2.462=2.997≤ 3.0

Note:  $\sqrt{2.462} = 1.569$ 

**Conclusion:** No SAR is required.

Maximum measured transmitter power.

Mode	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)	Maximum Conducted Output Power (mW)
IEEE 802.11 b	CH1: 2412	9.47	8.85
	CH6: 2437	9.31	8.53
	CH11: 2462	9.25	8.41
	CH1: 2412	9.02	7.98
IEEE 802.11 g	CH6: 2437	8.94	7.83
	CH11: 2462	8.85	7.67
IEEE 000 11	CH1: 2412	8.73	7.46
IEEE 802.11 n/HT20	CH6: 2437	8.46	7.01
	CH11: 2462	8.63	7.29
IEEE 802.11	CH1: 2422	7.58	5.73
n/HT40	CH4: 2437	7.31	5.38
11/111140	CH7: 2452	7.46	5.57

The max.output power E.I.R.P is 9.47dBm=8.85mW, Frequency is 2.412GHz So  $(8.85/5)^*$   $\sqrt{2.412}=2.75 \lesssim 3.0$ 

Note:  $\sqrt{2.412} = 1.553$ 

Conclusion: No SAR is required.