RF EXPOSURE TEST

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	SAR Test Exclusion Threshold (mW)
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	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
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	SAR Test Exclusion Threshold (mW)
300	164	192	219	246	274	
450	134	157	179	201	224	
835	98	115	131	148	164	
900	95	111	126	142	158	
1500	73	86	98	110	122	
1900	65	76	87	98	109	
2450	57	67	77	86	96	
3600	47	55	63	71	79	
5200	39	46	53	59	66	
5400	39	45	52	58	65	
5800	37	44	50	56	62	

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:

[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] • [√ $f_{(GHz)}$] ⩽ 3.0 for 1-g SAR and ⩽ 7.5 for 10-g extremity SAR,[16] where

☐ $f_{(GHz)}$ is the RF channel transmit frequency in GHz

☐ Power and distance are rounded to the nearest mW and mm before calculation[17]

☐ 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.

GFSK

frequency range	Maximum Peak Conducted Output Power (dBm)	Maximum Conducted Output Power **(mW)**
2402	0.107	1.02
2441	-0.739	0.84
2480	0.130	1.03

Π/4-DQPSK

frequency range	Maximum Peak Conducted Output Power (dBm)	Maximum Conducted Output Power **(mW)**
2402	-0.444	0.90
2441	-1.047	0.79
2480	-0.440	0.90

8-DPSK

frequency range	Maximum Peak Conducted Output Power (dBm)	Maximum Conducted Output Power **(mW)**
2402	0.027	1.01
2441	-0.751	0.84
2480	-0.009	1.00

The max.output power is 1.02mW, Frequency is 2.402GHz

So (1.02/5)* $\sqrt{2.402}=0.3162 \leqslant 3.0$

Note: $\sqrt{2.402}=1.55$

The max.output power is 0.84mW, Frequency is 2.441GHz

So (0.84/5)* $\sqrt{2.441}$=0.26208≤ 3.0

Note: $\sqrt{2.441}$ =1.56

The max.output power is 1.03mW, Frequency is 2.48GHz

So (1.03/5)* $\sqrt{2.48}$=0.32342≤ 3.0

Note: $\sqrt{2.48}$ =1.57

Conclusion: No SAR is required.