

# Radio Frequency Exposure Procedures

## LIMIT

According to §15.247(i) and § 1.1307(b)(1) , systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

KDB 447498 D01: 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	

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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

- f(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  $\leq 50$  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:

- Operating Frequency : 5150 ~ 5250 MHz

TEST Mode	Maximum Peak Conducted Output Power		Max Antenna Gain (dBi)	Numeric antenna gain (mW)
	(dBm)	(mW)		
ANT 1	0.51	1.13	4.96	3.13
ANT 2	2.65	1.84	4.96	3.13
ANT 1+2	7.54	5.68	7.97	6.27

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] = 5.68/25 \cdot \sqrt{5.180} = 0.517 \leq 3.0$

Threshold at which no SAR required is 48mW and  $\leq 3.0$  for 1-g SAR, Separation distance is 25mm. Conclusion : The SAR measurement is exempt.

- Operating Frequency : 5150 ~ 5250 MHz

TEST Mode	Maximum Peak Conducted Output Power		Max Antenna Gain (dBi)	Numeric antenna gain (mW)
	(dBm)	(mW)		
ANT 1	2.67	1.85	4.96	3.13
ANT 2	6.05	4.03	4.96	3.13
ANT 1+2	8.97	7.89	7.97	6.27

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] = 7.89/25 \cdot \sqrt{5.745} = 0.76 \leq 3.0$

Threshold at which no SAR required is 48mW and  $\leq 3.0$  for 1-g SAR, Separation distance is 25mm. Conclusion : The SAR measurement is exempt.