

RF EXPOSURE

Standard Applicable

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

This is a Portable device with its physical nature to be used nearby, the distance between radiating structure and human is less than 20cm.

As per KDB 447498 D01 §4.3.1, 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:

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

f (GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Measurement Result:

Step 1: (<50mW)

802.11a:

This is a portable device and the Max peak output power is (6.22mW) lower than the threshold given and derived as formula given above, where

$$= 6.22 \text{ (mW)} / 5 \text{ (mm)} * \sqrt{5220 \text{ (GHz)}} = 2.84 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
5220	7.94	6.223002852	5	2.843578665

Frequency (MHz)	Reading Power (dBm)	Output Power (W)	Limit (W)
5220	7.94	0.00622	16.99dBm or 4+10log(B) = 17.14dBm

802.11n HT20:

This is a portable device and the Max peak output power is (6.11mW) lower than the threshold given and derived as formula given above, where

$$= 6.11 \text{ (mW)} / 5 \text{ (mm)} * \sqrt{5220 \text{ (GHz)}} = 2.79 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
5220	7.86	6.109420249	5	2.791677506

Frequency (MHz)	Reading Power (dBm)	Output Power (W)	Limit (W)
5220	7.86	0.00610	16.99dBm or 4+10log(B) = 17.28dBm

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802.11n HT40:

This is a portable device and the Max peak output power is (6.05mW) lower than the threshold given and derived as formula given above, where

$$= 6.05 \text{ (mW)}/5 \text{ (mm)} * \sqrt{5230 \text{ (GHz)}} = 2.77 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
5230	7.82	6.053408748	5	2.76873149

Frequency (MHz)	Reading Power (dBm)	Output Power (W)	Limit (W)
5230	7.82	0.00605	16.99dBm or 4+10log(B) = 20.27dBm

802.11ac VHT80:

This is a portable device and the Max peak output power is (6.07mW) lower than the threshold given and derived as formula given above, where

$$= 6.07 \text{ (mW)}/5 \text{ (mm)} * \sqrt{5210 \text{ (GHz)}} = 2.76 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
5210	7.83	6.067363296	5	2.769802847

Frequency (MHz)	Reading Power (dBm)	Output Power (W)	Limit (W)
5210	7.83	0.00607	16.99dBm or 4+10log(B) = 23.24dBm

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As the result of calculation result indicates, the RF exposure generating from given transmitter (transmitter employed digital modulation) can be excluded from SAR measurement, and is deemed compliant with RF exposure as per FCC.

The table of quick reference in terms of power threshold

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	

Note that the table present above is the table of quick reference, indexing the level of power threshold with respect to the corresponding frequency. The value of the index may be deviated, and therefore, the derivation of exemption based on KDB447498 D01 is used in this test report, relevantly.

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