



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:

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

$f(\text{GHz})$ 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)

802.11b:

This is a portable device and the Max peak output power is (6.28mW) lower than the threshold given and derived as formula given above, where

$$= 6.28 \text{ (mW)}/5 \text{ (mm)} * \sqrt{2437 \text{ (GHz)}} = 1.96 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
2437	7.98	6.280583588	5	1.960910447
Frequency (MHz)				
2437	7.98	0.00628		1 Watt = 30 dBm

802.11g:

This is a portable device and the Max peak output power is (6.25mW) lower than the threshold given and derived as formula given above, where

$$= 6.25 \text{ (mW)}/5 \text{ (mm)} * \sqrt{2462 \text{ (GHz)}} = 1.96 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
2462	7.96	6.251726928	5	1.961887138
Frequency (MHz)				
2462	7.96	0.00625		1 Watt = 30 dBm

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802.11n_20M (2.4GHz):

This is a portable device and the Max peak output power is (6.10mW) lower than the threshold given and derived as formula given above, where

$$= 6.10 \text{ (mW)}/5 \text{ (mm)} * \sqrt{2462 \text{ (GHz)}} = 1.89 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
2412	7.85	6.095368972	5	1.893296567

Frequency (MHz)	Reading Power (dBm)	Output Power (W)	Limit (W)
2412	7.85	0.00610	1 Watt = 30 dBm

802.11n_40M (2.4GHz):

This is a portable device and the Max peak output power is (6.30mW) lower than the threshold given and derived as formula given above, where

$$= 6.30 \text{ (mW)}/5 \text{ (mm)} * \sqrt{2452 \text{ (GHz)}} = 1.97 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
2452	7.99	6.295061829	5	1.971470253

Frequency (MHz)	Reading Power (dBm)	Output Power (W)	Limit (W)
2452	7.99	0.00630	1 Watt = 30 dBm

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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

$$= 6.22 \text{ (mW)}/5 \text{ (mm)} * \sqrt{5785 \text{ (GHz)}} = 2.99 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
5785	7.94	6.223002852	5	2.993516645
Frequency (MHz)	Reading Power (dBm)	Output Power (W)	Limit (W)	
5785	7.94	0.00622	1 Watt = 30 dBm	

802.11n (5GHz)_20M:

This is a portable device and the Max peak output power is (6.17mW) lower than the threshold given and derived as formula given above, where

$$= 6.17 \text{ (mW)}/5 \text{ (mm)} * \sqrt{5745 \text{ (GHz)}} = 2.96 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
5745	7.9	6.165950019	5	2.955799778
Frequency (MHz)	Reading Power (dBm)	Output Power (W)	Limit (W)	
5745	7.90	0.00617	1 Watt = 30 dBm	

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802.11n (5GHz)_40M:

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

$$= 6.22 \text{ (mW)} / 5 \text{ (mm)} * \sqrt{5795 \text{ (GHz)}} = 2.99 < 3.0$$

Frequency	Power (avg in dBm)	Power (avg mw)	Distance (mm)	Threshold (<5mm)
5795	7.94	6.223002852	5	2.996102837
Frequency (MHz)	Reading Power (dBm)	Output Power (W)	Limit (W)	
5795	7.94	0.00622	1 Watt = 30 dBm	

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	SAR Test Exclusion Threshold (mW)
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		
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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