

Maximum Permissible Exposure

1.1. TEST FACILITY

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Designation : CN1229
Number

Applicable Standard

According to §1.1307(b), 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.

For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20cm, even if the calculation indicate that the MPE distance would be lesser.

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

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Antenna 1 and 2: 1dBi,

Numeric Antenna gain= 1.258925

MIMO antenna gain: 4.01

Numeric Antenna gain= 2.517677

r=20cm

So for MPE value of 5G WIFI NII Band 1(5150-5250MHz) as below:

Antenna 1 802.11a CH48	Antenna 2 802.11a CH40	MIMO 802.11n (HT20) CH48	Antenna 1 802.11a CH48	Antenna 2 802.11a CH40	MIMO 802.11n (HT20) CH48	Antenna 1 802.11a CH48	Antenna 2 802.11a CH40	MIMO 802.11n (HT20) CH48	Limit
Power (dBm)	Power (dBm)	Power(dBm)	Power (mW)	Power (mW)	Power (mW)	Power Density (mW/cm ²)	Power Density (mW/cm ²)	Power Density (mW/cm ²)	Power Density (mW/cm ²)
/	8.54	/	/	7.14496326 1	/	/	0.00178948 9	/	1
10.32	/	/	10.7646521 4	/	/	0.00269605 7	/	/	
/	/	8.37	/	/	6.8706844	/	/	0.00344135 2	

For NII Band 3(5725-5850MHz)

Antenna 1 802.11a CH165	Antenna 2 802.11a CH165	MIMO 802.11n(HT20) CH149	Antenna 1 802.11a CH165	Antenna 2 802.11a CH165	MIMO 802.11n(HT20) CH149	Antenna 1 802.11a CH165	Antenna 2 802.11a CH165	MIMO 802.11n(HT20) CH149	Limit
Power(dBm)	Power(dBm)	Power(dBm)	Power (mW)	Power (mW)	Power (mW)	Power Density (mW/cm ²)	Power Density (mW/cm ²)	Power Density (mW/cm ²)	Power Density (mW/cm ²)
8.45	8.33	/	6.8233869 4	6.760829 8	/	0.00170894 9	0.00169328 1	/	1
/	/	8.18	/	/	6.576578374	/	/	0.003294042	

For WIFI 2.4G(2412-2462MHz)

Antenna 1 802.11b CH01	Antenna 2 802.11b CH01	MIMO 802.11n(HT2 0) CH01	Antenna 1 802.11b CH01	Antenna 2 802.11b CH01	MIMO 802.11n(HT2 0) CH01	Antenna 1 802.11b CH01	Antenna 2 802.11b CH01	MIMO 802.11n(HT2 0) CH01	Limit
Power(dB m)	Power(dB m)	Power(dBm)	Power (mW)	Power (mW)	Power (mW)	Power Density (mW/cm ²)	Power Density (mW/cm ²)	Power Density (mW/cm ²)	Power Density (mW/cm ²)
8.34	8.3	/	6.82338694 1	6.760829 8	/	0.00170894 9	0.00169328 1	/	1
/	/	8.28	/	/	6.729766563	/	/	0.00337077	

All mode of Power density value is below the limit 1.0 mW/cm², so conclusion is **PASS**.