

9. RF EXPOSURE TEST

9.1 APPLIED PROCEDURES / LIMIT

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 limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time E ², H ²or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz; *Plane-wave equivalent power density

9.1.1 MEASUREMENT INSTRUMENTS LIST

Ite	m Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2487A	6K00004714	Feb. 10, 2010
2	Power Meter Sensor	Anritsu	MA2491A	34138	Feb. 10, 2010

Remark: "N/A" denotes No Model Name, Serial No. or No Calibration specified.

9.1.2 MPE CALCULATION METHOD

$${\sf E (V/m)} \ = \frac{\sqrt{30 \times P \times G}}{d} \qquad \qquad {\sf Power Density:} \ \ {\it Pd (W/m^2)} \ = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

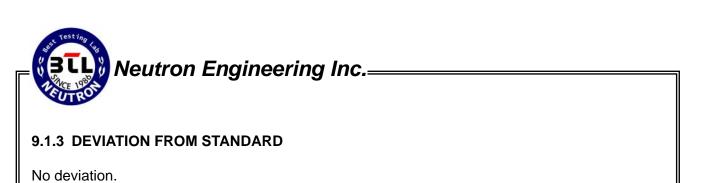
d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

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9.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

9.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

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9.1.6 TEST RESULTS - CHIP

H L J I	IEEE 802.11bg Wireless Module	Model Name :	WR24G30
Temperature:	17 ℃	Relative Humidity:	89%
Test Voltage:	AC 120V/60Hz		
Test Mode :	802.11b(POWER:ADAPTER)		

Frequency (MHz)	Antenna Gain (dBi)				Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm²)
2412	2.00	1.5849	23.0600	202.3019	0.063819	1
2437	2.00	1.5849	22.9600	197.6970	0.062366	1
2462	2.00	1.5849	22.6500	184.0772	0.058070	1

IF()	IEEE 802.11bg Wireless Module	Model Name :	WR24G30
Temperature:	17 ℃	Relative Humidity:	89%
Test Voltage:	AC 120V/60Hz		
Test Mode :	802.11g(POWER:ADAPTER)		

Frequency (MHz)	Antenna Gain (dBi)				Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm²)
2412	2.00	1.5849	23.9100	246.0368	0.077614	1
2437	2.00	1.5849	29.2100	833.6812	0.262997	1
2462	2.00	1.5849	25.1500	327.3407	0.103264	1

Remark:

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