



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/ cm ²)	Averaging Time E ² , H ² or 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/ cm ²)	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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2487A	6K00004714	Feb. 10, 2011
2	Power Meter Sensor	Anritsu	MA2491A	34138	Feb. 10, 2011

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

9.1.2 MPE CALCULATION METHOD

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

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



9.1.3 DEVIATION FROM STANDARD

No deviation.

9.1.4 TEST SETUP



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.

**9.1.6 TEST RESULTS**

EUT :	Wireless N Broadband Router	Model Name :	BR-6425N
Temperature :	13°C	Relative Humidity :	64%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11b		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
2412	3.00	1.9953	14.4500	27.8612	0.011065	1
2437	3.00	1.9953	14.0000	25.1189	0.009976	1
2462	3.00	1.9953	14.0800	25.5859	0.010161	1

EUT :	Wireless N Broadband Router	Model Name :	BR-6425N
Temperature :	13°C	Relative Humidity :	64%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11g		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
2412	3.00	1.9953	24.7400	297.8516	0.118291	1
2437	3.00	1.9953	24.5300	283.7919	0.112707	1
2462	3.00	1.9953	23.8100	240.4363	0.095488	1



EUT :	Wireless N Broadband Router	Model Name :	BR-6425N
Temperature :	13°C	Relative Humidity :	64%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n HT20 Single TX (TX No.1)		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
2412	3.00	1.9953	19.7800	95.06050	0.037753	1
2437	3.00	1.9953	21.9600	157.0363	0.062366	1
2462	3.00	1.9953	22.1800	165.1962	0.065607	1

EUT :	Wireless N Broadband Router	Model Name :	BR-6425N
Temperature :	13°C	Relative Humidity :	64%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n HT20 Single TX (TX No.2)		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
2412	3.00	1.9953	18.9700	78.8860	0.031329	1
2437	3.00	1.9953	21.4000	138.0384	0.054821	1
2462	3.00	1.9953	21.5700	143.5489	0.057010	1

EUT :	Wireless N Broadband Router	Model Name :	BR-6425N
Temperature :	13°C	Relative Humidity :	64%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n HT20 Dual TX (TX No.1 + TX No.2)		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
2412	6.00	3.9811	22.4042	173.9465	0.137837	1
2437	6.00	3.9811	24.6993	295.0747	0.233820	1
2462	6.00	3.9811	24.8960	308.7451	0.244653	1

Remark :

- (1) The MIMO test requirement, MPE shall measure by using the total sum power of each transmitter chain.



EUT :	Wireless N Broadband Router	Model Name :	BR-6425N
Temperature :	13°C	Relative Humidity :	64%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n HT40 Single TX (TX No.1)		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
2412	3.00	1.9953	20.2000	104.7129	0.041586	1
2437	3.00	1.9953	21.8100	151.7050	0.060249	1
2462	3.00	1.9953	20.2000	104.7129	0.041586	1

EUT :	Wireless N Broadband Router	Model Name :	BR-6425N
Temperature :	13°C	Relative Humidity :	64%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n HT40 Single TX (TX No.2)		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
2412	3.00	1.9953	20.2100	104.9542	0.041682	1
2437	3.00	1.9953	21.8400	152.7566	0.060667	1
2462	3.00	1.9953	20.1000	102.3293	0.040640	1

EUT :	Wireless N Broadband Router	Model Name :	BR-6425N
Temperature :	13°C	Relative Humidity :	64%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n HT40 Dual TX (TX No.1 + TX No.2)		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)
2412	6.00	3.9811	23.2153	209.6671	0.166142	1
2437	6.00	3.9811	24.8353	304.4616	0.241259	1
2462	6.00	3.9811	23.1606	207.0422	0.164062	1

Remark :

- (1) The MIMO test requirement, MPE shall measure by using the total sum power of each transmitter chain.