

6 Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT:

Pass

Test Specification

Test standard : FCC KDB Publication 447498 v06

a) Standard requirement

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 level 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 0.2m normally can be maintained between the user and the device.

b) MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \cdot P \cdot G}}{d}, \text{ Power Density: } Pd_{\text{(W/m}^2\text{)}} = \frac{E^2}{377}$$

Where:

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

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

c) Calculated Result and Limit
Table 9: Test Result of RF Exposure, 802.11b / 1 Mbps

Frequency (MHz)	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)	Test Result
2412	1.585	14.70	29.51209	0.00931	1.00	Complies
2437	1.585	15.10	32.35937	0.01020	1.00	Complies
2462	1.585	15.80	38.01894	0.01199	1.00	Complies

Table 10: Test Result of RF Exposure, 802.11g / 6 Mbps

Frequency (MHz)	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)	Test Result
2412	1.585	12.30	16.98244	0.00535	1.00	Complies
2437	1.585	12.70	18.62087	0.00587	1.00	Complies
2462	1.585	13.70	23.44229	0.00739	1.00	Complies

Table 11: Test Result of RF Exposure, 802.11n(HT20) / MCS0 Mbps

Frequency (MHz)	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)	Test Result
2412	1.585	12.10	16.21810	0.00511	1.00	Complies
2437	1.585	12.60	18.19701	0.00574	1.00	Complies
2462	1.585	13.50	22.38721	0.00706	1.00	Complies

Table 12: Test Result of RF Exposure, 802.11n(HT40) / MCS0 Mbps

Frequency (MHz)	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)	Test Result
2422	1.585	12.10	16.21810	0.00511	1.00	Complies
2437	1.585	12.40	17.37801	0.00548	1.00	Complies
2452	1.585	13.00	19.95262	0.00629	1.00	Complies