

## 7. RF Exposure Requirements

### 7.1 Test Equipment

Please refer to Section 10 this report.

### 7.2 Limit

According to FCC 15.247(i), Systems operating under 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 of the Commissions guidelines.

FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)(1) of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30–300 .....	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

### 7.3 Test Result

Product	: WIFI MODULE	Test Mode	: IEEE 802.11b/g/n
Test Item	: RF Exposure	Temperature	: 25 °C
Test Voltage	: DC 3.3V (Power by DC Power Supply)	Humidity	: 56%RH
Test Result	: <b>PASS</b>		

FCC ID: Q8Y-FR4020A6

Evaluation of RF Exposure Compliance Requirements	
MPE Prediction of MPE according to FCC Rule Part 2.1091 and KDB 447498 D01	
RF Exposure Requirements	Compliance with FCC Rules
<p>S=PG/4πR<sup>2</sup></p> <p>Where:                      S=Power density                      P=Power input to antenna                      G=Power gain of the antenna relative to an isotropic radiator                      R=Distance to the center of radiation of the antenna</p>	<p>Maximum output power at antenna input terminal:                      17.09 dBm = 51.17 mW (802.11b/g, 2412MHz)                      12.84 dBm = 19.23 mW (802.11n, 2412MHz)                      10.55 dBm = 11.35 mW (802.11n, 2422MHz)                      Prediction distance: 20 cm                      Antenna gain : 2.0dBi                      Prediction frequency: 2412MHz                      MPE limit for uncontrolled exposure at prediction frequency: 1.0 mW/cm<sup>2</sup></p> <p>Power density at 20 cm:</p> <p>Antenna: 0.01613 mW/cm<sup>2</sup> (802.11b/g, 2412MHz)                      Antenna: 0.00606 mW/cm<sup>2</sup> (802.11n, 2412MHz)                      Antenna: 0.00358 mW/cm<sup>2</sup> (802.11n, 2422MHz)</p>