6. Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT: **Pass**

Test Specification

Test standard : CFR47 FCC Part 2: Section 2.1091
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 447498 v06
OET Bulletin 65 (Edition 97-01)

The Equipment under Test (EUT) is IEEE 802.11 b/g/n 2.4GHz 2T2R USB Module, Model: ZDWFM2402, operating at 2412-2462MHz assign band. It is powered by DC 5V.

802.11b/g/n Maximum conducted (average) output power

Mode	Frequency (MHz)	Maximum conducted (average) output power (dBm)	Maximum conducted (average) output power (mW)	Target power (dBm)	Antenna gain (dBi)
802.11b	2412	16.20	41.69	16±1	2
	2437	16.20	41.69	16±1	2
	2462	16.10	40.74	16±1	2
802.11g	2412	14.10	25.70	14±1	2
	2437	14.00	25.12	14±1	2
	2462	14.10	25.70	14±1	2
802.11n-HT20	2412	15.10	32.36	16±1	5
	2437	15.60	36.31	16±1	5
	2462	15.60	36.31	16±1	5
802.11n-HT40	2422	15.50	35.48	15±1	5
	2437	15.60	36.31	15±1	5
	2452	15.60	36.31	15±1	5

According to the KDB 447498 and OET 65, the simple calculation as below:
The maximum E.I.R.P (802.11n HT20 mode) = 16+1+5 = 22dBm = 158.49mW.
The EUT transmit continuously during the test, the duty cycle is 1.
The source-based time averaged maximum radiated power = 158.49x Duty Cycle = 158.49mW

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna can be calculated according to OET Bulletin 65 as follow:
= 158.49 / 4πR^2 = 0.032 mW/cm^2

The MPE limit is 1.0 mWcm-2 for general population and uncontrolled exposure in the 1,500-100,000MHz frequency range according to FCC Part 1.1310. As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.