

FCC ID : 2AOPG-MS-580

RF EXPOSURE

1.1.The Requirement

FCC part 2(Section 2.1091)

FCC OET Bulletin 65, Supplement C(01-01)

IEEE C95.1

System 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 of the Commission's guidelines. See Section 15.247(b)(4) and Section 1.1307(b)(1)

1.2.Limit For Maximum Permissible Exposure (MPE)

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

F = frequency in MHz, * Plane-wave equivalent power density

1.3.MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

From the peak EUT RF output power, the minimum mobile separation distance, $d=0.2\text{m}$, as well as the gain of the WCDMA Antenna is 3dBi and WiFi Antenna is 5dBi, the RF power density can be obtained.

1.4.TEST RESULTS

Maximum measured transmitter power

For WCDMA worse mode

band	Test Frequency (MHz)	Output Power (dBm)	Target power (dBm)	Target power (mW)	Antenna Gain (Numeric)	Power Density At 20 cm (mW/cm^2)	Power Density Limit (mW/cm^2)	Test Results
WCDMA850	826.4	24.82	24 ± 1	316.23	1.995	0.126	0.551	Pass
WCDMA 1900	1852.4	24.69	24 ± 1	316.23	1.995	0.126	1.000	Pass

For WiFi worse mode

Test Frequency (MHz)	Output Power (dBm)	Target power (dBm)	Target power (mW)	Antenna Gain (Numeric)	Power Density At 20 cm (mW/cm^2)	Power Density Limit (mW/cm^2)	Test Results
2412	15.78	16 ± 1	50.119	3.162	0.032	1.000	Pass
2437	16.28	16 ± 1	50.119	3.162	0.032	1.000	Pass
2462	15.09	16 ± 1	50.119	3.162	0.032	1.000	Pass

WCDMA Antenna Gain= 3dBi

WiFi Antenna Gain= 5dBi

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure.

1.5.FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, Human proximity to the antenna shall not be less than 20cm(8 inches) during normal operation. Proposed RF exposure safety information to include in User's Manual.