

FCC ID : RJY-UFO

1. RF EXPOSURE

1.1.The Requirement

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 and Section 15.407

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, $d=0.2\text{m}$, the RF power density can be obtained.

1.4.TEST RESULTS

Maximum measured transmitter power

For power measurements on IEEE 802.11 devices

For 2.4G WIFI

Antenna Gain = 0 dB

Operation Mode	Channel Number	Channel Frequency (MHz)	Output Power (dBm)	Target power (dBm)	Antenna Gain (Numeric)	Power Density At 20cm (mW/cm^2)	Power Density Limit (mW/cm^2)	Test Results
802.11b	1	2412	15.82	16 ± 1	1.000	0.010	1.000	Pass
	6	2437	16.38	16 ± 1	1.000	0.010	1.000	Pass
	11	2462	15.12	16 ± 1	1.000	0.010	1.000	Pass
802.11g	1	2412	14.31	15 ± 1	1.000	0.008	1.000	Pass
	6	2437	14.04	15 ± 1	1.000	0.008	1.000	Pass
	11	2462	14.33	15 ± 1	1.000	0.008	1.000	Pass
802.11n 20M	1	2412	13.63	14 ± 1	1.000	0.006	1.000	Pass
	6	2437	14.08	14 ± 1	1.000	0.006	1.000	Pass
	11	2462	13.48	14 ± 1	1.000	0.006	1.000	Pass
802.11n 40M	3	2422	13.13	14 ± 1	1.000	0.006	1.000	Pass
	6	2437	13.46	14 ± 1	1.000	0.006	1.000	Pass
	9	2452	13.42	14 ± 1	1.000	0.006	1.000	Pass

For 5G WIFI

Antenna Gain = 2 dB

Operation Mode	Channel Number	Channel Frequency (MHz)	Output Power (dBm)	Target power (dBm)	Antenna Gain (Numeric)	Power Density At 20cm (mW/cm ²)	Power Density Limit (mW/cm ²)	Test Results
802.11a	36	5180	10.88	11±1	1.585	0.005	1.000	Pass
	48	5240	11.49	11±1	1.585	0.005	1.000	Pass
	52	5260	11.14	11±1	1.585	0.005	1.000	Pass
	64	5320	11.64	11±1	1.585	0.005	1.000	Pass
	100	5500	11.65	11±1	1.585	0.005	1.000	Pass
	140	5700	11.53	11±1	1.585	0.005	1.000	Pass
	149	5745	11.14	11±1	1.585	0.005	1.000	Pass
	165	5825	10.98	11±1	1.585	0.005	1.000	Pass
802.11ac 20M	36	5180	10.53	11±1	1.585	0.005	1.000	Pass
	48	5240	10.86	11±1	1.585	0.005	1.000	Pass
	52	5260	10.56	11±1	1.585	0.005	1.000	Pass
	64	5320	10.89	11±1	1.585	0.005	1.000	Pass
	100	5500	10.91	11±1	1.585	0.005	1.000	Pass
	140	5700	10.87	11±1	1.585	0.005	1.000	Pass
	149	5745	10.41	11±1	1.585	0.005	1.000	Pass
	165	5825	10.54	11±1	1.585	0.005	1.000	Pass
802.11n 20M	36	5180	10.60	11±1	1.585	0.005	1.000	Pass
	48	5240	10.85	11±1	1.585	0.005	1.000	Pass
	52	5260	10.74	11±1	1.585	0.005	1.000	Pass
	64	5320	10.87	11±1	1.585	0.005	1.000	Pass
	100	5500	10.81	11±1	1.585	0.005	1.000	Pass
	140	5700	10.96	11±1	1.585	0.005	1.000	Pass
	149	5745	10.66	11±1	1.585	0.005	1.000	Pass
	165	5825	10.52	11±1	1.585	0.005	1.000	Pass
802.11ac 40M	38	5190	9.68	9±1	1.585	0.003	1.000	Pass
	46	5230	9.65	9±1	1.585	0.003	1.000	Pass
	54	5270	9.50	9±1	1.585	0.003	1.000	Pass
	62	5310	9.37	9±1	1.585	0.003	1.000	Pass
	102	5510	9.25	9±1	1.585	0.003	1.000	Pass
	134	5670	9.19	9±1	1.585	0.003	1.000	Pass
	151	5755	8.53	9±1	1.585	0.003	1.000	Pass
	159	5795	8.61	9±1	1.585	0.003	1.000	Pass

802.11n 40M	38	5190	9.69	9±1	1.585	0.003	1.000	Pass
	46	5230	9.29	9±1	1.585	0.003	1.000	Pass
	54	5270	9.19	9±1	1.585	0.003	1.000	Pass
	62	5310	9.23	9±1	1.585	0.003	1.000	Pass
	102	5510	9.46	9±1	1.585	0.003	1.000	Pass
	134	5670	9.28	9±1	1.585	0.003	1.000	Pass
	151	5755	8.78	9±1	1.585	0.003	1.000	Pass
	159	5795	8.84	9±1	1.585	0.003	1.000	Pass
802.11ac 80M	42	5210	8.77	9±1	1.585	0.003	1.000	Pass
	58	5290	9.47	9±1	1.585	0.003	1.000	Pass
	106	5530	9.73	9±1	1.585	0.003	1.000	Pass
	155	5775	9.71	9±1	1.585	0.003	1.000	Pass

The device could operate simultaneously in 2.4G and 5G band, RF exposure shall be evaluated in operation mode with 2.4 and 5G on simultaneously,

We took the maximum Power Density value from 2.4 and 5G bands and added the two values to obtain a maximum Power Density value.

The maximum Power Density value=0.010+0.005=0.015<1.000

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.