

Radiofrequency radiation exposure evaluation: mobile devices

RESULT :

Pass

Test Specification

Test item : Projector
 FCC ID : 2BDRG-GIMBALA1
 Test standard : CFR47 FCC Part 2: Section 2.1091
 CFR47 FCC Part 1: Section 1.1310
 FCC KDB Publication 447498 D04

➤ FCC requirements

FCC 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 20cm normally can be maintained between the user and the device.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) LIMITS FOR OCCUPATIONAL/CONTROLLED EXPOSURE				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f ²)	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

*f = frequency in MHz. * = Plane-wave equivalent power density.*

RF Exposure Evaluation Result

RF exposure evaluation method is based on KDB 447498 D01, this calculation is based on the conducted power, maximum power and antenna gain with provides the minimum separation distance. The formula shown below is from OET Bulletin 65 Edition 97-01 Per KDB 447498 D01:

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

S = Power Density (mW/m²)

P = RF output Power (mW)

G = EUT Antenna gain (numeric)

R = Separation distance between radiator and human body (cm)

From the minimum separation distance, R=20cm

Test mode	Max. RF Output Power (dBm)	Antenna Gain (dBi)	Max EIRP (dBm)	Max EIRP (mW)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)	MPE Radio	Result
Bluetooth	8.05	1.61	9.66	9.247	0.001841	1	0.001841	Pass
2.4G WLAN	17.55	3.22	20.77	119.39	0.023764	1	0.023764	Pass
5G WLAN	15.91	3.61	19.52	89.54	0.017822	1	0.017822	Pass

The product also has multiple transmitters. The Simltaneous Transmission Possibilities are as below

Mode	Configuration
1	2.4GHz WLAN + Bluetooth
2	5GHz WLAN + Bluetooth

Test mode	Result ratio	Total	Limit	Result
Bluetooth	0.001841	0.025	1.0	Pass
2.4G WLAN	0.023764			