

Radiofrequency radiation exposure evaluation: mobile devices

RESULT :

Pass

Test Specification

Test item : AX1800 Wi-Fi 6 Wireless Bluetooth PCIe Adapter
 Identification / Type No. : CM960
 FCC ID : 2AQI5-CM960
 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.

Limits for Occupational / Controlled 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)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

Note: f is frequency in MHz

* = Power density limit is applicable at frequencies greater than 100 MHz

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

Note: f = frequency in MHz

* = Plane-wave equivalent power density

a) EUT RF Exposure Evaluation operations

Prediction of MPE limit at a given distance

$$S = \frac{EIRP}{4\pi R^2}$$

Where:

S = Power density;

$EIRP$ = Equivalent Isotropic Radiated Power in mW;

R Distance to the center of radiation of the antenna;

Operating Mode	Tune up Produce power	Operation Distance (cm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (mW/cm ²)	Power Density Limit (mW/cm ²)
BT	14±1	20	31.62	2.92(4.66dBi)	0.018374	1.00
BLE	11±1	20	15.85	2.92(4.66dBi)	0.009210	1.00
2.4G WIFI	16±1	20	50.12	2.92(4.66dBi)	0.029124	1.00
5.1G WIFI	17±1	20	63.10	2.46(3.91dBi)	0.030890	1.00
5.3G WIFI	17±1	20	63.10	2.46(3.91dBi)	0.030890	1.00
5.6G WIFI	17±1	20	63.10	2.46(3.91dBi)	0.030890	1.00
5.8G WIFI	18±1	20	79.43	2.46(3.91dBi)	0.038884	1.00

Multiple transmission:

$$2.4G\ WIFI + 5G\ WIFI + BT = 0.029124/1 + 0.038884/1 + 0.018374/0.61 = 0.098129311 < 1$$