

RADIO FREQUENCY EXPOSURE

1. Limit

According to §1.1310 and §2.1091 RF exposure is calculated.

Table: Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Power Density (S) (mW/cm ²)
0.3–1.34	*(100)
1.34–30	*(180/f ²)
30–300	0.2
300–1500	f/1500
1500–100,000	1.0

F = frequency in MHz

* = Plane-wave equivalent power density

Maximum Permissible Exposure

The MPE was calculated at 20cm to show compliance with the power density limit.

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

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.

Note:

1. Manufacturer declared that the maximum antenna gain is 5.0dBi (Max.) 5G WLAN (So the G for calculate the MPE is 3.16).
2. Manufacturer declared that the nearest distance between human and the EUT is 20cm.
3. Only record worst case data.

2 Test Results

Standalone MPE

Antenna Chain 0

Test	Channel	Frequency	ANT Power (dBm)	ANT Max. Tune Up Power (dBm)	ANT Max. Tune Up Power (mW)	ANT MPE (mW/cm ²)	Limit (mW/cm ²)
5.2G	1	5190	15.371	15.0±1.0	39.8107	0.0250	1.0
	2	5230	15.301	15.0±1.0	39.8107	0.0250	1.0
5.8G	3	5745	15.047	15.0±1.0	39.8107	0.0250	1.0
	4	5785	15.344	15.0±1.0	39.8107	0.0250	1.0
	5	5825	14.977	15.0±1.0	39.8107	0.0250	1.0

Antenna Chain 1

Test	Channel	Frequency	ANT Power (dBm)	ANT Max. Tune Up Power (dBm)	ANT Max. Tune Up Power (mW)	ANT MPE (mW/cm ²)	Limit (mW/cm ²)
5.2G	1	5190	15.051	15.0±1.0	39.8107	0.0250	1.0
	2	5230	15.241	15.0±1.0	39.8107	0.0250	1.0
5.8G	3	5745	15.922	15.0±1.0	39.8107	0.0250	1.0
	4	5785	15.722	15.0±1.0	39.8107	0.0250	1.0
	5	5825	15.380	15.0±1.0	39.8107	0.0250	1.0

Simultaneous transmission MPE

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

$$\sum\sum \text{of MPE ratios} \leq 1.0$$

Mode	Channel	ANT Max. Power (mW)	\sum MPE ratios	Limit	Results
Chain0+Chain1					
Chain0+Chain1	1	79.6214	0.1001	1.000	Pass
	2	79.6214	0.1001	1.000	Pass
	3	79.6214	0.1001	1.000	Pass
	4	79.6214	0.1001	1.000	Pass
	5	79.6214	0.1001	1.000	Pass

Note: The estimation distance is 20cm.

Conclusion

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