

RF Exposure Evaluation

LIMIT

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
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
300–1500	-	-	f/300	6
1500–100,000	-	-	5	6
(B) 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
300–1500	-	-	f/1500	30
1500–100,000	-	-	1.0	30

Note: f = frequency in MHz

EVALUATION METHOD

Transmission formula: $Pd = (Pout * G) / (4 * \pi * r^2)$

Where

Pd = power density in mW/cm², **Pout** = output power to antenna in mW, **G** = gain of antenna in linear scale;

Pi = 3.1416, **R** = distance between observation point and center of the radiator in cm

TEST RESULT

Passed

Not Applicable

2.4G WIFI:

Type	Maximum conducted output power(dBm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
802.11b	16.84	0.0107	1.0000	Pass
802.11g	18.06	0.0142	1.0000	Pass
802.11n(H20)	17.75	0.0132	1.0000	Pass
BT-BLE	0.82	0.0002	1.0000	Pass

EDR:

Type	Maximum conducted output power(dBm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
GFSK	2.15	0.0003	1.0000	Pass
$\pi/4$ DQPSK	-1.68	0.0001	1.0000	Pass
8DPSK	-2.04	0.0001	1.0000	Pass

5G WIFI:

Type	Maximum conducted output power(dBm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
Band I	16.91	0.0109	1.0000	Pass
Band II	16.47	0.0099	1.0000	Pass
Band III	17.01	0.0112	1.0000	Pass
Band IV	16.75	0.0105	1.0000	

Note:

- 1) The maximum antenna gain is 0.5dBi
- 2) The exposure safety distance is less than 20cm.