

Prediction of MPE at a given distance

1. Limits

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)

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

2. Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

3. Result

Frequency (MHz)	Maximum Output power (dBm)	Maximum Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm ²)	Limits for General Population/ Uncontrolled Exposure (mW/cm ²)
WCDMA Band V							
846.60	22.73	187.50	0.64	1.159	20.00	0.0432	0.5644
WCDMA Band II							
1852.40	21.83	152.41	0.64	1.159	20.00	0.0351	1
WCDMA Band IV							
1732.40	22.80	190.55	0.64	1.159	20.00	0.0439	1
LTE Band 2							
1860.00	22.29	169.43	0.64	1.159	20.00	0.0391	1
LTE Band 4							
1732.50	22.69	185.78	0.64	1.159	20.00	0.0428	1
LTE Band 5							
829.00	23.06	202.30	0.64	1.159	20.00	0.0466	0.5527
LTE Band 7							
2567.50	22.61	182.38	0.64	1.158	20.00	0.0420	1
LTE Band 12							
707.50	23.12	205.12	0.64	1.159	20.00	0.0472	0.4717
LTE Band 17							
706.50	23.05	201.84	0.64	1.158	20.00	0.0464	0.4710
BT							
2402.00	4.03	2.592	0.53	1.130	20.00	0.0006	1
2.4G wifi							
2412.00	15.54	35.81	0.53	1.130	20.00	0.0080	1
5.2G wifi							
5240.00	10.35	10.84	0.53	1.130	20.00	0.0024	1

Note: Just the worst case mode was shown in report.

Max Simultaneous MPE calculation results

Mode	MPE Ratio	Results
2.4G WiFi + WCDMA Band V	0.0080 + 0.0432	0.0512 < 0.5644
2.4G WiFi + LTE Band 17	0.0080 + 0.0464	0.0544 < 0.4710
5.2G WiFi + WCDMA Band V	0.0024 + 0.0432	0.0452 < 0.5644
5.2G WiFi + LTE Band 17	0.0024 + 0.0464	0.0484 < 0.4710

4. Conclusion

The device is exempt from the RF exposure evaluation.