

RF Exposure Statement

1. LIMITS

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

(B) Limits for General Population/Uncontrolled Exposures

Frequency range (MHz)	Electric field Strength (V/m)	Magnetic field Strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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

F = frequency in MHz

* = Plane-wave equivalent power density

2. MAXIMUM PERMISSIBLE EXPOSURE Prediction

Prediction of MPE limit at a given distance

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

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

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

2-1. CDMA BAND

Max Peak output Power at antenna input terminal (dBm)	24.900
Max Peak output Power at antenna input terminal (mW)	309.030
Prediction distance (cm)	20.000
Prediction frequency (MHz)	824.700
Antenna Gain(typical) (dBi)	1.620
Antenna Gain(numeric)	1.452
Power density at prediction frequency (mW/cm ²)	0.08928
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	0.550

2-2. PCS CDMA BAND

Max Peak output Power at antenna input terminal (dBm)	24.75000
Max Peak output Power at antenna input terminal (mW)	298.53826
Prediction distance (cm)	20.0000
Prediction frequency (MHz)	1851.25000
Antenna Gain(typical) (dBi)	4.550000
Antenna Gain(numeric)	2.85102
Power density at prediction frequency (mW/cm ²)	0.16933
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

2-3. LTE _BAND 2

Max Peak output Power at antenna input terminal (dBm)	23.36000
Max Peak output Power at antenna input terminal (mW)	216.77041
Prediction distance (cm)	20.0000
Prediction frequency (MHz)	1907.5000
Antenna Gain(typical) (dBi)	4.55
Antenna Gain(numeric)	2.85102
Power density at prediction frequency (mW/cm ²)	0.12295
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

2-4. LTE _BAND 5

Max Peak output Power at antenna input terminal (dBm)	23.100
Max Peak output Power at antenna input terminal (mW)	204.174
Prediction distance (cm)	20.000
Prediction frequency (MHz)	836.500
Antenna Gain(typical) (dBi)	1.620
Antenna Gain(numeric)	1.452
Power density at prediction frequency (mW/cm ²)	0.05898
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	0.558

2-5. LTE _ BAND 4

Max Peak output Power at antenna input terminal (dBm)	23.0000
Max Peak output Power at antenna input terminal (mW)	199.52623
Prediction distance (cm)	20.0000
Prediction frequency (MHz)	1715.0000
Antenna Gain(typical) (dBi)	0.61000
Antenna Gain(numeric)	1.15080
Power density at prediction frequency (mW/cm ²)	0.04568
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

2-6. LTE _ BAND 17

Max Peak output Power at antenna input terminal (dBm)	23.350
Max Peak output Power at antenna input terminal (mW)	216.272
Prediction distance (cm)	20.000
Prediction frequency (MHz)	706.500
Antenna Gain(typical) (dBi)	3.950
Antenna Gain(numeric)	2.483
Power density at prediction frequency (mW/cm ²)	0.10684
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	0.471

2-7. LTE _ BAND 13

Max Peak output Power at antenna input terminal (dBm)	22.960
Max Peak output Power at antenna input terminal (mW)	197.697
Prediction distance (cm)	20.000
Prediction frequency (MHz)	782.000
Antenna Gain(typical) (dBi)	2.110
Antenna Gain(numeric)	1.626
Power density at prediction frequency (mW/cm ²)	0.06393
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	0.521

2-8. GSM 850 BAND

Max Peak output Power at antenna input terminal (dBm)	33.700
Max Peak output Power at antenna input terminal (mW)	2344.229
Prediction distance (cm)	30.000
Prediction frequency (MHz)	848.800
Antenna Gain(typical) (dBi)	1.520
Antenna Gain(numeric)	1.419
Power density at prediction frequency (mW/cm ²)	0.29414
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	0.566

2-9. GSM 1900 BAND

Max Peak output Power at antenna input terminal (dBm)	30.260
Max Peak output Power at antenna input terminal (mW)	1061.69556
Prediction distance (cm)	20.000
Prediction frequency (MHz)	1850.200
Antenna Gain(typical) (dBi)	4.550
Antenna Gain(numeric)	2.85102
Power density at prediction frequency (mW/cm ²)	0.60219
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

2-10. WCDMA 850 BAND

Max Peak output Power at antenna input terminal (dBm)	24.060
Max Peak output Power at antenna input terminal (mW)	254.683
Prediction distance (cm)	20.000
Prediction frequency (MHz)	836.600
Antenna Gain(typical) (dBi)	1.520
Antenna Gain(numeric)	1.419
Power density at prediction frequency (mW/cm ²)	0.07190
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	0.558

2-11. WCDMA 1900 BAND

Max Peak output Power at antenna input terminal (dBm)	23.86000
Max Peak output Power at antenna input terminal (mW)	243.22040
Prediction distance (cm)	20.0000
Prediction frequency (MHz)	1907.6000
Antenna Gain(typical) (dBi)	4.5500
Antenna Gain(numeric)	2.85102
Power density at prediction frequency (mW/cm ²)	0.13795
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

2-12. WCDMA 1700 BAND

Max Peak output Power at antenna input terminal (dBm)	23.610
Max Peak output Power at antenna input terminal (mW)	229.61486
Prediction distance (cm)	20.000
Prediction frequency (MHz)	1712.400
Antenna Gain(typical) (dBi)	0.610
Antenna Gain(numeric)	1.15080
Power density at prediction frequency (mW/cm ²)	0.05257
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

3. RESULTS

- 1) The power density level at 20 cm is **0.08928 mW/cm²**, which is below the controlled exposure limit of **0.550 mW/cm²** at **CDMA band**.
- 2) The power density level at 20 cm is **0.16933 mW/cm²**, which is below the controlled exposure limit of **1.0 mW/cm²** at **PCS CDMA band**.
- 3) The power density level at 20 cm is **0.12295 mW/cm²**, which is below the controlled exposure limit of **1.0 mW/cm²** at **LTE band 2**.
- 4) The power density level at 20 cm is **0.05898 mW/cm²**, which is below the controlled exposure limit of **0.558 mW/cm²** at **LTE band 5**.
- 5) The power density level at 20 cm is **0.04568 mW/cm²**, which is below the controlled exposure limit of **1.0 mW/cm²** at **LTE band 4**.
- 6) The power density level at 20 cm is **0.10684 mW/cm²**, which is below the controlled exposure limit of **0.471 mW/cm²** at **LTE band 17**.
- 7) The power density level at 20 cm is **0.06393 mW/cm²**, which is below the controlled exposure limit of **0.521 mW/cm²** at **LTE band 13**.
- 8) The power density level at 30 cm is **0.29346 mW/cm²**, which is below the controlled exposure limit of **0.566 mW/cm²** at **GSM 850 BAND**.
- 9) The power density level at 20 cm is **0.59942 mW/cm²**, which is below the controlled exposure limit of **1.0 mW/cm²** at **GSM 1900 BAND**.
- 10) The power density level at 20 cm is **0.07190 mW/cm²**, which is below the controlled exposure limit of **0.558 mW/cm²** at **WCDMA 800 BAND**.
- 11) The power density level at 20 cm is **0.13795 mW/cm²**, which is below the controlled exposure limit of **1.0 mW/cm²** at **WCDMA 1900 BAND**.
- 12) The power density level at 20 cm is **0.05257 mW/cm²**, which is below the controlled exposure limit of **1.0 mW/cm²** at **WCDMA 1700 BAND**.