

4 FCC §2.1091 - RF Exposure

According to FCC §2.1091 (Mobile Devices) RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
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

* = Plane-wave equivalent power density

4.1 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

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

Where: 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

4.2 Test Results

For transmission with 900 MHz, 2.4 GHz, and 5 GHz

2.4 GHz (FCC ID: P9J-642401)

Maximum peak output power at antenna input terminal (dBm): 28.27

Maximum peak output power at antenna input terminal (mW): 671.43

Prediction distance (cm): 40

Predication frequency (MHz): 2412

Maximum Antenna Gain, typical (dBi): 7.5

Maximum Antenna Gain (numeric): 5.623

Power density of prediction frequency at prediction distance (mW/cm²): 0.188

FCC limit (mW/cm²): 1.00

5 GHz (FCC ID: P9J-645801)

Maximum peak output power at antenna input terminal (dBm):	27.98
Maximum peak output power at antenna input terminal (mW):	628.058
Prediction distance (cm):	40
Predication frequency (MHz):	5745
Maximum Antenna Gain, typical (dBi):	8
Maximum Antenna Gain (numeric):	6.31
Power density of prediction frequency at prediction distance (mW/cm ²):	0.197
FCC limit (mW/cm ²):	1.00

900 MHz (FCC ID: P9J-T900)

Maximum peak output power at antenna input terminal (dBm):	29.99
Maximum peak output power at antenna input terminal (mW):	997.70
Prediction distance (cm):	40
Predication frequency (MHz):	902.4
Maximum Antenna Gain, typical (dBi):	3.00
Maximum Antenna Gain (numeric):	1.9953
Power density of prediction frequency at prediction distance (mW/cm ²):	0.099
FCC limit (mW/cm ²):	0.6016

The sum of the ratio of MPE values to their respective limits is 0.55.

Results

For the different combination of transmitters, a separation distance of 40 cm complies with the MPE simultaneous transmission limit of ≤ 1.0 .