

FCC ID: PJ7-1721

RF EXPOSURE EVALUATION

According to FCC 1.1310: 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)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

11.1 Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} =output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π =3.1416

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

The max gain which is allowed of external antenna is:

850M: ≤ 0 dB_i

1900M: ≤ 2.6 dB_i

850 and 1900MHz bands shares the same antenna path and can't transmit simultaneously.

GSM850:

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm ²)	Power density Limits (mW/cm ²)
824.20	2018.37	33.05	32±2	34	1	0.4997	0.5495
836.60	1972.42	32.95	32±2	34	1	0.4997	0.5577
848.60	2032.36	33.08	32±2	34	1	0.4997	0.5657

GPRS850:

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm ²)	Power density Limits (mW/cm ²)
824.20	2004.47	33.02	32±2	34	1	0.4997	0.5495
836.60	1999.86	33.01	32±2	34	1	0.4997	0.5577
848.60	2018.37	33.05	32±2	34	1	0.4997	0.5657

WCDMA850:

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm ²)	Power density Limits (mW/cm ²)
826.4	152.05	21.82	22±1	23	1	0.0397	0.5509
836.4	145.55	21.63	22±1	23	1	0.0397	0.5576
846.6	142.56	21.54	22±1	23	1	0.0397	0.5644

PCS1900:

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm ²)	Power density Limits (mW/cm ²)
1850.2	1076.47	30.32	29±2	31	1.82	0.4558	1
1880	1025.65	30.11	29±2	31	1.82	0.4558	1
1909.8	1049.54	30.21	29±2	31	1.82	0.4558	1

GPRS 1900

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm ²)	Power density Limits (mW/cm ²)
1850.2	995.41	30.28	29±2	31	1.82	0.4558	1
1880	963.83	30.05	29±2	31	1.82	0.4558	1
1909.8	981.75	30.17	29±2	31	1.82	0.4558	1

WCDMA1900

Channel Frequency (MHz)	Output power (mW)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Power density at 20cm(mW/cm ²)	Power density Limits (mW/cm ²)
1852.4	141.91	21.52	22±1	23	1.82	0.0722	1
1880	145.21	21.62	22±1	23	1.82	0.0722	1
1907.6	139.64	21.45	22±1	23	1.82	0.0722	1