

FCC ID: 2AIT9-PG101

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(20cm)

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.

mW=10^{^(dBm/10)}

11.2 Measurement Result

Operation Frequency: GSM850: TX824.2MHz~848.8MHz /RX869.2MHz~893.8MHz

PCS1900: TX1850.2MHz~1909.8MHz /RX1930.2MHz~1989.8MHz;

Power density limited: 1mW/ cm²

Antenna Type: PIFA Antenna Antenna

Antenna gain: 1.0dBi,

R=20cm

mW=10^{^(dBm/10)}

GSM850:

Channel Freq. (MHz)	modulation	Maximum Burst-Average Output Power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
824.2	GMSK	32.2	32±1	33	1995.262	1.26	0.5001	0.55
836.6	GMSK	32.03	32±1	33	1995.262	1.26	0.5001	0.56
848.8	GMSK	32.23	32±1	33	1995.262	1.26	0.5001	0.57

PCS1900:

Channel Freq. (MHz)	modulation	Maximum Burst-Average Output Power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
1850.2	GMSK	29.15	30±1	31	1258.925	1.26	0.3156	1
1880	GMSK	30.55	30±1	31	1258.925	1.26	0.3156	1
1909.8	GMSK	29.51	30±1	31	1258.925	1.26	0.3156	1

GPRS 850:

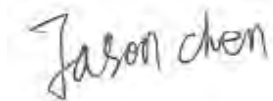
Channel Freq. (MHz)	modulation	Maximum Burst-Average Output Power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
824.2	GMSK	32.15	32±1	33	1995.262	1.26	0.5001	0.55
836.6	GMSK	32.11	32±1	33	1995.262	1.26	0.5001	0.56
848.8	GMSK	32.19	32±1	33	1995.262	1.26	0.5001	0.57

GPRS 1900:

Channel Freq. (MHz)	modulation	Maximum Burst-Average Output Power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
1850.2	GMSK	28.96	29.5±1	30.5	1122.018	1.26	0.2812	1
1880	GMSK	30.32	29.5±1	30.5	1122.018	1.26	0.2812	1
1909.8	GMSK	29.38	29.5±1	30.5	1122.018	1.26	0.2812	1

Conclusion:

For the max result : $0.5001 \leq 0.55$ for MPE, which is under the limit.

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