

# **FCC ID: 2AIT9-PG100**

## **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 <sup>2</sup> )	Average Time
<b>(A) Limits for Occupational/Control Exposures</b>				
<b>300-1500</b>	--	--	<b>F/300</b>	<b>6</b>
<b>1500-100000</b>	--	--	<b>5</b>	<b>6</b>
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
<b>300-1500</b>	--	--	<b>F/1500</b>	<b>6</b>
<b>1500-100000</b>	--	--	<b>1</b>	<b>30</b>

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

Where

$P_d$ = Power density in mW/cm<sup>2</sup>

$P_{out}$ =output power to antenna in mW

$G$ = Numeric gain of the antenna relative to isotropic antenna

$\pi$ =3.1416

$R$ = distance between observation point and center of the radiator in cm(20cm)

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. 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:  $1\text{mW}/\text{cm}^2$

Antenna Type: PIFA Antenna Antenna

Antenna gain: 1.0dBi,

R=20cm

$\text{mW}=10^{(\text{dBm}/10)}$

GSM850:

Channel Freq. (MHz)	modulation	Maximum Burst-Average Output Power (dBm)	Maximum Burst-Average Output Power (mW)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
824.2	GMSK	32.13	1633.05	32±1	33	1.26	0.4997	0.55
836.6	GMSK	32.46	1761.98	32±1	33	1.26	0.4997	0.56
848.8	GMSK	32.08	1614.36	32±1	33	1.26	0.4997	0.57

PCS1900:

Channel Freq. (MHz)	modulation	Maximum Burst-Average Output Power (dBm)	Maximum Burst-Average Output Power (mW)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
1850.2	GMSK	29.75	944.06	29±1	30	1.26	0.2504	1.00
1880	GMSK	29.64	920.45	29±1	30	1.26	0.2504	1.00
1909.8	GMSK	28.84	765.60	29±1	30	1.26	0.2504	1.00

### Conclusion:

For the max result :  $0.4997 \leq 0.55$  for 1g SAR, No SAR is required.

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Signature:

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