RF exposure

According to FCC part 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 (㎒)	Electric field strength(V/m)	Magnetic field strength (A/m)	Power density (㎽/㎠)	Average time
(A) Limits for Occupational / Control Exposures				
300 – 1 500	--	--	f/300	6
1 500 - 100000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300 – 1 500	--	--	f/1500	6
1 500 – 100 000	--	--	1	30

f= frequency in ㎒

Friis transmission formula: $Pd = (Pout \times G)/(4 \times pi \times R^2)$

Where,

Pd = power density in ㎽/㎠

Pout = output power to antenna in ㎽

G = gain of antenna in linear scale

Pi = 3.1416

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

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

Test of RF Exposure Evaluation

This device is evaluated by mobile device with general population/uncontrolled exposure condition For this device, the calculation is using the most conservative values, and the results are as follows:
(Please refer to the original RF exposure data of SIM808.)

Results

Test Mode	Max tune-up power (dBm)	Antenna gain (dBi)	Power density at 30 ㎝(㎽/㎠)	Limit (㎽/㎠)
GSM 850	35.00	-0.30	0.26	0.55
GPRS 850	35.00	-0.30	0.26	0.55
GSM 1900	32.00	-1.70	0.19	1.00
GPRS 1900	32.00	-1.70	0.19	1.00

Note.

1. MPE was calculated for 30cm distance.