RF EXPOSURE EVALUATION

EUT Specification

EUT	Cell Phone Signal Booster
Model Number	GB.3.CPA.4
FCC ID	2A99P-GB3CPA4
Antenna gain (Max)	5dBi
Operation Frequency	Band 4: Uplink: 1710MHz- 1755MHz, Downlink: 2110MHz-2155MHz
Input Rating	DC 5V from Switching Power Supply
Max. output power	Band 4: Uplink: 1710MHz- 1755MHz, 15.15dBm Downlink: 2110MHz-2155MHz, 19.38dBm

Test Requirement:

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: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in mW/cm^2

Pout=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

Pd the limit of MPE, 1mW/cm^2 . If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

Antenna gain: 5dBi

Operating Mode Frequency(MHz)	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Output Peak power(mW)	Ant. Gain(dBi)	Power density at 20cm (mW/ cm2)	Power density Limits(mW/cm2)
UL1710-1755	15±1	16	39.811	5	0.025058	1
DL2110-2155	10±1	11	12.589	5	0.007924	1

Signature:

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