8. 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**

8.1 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 = 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 mW/cm^2. 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.

8.2 Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data
Test Mode : Normal Operation

8.2.1 Output Power into Antenna & RF Exposure Evaluation Distance

Antenna: 8 dBi(Patch Antenna), 10 dBi(Yagi Antenna)

Test Mode: Down link_64QAM 3/4

Channel	Frequency (MHz)	Output Power to Antenna (dBm)	Antenna Gain (dBi)	R (cm)
Low	2508.5	23.63	10	13.55206
Middle	2630.5	23.19	10	12.88265
High	2683.5	21.16	10	10.19777

Test Mode Mode: Up link_16QAM 3/4

Channel	Frequency (MHz)	Output Power to Antenna (dBm)	Antenna Gain (dBi)	R (cm)
Low	2508.5	24.71	8	12.19004
Middle	2630.5	24.07	8	11.32413
High	2683.5	20.23	8	7.277884