

# FCC ID : RYD-IBB683B

## 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

$P_d$  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.

### 11.2 Measurement Result

Antenna gain: 1dBi

Modulation: GFSK

Channel	Channel Frequency (MHz)	Output Peak power (dBm)	Output Peak power (mW)	Antenna Gain (dBi) Numeric	Power density at 20cm (mW/ cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
1	2402	1.643	1.46	1.26	0.00037	1
40	2441	1.56	1.43	1.26	0.00036	1
79	2480	1.28	1.34	1.26	0.00034	1

Modulation: 1/4  $\pi$  -DQPSK

Channel	Channel Frequency (MHz)	Output Peak power (dBm)	Output Peak power (mW)	Antenna Gain (dBi) Numeric	Power density at 20cm (mW/ cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
1	2402	-1.254	0.75	1.26	0.00019	1
40	2441	-1.352	0.73	1.26	0.00018	1
79	2480	-1.253	0.75	1.26	0.00019	1

Modulation: 8DPSK

Channel	Channel Frequency (MHz)	Output Peak power (dBm)	Output Peak power (mW)	Antenna Gain (dBi) Numeric	Power density at 20cm (mW/ cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
1	2402	-1.098	0.78	1.26	0.00019	1
40	2441	-1.203	0.76	1.26	0.00019	1
79	2480	-1.107	0.77	1.26	0.00019	1