

## 11. RF exposure evaluation

§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)

### 11.1. 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
(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	<u>30</u>

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

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

$P_{out}$  = 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

$P_d$  the limit of MPE, 1 mW/cm<sup>2</sup>. 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.

### 11.3. EUT operating condition

A software provided by client enabled the EUT to transmit and receive data at low, middle and high channel individually.

*The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.*

## 11.4. Test result of RF exposure evaluation

Test item : RF exposure evaluation data

Test mode : Normal operation

### 11.4.1. Output power into antenna & RF exposure evaluation distance

#### 11.4.1.1. Use AC Adapter

Channel	Frequency (MHz)	Output peak power to antenna (dBm)	Antenna gain (dBi)	Power density at 20 cm (mW/cm <sup>2</sup> )	Limits (mW/cm <sup>2</sup> )
Low	2402	-9.55	2.51	0.00004	1
Middle	2441	-7.96	2.51	0.00006	
High	2480	-5.89	2.51	0.00009	

**Note :**

The power density Pd (4th column) at a distance of 20cm calculated from the friis transmission formula is far below the limit of 1 mW/ cm<sup>2</sup>.

#### 11.4.1.2. Use cigar jack

Channel	Frequency (MHz)	Output peak power to antenna (dBm)	Antenna gain (dBi)	Power density at 20 cm (mW/cm <sup>2</sup> )	Limits (mW/cm <sup>2</sup> )
Low	2402	-9.51	2.51	0.00004	1
Middle	2441	-7.94	2.51	0.00006	
High	2480	-5.88	2.51	0.00009	

**Note :**

The power density Pd (4th column) at a distance of 20cm calculated from the friis transmission formula is far below the limit of 1 mW/ cm<sup>2</sup>.

**11.4.1.3. Use battery**

Channel	Frequency (MHz)	Output peak power to antenna (dBm)	Antenna gain (dBi)	Power density at 20 cm (mW/cm <sup>2</sup> )	Limits (mW/cm <sup>2</sup> )
Low	2402	-9.73	2.51	0.00004	1
Middle	2441	-8.02	2.51	0.00006	
High	2480	-6.01	2.51	0.00009	

**Note :**

The power density Pd (4th column) at a distance of 20cm calculated from the friis transmission formula is far below the limit of 1 mW/ cm<sup>2</sup>.