

## RF Exposure Evaluation Declaration

Product Name : TWO WAY RADIO/TRANSCEIVER  
Trade Name : Wireless Pacific  
Model No. : X10DRMD-AU2, X10DRMD-PU2, X10DRMD-LU2,  
X10DRMD-EU2, X10DRMD-AX2, X10DRMD-EX2,  
X10DRMD-XU2, X10DRMD-XX2, X10DRMD-SU2,  
X10DRMD-SX2, PTT500MD2, SMWMD2, NCXMD  
FCC ID. : 2AGEY-XG2

Applicant : Wireless Corporation Limited  
Address : 503, Tower 2, Lippo Center 89 Queensway,  
Admiralty, Hong Kong

Date of Receipt : Sep. 01, 2016  
Date of Declaration : Jan. 17, 2017  
Report No. : 1690080R-RF-US-Exp  
Report Version : V1.0



The declaration results relate only to the samples calculated.

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## 1. RF Exposure Evaluation

### 1.1. Limits

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 (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

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

$P_d$  is 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 r where the MPE limit is reached.

### 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

### 1.3. Test Result of RF Exposure Evaluation

Product	TWO WAY RADIO/TRANSCEIVER
Test Mode	Mode 1: Transmit Mode_Ant 1
Test Condition	RF Exposure Evaluation

#### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 14 dBi or 25.12 in linear scale.

#### Output Power into Antenna & RF Exposure Evaluation Distance:

GFSK			
Bluetooth Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
00	2402	56.2341	0.28103
39	2441	58.3445	0.29157
78	2480	58.2103	0.29090

$\pi/4$ -DQPSK			
Bluetooth Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
00	2402	81.4704	0.40714
39	2441	85.1138	0.42535
78	2480	85.9014	0.42929

8-DPSK			
Bluetooth Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
00	2402	82.6038	0.41281
39	2441	84.5279	0.42242
78	2480	85.1138	0.42535

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

Product	TWO WAY RADIO/TRANSCEIVER
Test Mode	Mode 2: Transmit Mode_Ant 2
Test Condition	RF Exposure Evaluation

### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.2dBi or 1.66 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

GFSK			
Bluetooth Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
00	2402	56.2341	0.01857
39	2441	58.3445	0.01927
78	2480	58.2103	0.01922

$\pi/4$ -DQPSK			
Bluetooth Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
00	2402	81.4704	0.02691
39	2441	85.1138	0.02811
78	2480	85.9014	0.02837

8-DPSK			
Bluetooth Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
00	2402	82.6038	0.02728
39	2441	84.5279	0.02791
78	2480	85.1138	0.02811

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