RF Exposure Evaluation Declaration
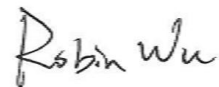
FCC ID: 2AOE23BV3

APPLICANT: Zhejiang Raying IoT Technology Co., Ltd.

Application Type: Certification

Product: 802.15.4/Zigbee Module

Model No.: REX3B

FCC Classification: Digital Transmission System (DTS)

Test Procedure(s): KDB 447498 D01v06

Test Date: January 04 ~ 12, 2019

Reviewed By:
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(Kevin Guo)

Approved By:
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(Robin Wu)

Revision History

Report No.	Version	Description	Issue Date	Note
1901WSU001-U2	Rev. 01	Initial report	04-14-2019	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	802.15.4/Zigbee Module
Model No.:	REX3B
Frequency Range:	802.15.4: 2405 ~ 2480 MHz
Type of Modulation:	O-QPSK
Date Rate:	250kbps
Type of Antenna:	PCB Antenna
Antenna Gain:	1.78dBi

2. RF Exposure Evaluation

2.1. 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^2)	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

Calculation 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 is the limit of MPE, 1mW/cm². 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.

2.2. Test Result of RF Exposure Evaluation

Product	802.15.4/Zigbee Module
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
802.15.4	2402 ~ 2480	20.86	0.0231	1

CONCULISON:

The max Power Density at R (20 cm) = 0.0231mW/cm^2 < 1 mW/cm^2 for 802.15.4/Zigbee Module.

Therefore, the Min Safety Distance is 20cm.

The End

Appendix A - Test Setup Photograph

Refer to "1901WSU001-UT" file.

Appendix B - EUT Photograph

Refer to "1901WSU001-UE" file.