



RF Exposure Evaluation Declaration

FCC ID: 2ATY4-UIOTZMPA

Application: Ultimate IOT (Shanghai) Technology Ltd.

Application Type: Certification

Product: ZigBee Module

Model No.: UIOT-ZMPA

Brand Name: UIOT

FCC Rule Part(s): KDB 447498 D01 General RF Exposure Guidance v06

Test Date: June 16, 2020

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The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date	Note
2006RSU013-U2	Rev. 01	Initial Report	06-23-2020	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	ZigBee Module
Model No.:	UIOT-ZMPA
Brand Name:	UIOT
Power Type:	DC 3.3V

1.2. Product Specification Subjective

Frequency Range:	802.15.4: 2405 ~ 2475 MHz
Type of Modulation:	O-QPSK
Date Rate:	250kbps
Type of Antenna:	External uniqueness Antenna
Antenna Gain:	2dBi

1.3. Description of Available Antenna

Antenna Type	Frequency Band (GHz)	Max Peak Gain (dBi)
External uniqueness Antenna	2.4 ~ 2.5	2

2. RF Exposure Evaluation

2.1. Limits for FCC:

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: $Pd = (Pout \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

Pd = power density in mW/cm²

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 for FCC

Product	ZigBee Module				
Test Item	RF Exposure Evaluation				

Test Mode	Frequency Band (MHz)	Maximum Output Power (dBm)	E.I.R.P (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)
ZigBee	2402 ~ 2475	20.15	22.15	0.03265	1

CONCLUSION:

The Max Power Density at R (20 cm) =0.03265 < 1mW/cm².

So the EUT complies with RF Exposure requirement.

The End

Appendix - EUT Photograph

Refer to "2006RSU013-UE" file.