

RF Exposure Evaluation Declaration

FCC ID : 2AR82-SKOWB822CU3

Applicant : Guangzhou Shikun Electronics Co., Ltd

Application Type : Certification

Product : IEEE 802.11 a/b/g/n/ac 2T2R USB Wi-Fi Module
Integrated Bluetooth 2.1/3.0/4.2/5.0

Model No. : SKO.WB822CU.3

FCC Classification : Digital Transmission System (DTS)
Unlicensed National Information Infrastructure (NII)

Received Date : November 17 ,2022

Test Date : December 02 ,2022

Tested By : 
(Owen Tsai)

Reviewed By : 
(Paddy Chen)

Approved By : 
(Chenz Ker)



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.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2211TW0105-U7	1.0	Original Report	2022-12-05	

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General Information

Applicant	Guangzhou Shikun Electronics Co., Ltd
Applicant Address	NO.6 Liankun Road, Huangpu District, Guangzhou, China
Manufacturer	Guangzhou Shikun Electronics Co., Ltd
Manufacturer Address	NO.6 Liankun Road, Huangpu District, Guangzhou, China
Test Site	MRT Technology (Taiwan) Co., Ltd
Test Site Address	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
MRT FCC Registration No.	291082

Test Facility / Accreditations

1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Taiwan, EU and TELEC Rules.

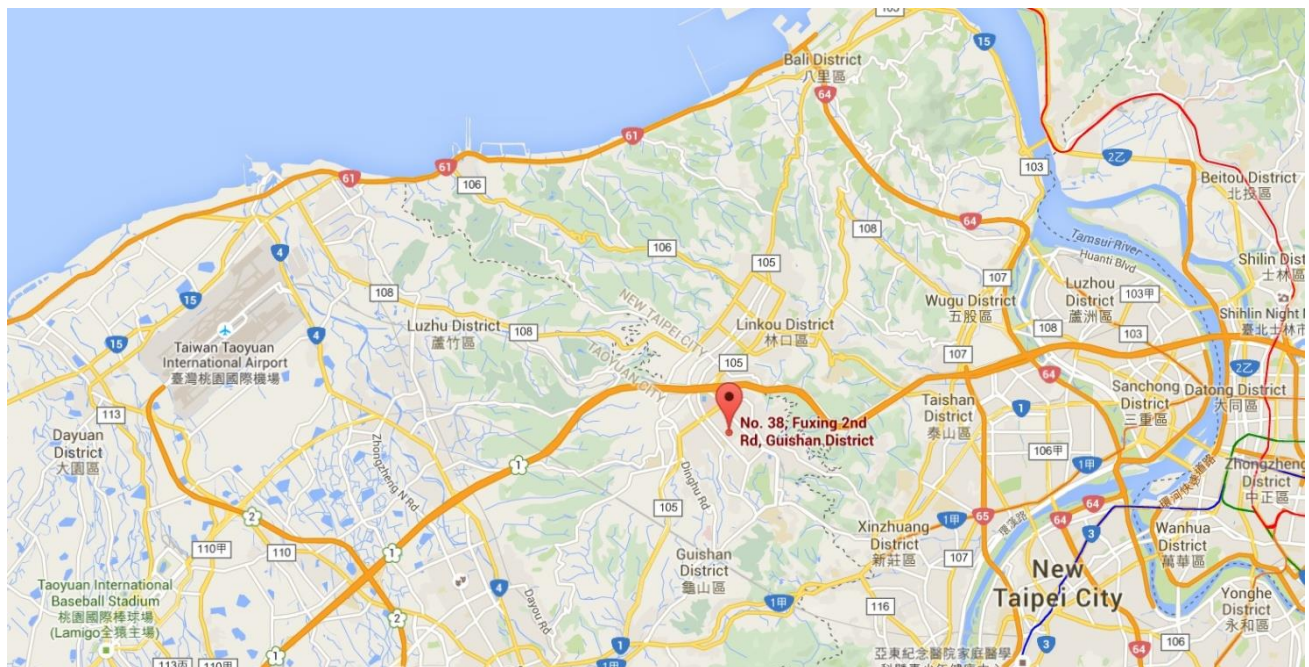
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name:	IEEE 802.11 a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth 2.1/3.0/4.2/5.0
Model No.:	SKO.WB822CU.3
Wi-Fi Specification:	802.11a/b/g/n/ac

2.2. Description of Available Antennas

Antenna Type	Frequency Band (MHz)	TX Paths	Max Antenna Gain (dBi)
PCB Antenna	2412 ~ 2462	2	1.61
	5150 ~ 5850	2	2.70

Note: All messages of antenna were declared by manufacturer.

3. RF Exposure Evaluation

3.1. 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: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

P_d 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.

3.2. Test Result of RF Exposure Evaluation

Product	IEEE 802.11 a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth 2.1/3.0/4.2/5.0
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to clause 2.2.

Test Mode	Frequency Band (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Maximum EIRP (dBm)
BT/BLE	2402 ~ 2480	2.59	0.23	2.82
802.11b/g/n	2412 ~ 2462	17.09	1.61	18.70
802.11 a/n/ac	5180 ~ 5320 5500 ~ 5580 5660 ~ 5720 5745 ~ 5825	16.86	2.70	19.56

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Compliance Distance (cm)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)
BT/BLE	2402 ~ 2480	2.82	20	0.0004	1
802.11b/g/n	2412 ~ 2462	18.70	20	0.0147	1
802.11 a/n/ac	5180 ~ 5320 5500 ~ 5580 5660 ~ 5720 5745 ~ 5825	19.56	20	0.0180	1

CONCLUSION:

WLAN 2.4GHz Band and WLAN 5GHz can transmit simultaneously.

The max Power Density at R (20 cm) = $0.0147\text{mW/cm}^2 + 0.0180\text{mW/cm}^2 = 0.0327\text{mW/cm}^2 < 1\text{mW/cm}^2$.

So the compliance distance is 20cm for device installed without any other radio equipment.

_____ The End _____

Appendix A : External Photograph

Refer to “2211TW0105-External Photo” file.

Appendix B : Internal Photograph

Refer to “2211TW0105-Internal Photo” file.