



MPE Report

Report No.:STS2512528H01

Issued for

SHENZHEN ZHIBOTONG ELECTRONICS CO.,LTD.

Floor 4, Bldg. A2, Hedian Industrial Park, NO.9 Shijing Rd,
Guanlan, Longhua District, Shenzhen, China

Product Name: 5G Wifi Router

Brand Name: N/A

Model Name: Z8105AX-M2-T

Series Model(s): Z8113AX-B,Z8105AX-M2-H,Z8105AX-M2-C,Z8106AX-M2-T,Z8106AX-M2-H,Z8106AX-M2-S,ODU5001,ODU5201,WE2815,CP
E5001,CPE2001,CPE7702,CPE2801,Z8802BE-T,Z8803BE-S,Z8803BE-T,Z8806BE-S,Z8806BE-T,Z8806BE-DS,Z8806BE-DS-T

FCC ID: 2AC47-Z8105AX

Test Standard: FCC 47CFR §2.1091

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the ShenZhen STS Test Services Co., Ltd.

**TEST REPORT**

Applicant's Name : SHENZHEN ZHIBOTONG ELECTRONICS CO.,LTD.
Address : Floor 4, Bldg. A2, Hedian Industrial Park, NO.9 Shijing Rd, Guanlan,
Longhua District, Shenzhen, China
Manufacturer's Name : SHENZHEN ZHIBOTONG ELECTRONICS CO.,LTD.
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447498 D01 Interim General RF Exposure Guidance v06

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Date of Test

Date of receipt of test item 2025-12-15
Date (s) of performance of tests 2025-12-15 to 2025-12-27
Date of Issue 2025-12-27
Test Result **Pass**

Testing Engineer :

Aaron Bu

(Aaron Bu)

Technical Manager :

Skylar Li

(Skylar Li)

Authorized Signatory :

Bovey Yang

(Bovey Yang)





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**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	2025-12-27	STS2512528H01	ALL	Initial Issue



1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

Product Name	5G Wifi Router	
Brand Name	N/A	
Model Name	Z8105AX-M2-T	
Series Model(s)	Z8113AX-B,Z8105AX-M2-H,Z8105AX-M2-C,Z8106AX-M2-T, Z8106AX-M2-H,Z8106AX-M2-S,ODU5001,ODU5201,WE2815, CPE5001,CPE2001,CPE7702,CPE2801,Z8802BE-T,Z8803BE-S, Z8803BE-T,Z8806BE-S,Z8806BE-T,Z8806BE-DS,Z8806BE-DS-T	
Model Difference	Only the model is different and appearance, the motherboard and the circuit are the same.	
Product Description	The EUT is a 5G Wifi Router	
	Operation Frequency:	802.11b/g/n/ax 20: 2412~2462 MHz 802.11n/ax40:2422~2452MHz
	Modulation Type:	802.11b(DSSS):CCK,DQPSK,DBPSK 802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11ax(OFDM, OFDMA): BPSK,QPSK,16-QAM,64-QAM,256-QAM, 1024QAM
	Bit Rate of Transmitter:	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6Mbps 802.11n(20MHz): 65/58.5/52/39/26/19.5/13/6.5Mbps 802.11n(40MHz): 135/121.5/108/81/54/40.5/37/13.5Mbps 802.11ax(HE20): 135/65/58.5/52/39/26/19.5/13/6.5Mbps 802.11ax(HE40): 270/135/121.5/108/81/54/40.5/37/13.5Mbps
	Number of Channel:	802.11b/g/n/ax20: 11CH 802.11n/ax40: 7CH
	Antenna Type:	External antenna*2
	Antenna Gain (dBi):	Antenna 1&2: 3.98dBi
	Operation Frequency:	IEEE 802.11a/ n(HT20)/ac(VHT20)/ax(HE20): 5.745GHz-5.825GHz IEEE 802.11n(HT40)/ac(VHT40)/ax(HE20): 5.755GHz-5.795GHz IEEE 802.11ac(VHT80)/ax(HE80): 5.775GHz
	Modulation Type:	802.11a(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11ac(OFDM): BPSK,QPSK,16-QAM,64-QAM,256-QAM 802.11ax(OFDM, OFDMA): BPSK,QPSK,16-QAM,64-QAM,256-QAM, 1024QAM
	Antenna Type:	External antenna*2
	Antenna Gain:	Antenna 1&2: 3.98dBi



Power Rating	DC 12V
Adapter	N/A
Battery	N/A
Hardware Version	N/A
Software Version	N/A

1.2 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

2. FCC 47CFR §2.1091 REQUIREMENT

2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

2.2 LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the 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)
Limits for Occupational / controlled Exposures			
300 - 1500	--	--	F/300
3.0-30	1842/f	4.89/f	*(900/f ²)
1500 – 100000	--	--	5.0
Limits for General population / Uncontrolled Exposure			
300 - 1500	--	--	F/1500
1.34-30	824/f	2.19/f	*(180f ²)
1500 – 100000	--	--	1.0

F= Frequency in MHz

Friss Formula

Friss Transmission 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 the center of radiator in cm

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.



2.3 TEST RESULT

Tune up

Mode	Detector	Tune up Power
2.4GWIFI	PK	17±1dBm
5GWIFI	PK	14±1dBm

Protocol	Fre. (GHz)	Separati on distance (cm)	Max Tune up power (dBm)	ANT Gain (dBi)	Max EIRP (dBm)	Max EIRP (mW)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio	Result
5GWIFI	5.550	20	18	3.98	21.98	157.76	0.0314	1	0.0314	Pass
2.4GWIFI	2.437	20	15	3.98	18.98	79.07	0.0157	1	0.0157	Pass

Multiple transmission:

$$5GWIFI+2.4GWIFI=0.0314+0.0157=0.0471<1$$

Note: 1. The Maximum power is less than the limit, complies with the exemption requirements.

2. The Bluetooth and WLAN can't simultaneous transmission at the same time.

3. ERP = EIRP - 2.15

*****END OF THE REPORT*****