

Sichuan AI-Link Technology Co., Ltd.

MPE ASSESSMENT REPORT

Report Type:

FCC Part §2.1091, §2.1093 and §1.1307(b) assessment report

Model:

WF-M920T-USX1

REPORT NUMBER:

240100922SHA-006

ISSUE DATE:

March 25, 2024

DOCUMENT CONTROL NUMBER:

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Anzhou, Industrial park, Mianyang, Sichuan, China

Manufacturer: Sichuan AI-Link Technology Co., Ltd.
Anzhou, Industrial park, Mianyang, Sichuan, China

Manufacturer Site: Sichuan AI-Link Technology Co., Ltd.
Anzhou, Industrial park, Mianyang, Sichuan, China

Product Name: WIFI & Bluetooth Module

Type/Model: WF-M920T-USX1

FCC ID: 2AOKI-WFM920TUSX1

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:



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Revision History

Report No.	Version	Description	Issued Date
240100922SHA-006	Rev. 01	Initial issue of report	March 25, 2024

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	WIFI &Bluetooth Module
Type/Model:	WF-M920T-USX1
Description of EUT:	The EUT is a WIFI &Bluetooth Module which supports WIFI and Bluetooth function, it has only one model.
Rating:	DC 3.0-3.6V
Category of EUT:	Class B
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Product Marketing Name:	WF-M920T-USX2
HVIN:	WF-M920T-USX2
Software Version:	MtkUsb 3.0.0.13
Hardware Version:	JUI7.820
Serial numbers:	0240325-06-001(for radiation sample), 0240325-06-001(for conduction sample)
Sample received date:	January 15, 2024
Date of test:	January 15, 2024 ~ March 5, 2024

1.2 Technical Specification

Frequency Range:	2402-2480MHz
Support Standards:	IEEE 802.15.1
Type of Modulation:	GFSK
Channel Number:	40
Data Rate:	1Mbps,2Mbps
Channel Separation:	2MHz
Antenna Information:	3.55dBi, PIFA antenna

Frequency Range:	2400MHz ~ 2483.5MHz
Support Standards:	Bluetooth 5.2 (BR+EDR)
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Type of Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Channel Number:	79 (0 - 78)
Data Rate:	1Mbps
Channel Separation:	1 MHz
Antenna:	3.55dBi, PIFA antenna

Frequency Band:	2400MHz ~ 2483.5MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE 802.11n(HT40), IEEE 802.11ax(HE20), IEEE 802.11ax(HE40)
Type of Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT20): OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT40): OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11ax(HE20): OFDMA (64-QAM, 16-QAM, QPSK, BPSK ,1024QAM) IEEE 802.11ax(HE40): OFDMA (64-QAM, 16-QAM, QPSK, BPSK ,1024QAM)
Operating Frequency:	2412MHz to 2462MHz for IEEE 802.11b/g/n(HT20) /ax(HE20) 2422MHz to 2452MHz for IEEE 802.11n(HT40) /ax(HE40)
Channel Number:	11 Channels for 802.11b, 802.11g ,802.11n(HT20) ,802.11ax(HE20) 7 Channels for 802.11n(HT40) , 802.11ax(HE40)
Channel Separation:	5 MHz
Antenna Information:	PIFA antenna 1: 3.55dBi PIFA antenna 2: 3.55dBi

Frequency Range:	5150 ~ 5250MHz 5250 ~ 5350MHz 5470 ~ 5725MHz 5725 ~ 5850MHz
Support Standards:	802.11a, 802.11n(HT20), 802.11n(HT40), 802.11ac(HT20), 802.11ac(HT40), 802.11ac(HT80), 802.11ax(HE20), 802.11ax(HE40) , 802.11ax(HE80)
Type of Modulation:	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM,1024QAM)
Channel Number:	For 5180 ~ 5240MHz band: Channel 36 - 48 For 5260 ~ 5320MHz Band: Channel 52 - 64 For 5500 ~ 5700MHz Band: Channel 100 - 140 For 5745 ~ 5825MHz band: Channel 149 - 165
Antenna Information:	PIFA antenna 1: 3.55dBi PIFA antenna 2: 3.55dBi

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

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2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	$4\ 000/f$	$5\ 000/f$	-
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	-
0,8-3 kHz	$250/f$	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	$0,73/f$	$0,92/f$	-
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

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2.2 Assessment Results

Power density (S) is calculated according to the formula:

$$S = PG / (4\pi R^2)$$

Where S = power density in mW/cm²

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 240100922SHA-001&240100922SHA-002&240100922SHA-003&240100922SHA-004:

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Work Frequency (MHz)	Power		Antenna Gain		R (cm)	S (mW/cm ²)	Limits (mW/cm ²)
	dBm	mW	dBi	(Numeric)			
2402 – 2480	11.28	13.43	3.58	2.28	20	0.0061	1
2412 – 2462	19.68	92.90	3.58	2.28	20	0.0422	1
5180 – 5825	19.05	84.14	3.55	2.26	20	0.0378	1

Note: 1 mW/cm² from 1.310 Table 1.

BT/BLE and 2.4G WIFI can simultaneous transmitting, so the maximum rate of MPE is,
 $0.0061/1+0.0422/1=0.0483 \leq 1.0$.

BT/BLE and 5G WIFI can simultaneous transmitting, so the maximum rate of MPE is,
 $0.0061/1+0.0378/1=0.0439 \leq 1.0$.

Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

*****END*****