

Sichuan Al-Link Technology Co., Ltd.

MPE ASSESSMENT REPORT

Report Type:

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

Model:

WF-R11C-UWD1, WF-R11C-UWD2

REPORT NUMBER:

210401190SHA-004

ISSUE DATE:

September 23, 2021

DOCUMENT CONTROL NUMBER:

TTRFFCCMPE-01_V1 © 2018 Intertek





Intertek Testing Services Shanghai Building No.86, 1198 Qinzhou Road (North) Caohejing Development Zone Shanghai 200233, China

Telephone: 86 21 6127 8200

www.intertek.com
Report no.: 210401190SHA-004

Applicant: Sichuan Al-Link Technology Co., Ltd.

Anzhou, Industrial park, Mianyang, Sichuan, China

Manufacturer: Sichuan Al-Link Technology Co., Ltd.

Anzhou, Industrial park, Mianyang, Sichuan, China

Product Name: WIFI Module

Type/Model: WF-R11C-UWD1, WF-R11C-UWD2

FCC ID: 2AOKI-WFR11CUWD1

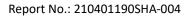
SUMMARY:

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:	REVIEWED BY:	
Tylan tang	Daniel.	
Project Engineer	Reviewer	
Dylan Tang	Daniel Zhao	

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

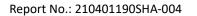




TEST REPORT

Revision History

Report No.	Version	Description	Issued Date	
210401190SHA-004	Rev. 01	Initial issue of report	September 23, 2021	





1 GENERAL INFORMATION

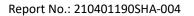
1.1 Description of Equipment Under Test (EUT)

Product name:	WIFI Module
Type/Model:	WF-R11C-UWD1, WF-R11C-UWD2
	The EUT is a WIFI module which supports 802.11a/b/g/n/ac mode,
	there have two models and they are same except the connector.
Description of EUT:	We choose WF-R11C-UWD1 to test as representative
Rating:	DC 3.3V
EUT type:	☐ Table top ☐ Floor standing
Software Version:	RTL8821CU_RTL8731AU_WiFi_linux_v5.12.0.4
Hardware Version:	JUI7.820.0867-1
Sample received date:	April 15, 2021
Date of test:	April 20, 2021 ~ September 20, 2021

1.2 Technical Specification

Frequency Band:	2400MHz ~ 2483.5MHz			
	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE			
Support Standards:	802.11n(HT40)			
	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)			
Operating Frequency:	IEEE 802.11n(HT40): OFDM (64-QAM, 16-QAM, QPSK, BPSK)			
	2412MHz to 2462MHz for IEEE 802.11b/g/n(HT20)			
Type of Modulation:	2422MHz to 2452MHz for IEEE 802.11n(HT40)			
	11 Channels for 802.11b, 802.11g and 802.11n(HT20)			
Channel Number:	7 Channels for 802.11n(HT40)			
Channel Separation:	2400MHz ~ 2483.5MHz			
	Metal Antenna: 3.79dBi			
	PIFA Antenna: 3.46dBi			
Antenna Information:	PIFA Antenna: 1.72dBi			

	5150 ~ 5250MHz
	5250 ~ 5350MHz
	5470 ~ 5725MHz
Frequency Range:	5725 ~ 5850MHz
	802.11a, 802.11n(HT20), 802.11n(HT40), 802.11ac(VHT20),
Support Standards:	802.11ac(VHT40), 802.11ac(VHT80)
Type of Modulation:	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)





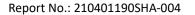
TEST REPORT

	For 5150 ~ 5250MHz band: Channel 36 - 48				
	For 5250 ~ 5350MHz Band: Channel 52 - 64				
	For 5470 ~ 5725MHz Band: Channel 100 - 140				
Channel Number:	For 5725 ~ 5850MHz band: Channel 149 - 165				
	Metal Antenna: 3.68dBi				
	PIFA Antenna: 3.37dBi				
Antenna Information:	PIFA Antenna: 2.57dBi				

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

	and a limit of
The test facility is	CNAS Accreditation Lab
recognized,	Registration No. CNAS L0139
certified, or accredited by these	FCC Accredited Lab Designation Number: CN1175
organizations:	IC Registration Lab CAB identifier.: CN0051
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02





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 Seq (W/m²)
0-1 Hz	-	3.2×10^4	4 × 10 ⁴	- Seq (**/ 111)
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 \leq 1.0



Report No.: 210401190SHA-004

TEST REPORT

2.2 Assessment Results

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

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

Where $S = power density in mW/cm^2$

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

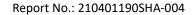
As we can see from the test report 210401190SHA-001&210401190SHA-002:

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.

Frequency band	Power		Antenna Gain	R	S	Limits
(MHz)	dBm	mW	dBi	(cm)	(mW/cm ²)	(mW/cm²)
2412 - 2462	18.08	64.27	3.79	20	0.048	1
5180 - 5825	17.68	58.61	3.68	20	0.043	1

Note: 1 mW/cm2 from 1.310 Table 1.





Appendix I

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.