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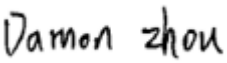
RF MPE REPORT

Application No.:	KSCR2309001599AT
FCC ID:	2AU8HSRP620-B
Applicant:	Smawave Technology Co. ,Ltd
Address of Applicant:	3/F, Building 8, 1001 North Qinzhou Road，Xuhui District, Shanghai,China
Manufacturer:	Smawave Technology Co. ,Ltd
Address of Manufacturer:	3/F, Building 8, 1001 North Qinzhou Road，Xuhui District, Shanghai,China
Equipment Under Test (EUT):	
EUT Name:	5G IP67 Ruggedized Router
Model No.:	SRP620-b
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB447498 D04 interim General RF Exposure Guidance v01
Date of Receipt:	2023-09-12
Date of Test:	2023-09-14 to 2023-09-28
Date of Issue:	2023-10-08
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2023-10-08	/

Authorized for issue by:				
Tested By				
		Damon_Zhou/Project Engineer		
Approved By				
		Terry Hou / Reviewer		

2 Contents

3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 24V by AC/DC power adapter Adapter Model: TPA289B-24240-US Input:100-240V~50/60Hz 0.7A Output:DC 24V 1A

3.2 Technical Specifications

Frequency Band:	5GNR: n48/n78
Sample Type:	Fixed production
EUT Type:	End user device
Antenna Type:	External
Antenna Gain:	1.29dBi (Provided by manufacturer)
Modulation Type:	DFT-s-OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM
Antenna Delivery:	SISO

Remark:The antenna gain value is provided by the customer. The test lab will not be responsible for wrong test result due to incorrect information about antenna gain values.

3.3 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• **FCC**

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• **ISED**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

• **VCCI**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to§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 part1.1307(b)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	*(100)	≤6
3.0–30	1842/f	4.89/f	*($900/f^2$)	<6
30–300	61.4	0.163	1.0	<6
300–1,500			f/300	<6
1,500–100,000			5	<6
(ii) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	<30
1.34–30	824/f	2.19/f	*($180/f^2$)	<30
30–300	27.5	0.073	0.2	<30
300–1,500			f/1500	<30
1,500–100,000			1.0	<30

5 Measurement and Calculation

5.1 Maximum transmit power

The 5G NR Power Data is based on the RF Test Report KSCR230900159901AT, KSCR230900159904AT, The WiFi Power Data is based on R2201A0113-M1V1.

5.2 MPE Calculation

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.
Note:
1) P (mW)
2) R = distance to the center of radiation of antenna (in centimeter)
3) MPE limit = 1mW/cm²

Test Mode	Frequency Band (MHz)	Max EIRP (dBm)	Operation Distance R(cm)	Power Density (mW/cm2)	Limit of Power Density S(mW/cm2)	Result
5G NR n48	3550~3700	23	20	0.0534	1	Pass
5G NR n78	3700-3800	30	20	0.199	1	Pass
5G NR n78	3450-3550	30	20	0.199	1	Pass
5G NR n78	3550~3700	23	20	0.0534	1	Pass
2.4G WiFi	2412-2472	31.4	20	0.275	1	Pass
5G WiFi U-NII-1	5150-5250	28.4	20	0.138	1	Pass
5G WiFi U-NII-3	5725-5850	28.8	20	0.151	1	Pass

Remark:
1, Max output power including tune up.
2, Support bandwidth for n48 is 20MHz and 40MHz,
3, Support bandwidth for n78 is 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz
The Wi-Fi and 5G NR can transmit simultaneously, but the maximum rate of MPE is
0.275+0.199=0.474≤1.
According to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

--End of the Report--