



SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

EMC-TRF-03 Rev 1.1

Report No.: GZCR250300034203

Page: 1 of 10

FCC ID: 2AYTR17K-A01

RF EXPOSURE EVALUATION REPORT

Application No.: GZCR2503000342AT
Applicant: SZZJ Communication Technology Co., LTD
Address of Applicant: 2208-A22, Block A, Union Square, 5022 Binhe Avenue, Fushan Community, Futian Street, Futian District, Shenzhen
Manufacturer: SZZJ Communication Technology Co., LTD
Address of Manufacturer: 2208-A22, Block A, Union Square, 5022 Binhe Avenue, Fushan Community, Futian Street, Futian District, Shenzhen
Factory: SZZJ Communication Technology Co., LTD
Address of Factory: 2208-A22, Block A, Union Square, 5022 Binhe Avenue, Fushan Community, Futian Street, Futian District, Shenzhen
Product Name: RU-3S-V01
Model No.: 17K-A01
Standard(s) : 47 CFR Part 2.1091
47 CFR Part 1.1310, Part 1.1307
Date of Receipt: 2025-03-13
Date of Evaluation: 2025-04-08
Date of Issue: 2025-04-18

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Ricky Liu

Ricky Liu
Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch, Inspection & Testing Services

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Revision Record			
Version	Report No.	Date	Remark
01	GZCR250300034203	2025-04-18	Original

Authorized for issue by:			
		Kevin Zhang	
		Kevin Zhang/Project Engineer	
		Vico Cui	
		Vico Cui/Reviewer	



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2 Evaluation Summary

Item	Standard	Requirement	Method	Result
RF Exposure	47 CFR Part 2.1091 47 CFR Part 1.1310 47 CFR Part 1.1307	47 CFR Part 1.1310	47 CFR Part 1.1310	PASS

Note:

E.U.T./ EUT means Equipment Under Test

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

Antenna Kitting Information:

Antenna Kitting	Model	Antenna Gain and Cable loss		Remark
Log-periodic antenna	/	698-960MHz	7dBi	Outdoor antenna
		1710-2700MHz	8dBi	
Whip antenna	/	728-894MHz	1dBi	Indoor antenna
		1930-2155MHz	1dBi	
Coaxial-cable (15m)	3D-FB	600-2000MHz	8.4dB	For outdoor use
		2000-2500MHz	9.1dB	



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4 General Information

4.1 Details of E.U.T.

Power Supply:	AC 100-240V, 50/60Hz by AC/DC adapter Model: 0520 Input: AC 100-240V, 50/60Hz Output: 5V--2A		
Cable:	DC output cable (unshielded, 1m)		
Operating Temperature:	-25 to +55 °C		
Operating Frequency:	Lower 700MHz	Uplink:	698MHz to 716MHz
		Downlink:	728MHz to 746MHz
	Upper 700MHz	Uplink:	776MHz to 787MHz
		Downlink:	746MHz to 757MHz
	Cellular	Uplink:	824MHz to 849MHz
		Downlink:	869MHz to 894MHz
Technology:	GSM, WCDMA, LTE		
Interface:	RF Port:	2 (SMA-F)	
	Power Jack:	1	
Output Power: (Conducted)	Uplink:	17~20dBm	
	Downlink:	≤17dBm	
Max. Gain:	Uplink:	≤63dB	
	Downlink:	≤63dB	
Antenna Type:	External Dedicated Antenna		
Antenna Gain:	Refer to clause 2 in this report		
Software Version:	17K_A01_V1.0		
Booster Type:	Fixed Consumer Signal Booster		
Remark:	The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.		

4.2 Evaluation Location

All tests were performed at:
 SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
 No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,
 Guangdong, China 510663
 Tel: +86 20 82155555
 No tests were sub-contracted.



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4.3 Test Facility

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

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.4 Deviation from Standards

None

4.5 Abnormalities from Standard Conditions

None



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5 RF Exposure

5.1 Requirement

In accordance with 47 CFR FCC Part 2.1091, this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

According to 47 CFR FCC Part 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).

TABLE 1 TO §1.1310(E)(1)—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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				
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

f = frequency in MHz. * = Plane-wave equivalent power density

5.2 Method

According to IEEE C95.3:2002 section 5.5.1.1, the power density S at a point on the axis at a distance d from a transmitting antenna is given by the Friis free-space transmission formula:

$$S = \frac{PG}{4\pi d^2}$$

S = power density (mW/cm²)
P = the net power delivered to the antenna (mW)
G = gain of the antenna in linear scale
d = distance between observation point and center of the radiator (cm)

From the maximum EUT RF output power, as well as the gain of the used antenna, according to the RF power density limit stated in above table, the minimum distance between the antenna and human body will be calculated.



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5.3 Conclusion

Normal use condition for Distance between antenna and body:

$\geq 20\text{cm}$ declared by the manufacturer, the worst case 20cm used for exposure calculation.

Antenna Gain:

Antenna Kitting will be used with the EUT and refer to clause 2 for the detailed Antenna Kitting information.

For antenna Kitting, the Gain shall be calculated as follows:

$\text{Gain} = \text{antenna gain} - \text{cable loss}$

Power delivered to the antenna:

The max. tune up tolerance power declared by the manufacturer.

RF exposure evaluation for UL and DL simultaneous emission

The cable length for donor antenna to booster is 15m as per the manufacturer request and The donor antenna and service antenna must maintain sufficient distance to ensure isolation, otherwise the EUT will be shut down due to oscillation.

So the exposure evaluation only concerned the UL and DL single transmission in this report even if the product UL and DL simultaneous emission during operation.

For DL

Band	Antenna Gain (Numeric)	Max. tune up tolerance power (dBm)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)	Result
700MHz	1.259	17	0.01255	0.4853	Complies
Cellular	1.259	17	0.01255	0.5793	Complies
Remark: For 700MHz band, the limit is $f/1500 = 728/1500 = 0.4853 \text{ mW/cm}^2$ for the stringent limit. For Cellular band, the limit is $f/1500 = 869/1500 = 0.57933 \text{ mW/cm}^2$ for the stringent limit.					

For UL

Band	Antenna Gain (Numeric)	Max. tune up tolerance power (dBm)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)	Result
Lower 700MHz	0.724	20	0.01441	0.4653	Complies
Upper 700MHz	0.724	20	0.01441	0.5173	Complies
Cellular	0.724	20	0.01441	0.5493	Complies
Remark: For Lower 700MHz band, the limit is $f/1500 = 698/1500 = 0.4653 \text{ mW/cm}^2$ for the stringent limit. For Upper 700MHz band, the limit is $f/1500 = 776/1500 = 0.5173 \text{ mW/cm}^2$ for the stringent limit. For Cellular band, the limit is $f/1500 = 824/1500 = 0.5493 \text{ mW/cm}^2$ for the stringent limit.					



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For DL

all bands can simultaneous transmitting, the maximum rate of MPE is
 $(0.01255/0.4853) + (0.01255/0.5793) \leq 1$

For UL

all bands can simultaneous transmitting, the maximum rate of MPE is
 $(0.01441/0.4653) + (0.01441/0.5173) + (0.01441/0.5493) \leq 1$

So SAR report is not required.



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6 EUT Constructional Details (EUT Photos)

Refer to Appendix - External and Internal Photos for GZCR2503000342AT.

--Report End--

