

RF EXPOSURE EVALUATION REPORT

Application No.: GZCR2405000446AT
Applicant: Shenzhen Huaptex Co., Ltd
Address of Applicant: 3rd FL, E BLDG, Sogood Science Park, SanWei Community, Hangcheng Street, Bao'an District, Shenzhen, China
Manufacturer: Shenzhen Huaptex Co., Ltd
Address of Manufacturer: 3rd FL, E BLDG, Sogood Science Park, SanWei Community, Hangcheng Street, Bao'an District, Shenzhen, China
Factory: Shenzhen Huaptex Co., Ltd
Address of Factory: 3rd FL, E BLDG, Sogood Science Park, SanWei Community, Hangcheng Street, Bao'an District, Shenzhen, China
Product Name: Zorida Ace 3S
Model No.: F05GZ-3S-BT, F05GB-3S-BT ♣
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: Zorida
Standard(s) : 47 CFR Part 2.1091
47 CFR Part 1.1310, Part 1.1307
Date of Receipt: 2024-05-08
Date of Evaluation: 2024-06-17
Date of Issue: 2024-06-18

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



Ricky Liu
Manager



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Revision Record			
Version	Chapter	Date	Remark
01	GZCR240500044603	2024-06-18	Original

Authorized for issue by:			
	<i>Kevin Zhang</i>		
	Kevin Zhang/Project Engineer		
	<i>Jerry Chan</i>		
	Jerry Chan/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.

*** Declaration of EUT Family Grouping:**

Model No.: F05GZ-3S-BT, F05GB-3S-BT

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only differences on model No. and outer shell. Details as below.

Model No.	Outer Shell
F05GZ-3S-BT	Shell 1
F05GB-3S-BT	Shell 2

Antenna Kitting Information:

Antenna Kitting	Model	Antenna Gain and Cable loss		Remark
Log-periodic antenna	080012030	698-849MHz	8dBi	Outdoor antenna
		1710-1915MHz	9dBi	
Panel antenna	080011023	728-894MHz	8dBi	Indoor antenna
		1930-2155MHz	9dBi	
Coaxial-cable (15m)	3D-FB	600-2000MHz	-8.4dB	For outdoor use
		2000-2500MHz	-9.1dB	
Coaxial-cable (6m)	3D-FB	600-2000MHz	-3.8dB	For indoor use
		2000-2500MHz	-4.5dB	

Therefore, only one mode **F05GZ-3S-BT** was tested in this report.



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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: RJ23-W120150US		
	Input: 100-240V, 50/60Hz 0.8A		
	Output: 12V--1.5A		
Test Voltage:	AC 120V		
Cable:	DC output cable (unshielded, 2m)		
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
Interface:	RF Port:	2 (N-F)	
	Power Jack:	1	
Output Power:	Uplink:	≥17dBm	
(Conducted)	Downlink:	≤11dBm	
Max. Gain:	Uplink:	≤65dB	
	Downlink:	≤65dB	
Antenna Type:	External Dedicated Antenna		
Antenna Gain:	Refer to clause 2 in this report		
Software Version:	F05GZ-3S-BT_V1.0		
Booster Type:	Fixed Consumer Signal Booster		
Bluetooth:	Refer to Bluetooth Module FCC ID: 2ATPO-PB03		
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.		



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4.2 Evaluation Location

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

Tel: +86 20 82155555

Fax: +86 20 82075059

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:
Gain=antenna gain- 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	2.63	11	0.0066	0.4853	Complies
Cellular	2.63	11	0.0066	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	0.912	22	0.0288	0.4653	Complies
Upper 700MHz	0.912	22	0.0288	0.5173	Complies
Cellular	0.912	22	0.0288	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 Bluetooth

Band	Antenna Gain (Numeric)	Max. tune up tolerance power (dBm)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)	Result
2402-2480MHz	1.41	8	0.0018	1	Complies
Remark: Above detailed information of Bluetooth Mudule of the EUT please refer to FCC ID: 2ATPO-PB03					

For DL

all bands can simultaneous transmitting, the maximum rate of MPE is
 $(0.0066/0.4853) + (0.0066/0.5793) + (0.0018/1) = 0.0268 \leq 1$

For UL

all bands can simultaneous transmitting, the maximum rate of MPE is
 $(0.0288/0.4653) + (0.0288/0.5173) + (0.0288/0.5493) + (0.0018/1) = 0.1717 \leq 1$
 So SAR report is not required.



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6 EUT Constructional Details (EUT Photos)

Refer to Appendix - External and Internal Photos for GZCR2405000446AT.

--Report End--



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