



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

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Report No.: GZEM181100232702

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TEST REPORT

Application No.: GZEM1811002327CR
Applicant: FOCAL JMLab
Address of Applicant: 108 Avenue de l'Avenir ZI Molina La Chazotte 42350 La Talaudière FRANCE
Manufacturer: The same as Applicant
Address of Manufacturer: The same as Applicant
Factory: Minami Acoustics Limited
Address of Factory: Shangou Industrial Park GongJiang Town, Yudu County Ganzhou City Jiangxi 342300 China

Equipment Under Test (EUT):
EUT Name: Bluetooth Headphones
Model No.: Focal Sphear Wireless , Focal Sphear Wireless/Black, Focal Sphear Wireless/Blue, Focal Sphear Wireless/Olive, Focal Sphear Wireless/Purple, Focal Sphear Wireless/XX, [XX=AA to ZZ (for different color)]. □
□ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Trade Mark: FOCAL
Standard(s) : 47 CFR Part 1.1307, Part 1.1310
Date of Receipt: 2018-11-02
Date of Test: 2018-11-02 to 2018-11-20
Date of Issue: 2018-12-12

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



Kobe Jian
Lab Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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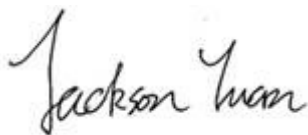


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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2018-12-12		Original

Authorized for issue by:			
Tested By	 Jackson_Yuan /Project Engineer	2018-11-02 to 2018-11-20 Date	
Checked By	 Ricky Liu /Reviewer	2018-12-12 Date	



2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
RF Exposure	47 CFR Part 1.1307, Part 1.1310	CFR 47 Part 1.1310	CFR 47 Part 1.1310	Pass

✧ Declaration of EUT Family Grouping:

Model No.: Focal Sphear Wireless , Focal Sphear Wireless/Black, Focal Sphear Wireless/Blue, Focal Sphear Wireless/Olive, Focal Sphear Wireless/Purple, Focal Sphear Wireless/XX, [XX=AA to ZZ (for different color)].

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 the item's no and outer color. Therefore only one model **Focal Sphear Wireless/Black** was tested in this report.



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4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 5 V for charging by AC/DC adapter Powered by Built-in battery as below: Model No.: 401230 Rated: 3.7V, 120mAh, 0.44Wh
Test Voltage:	AC 120V, 60Hz with AC/DC adapter referred to section 4.2 for charging DC 3.7V for earphone working
Cable:	Micro USB charging ports (unshielded, <3m)
Antenna Gain	0.8 dBi
Antenna Type	Integrated Antenna
Channel Spacing	1MHz
Modulation Type	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels	79
Operation Frequency	2402MHz to 2480MHz
Software	CSR
Spectrum Spread Technology	Frequency Hopping Spread Spectrum(FHSS)

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
AC/DC Adapter	SGS	DC 5V	REF. No.SEA0500
Laptop	Lenovo	T430u	REF. No.SEA1800

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 5.5 \times 10^{-8}$
2	Duty cycle	$\pm 0.57\%$
3	Occupied Bandwidth	$\pm 3\%$
4	RF Conducted power	$\pm 0.68\text{dB}$
5	RF Power Density	$\pm 1.50\text{dB}$
6	Conducted Spurious Emissions	$\pm 1.04\text{dB}$
7	RF Radiated Power	$\pm 4.5\text{dB}$ (below 1GHz)
		$\pm 4.8\text{dB}$ (above 1GHz)
8	Radiated Spurious Emission Test	$\pm 4.5\text{dB}$ (30MHz-1GHz)
		$\pm 4.8\text{dB}$ (1GHz-18GHz)
9	Temperature	$\pm 0.4^\circ\text{C}$
10	Humidity	$\pm 1.3\%$
11	Supply Voltages	$\pm 1.5\%$
12	Time	$\pm 3\%$



4.4 Test Location

All tests were performed at:

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

No tests were sub-contracted.



4.5 Test Facility

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

● **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

● **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

● **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.

● **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

● **FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

● **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, Jul 13, 2017.

● **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

● **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

The 10m Semi-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-2460, C-2584, G-449 and T-1179 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 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



5 Equipment List

Conducted Peak Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2018-11-19	2019-11-18
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2018-07-20	2019-07-19
DMM	Fluke	73	EMC0007	2018-07-19	2019-07-18

6 Radio Spectrum Technical Requirement

6.1 RF Exposure

6.1.1 Test Requirement:

CFR 47 Part 1.1310

Limit:

According to FCC Part1.1310: 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—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)
(A) 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
(B) 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				

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)



6.1.2 Conclusion

The Max conducted output power is 4.793 dBm in Lowest channel (2.441 GHz);

4.793 dBm logarithmic terms convert to numeric result is nearly 3.02 mW

According to the formula. calculate the test result:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})}$$

General RF Exposure = $(3.02 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.441 \text{ GHz}} = 0.942$ ①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.



7 Photographs

7.1 EUT Constructional Details

Please refer to Appendix A - Photographs of EUT Constructional Details for GZEM1811002327CR.

--End of Report--