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Report No.: GZEM190801476603
Page: 1 of 9

TEST REPORT

Application No.: GZEM1908014766CR
Applicant: Varjo Technologies Oy.
Address of Applicant: Vuorikatu 20, 00100, Helsinki, Finland
Manufacturer: Varjo Technologies Oy.
Address of Manufacturer: Vuorikatu 20, 00100, Helsinki, Finland
Factory: Flextronics Manufacturing (Zhuhai) Co., Ltd.
Address of Factory: Xin Qing Science & Technology Industrial Park, Jing An, Doumen, Zhuhai, Guangdong, China
Equipment Under Test (EUT):
EUT Name: Varjo XR-1
Model No.: HS-4 (for Headset), LB-1 (for Link Box)
XR-1 (for the whole system)
Trade Mark: Varjo
Standard(s) : 47 CFR Part 1.1307, Part 2.1093, KDB 447498
Date of Receipt: 2019-08-02
Date of Test: 2019-08-26
Date of Issue: 2019-09-11

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

Kobe Jian

EMC Laboratory 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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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2019-09-11		Original

Authorized for issue by:			
Tested By		 Curry_Wu /Project Engineer	2019-08-13 to 2019-09-04
Checked By		 Ricky_Liu /Reviewer	Date 2019-09-11
			Date

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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
RF Exposure	47 CFR Part 1.1307, Part 2.1093, KDB 447498	CFR 47 Part 2.1093	CFR 47 Part 2.1093	Pass

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4 General Information

4.1 Details of E.U.T.

Power Supply:	For main unit: Powered by AC/DC adaptor as below: Model: S51A00 Input: AC100-240V 50/60Hz 1.3A Output: DC5V 3A / DC9V 3A / DC15V 3A / DC20V 3A
Test Voltage:	AC 120V 60Hz
Cable:	about 0.5m unscreened AC Manis cable about 0.8m unscreened Type C cable about 0.5m unscreened USB cable about 0.5m unscreened DP cable x 2 >3 m unscreened double type C cable >3 m unscreened type C cable
Antenna Gain:	0 dBi
Antenna Type:	Integrated antenna
Channel Spacing:	2MHz
Modulation Type:	GFSK
Number of Channels:	40
Operation Frequency:	2402MHz to 2480MHz
Number of Antenna:	2 (SISO)

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Test Location

All tests were performed at:

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

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No tests were sub-contracted.

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4.4 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-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 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, 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-10449 and T-11179)

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-12460, C-12584, G-10449 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 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



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4.5 Deviation from Standards

None

4.6 Abnormalities from Standard Conditions

None

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5 Radio Spectrum Technical Requirement

5.1 RF Exposure

5.1.1 Test Requirement:

CFR 47 Part 2.1093

Limit:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances

≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot$

$[\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and

for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation

distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

5.1.2 Conclusion

The Max conducted output power is 1.197 dBm for ant1 and 4.149 dBm for ant2 in Highest channel (2.480 GHz); 1.197 dBm & 4.149 dBm logarithmic terms convert to numeric result is nearly 1.32 mW and 2.6 mW, and the worst case for the exposure is antenna 1 and antenna 2 emission simultaneously, the power is: $1.32 \text{ mW} + 2.6 \text{ mW} = 3.92 \text{ mW}$.

According to the formula, calculate the test result:

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

General RF Exposure = $(3.92 \text{ mW} / 5 \text{ mm}) \times \sqrt{2.480 \text{ GHz}} = 1.235$ ①

SAR requirement:

$S = 3.0$ ② ;

① < ②.

So the SAR report is not required.

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6 Photographs

6.1 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for GZEM1908014766CR

--End of Report--

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