



TEST REPORT

Application No.: GZEM1907014293CR
Applicant: Kysho Multimedia Ltd.
Address of Applicant: Flat F, 5/F Valiant Industrial Centre, 2-12 Au Pui Wan St, Fo Tan, Shatin
Manufacturer: Kysho Multimedia Ltd.
Address of Manufacturer: Flat F, 5/F Valiant Industrial Centre, 2-12 Au Pui Wan St, Fo Tan, Shatin
Factory: 1. Huizhou ShenKe XinFei Technology Co., Ltd.
2. Dongguan Longyi Electronics Co., Ltd.
Address of Factory: 1. Building C Tangxia Area, Chanjing Village Xinxu Town, Huiyang District, Huizhou Guangdong Province, China
2. Jieling Industrial Zone No. 8, GuangJingTou Village, Fenggang, Dongguan, 523690

Equipment Under Test (EUT):

EUT Name: Bluetooth Speaker
Model No.: IMW479L, IMW449 □
□ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Standard(s) : 47 CFR FCC Part 2 Subpart J, section 2.1091

Date of Receipt: 2019-07-15

Date of Test: 2020-02-10 to 2020-02-15

Date of Issue: 2020-02-18

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

Kobe Jian
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-02-18		Original

Authorized for issue by:			
Tested By			2020-02-10 to 2020-02-15
	Curry_Wu /Project Engineer		Date
Checked By			2020-02-18
	Ricky_Liu /Reviewer		Date



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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
RF Exposure	47 CFR FCC Part 2 Subpart J, section 2.1091	CFR 47 Part 2.1091	CFR 47 Part 2.1091	Pass

▣ Declaration of EUT Family Grouping:

Model No.: IMW479L, IMW449

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference in the Model No.

Therefore only one model **IMW479L** was tested in this report.



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4 General Information

4.1 Details of E.U.T.

Power Supply: DC 5V for charging
DC 3.7V for working
Test Voltage: DC 3.7V & AC 120V 60Hz
Cable: about 0.5m unscreened USB cable
AUX IN ports

For BT

Antenna Gain: 0 dBi
Antenna Type: PCB antenna
Channel Spacing: 1MHz
Modulation Type: GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels: 79
Operation Frequency: 2402MHz to 2480MHz
Spectrum Spread Technology: Frequency Hopping Spread Spectrum (FHSS)

For 5727MHz-5800MHz

Antenna Gain: 0 dBi
Antenna Type: Integrated antenna
Modulation Type: GFSK
Number of Channels: 16
Operation Frequency: 5727MHz-5800MHz

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	5727MHz	4	5749MHz	8	5767MHz	12	5778MHz
1	5731MHz	5	5753MHz	9	5771MHz	13	5789MHz
2	5734MHz	6	5756MHz	10	5773MHz	14	5796MHz
3	5738MHz	7	5760MHz	11	5774MHz	15	5800MHz



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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, Sciencetech Park, Guangzhou Economic & Technology Development District,
 Guangzhou, China 510663

Tel: +86 20 82155555

Fax: +86 20 82075059

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 Standard requirement

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 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.

(a) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	F/300	6
1500-100000	--	--	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	F/1500	30
1500-100000	--	--	1.0	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

5.1.2 MPE Calculation Method

$$E \text{ (V/m)} = (30 \cdot P \cdot G)^{0.5} / d \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = E^2 / 377$$

E=Electric Field (V/m)

P=Peak RF output Power (W)

G=EUT Antenna numeric gain (numeric)

d= Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = (30 \cdot P \cdot G) / (377 \cdot d^2)$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.



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5.1.3 Calculated Result and Limit

For BT:

(1) GFSK:

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2402	1.0000	-0.798	0.832	0.00017	1	Complies
2441	1.0000	-1.739	0.670	0.00013	1	Complies
2480	1.0000	-2.11	0.615	0.00012	1	Complies

(2) $\pi/4$ DQPSK:

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2402	1.0000	1.329	1.358	0.00027	1	Complies
2441	1.0000	0.46	1.112	0.00022	1	Complies
2480	1.0000	0.076	1.018	0.00020	1	Complies

(3) 8DPSK:

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2402	1.0000	1.503	1.414	0.00028	1	Complies
2441	1.0000	0.671	1.167	0.00023	1	Complies
2480	1.0000	0.163	1.038	0.00021	1	Complies

For 5.8GHz GFSK:

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5727	1.0000	11.16	13.062	0.00260	1	Complies
5760	1.0000	10.94	12.417	0.00247	1	Complies
5800	1.0000	10.76	11.912	0.00237	1	Complies

For all together:

$$S = 0.0026/1 + 0.00028/1 = 0.00288 < 1.0$$

So no SAR requirement is needed.



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6 Photographs

6.1 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for GZEM1907014293CR

--End of Report--



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