TEST REPORT

Application No.:	SZCR2306001783AT
Applicant:	Huizhou Enya Musical Instruments Ltd.
Address of Applicant:	Shun Ju Village, Chayuan Admin district, Qiuchang, Huiyang, Huizhou, Guangdong, 516221 China
Manufacturer:	Huizhou Enya Musical Instruments Ltd.
Address of Manufacturer:	Shun Ju Village, Chayuan Admin district, Qiuchang, Huiyang, Huizhou, Guangdong, 516221 China
Factory:	Huizhou Enya Musical Instruments Ltd.
Address of Factory:	Shun Ju Village, Chayuan Admin district, Qiuchang, Huiyang, Huizhou, Guangdong, 516221 China
Equipment Under Test (EUT):	
EUT Name:	Enya Intelligent Sound Guitar
Model No.:	NEXG 2, NEXG II, NEXG 2 Classic, NEXG II Classic, NEXG 2 Basic, NEXG II Basic ♣
♣	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
FCC ID:	2A6K2NEXG697456630
Standard(s) :	47 CFR Part 15, Subpart C 15.236
Date of Receipt:	2023-06-08
Date of Test:	2023-06-09 to 2023-09-14
Date of Issue:	2023-12-13
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Keny. xu

Keny Xu
EMC Laboratory Manager

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检验检测专用章
Inspection & Testing Services
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
SGS-CSTC Standards Technical Services Co.,Ltd.
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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2023-12-13		Original

Authorized for issue by:				
		Bill Chen **Bill Chen/Project Engineer**		
		Eric Fu **Eric Fu/Reviewer**		

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2 Test Summary

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Maximum Conducted Output Power	47 CFR Part 15, Subpart C 15.236	ANSI C63.10 (2013) Section 6.7	47 CFR Part 15, Subpart C 15.236(d)	Pass
Occupied Bandwidth	47 CFR Part 15, Subpart C 15.236	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.236(g)	Pass
Frequency Stability	47 CFR Part 15, Subpart C 15.236	ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.236(f)	Pass
Transmitter unwanted emissions(radiated or conducted)	47 CFR Part 15, Subpart C 15.236	EN 300 422-1 V1.4.2	47 CFR Part 15, Subpart C 15.236(g)	Pass
Necessary bandwidth (BN) for analogue systems	47 CFR Part 15, Subpart C 15.236	EN 300 422-1 V1.4.2	47 CFR Part 15, Subpart C 15.236(g)	Pass

Declaration of EUT Family Grouping:

Model No.: NEXG 2, NEXG II,
NEXG 2 Classic, NEXG II Classic,
NEXG 2 Basic, NEXG II Basic

Only the model NEXG 2 was tested, since according to the declaration from the applicant, the electrical circuit design, PCB layout, components used and internal wiring and functions were identical for the above models, with only difference on colour and model No..

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4 General Information

4.1 Details of E.U.T.

Power supply:	Headset microphone: DC 3.7V 450mAh by rechargeable battery and charged by an adapter. Guitars: DC 14.4V 2600mAh 37.44Wh by rechargeable battery and charged by an adapter. Handheld microphone: DC 3.6V 2600mAh 9.36Wh by rechargeable battery and charged by an adapter. Adapter Model: RY-U33 Input: AC 100-240V, 50/60Hz 0.8A Output USB-A+ Type-C: 5V 4.5A USB-A: 5V 4.5A/5V 3A/9V 3A/12V 2.5A/15V 2A/20V 1.5A Type-C: 5V 3A/9V 3A/10V 2.25A/12V 2.5A/15V 2A/20V 1.5A
Cable(s):	Type C cable:95cm, unshielded Headphones cable:120cm, unshielded
Frequency Range:	670MHz~679.5MHz
Declared BW	100KHz
Modulation:	pi/4 DQPSK
Number of Channel:	20
Channel Spacing:	500KHz
Sample Type:	Portable device
Antenna Type:	External antenna
Antenna gain:	-0.78dBi
Cable Loss(for RF conducted test)	0.6dB

662-686MHz

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	670MHz	2	670.5MHz	3	671MHz	4	671.5MHz
5	672MHz	6	672.5MHz	7	673MHz	8	673.5MHz
9	674MHz	10	674.5MHz	11	675MHz	12	675.5MHz
13	676MHz	14	676.5MHz	15	677MHz	16	677.5MHz
17	678MHz	18	678.5MHz	19	679MHz	20	679.5MHz

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4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--
The EUT has been tested as an independent unit.			

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	±7.25 x 10-8
2	Duty cycle	±0.37%
3	Occupied Bandwidth	±3%
4	RF conducted power	±0.75dB
5	RF power density	±2.84dB
6	Conducted Spurious emissions	±0.75dB
7	RF Radiated power	±4.5dB (below 1GHz)
		±4.8dB (above 1GHz)
8	Radiated Spurious emission test	±4.5dB (30MHz-1GHz)
		±4.8dB (1GHz-18GHz)
9	Temperature test	±1℃
10	Humidity test	±3%
11	Supply voltages	±1.5%
12	Time	±3%

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4.4 Test Location

All tests were performed at:

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Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

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5 Equipment List

RF Conducted					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2023-10-19	2024-10-18
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

Radiated Spurious Emissions Below 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Loop Antenna	ETS-Lindgren	6502	SEM003-08	2023-11-20	2025-11-19
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2023-06-19	2026-06-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2023-10-19	2024-10-18
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-01	2023-09-16	2025-09-15
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2023-03-20	2024-03-19
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2023-07-07	2024-07-06

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Radiated Spurious Emissions Above 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Fully-Anechoic Chamber	AUDIX	N/A	SEM001-02	2023-04-01	2026-03-31
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2023-03-20	2024-03-19
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2023-07-23	2025-07-22
Microwave system amplifier	Agilent	83017A	SEM005-25	2023-09-19	2024-09-18
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2023-07-07	2024-07-06

General used equipment					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2023-07-28	2024-07-27
Humidity/ Temperature Indicator	deli	8838	SEM002-33	2023-07-28	2024-07-27
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2023-03-23	2024-03-22

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6 Radio Spectrum Matter Test Results

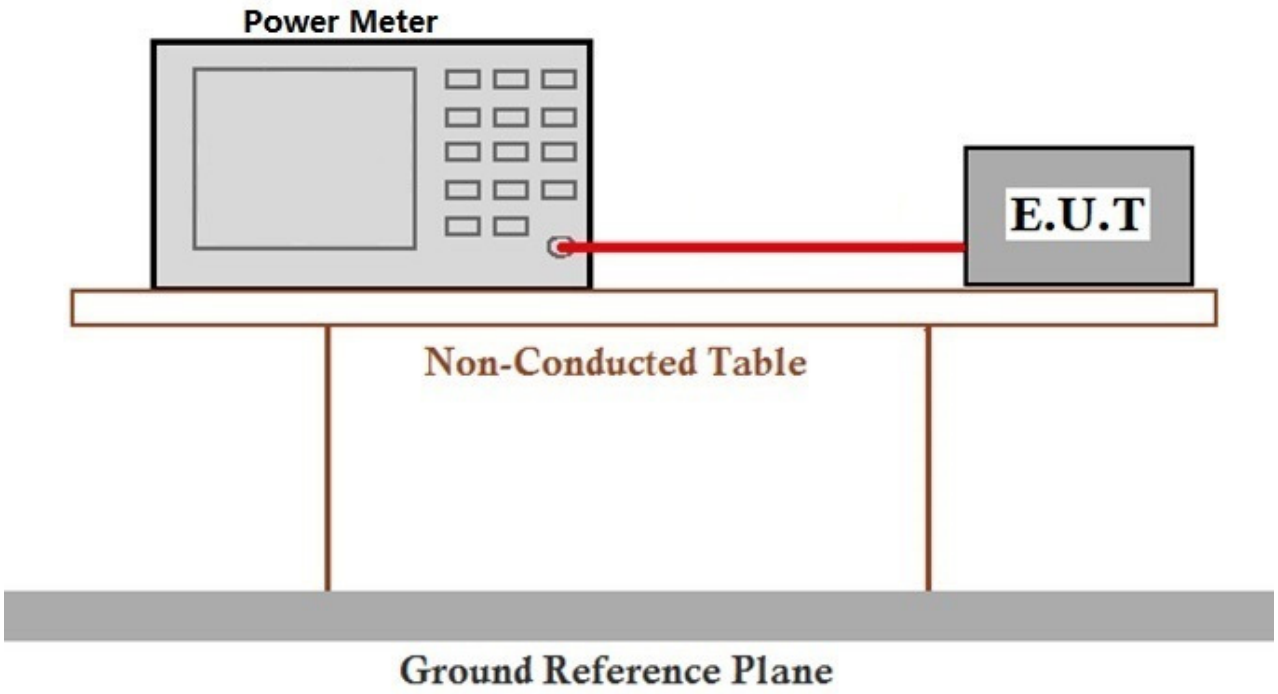
6.1 Transmitter output power

Test Requirement 47 CFR Part 15, Subpart C 15.236(d)
Test Method: ANSI C63.10 (2013) Section 6.7
Limit: 17dBm

6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1010 mbar
Test mode: 11: Tx mode, Keep the EUT in transmitting mode.

6.1.2 Test Setup Diagram



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6.1.3 Measurement Procedure and Data

Modulation Type	Channel	Frequency (MHz)	Measured Maximum Average Power(dBm)	EIRP(dBm)	Limits Average (dBm)	Verdict
pi/4 DQPSK	1	670	4.288	3.508	17	Pass
	11	675	4.029	3.249	17	Pass
	20	679.5	3.735	2.955	17	Pass

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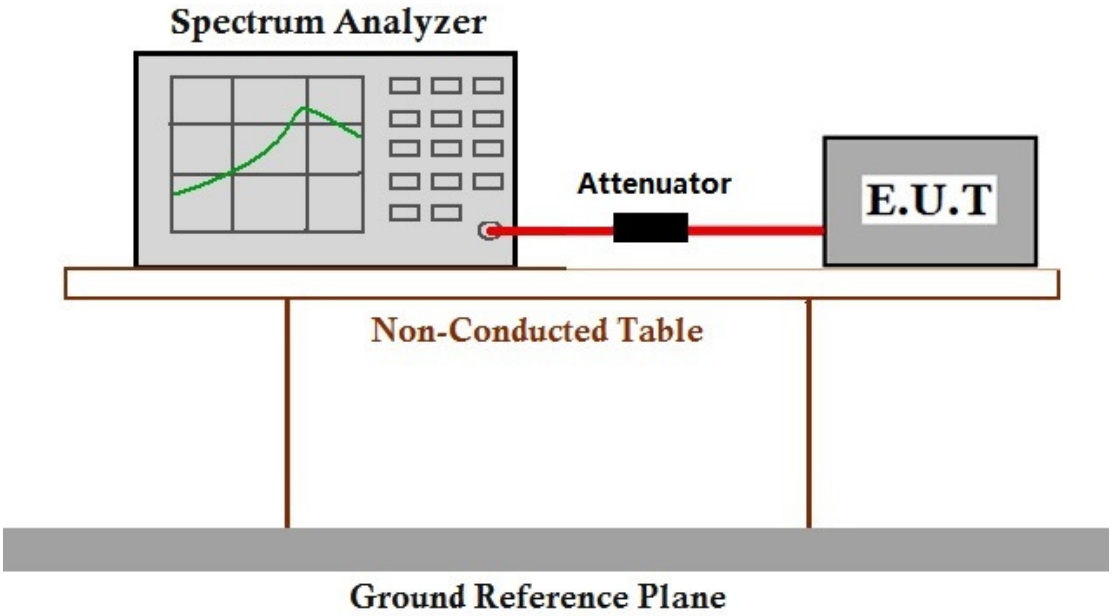
6.2 Occupied bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.236(f)
Test Method: ANSI C63.10 (2013) Section 6.9
Limit: <200 kHz

6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1010 mbar
Test mode: 11: Tx mode, Keep the EUT in transmitting mode.

6.2.2 Test Setup Diagram



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6.2.3 Measurement Procedure and Data

pi/4 DQPSK	1	670	66.903	200	Pass
	11	675	66.478		Pass
	20	679.5	66.083		Pass

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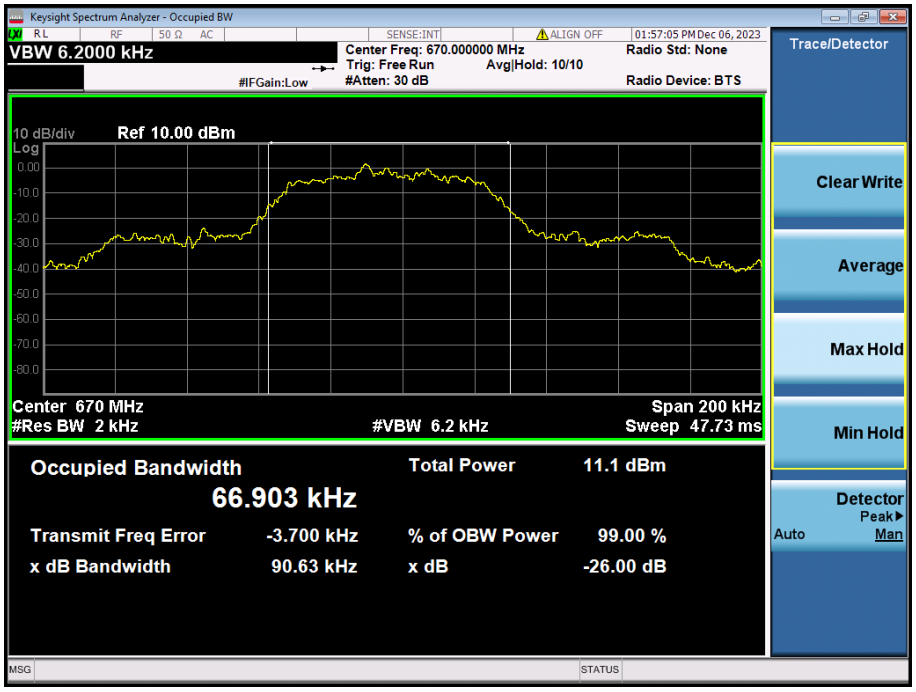
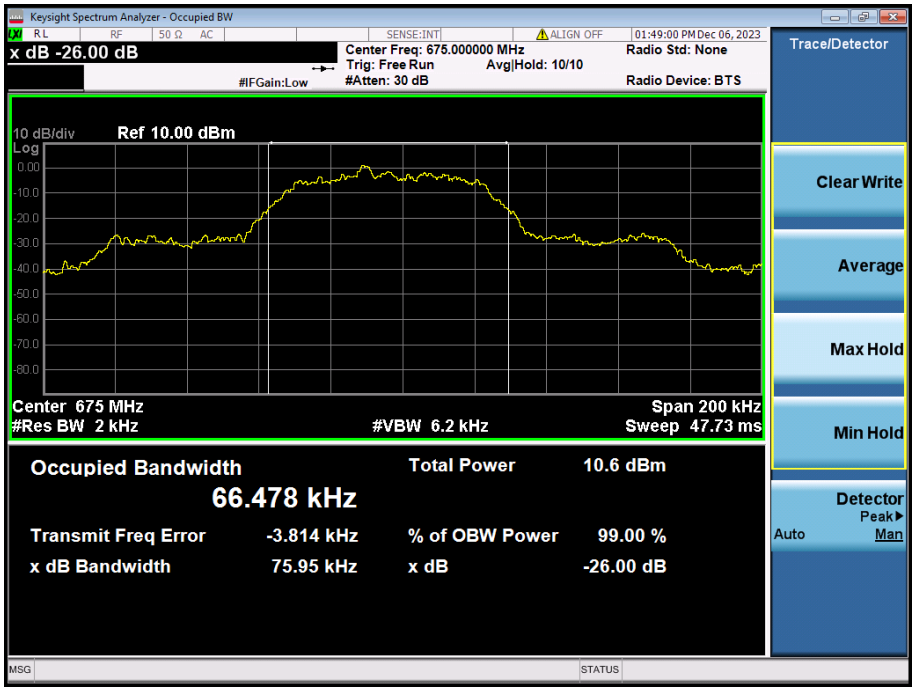
Test Plots:





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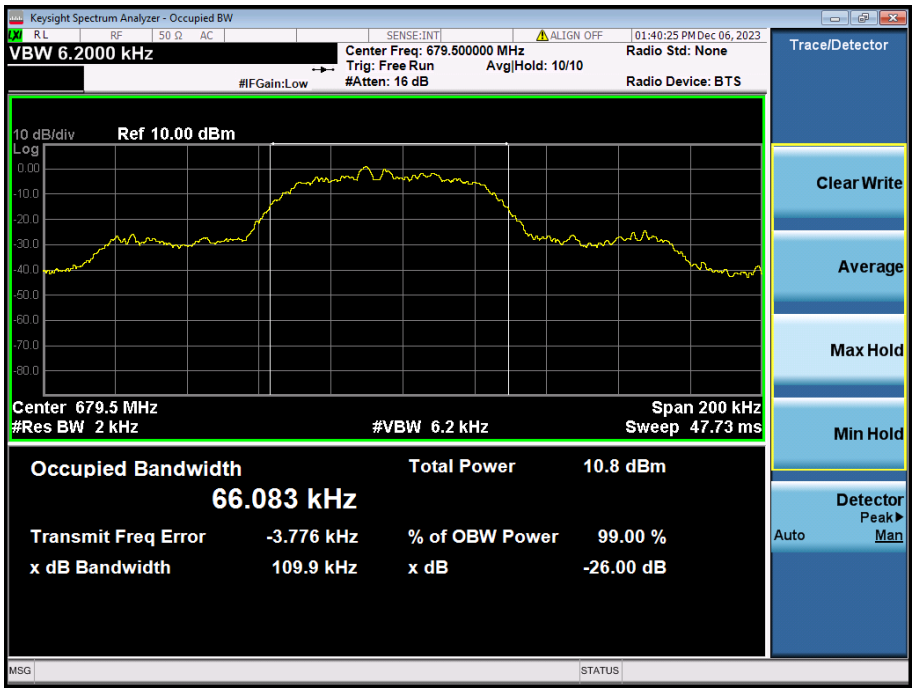

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6.3 Radiated Spurious Emissions

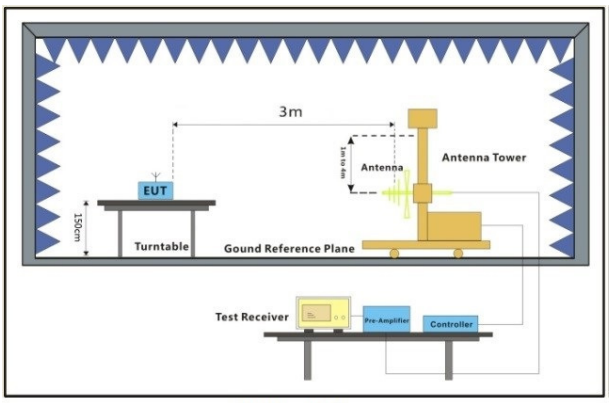
Test Requirement 47 CFR Part 15, Subpart C 15.236(g)
Test Method: ETSI EN 300 422-1 V1.4.2
Measurement Distance: 3m
Limit:

Frequency range	Maximum power, e.r.p. (≤ 1 GHz) e.i.r.p. (> 1 GHz)	Bandwidth
25 MHz to 47 MHz	-36dBm	100 kHz
47 MHz to 74 MHz	-54dBm	100 kHz
74 MHz to 87,5 MHz	-36dBm	100 kHz
87,5 MHz to 137 MHz	-54dBm	100 kHz
137 MHz to 174 MHz	-36dBm	100 kHz
174 MHz to 230 MHz	-54dBm	100 kHz
230 MHz to 470 MHz	-36dBm	100 kHz
470 MHz to 862 MHz	-54dBm	100 kHz
862 MHz to 1 GHz	-36dBm	100 kHz
Above 1GHz	-30dBm	1MHz

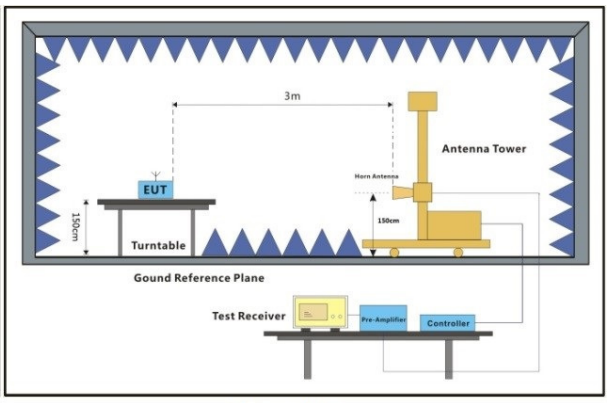
6.3.1 E.U.T. Operation

Operating Environment:
Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1010 mbar
Test mode: 11: Tx mode, Keep the EUT in transmitting mode.

6.3.2 Test Setup Diagram



Below 1GHz



Above 1GHz

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6.3.3 Measurement Procedure and Data

Test Procedure:

(1)On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
(2)The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
(3)The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
(4)The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
(5)The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
(6)The transmitter shall than be rotated through 360°in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
(7)The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
(8)The maximum signal level detected by the measuring receiver shall be noted.
(9)The measurement shall be repeated with the test antenna set to horizontal polarization.
(10) Replace the antenna with a proper Antenna (substitution antenna).
(11)The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
(12)The substitution antenna shall be connected to a calibrated signal generator.
(13)If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
(14)The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
(15)The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
(16)The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
(17)The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

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670MHz

Maximum Frequency	Spurious Emission position and Level		Limit	Over Limit
MHz	Polarity	dBm	dBm	dB
50.057	V	-57.61	-36	-21.61
106.013	V	-79.89	-36	-43.89
148.963	V	-84.33	-36	-48.33
236.645	V	-82.41	-36	-46.41
607.787	V	-79.72	-36	-43.72
912.862	V	-68.3	-36	-32.3
1324.34	V	-56.8	-30	-26.8
5199.96	V	-50.71	-30	-20.71
8433.35	V	-42.46	-30	-12.46
48.332	H	-79.96	-36	-43.96
104.17	H	-85.17	-54	-31.17
168.414	H	-81.92	-36	-45.92
251.18	H	-78.51	-36	-42.51
511.835	H	-64.93	-36	-28.93
912.862	H	-56.18	-30	-26.18
1297.18	H	-50.04	-30	-20.04
5382.7	H	-41.78	-30	-11.78
9494.19	H	-79.89	-36	-43.89

675MHz

Maximum Frequency	Spurious Emission position and Level		Limit	Over Limit
MHz	Polarity	dBm	dBm	dB
37.129	V	-55.69	-36	-19.69
49.885	V	-73.69	-54	-19.69
65.621	V	-70.12	-54	-16.12
97.754	V	-70.26	-54	-16.26
198.872	V	-82.98	-54	-28.98
550.263	V	-76.98	-54	-22.98
1288.25	V	-54.24	-30	-24.24
3664.38	V	-47.26	-30	-17.26
9571.94	V	-42.06	-30	-22.06
45.445	H	-70.94	-54	-16.94
98.157	H	-83.12	-54	-29.12
158.329	H	-77.98	-36	-41.98
303.177	H	-75.48	-36	-39.48
867.329	H	-72.4	-54	-18.4

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942.131	H	-64.89	-36	-28.89
1282.33	H	-54.8	-30	-24.8
5466.84	H	-46.83	-30	-16.83
9440.61	H	-41.95	-30	-11.95

679.5MHz

Maximum Frequency	Spurious Emission position and Level		Limit	Over Limit
MHz	Polarity	dBm	dBm	dB
38.129	V	-53.28	-36	-17.28
49.985	V	-71.23	-54	-17.23
65.321	V	-69.12	-54	-15.12
97.654	V	-68.24	-54	-14.24
198.872	V	-80.62	-54	-26.62
550.263	V	-75.78	-54	-21.78
1330.241	V	-52.68	-30	-22.68
5460.289	V	-47.12	-30	-17.12
9264.231	V	-42.64	-30	-12.64
38.654	H	-54.96	-36	-18.96
48.965	H	-67.68	-54	-13.68
63.267	H	-74.67	-54	-20.67
98.658	H	-76.89	-54	-22.89
543.265	H	-73.12	-54	-19.32
690.245	H	-72.36	-54	-18.36
1330.278	H	-50.21	-30	-20.21
5456.289	H	-44.16	-30	-14.16
9270.612	H	-42.52	-30	-12.52

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6.4 Necessary bandwidth (BN) for analogue systems

Test Requirement 47 CFR Part 15, Subpart C 15.236(g)

Test Method: ETSI EN 300 422-1 V1.4.2

Limit:

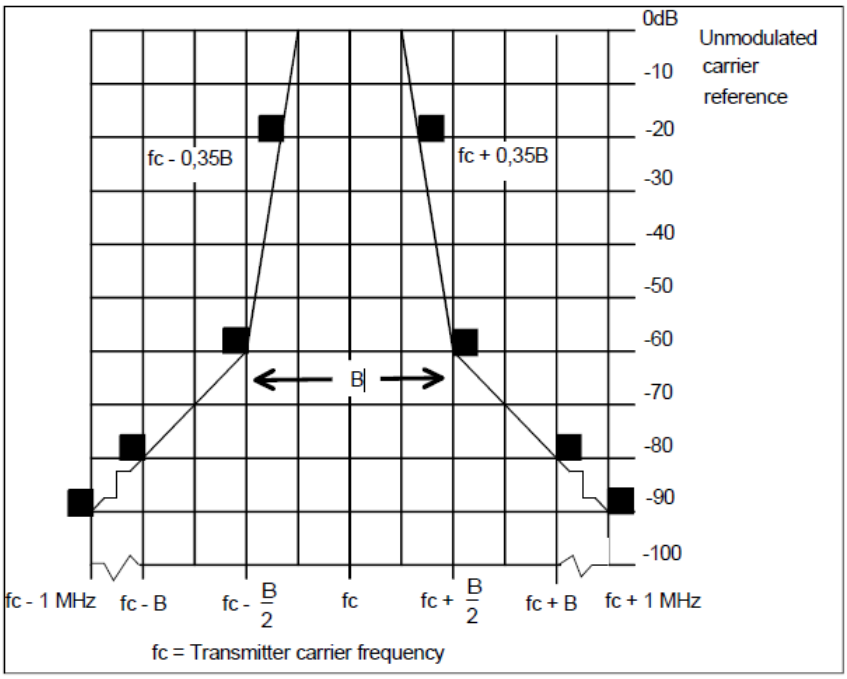

Figure 3: Spectrum mask for analogue systems in all bands

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1010 mbar

Test mode: 11: Tx mode, Keep the EUT in transmitting mode.

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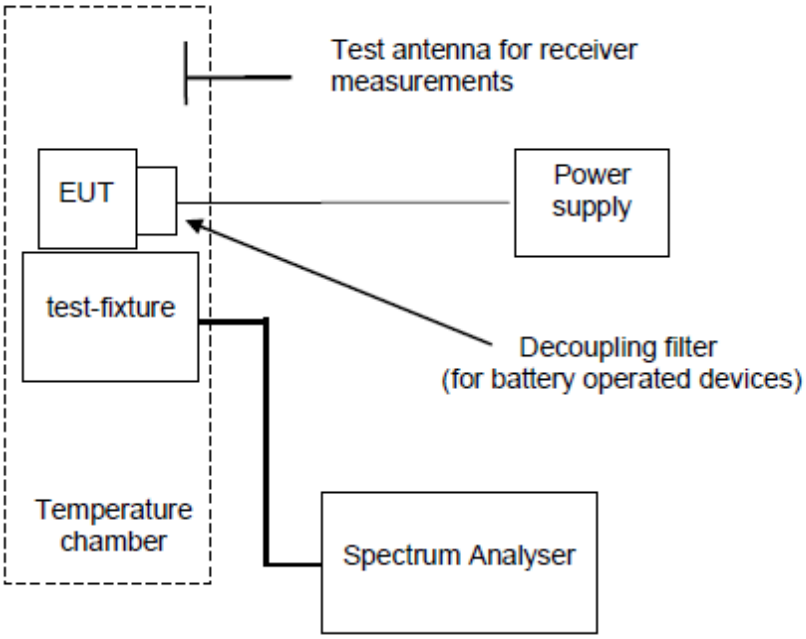
6.4.2 Test Setup Diagram



6.4.3 Measurement Procedure and Data

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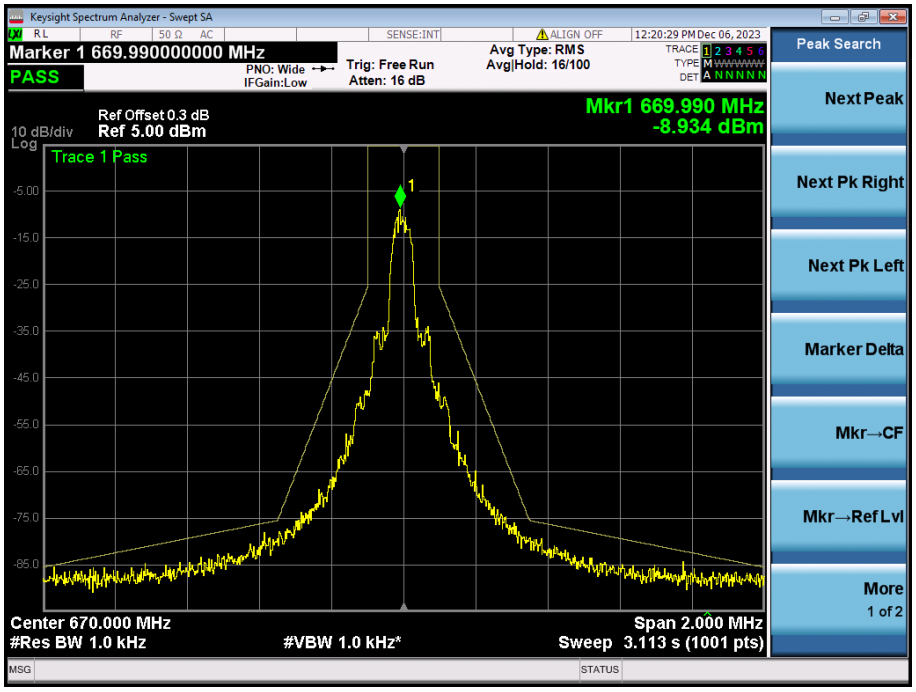
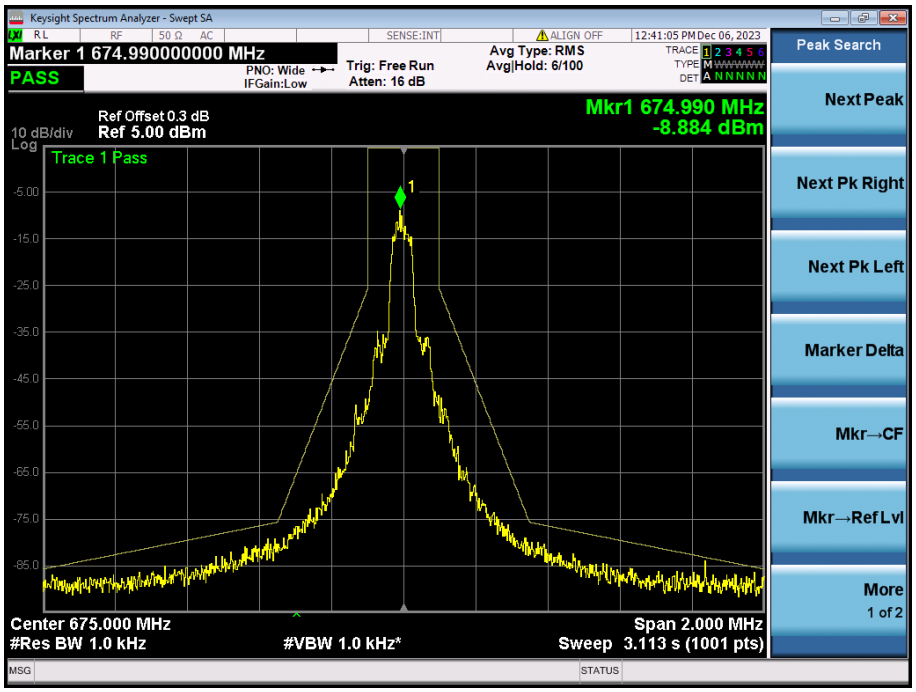
Results:

Handheld Wireless Microphone





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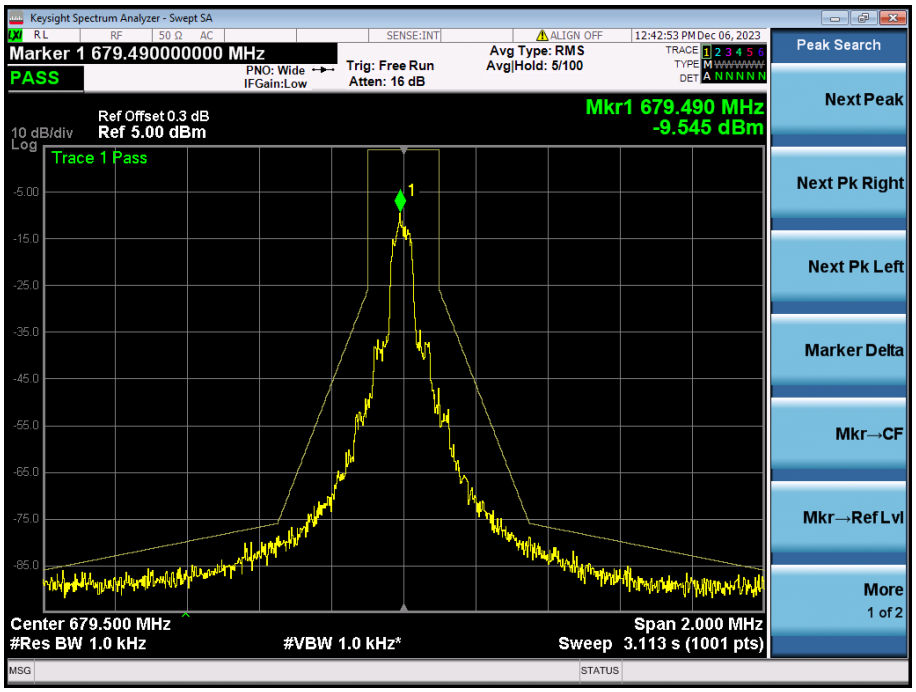

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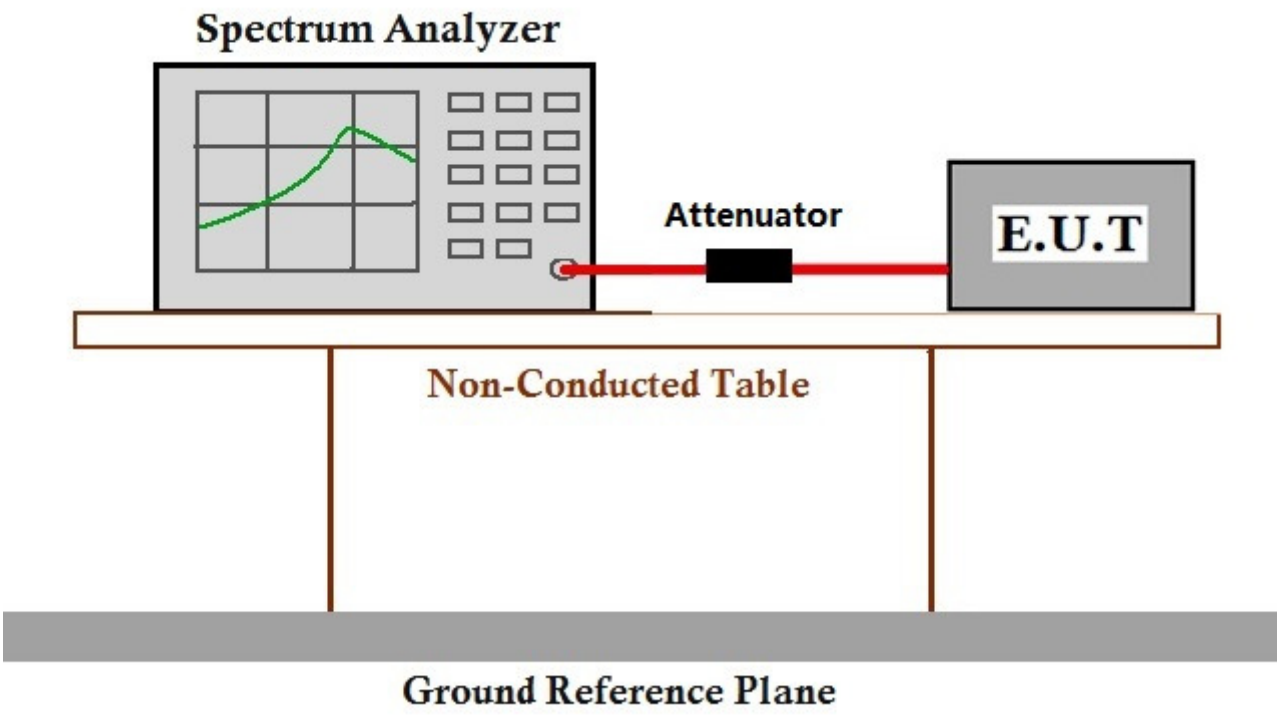
6.5 Frequency Stability

Test Requirement 47 CFR Part 15, Subpart C 15.236(f)
Test Method: ANSI C63.10 (2013) Section 6.8
Limit: The frequency tolerance of the transmitter shall be ±50 ppm.

6.5.1 E.U.T. Operation

Operating Environment:
Temperature: 22.7 °C Humidity: 68.2 % RH Atmospheric Pressure: 1010 mbar
Test mode: 11: Tx mode, Keep the EUT in transmitting mode.

6.5.2 Test Setup Diagram



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Assigned Frequency: 670MHz					
Voltage(V)	Temperature (℃)	Measured Frequency(MHz)	Frequency Deviation(ppm)	FCC Limit (ppm)	Result
3.8	-30	670.00032	0.48	±50	Pass
	-20	670.00031	0.47		
	-10	670.00048	0.72		
	0	670.00045	0.67		
	10	670.00021	0.31		
	20	670.00043	0.64		
	30	670.00012	0.18		
	40	670.00025	0.37		
	50	670.00048	0.72		
3.23	25	670.00024	0.36		
4.37	25	670.00033	0.49		

Assigned Frequency: 675MHz					
Voltage(V)	Temperature (℃)	Measured Frequency(MHz)	Frequency Deviation(ppm)	FCC Limit (ppm)	Result
3.8	-30	675.00018	0.26	±50	Pass
	-20	675.00040	0.60		
	-10	675.00020	0.30		
	0	675.00020	0.30		
	10	675.00045	0.67		
	20	675.00043	0.64		
	30	675.00029	0.43		
	40	675.00045	0.66		
	50	675.00041	0.60		
3.23	25	675.00035	0.53		
4.37	25	675.00019	0.28		

Assigned Frequency: 679.5MHz					
Voltage(V)	Temperature (℃)	Measured Frequency(MHz)	Frequency Deviation(ppm)	FCC Limit (ppm)	Result
3.8	-30	679.50023	0.34	±50	Pass
	-20	679.50039	0.57		
	-10	679.50023	0.34		
	0	679.50045	0.67		
	10	679.50045	0.66		

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	20	679.50018	0.27		
	30	679.50045	0.66		
	40	679.50016	0.23		
	50	679.50020	0.29		
3.23	25	679.50024	0.36		
4.37	25	679.50037	0.54		

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7 Test Setup Photo

Refer to Setup Photo for SZCR2306001783AT

8 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZCR2306001783AT

- End of the Report -

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