



FCC Test Report

Test report
On Behalf of

RADIOSHACK WORLDWIDE CORP.

For
WIRELESS MICROPHONE SYSTEM

Model No.: 3301584

FCC ID: 2BDUR-3301584

Prepared For : **RADIOSHACK WORLDWIDE CORP.**
Building AFRA, Ave. Samuel Lewis and street 54, Panama City, Panama 5,
Panama

Prepared By : **Shenzhen HUAKE Testing Technology Co., Ltd.**
1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping,
Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Date of Test: **Jun. 11, 2024 ~ Jun. 21, 2024**

Date of Report: **Jun. 21, 2024**

Report Number: **HK2406113017-E**

**TEST RESULT CERTIFICATION****Applicant's name** : RADIOSHACK WORLDWIDE CORP.Address..... : Building AFRA, Ave. Samuel Lewis and street 54, Panama City,
Panama 5, Panama**Manufacturer's Name** : ShenZhen Kjimy Industry Co.,Ltd.Address..... : Room 202, NO.2-1, Shanzixia Road, Dakang community
Yuanshan street, Long gang District, Shenzhen 518000 China**Product description**

Trade Mark : N/A

Product name..... : WIRELESS MICROPHONE SYSTEM

Model and/or type reference : 3301584

Standards : FCC Rules and Regulations Part 15 Subpart C Section 15.236
ANSI C63.4: 2014

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen HUAK Testing Technology Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen HUAK Testing Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Date of Test :

Date (s) of performance of tests..... : Jun. 11, 2024 ~ Jun. 21, 2024

Date of Issue..... : Jun. 21, 2024

Test Result..... : **Pass**

Testing Engineer : _____

(Len Liao)

Technical Manager : _____

(Sliver Wan)

Authorized Signatory : _____

(Jason Zhou)



TABLE OF CONTENTS

1	Test Summary.....	5
1.1	Test Procedures And Results	5
1.2	Test Facility	5
1.3	Measurement Uncertainty.....	6
2	General Information	7
2.1	General Description of EUT	7
2.2	Carrier Frequency of Channels	8
2.3	Operation of EUT During Testing	8
2.4	Description of Test Setup	9
2.5	Description of Support Units	10
3	Test Results And Measurement Data.....	12
3.1	Conducted Emissions Test.....	12
3.2	Radiated Emission Test	14
3.3	Conducted Output Power.....	20
3.4	Occupied Bandwidth Measurement.....	21
3.5	Necessary Bandwidth.....	25
3.6	Frequency Stability.....	29
3.7	Antenna Requirement.....	31
4	Photograph of Test	32
5	Photograph of EUT.....	33



**** Modified History ****

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Jun. 21, 2024	Jason Zhou



1 Test Summary

1.1 Test Procedures And Results

Requirement	CFR 47 Section	Result
Conducted Emission	15.207	N/A
Conducted Peak Output Power	15.236(d)(1)	PASS
Occupied Bandwidth Emission	15.236(f)(2)	PASS
Radiated Spurious Emission	15.236(g)	PASS
Frequency Stability	15.236(f)(3)	PASS
Antenna requirement	15.203	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

1.2 Test Facility

Information of the Test Laboratory

Shenzhen HUAKE Testing Technology Co., Ltd.

Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping,
Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization :

A2LA Accreditation Code is 4781.01.

FCC Designation Number is CN1229.

Canada IC CAB identifier is CN0045.

CNAS Registration Number is L9589.



1.3 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.71\text{dB}$
2	RF power, conducted	$\pm 0.37\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.90\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^{\circ}\text{C}$
7	Humidity	$\pm 1.0\%$



2 General Information

2.1 General Description of EUT

Equipment	WIRELESS MICROPHONE SYSTEM
Model Name	3301584
Serial No.	N/A
Model Difference	N/A
Trade Mark	N/A
FCC ID	2BDUR-3301584
Hardware Version	V1.2
Software Version	V1.2
Operation Frequency	CHA: 594.390MHz-599.520MHz CHB: 599.790MHz-604.920MHz
Number of Channels	3
Antenna Type	FPC Antenna
Antenna Gain	0.43dBi
Modulation Type	FM
Power Source	DC 3V From Battery

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Antenna gain Refer to the antenna specifications.
3. The cable loss data is obtained from the supplier.
4. The test results in the report only apply to the tested sample.



2.2 Carrier Frequency of Channels

	Channel	Frequency MHz	Channel	Frequency MHz
CHA				
	01	594.390	02	596.820
	03	599.520	--	--
CHB				
	01	599.790	02	602.220
	03	604.920	--	--

2.3 Operation of EUT During Testing

Operating Mode

The mode is used: **Transmitting mode for A**

Low Channel: 594.390MHz

Middle Channel: 596.820MHz

High Channel: 599.520MHz

The mode is used: **Transmitting mode for B**

Low Channel: 599.790MHz

Middle Channel: 602.220MHz

High Channel: 604.920MHz



2.4 Description of Test Setup

Operation of EUT during testing:

EUT

The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. The worst case is X position.



2.5 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Trade Mark	Model/Type No.	Specification	Remark
1	WIRELESS MICROPHONE SYSTEM	N/A	3301584	N/A	EUT

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, Emission Bandwidth, Necessary Bandwidth, Frequency Stability), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

**2.6 Measurement Instruments List**

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	L.I.S.N.	R&S	ENV216	HKE-002	2024/02/20	1 Year
2	L.I.S.N.	R&S	ENV216	HKE-059	2024/02/20	1 Year
3	EMI Test Receiver	R&S	ESR	HKE-005	2024/02/20	1 Year
4	Spectrum analyzer	Agilent	N9020A	HKE-025	2024/02/20	1 Year
5	Spectrum analyzer	R&S	FSV3044	HKE-126	2024/02/20	1 Year
6	Preamplifier	EMCI	EMC051845S	HKE-006	2024/02/20	1 Year
7	Preamplifier	Schwarzbeck	BBV 9743	HKE-016	2024/02/20	1 Year
8	Preamplifier	A.H. Systems	SAS-574	HKE-182	2024/02/20	1 Year
9	6d Attenuator	Pasternack	6db	HKE-184	2024/02/20	1 Year
10	EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	2024/02/20	1 Year
11	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2024/02/21	2 Year
12	Loop Antenna	COM-POWER	AL-130R	HKE-014	2024/02/21	2 Year
13	Horn Antenna	Schwarzbeck	9120D	HKE-013	2024/02/21	2 Year
14	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
15	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
16	RF Automatic control unit	Tonscend	JS0806-2	HKE-060	2024/02/20	1 Year
17	High pass filter unit	Tonscend	JS0806-F	HKE-055	2024/02/20	1 Year
18	Wireless Communication Test Set	R&S	CMU200	HKE-026	2024/02/20	1 Year
19	Wireless Communication Test Set	R&S	CMW500	HKE-027	2024/02/20	1 Year
20	High-low temperature chamber	Guangke	HT-80L	HKE-118	2024/06/10	1 Year
21	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2024/06/10	1 Year
22	RF Test Software	Tonscend	JS1120-3 Version 3.3.23	HKE-083	/	/
23	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2024/02/20	1 Year
24	RSE Test Software	Tonscend	JS36-RSE 5.0. 0	HKE-184	/	/

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



3 Test Results And Measurement Data

3.1 Conducted Emissions Test

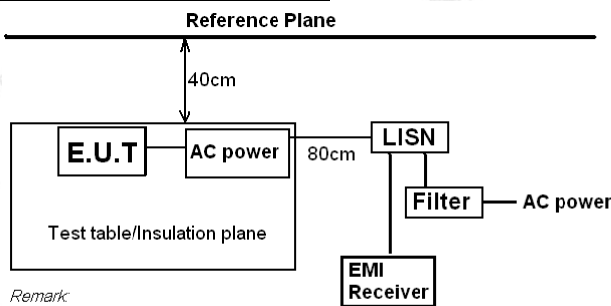
LIMIT

According to FCC CFR Title 47 Part 15 Subpart C Section 15.207 and RSS Gen 8.8, AC Power Line Conducted Emissions Limits for License-Exempt Radio Apparatus as below:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION



Remark
E.U.T: Equipment Under Test
LISN: Line Impedance Stabilization Network
Test table height=0.8m

TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.



TEST RESULTS

Not applicable.

Note: EUT power supply by DC Power, so this test item not applicable.



3.2 Radiated Emission Test

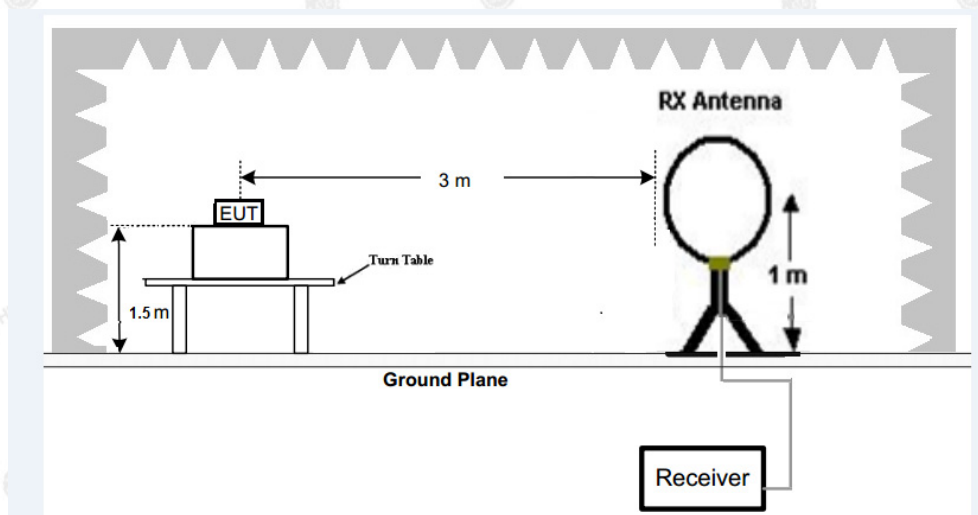
Limit

Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08).

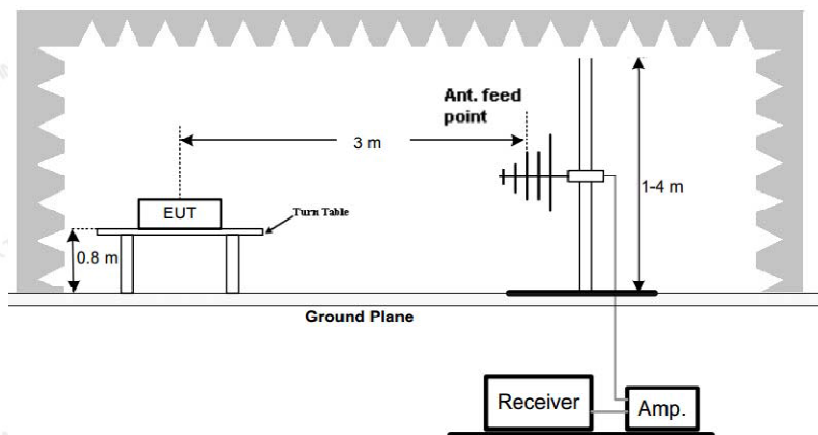
Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

TEST CONFIGURATION

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.

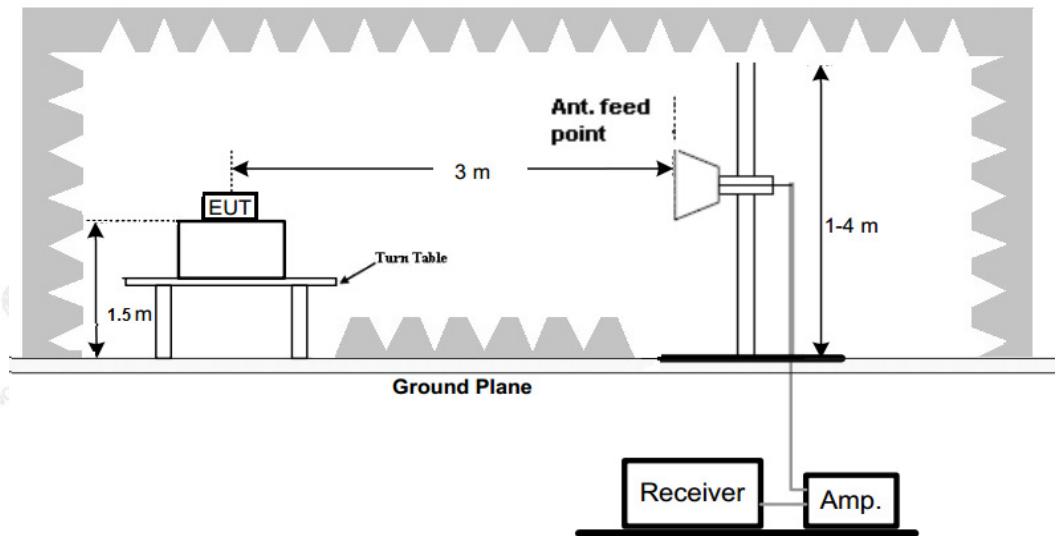


(B) Radiated Emission Test Set-Up, Frequency below 1000MHz.





(C) Radiated Emission Test Set-Up, Frequency above 1000MHz.



Frequency: 9kHz-30MHz	Frequency: 30MHz-1GHz	Frequency: Above 1GHz
RBW=10KHz	RBW=120KHz	RBW=1MHz
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak	Detector function = peak

Test Procedure

- 1.The setup of EUT is according with per TIA/EIA Standard 603 and ANSI C63.4-2014 measurement procedure.
- 2.The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
- 3.The frequency range up to tenth harmonic of the fundamental frequency was investigated.
- 4.Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable.

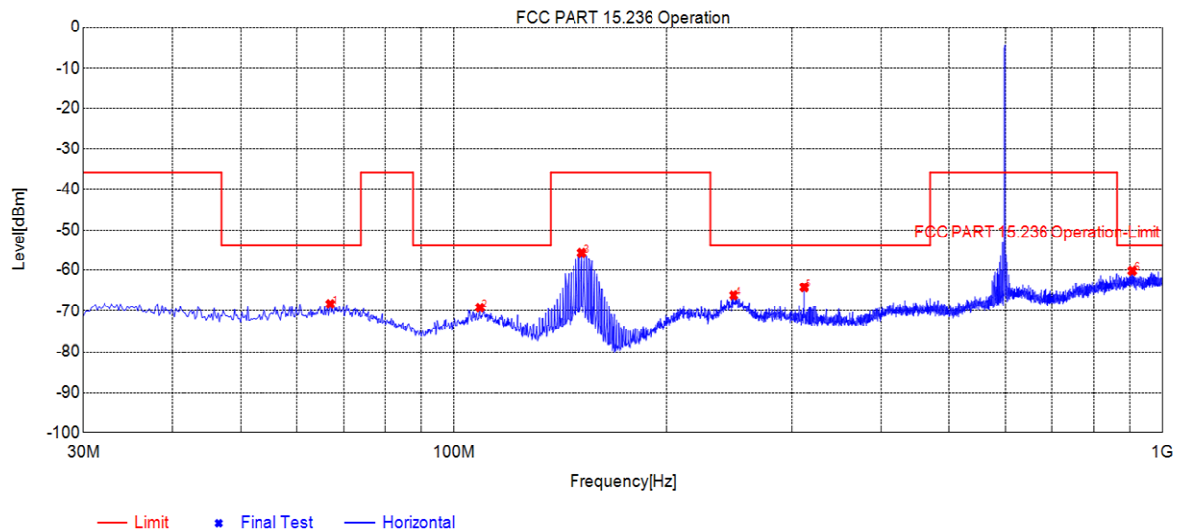


TEST RESULTS

Below 1GHz Test Results: (Show only the worst test results)

All modes have been tested, and only the worst mode is recorded.

Antenna polarity: H

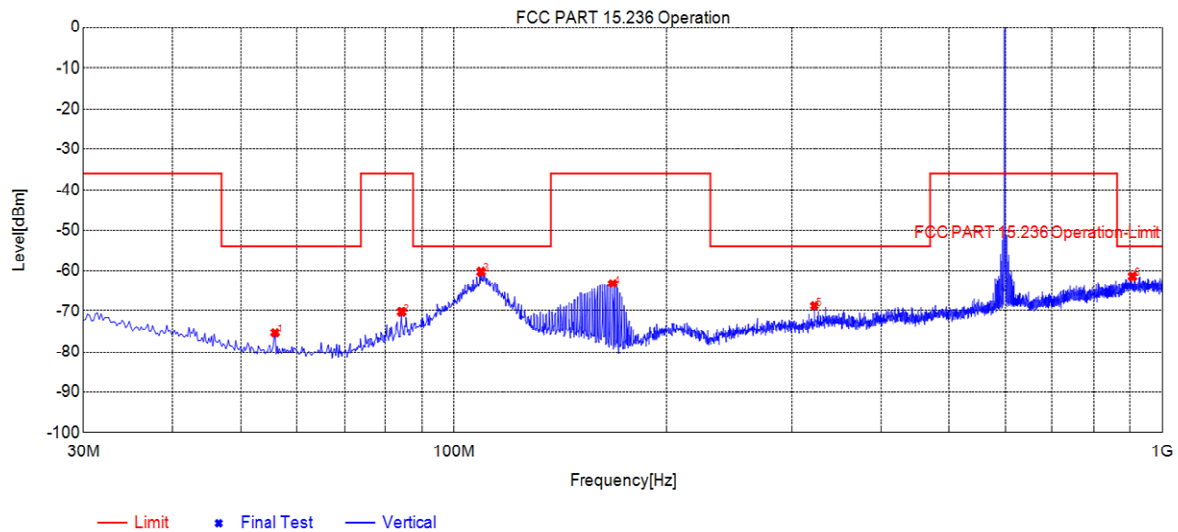


Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	66.8674	-72.67	-68.31	-54.00	14.31	4.36	Horizontal
2	108.779	-72.23	-69.21	-54.00	15.21	3.02	Horizontal
3	151.662	-57.65	-55.79	-36.00	19.79	1.86	Horizontal
4	248.293	-72.10	-66.20	-54.00	12.20	5.90	Horizontal
5	311.938	-65.87	-64.28	-54.00	10.28	1.59	Horizontal
6	907.831	-70.42	-60.23	-54.00	6.23	10.19	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level



Antenna polarity: V



Suspected List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	56.0012	-70.52	-75.34	-54.00	21.34	-4.82	Vertical
2	84.3309	-69.31	-70.27	-36.00	34.27	-0.96	Vertical
3	109.167	-72.33	-60.21	-54.00	6.21	12.12	Vertical
4	167.573	-58.60	-63.18	-36.00	27.18	-4.58	Vertical
5	322.610	-69.96	-68.75	-54.00	14.75	1.21	Vertical
6	908.413	-70.70	-61.31	-54.00	7.31	9.39	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Harmonics and Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: 1. Emission Level = Reading + Cable loss + Antenna factor - Amp factor.

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.



ABOVE 1GHz test results:

All modes have been tested, and only the worst mode is recorded.

Transmitting at 594.390MHz

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
1188.78	-40.19	-5.81	-46	-30	-16	Horizontal
1188.78	-37.16	-5.81	-42.97	-30	-12.97	Vertical
1783.17	-36.83	-6.06	-42.89	-30	-12.89	Vertical
1783.17	-33.83	-5.81	-39.64	-30	-9.64	Horizontal
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.						

Transmitting at 596.820MHz

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
1193.64	-40.01	-5.81	-45.82	-30	-15.82	Horizontal
1193.64	-37.31	-5.81	-43.12	-30	-13.12	Vertical
1790.46	-35.81	-6.06	-41.87	-30	-11.87	Vertical
1790.46	-32.37	-5.81	-38.18	-30	-8.18	Horizontal
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.						



Transmitting at 599.520MHz

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
1199.04	-38.78	-5.81	-44.59	-30	-14.59	Horizontal
1199.04	-37.65	-5.81	-43.46	-30	-13.46	Vertical
1798.56	-34.77	-6.06	-40.83	-30	-10.83	Vertical
1798.56	-33.54	-5.81	-39.35	-30	-9.35	Horizontal
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Level-Limit.						

Remark :

- (1) Measuring frequencies from 1 GHz to the 18 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency; "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not record in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

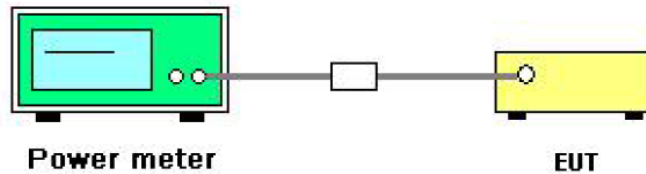


3.3 Conducted Output Power

Limit

According to FCC 15.236(d)(1), for low power auxiliary station operating in the 470-608, and 614-698 MHz bands, In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP

TEST CONFIGURATION



Test Procedure:

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

Test Results:

A mode:

frequency (MHz)	Conducted Output Power (dBm)	ANT Gain (dBi)	EIRP (dBm)	Limit (dBm)	Result
594.390	2.73	0.43	3.16	17	PASS
596.820	1.78	0.43	2.21		PASS
599.520	2.28	0.43	2.71		PASS

B mode:

frequency (MHz)	Conducted Output Power (dBm)	ANT Gain (dBi)	EIRP (dBm)	Limit (dBm)	Result
599.790	2.67	0.43	3.10	17	PASS
602.220	1.37	0.43	1.80		PASS
604.920	1.46	0.43	1.89		PASS



3.4 Occupied Bandwidth Measurement

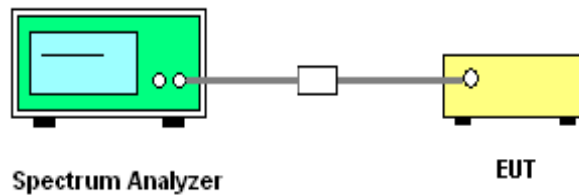
Limit

According to FCC 15.236(f)(2), The operating frequency within a permissible band of operation as defined in paragraph (c) must comply with the following requirements.

- (1) The frequency selection shall be offset from the upper or lower band limits by 25 kHz or an integral multiple thereof.
- (2) One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200kHz.

Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in Section 8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08) (incorporated by reference, see §15.38). Emissions outside this band shall comply with the limit specified at the edges of the ETSI mask.

TEST CONFIGURATION



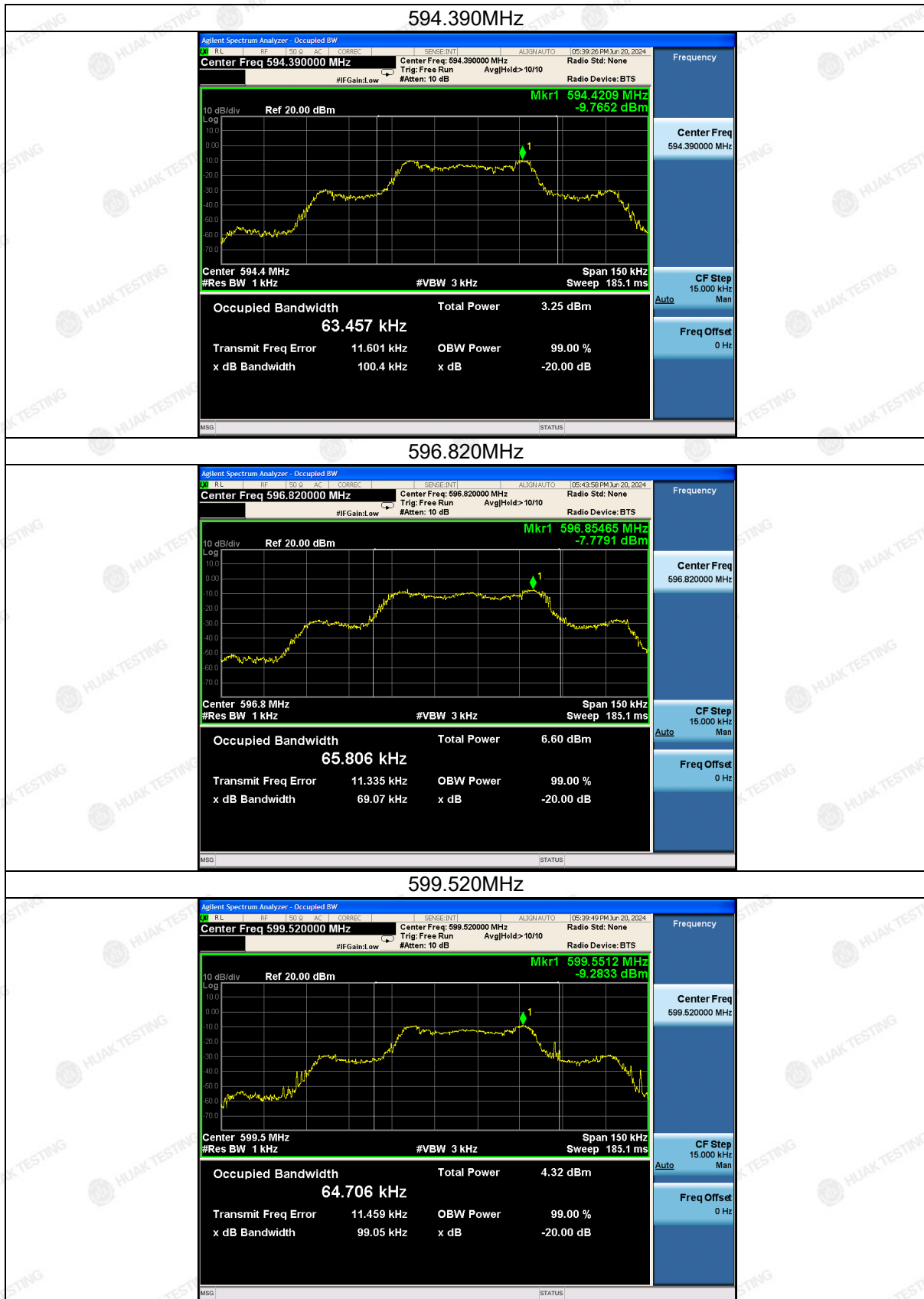
Test Procedure:

According to TIA-603 for additional Test Set-Up procedures, the occupied bandwidth of emission was measured with a Spectrum Analyzer connected to the antenna terminal while EUT was operating in 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation. Then mark the -26dB Bandwidth and record it.

Test Results:

A mode:

frequency (MHz)	-20Bandwidth (kHz)	99%Bandwidth (kHz)	Limit (kHz)	Result
594.390	100.4	63.457	200	PASS
596.820	69.07	65.806		PASS
599.520	99.05	64.706		PASS



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

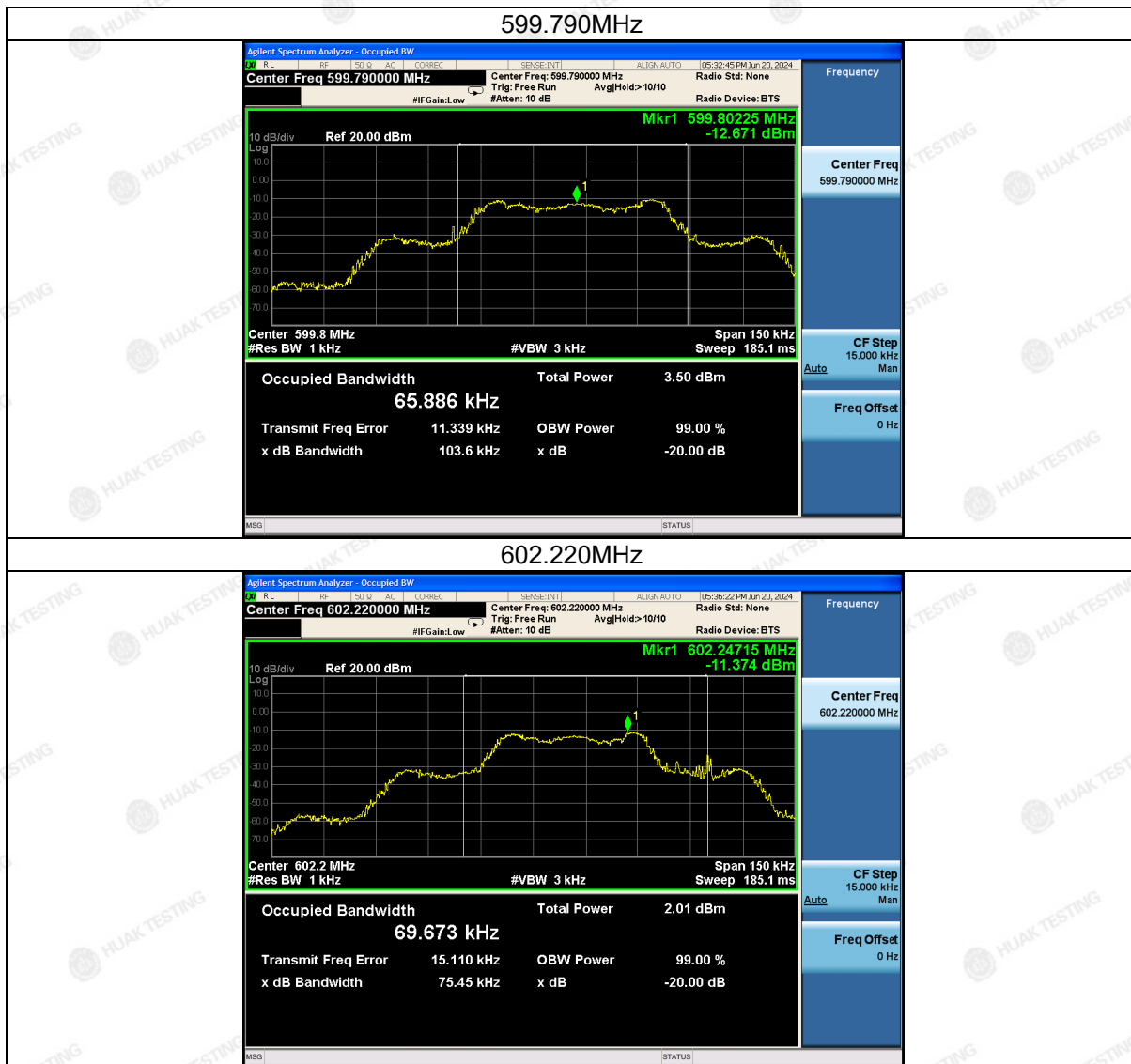
TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

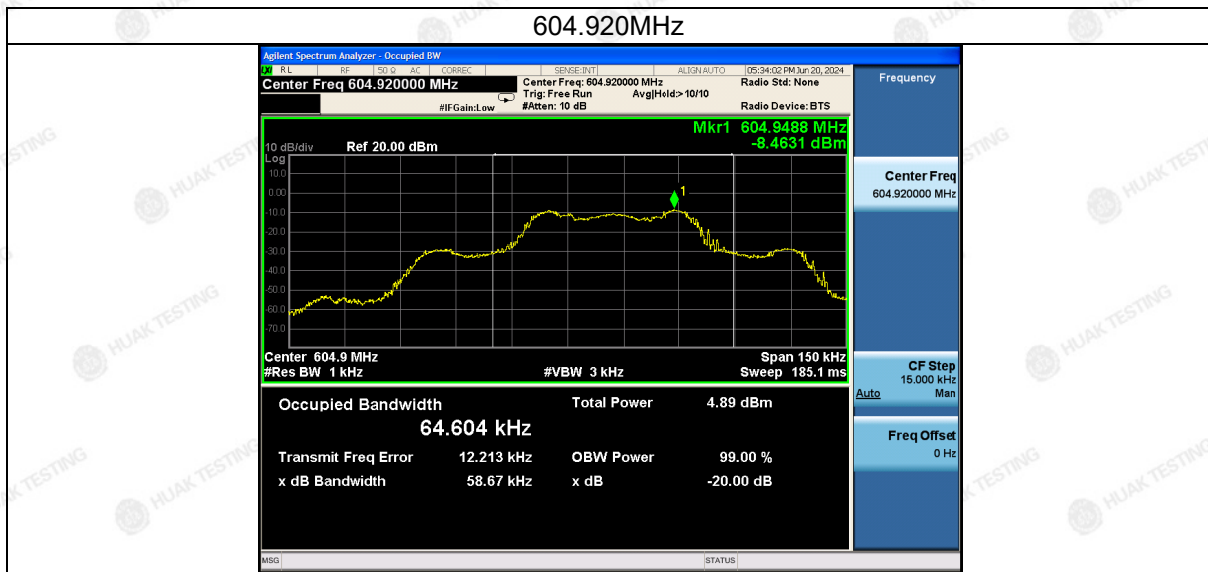
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



B mode:

frequency (MHz)	-20Bandwidth (kHz)	99%Bandwidth (kHz)	Limit (kHz)	Result
599.790	103.6	65.886	200	PASS
602.220	75.45	69.673		PASS
604.920	58.67	64.604		PASS

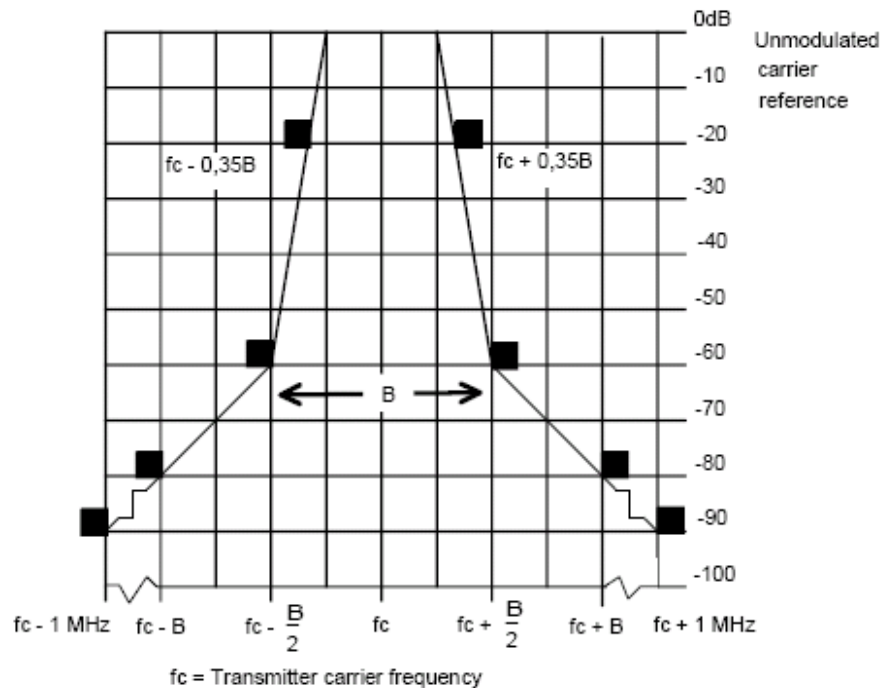






3.5. Necessary Bandwidth

Limit

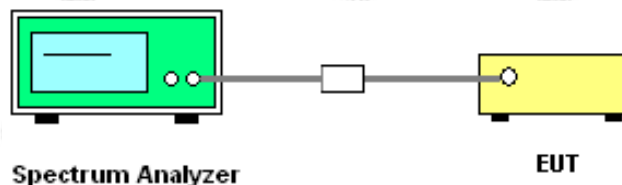


Standard Applicable

According to §15.236 (g) Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless UHF Microphone s in the 25 MHz to 3GHz frequency range; Part 1: Technical characteristics and methods of measurement. Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

According to ETSI EN 300 422-2 V2.1.1 section 8.3, the transmitter output spectrum shall be within the mask defined in the following figure.

TEST CONFIGURATION



Test Procedure:

The arrangement of test equipment as shown in figure B.1 shall be used. Note that the noise meter conforms to (quasi peak) without weighting filter (flat).

With the Low Frequency (LF) audio signal generator set to 500 Hz, the audio input level to the DUT shall be adjusted to 8 dB below the limiting threshold (-8 dB (lim)) as declared by the manufacturer.

The corresponding audio output level from the demodulator shall be measured and recorded.



The input impedance of the noise meter shall be sufficiently high to avoid more than 0.1 dB change in input level when the meter is switched between input and output.

The audio input level shall be increased by 20 dB, i.e. to +12 dB (lim), and the corresponding change in output level shall be measured.

It shall be checked that the audio output level has increased by ≤ 10 dB.

If this condition is not met, the initial audio input level shall be increased from -8 dB (lim) in 1 dB steps until the above condition is fulfilled, and the input level recorded in the test report. This level replaces the value derived from the manufacturer's declaration and is defined as -8 dB (lim).

Measure the input level at the transmitter required to give +12 dB (lim).

The LF generator shall be replaced with the weighted noise source to Recommendation ITU-R BS.559-2 [i.3], band-limited to 15 kHz as described in IEC 60244-13 [2], and the level shall be adjusted such that the measured input to the transmitter corresponds to +12 dB (lim).

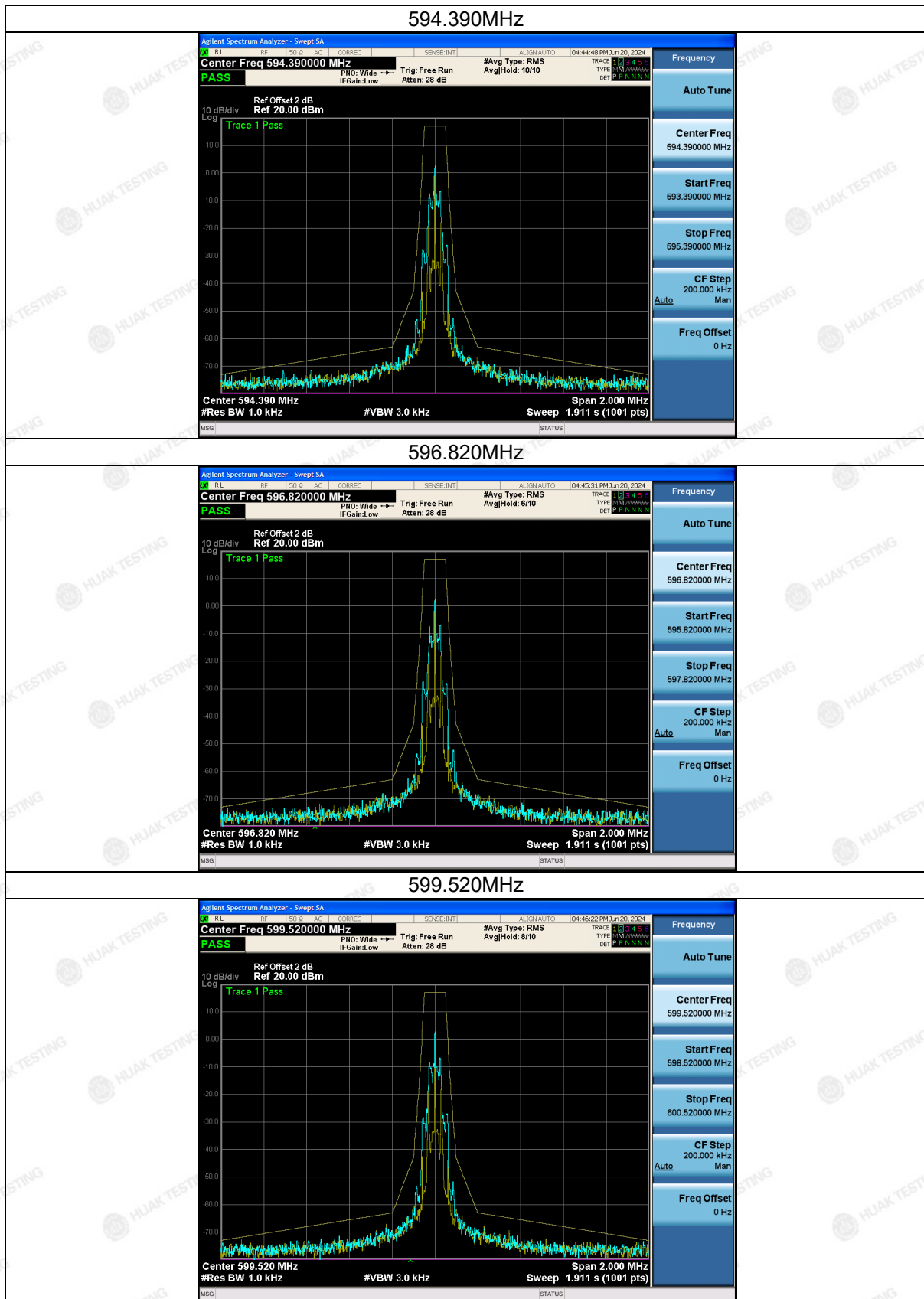
If the transmitter incorporates any ancillary coding or signalling channels (e.g. pilot-tones), these shall be enabled prior to any spectral measurements.

If the transmitter incorporates more than one audio input, e.g. stereo systems, the second and subsequent channels shall be simultaneously driven from the same noise source, attenuated to a level of -6 dB (lim).

- centre frequency: f_c : Transmitter (Tx) nominal frequency;
- dispersion (Span): $f_c - 1$ MHz to $f_c + 1$ MHz;
- Resolution Bandwidth (RBW): 1 kHz;
- Video Bandwidth (VBW): 3 kHz;
- detector: Peak hold.

**Test Result**

CHA:



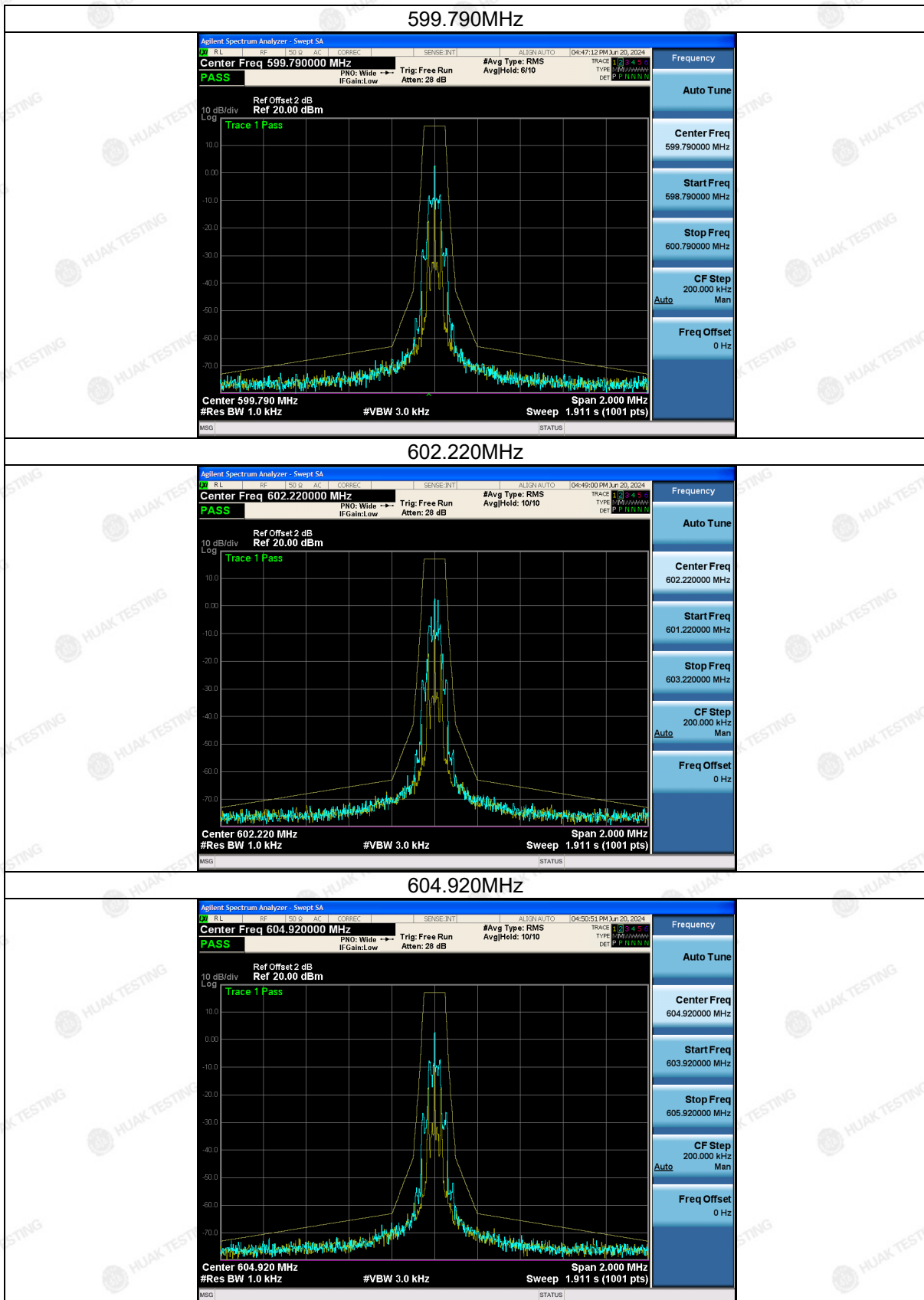
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



CHB:



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



3.6. Frequency Stability

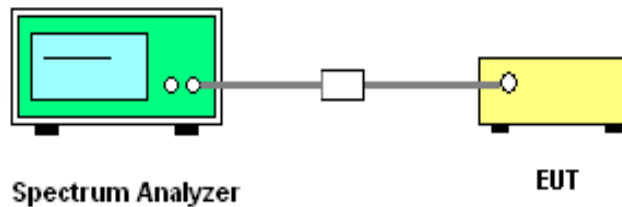
Limit

$\pm 50\text{ppm}$

Standard Applicable

According to FCC 15.236(f)(3), The frequency tolerance of the carrier signal shall be maintained within $\pm 0.005\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery.

TEST CONFIGURATION



Test Procedure:

1. Setup the configuration of the ambient temperature from -20°C to 50°C with sufficient time. And measure the different power of the EUT with an artificial power from highest to end point voltage.
2. Set frequency counter center frequency to the right frequency needs to be measured band.

Test Result

Note: All modes have been tested, and only the worst mode is recorded.

Test frequency	Test Conditions		Measure Frequency	Frequency Error		Limit	Result
(MHz)	Voltage (V)	Temperature ($^{\circ}\text{C}$)	(MHz)	(MHz)	ppm	ppm	
594.390MHz	N	N	594.38962	-0.00038	-0.64	$\pm 50\text{ppm}$	PASS
		L	594.38963	-0.00037	-0.62		
		H	594.38978	-0.00022	-0.37		
	L	N	594.38952	-0.00048	-0.81		
		L	594.38949	-0.00051	-0.86		
		H	594.38981	-0.00019	-0.32		
	H	N	594.38926	-0.00074	-1.24		
		L	594.38973	-0.00027	-0.45		
		H	594.38955	-0.00045	-0.76		



Test frequency	Test Conditions		Measure Frequency	Frequency Error		Limit	Result
(MHz)	Voltage (V)	Temperature (°C)	(MHz)	(MHz)	ppm	ppm	
596.820MHz	N	N	596.81963	-0.00037	-0.62	±50ppm	PASS
		L	596.81981	-0.00019	-0.32		
		H	596.81979	-0.00021	-0.35		
	L	N	596.81959	-0.00041	-0.69		
		L	596.81984	-0.00016	-0.27		
		H	596.81936	-0.00064	-1.07		
	H	N	596.81971	-0.00029	-0.49		
		L	596.81955	-0.00045	-0.75		
		H	596.81939	-0.00061	-1.02		

Test frequency	Test Conditions		Measure Frequency	Frequency Error		Limit	Result
(MHz)	Voltage (V)	Temperature (°C)	(MHz)	(MHz)	ppm	ppm	
599.520MHz	N	N	599.51981	-0.00019	-0.32	±50ppm	PASS
		L	599.51962	-0.00038	-0.63		
		H	599.51951	-0.00049	-0.82		
	L	N	599.51952	-0.00048	-0.80		
		L	599.51975	-0.00025	-0.42		
		H	599.51949	-0.00051	-0.85		
	H	N	599.51983	-0.00017	-0.28		
		L	599.51966	-0.00034	-0.57		
		H	599.51969	-0.00031	-0.52		



3.7. Antenna Requirement

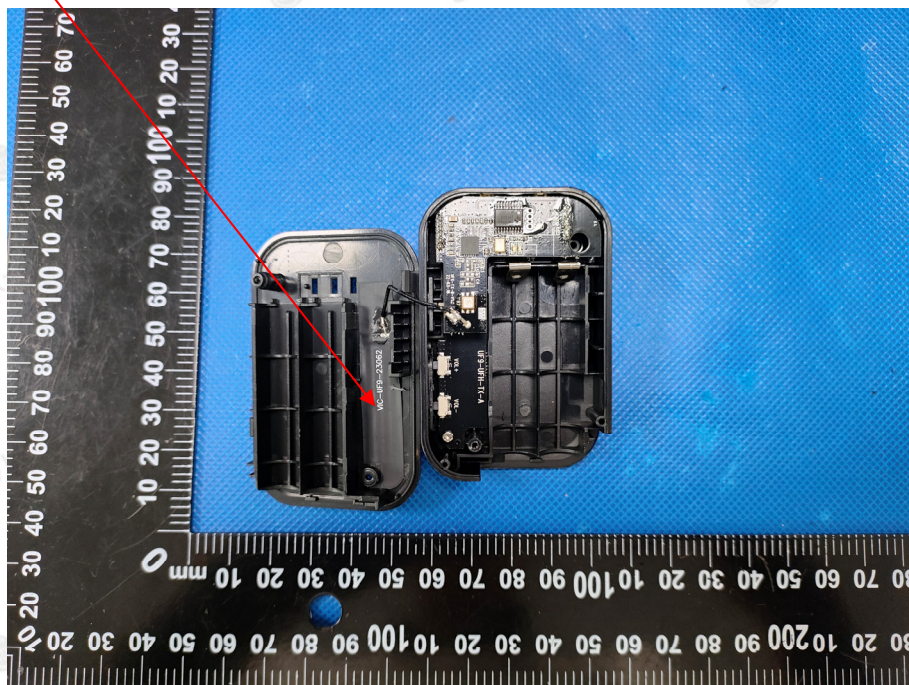
Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Connected Construction

The antenna used in this product is a Internal antenna, need professional installation, not easy to remove. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 0.43dBi.

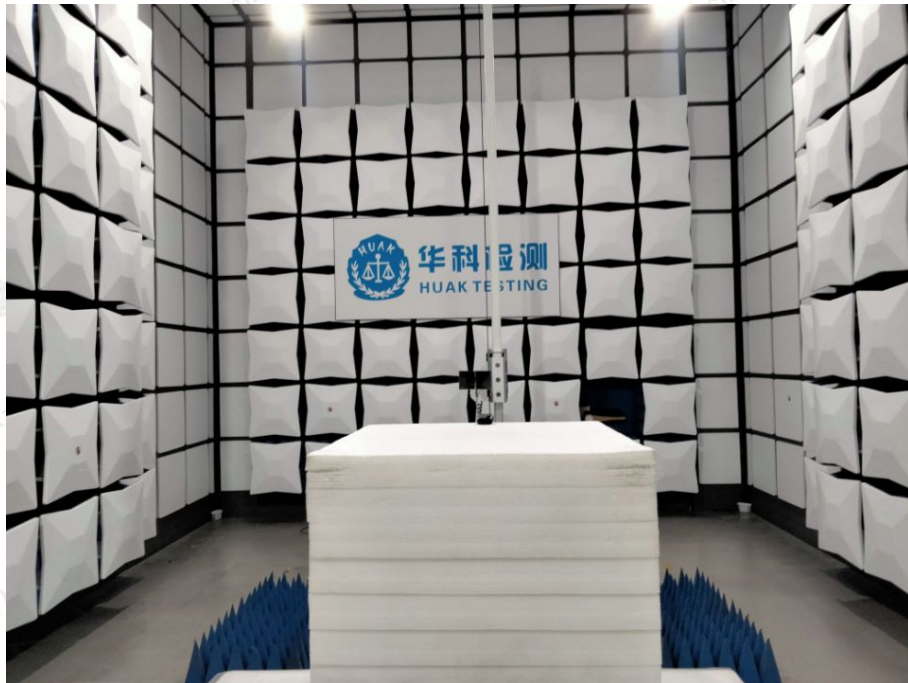
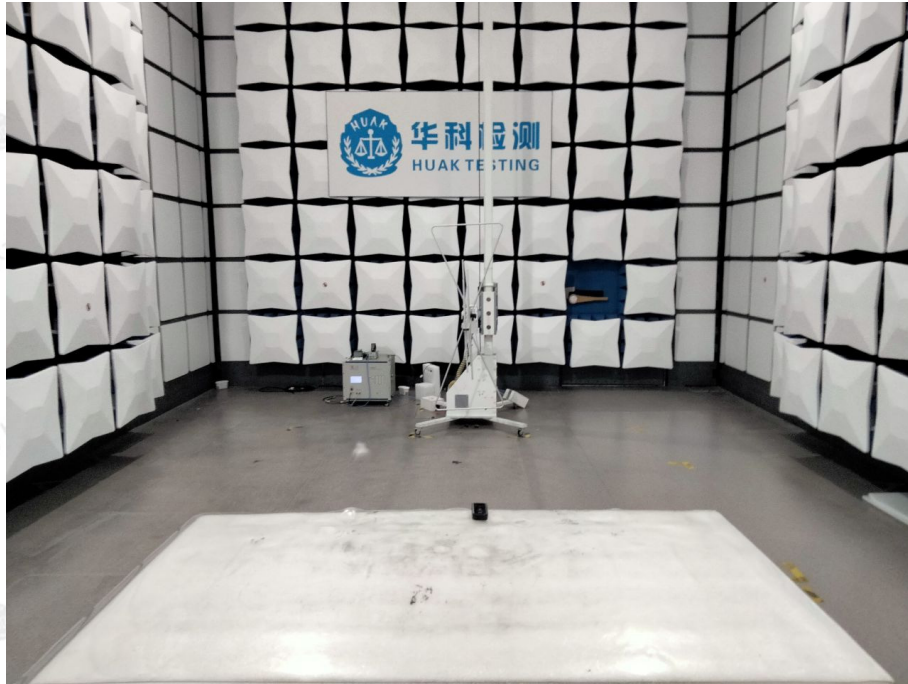
ANTENNA





4 Photograph of Test

Radiated Emission



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



5 Photograph of EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos.

-----End of test report-----