

FCC Test Report

Applicant : Shenzhen Divoom Technology Co.,LTD.

Address : 1st floor, 5th Building, Xinlianhe Industrial
Park, Jincheng Road, Shajing Town, Bao'an,
Shenzhen, 518000, China

Product Name : Microphone

Report Date : May 12, 2023

Shenzhen Anbotek Compliance Laboratory Limited



Contents

1. General Information	6
1.1. Client Information	6
1.2. Description of Device (EUT)	6
1.3. Auxiliary Equipment Used During Test	7
1.4. Description of Test Configuration	7
1.5. Description Of Test Setup	8
1.6. Test Equipment List	9
1.7. Measurement Uncertainty	10
1.8. Description of Test Facility	10
2. Summary of Test Results	11
3. RF Output Power Test	12
3.1. Test Standard and Limit	12
3.2. Test Setup	12
3.3. Test Procedure	12
3.4. Test Data	13
4. Modulation Deviation Test	16
4.1. Test Standard and Limit	16
4.2. Test Setup	16
4.3. Test Procedure	16
4.4. Test Data	17
5. Frequency Stability Test	18
5.1. Test Standard and Limit	18
5.2. Test Setup	18
5.3. Test Procedure	18
5.4. Test Data	18
6. Operating Bandwidth & Emission Mask Test	22
6.1. Test Standard and Limit	22
6.1. Test Setup	22
6.2. Test Procedure	22
6.2. Test Data	23
7. Radiation Spurious Emission Test	28
7.1. Test Standard and Limit	28
7.2. Test Setup	28
7.3. Test Procedure	29
7.4. Test Data	30
APPENDIX I -- TEST SETUP PHOTOGRAPH	34



APPENDIX II -- EXTERNAL PHOTOGRAPH 34
APPENDIX III -- INTERNAL PHOTOGRAPH 34



TEST REPORT

Applicant : Shenzhen Divoom Technology Co.,LTD.
Manufacturer : Shenzhen Divoom Technology Co.,LTD.
Product Name : Microphone
Model No. : SongBird-HQ-Mic
Trade Mark : DIVOOM
Rating(s) : Input: 5V $\overline{=}$ 1A(with DC 3.7V, 1200mAh battery inside)

Test Standard(s) : **FCC Part 74 Subpart H, Section 74.861
ANSI C63.26-2015;**

Test Method(s) : **KDB 971168 D01 Power Meas License Digital Systems v03r01;**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 74 Subpart H requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of receipt

Mar. 14, 2023

Date of Test

Mar. 14 ~ Apr. 28, 2023

Prepared By

Nian Xiu Chen

(Nianxiu Chen)

Approved & Authorized Signer

Kingkong Jin

(Kingkong Jin)



Revision History

Report Version	Description	Issued Date
R00	Original Issue.	May 12, 2023



1. General Information

1.1. Client Information

Applicant	:	Shenzhen Divoom Technology Co.,LTD.
Address	:	1st floor, 5th Building, Xinlianhe Industrial Park, Jincheng Road, Shajing Town, Bao'an, Shenzhen, 518000, China
Manufacturer	:	Shenzhen Divoom Technology Co.,LTD.
Address	:	1st floor, 5th Building, Xinlianhe Industrial Park, Jincheng Road, Shajing Town, Bao'an, Shenzhen, 518000, China
Factory	:	Shenzhen Divoom Technology Co.,Ltd.
Address	:	East of 1,2,4 Floor,5th Building,Heyi West,Xinlianhe Industrial Park, Shajing Town,Bao'an District,Shenzhen, City,Guangdong,China

1.2. Description of Device (EUT)

Product Name	:	Microphone
Model No.	:	SongBird-HQ-Mic
Trade Mark	:	DIVOOM
Test Power Supply	:	AC 120V, 60Hz for adapter/ DC 7.2V battery inside
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Support Technology	:	<input checked="" type="checkbox"/> Wireless Microphone
Operation Frequency	:	Group A: 570.8~575.8MHz Group B: 580.8~585.8MHz
Number of Channel	:	12 Channels
Modulation Type	:	Pi/4 DQPSK
Antenna Type	:	PCB Antenna
Antenna Gain(Peak)	:	Group A: -11.9 dBi (Provided by customer) Group B: -9.68 dBi (Provided by customer)
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		



1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
Adapter	Model: MDY-11-EX Input: 100-240VAC, 50-60Hz, 0.7A USB-A output: 5V $\overline{=}$ 3A, 9V $\overline{=}$ 3A, 12V $\overline{=}$ 2.25A, 20V $\overline{=}$ 1.35A, 11V $\overline{=}$ 3A

1.4. Description of Test Configuration

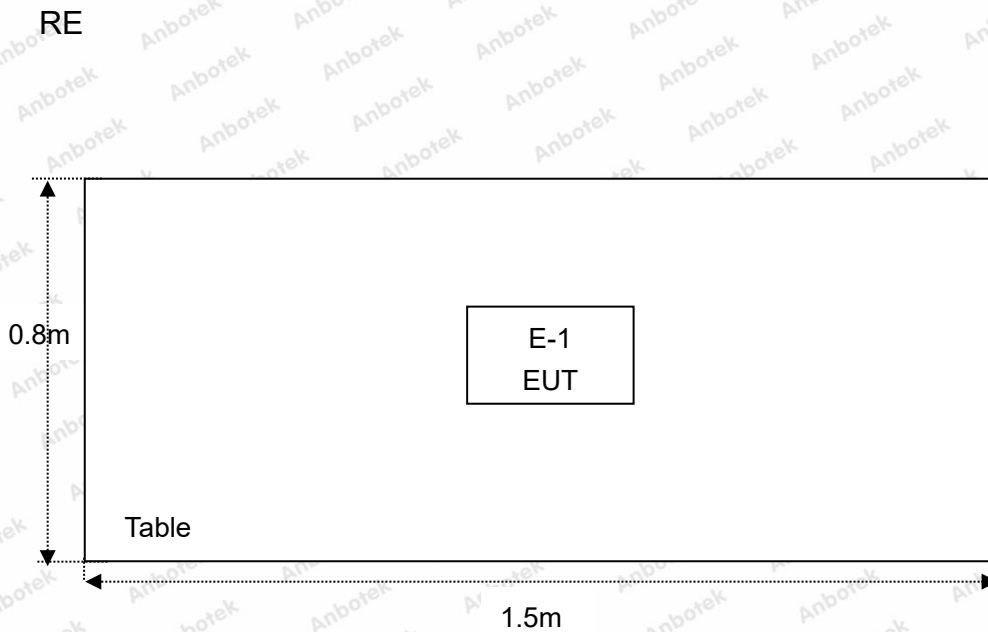
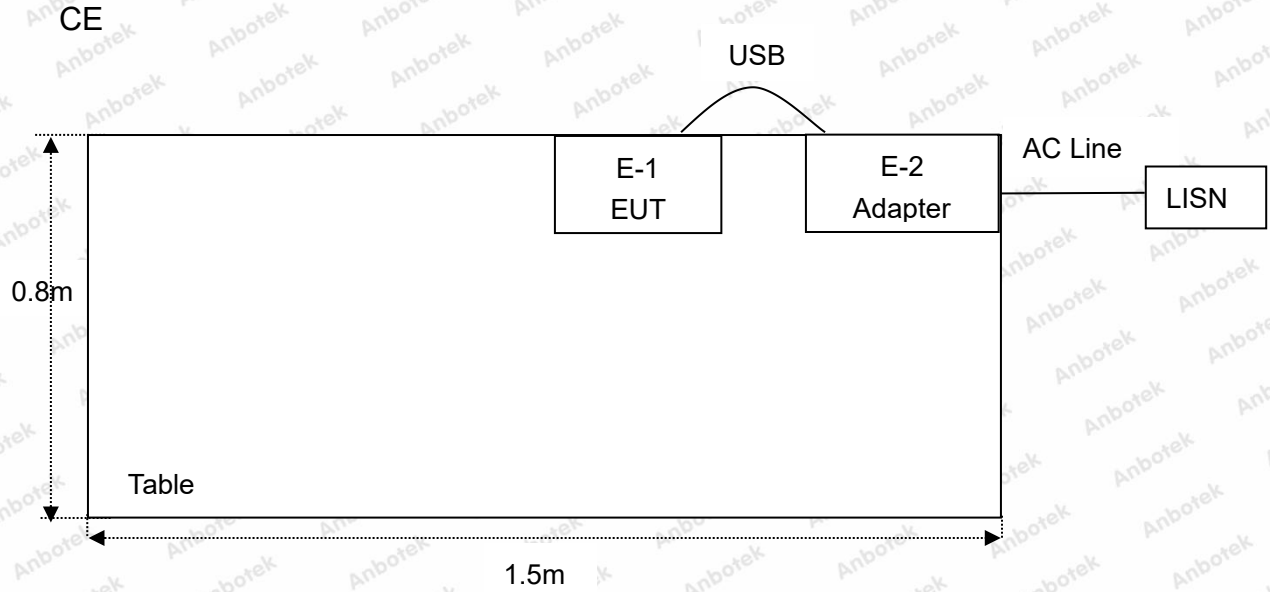
Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	570.8	7	580.8
2	571.8	8	581.8
3	572.8	9	582.8
4	573.8	10	583.8
5	574.8	11	584.8
6	575.8	12	585.8

Note:

1. The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.
2. Note: EUT was tested with channel 1, 3 and 6 on Group A; 7, 9 and 12 on Group B.



1.5. Description Of Test Setup



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 23, 2022	1 Year
2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul. 05, 2022	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 13, 2022	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 23, 2022	1 Year
5.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 22, 2022	1 Year
6.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 13, 2022	1 Year
7.	EMI Preamplifier	SKET Electronic	LNPA-0118G-45	SKET-PA-002	Oct. 13, 2022	1 Year
8.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Oct. 23, 2022	1 Year
10.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 23, 2022	1 Year
11.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Oct. 23, 2022	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	Oct. 23, 2022	1 Year
13.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
14.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 13, 2022	1 Year
15.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 13, 2022	1 Year
16.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 13, 2022	1 Year
17.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 22, 2022	1 Year
18.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 19, 2022	1 Year
19.	Power Meter	Agilent	N1914A	MY50001102	Oct.26, 2022	1 Year



1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, 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 No. 184111.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102



2. Summary of Test Results

Standard Section	Test Item	Result
74.861(e)(1)	RF Output Power	PASS
74.861(e)(3)	Modulation Deviation	N/A
74.861(e)(4)	Frequency Stability	PASS
74.861(e)(5)(7)	Operating Bandwidth & Emission Mask	PASS
74.861(e)(7)	Conducted Spurious Emissions	PASS
74.861(e)(7)	Radiated Spurious Emissions	PASS

Remark: "N/A" is an abbreviation for Not Applicable.



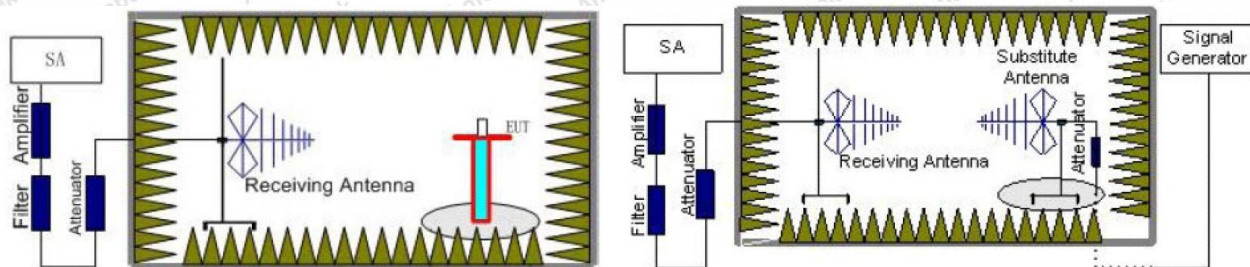
3. RF Output Power Test

3.1. Test Standard and Limit

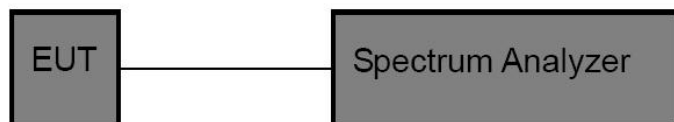
Test Standard	FCC Part 74 Subpart H, §74.861(e)(1)	
Test Limit	Frequency Band	Limit
	54-72, 76-88, and 174-216 MHz	<input type="checkbox"/> 50mW (17dBm) EIRP
	470-608 and 614-698	<input checked="" type="checkbox"/> 250mW (24dBm) conducted power
	600 MHz duplex gap	<input type="checkbox"/> 20mW (13dBm) EIRP

3.2. Test Setup

EIRP Test Method



Conducted Power Test Method



3.3. Test Procedure

EIRP Test Method (ANSI C63.26 Section 5.2.7)

1. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. $EIRP [dBm] = E[dB(\mu V)/m] - 95.2$



Conducted Power Test Method (ANSI C63.26 Section 5.2.3.3)

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator.
2. RBW \geq OBW..
3. VBW \geq 3*RBW.
4. Span \geq 2*OBW.
5. Sweep time \geq 10 x (number of points in sweep) x (transmission symbol period) .
6. Detector: Peak.
7. Trace mode = Max hold.
8. Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.

The indicated level is the peak output power, after any corrections for external attenuators and cables.

3.4. Test Data

Test Item	:	Output Power	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 7.2V battery inside	Temperature	:	23.6℃
Test Result	:	PASS	Humidity	:	53 %

Group A:

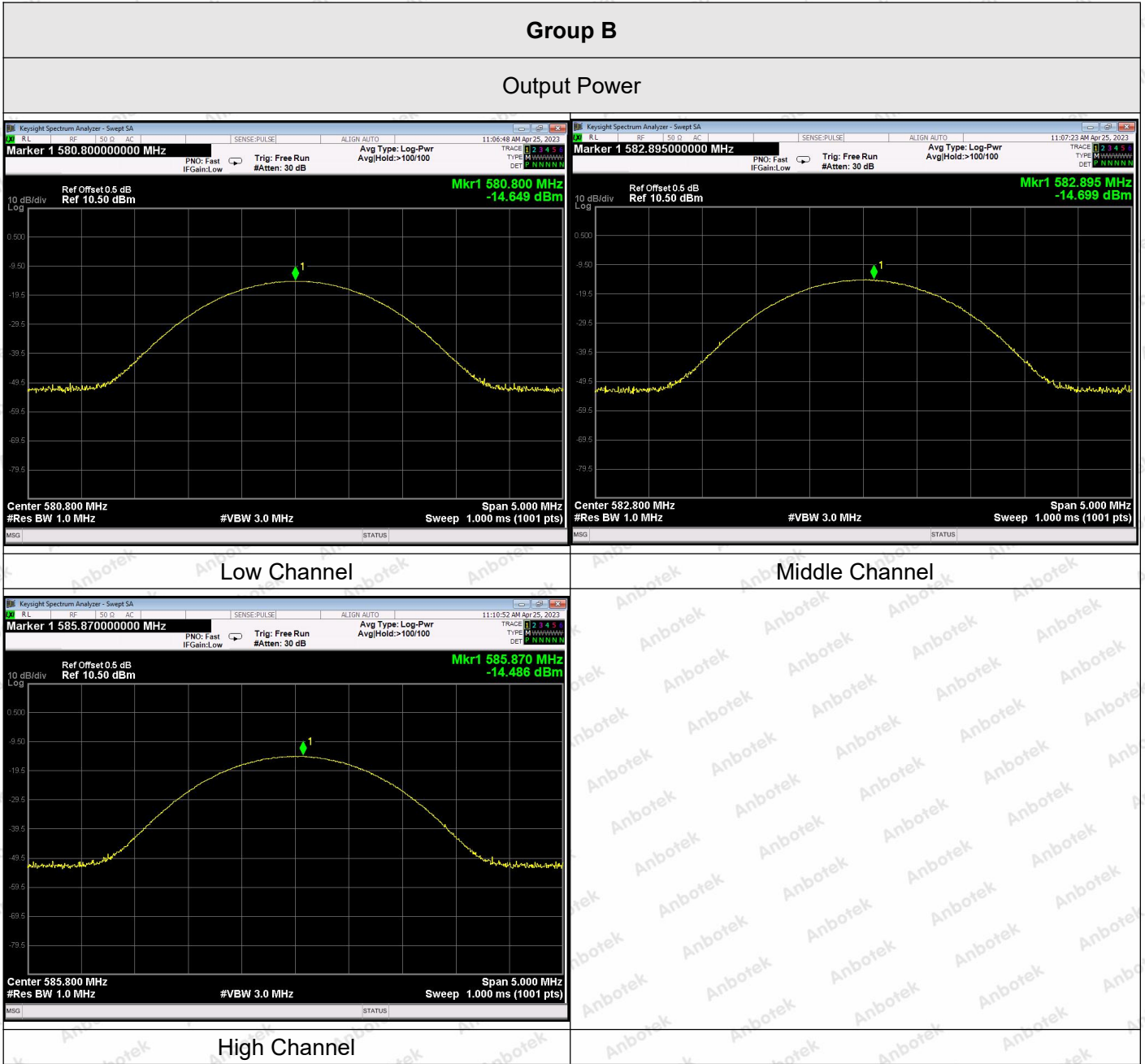
Channel	Peak Power output (dBm)	Limit (dBm)	Results
Low	-14.734	24	PASS
Middle	-14.762	24	PASS
High	-14.641	24	PASS

Group B:

Channel	Peak Power output (dBm)	Limit (dBm)	Results
Low	-14.649	24	PASS
Middle	-14.699	24	PASS
High	-14.486	24	PASS





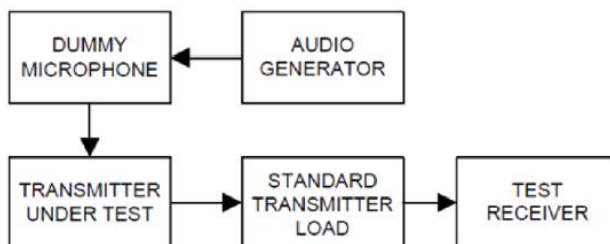


4. Modulation Deviation Test

4.1. Test Standard and Limit

Test Standard	FCC Part 74 Subpart H, §74.861(e)(3)
Test Limit	±75 kHz

4.2. Test Setup



4.3. Test Procedure

Test Method: TIA/EIA-603-E

Audio Frequency Response:

- Connect the equipment as illustrated.
- Set the test receiver to measure peak positive deviation. Set the audio bandwidth for ≤ 50 Hz to $\leq 15,000$ Hz. Turn the de-emphasis function off.
- Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
- Apply a 1000 Hz tone and adjust the audio frequency generator to produce 20% of the rated system deviation.
- Set the test receiver to measure rms deviation and record the deviation reading as DEV_{REF} .
- Set the audio frequency generator to the desired test frequency between 300 Hz and 3000 Hz.
- Record the test receiver deviation reading as DEV_{FREQ} .
- Calculate the audio frequency response at the present frequency as:

$$\text{audio frequency response} = 20 \log_{10} \left(\frac{DEV_{FREQ}}{DEV_{REF}} \right)$$

- Repeat steps f) through h) for all the desired test frequencies.

Modulation limiting:

- Connect the equipment as illustrated.
- Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
- Set the test receiver to measure peak positive deviation. Set the audio bandwidth for ≤ 0.25 Hz to $\geq 15,000$ Hz. Turn the de-emphasis function off.
- Apply a 1000 Hz modulating signal to the transmitter from the audio frequency generator, and adjust the level to obtain 60% of full rated system deviation.



- e) Increase the level from the audio generator by 20 dB in 5 dB increments recording the deviation as measured from the test receiver in each step. Verify that the audio level used to make the OBW measurement is included in the sweep.
- f) Repeat for step e) at 300 Hz, 2500 Hz and 3000 Hz at a minimum using the 0 dB reference level obtained in step d).
- g) Set the test receiver to measure peak negative deviation and repeat step d) through step f).
- h) The values recorded in step f) and step g) are the modulation limiting.

4.4. Test Data

N/A

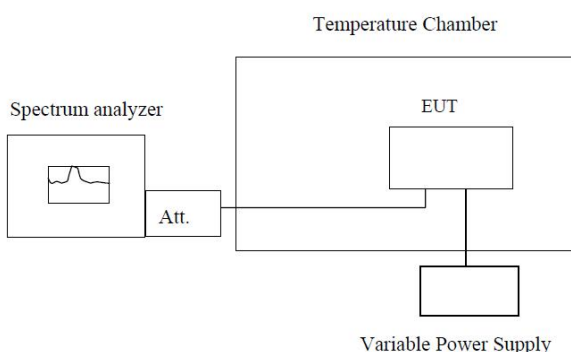


5. Frequency Stability Test

5.1. Test Standard and Limit

Test Standard	FCC Part 74 Subpart H, §74.861(e)(4)
Test Limit	The frequency tolerance of the transmitter shall be 0.005 percent.

5.2. Test Setup



Note : Measurement setup for testing on Antenna connector

5.3. Test Procedure

According to FCC 2.1055, (a) the frequency stability shall be measured with variation of ambient temperature as follows:

1. The equipment under test was connected to an external power supply.
2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
3. The EUT was placed inside the temperature chamber.
4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency.
5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.
6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

5.4. Test Data

Test Item	: Frequency Stability	Test Mode	: CH High
Test Voltage	: DC 7.2V battery inside	Temperature	: 23.6°C
Test Result	: PASS	Humidity	: 53 %



Group A:

Low channel: 570.8 MHz				
Temperature (°C)	Power Supplied (DC V)	Measured frequency (MHz)	Error (ppm)	Limit (ppm)
-30	3.7	570.807788	13.64	50
-20		570.807207	12.63	50
-10		570.806838	11.98	50
0		570.807814	13.69	50
10		570.807418	13.00	50
20		570.806204	10.87	50
30		570.806046	10.59	50
40		570.806547	11.47	50
50		570.806178	10.82	50
20	3.3	570.804884	8.56	50
20	4.1	570.807471	13.09	50

Mid channel: 572.8 MHz				
Temperature (°C)	Power Supplied (DC V)	Measured frequency (MHz)	Error (ppm)	Limit (ppm)
-30	3.7	572.804956	8.65	50
-20		572.804586	8.01	50
-10		572.804351	7.60	50
0		572.804973	8.68	50
10		572.804721	8.24	50
20		572.803948	6.89	50
30		572.803847	6.72	50
40		572.804166	7.27	50
50		572.803931	6.86	50
20	3.3	572.803108	5.43	50
20	4.1	572.804754	8.30	50



High channel: 575.8 MHz				
Temperature (°C)	Power Supplied (DC V)	Measured frequency (MHz)	Error (ppm)	Limit (ppm)
-30	3.7	575.807877	13.68	50
-20		575.807289	12.66	50
-10		575.806915	12.01	50
0		575.807903	13.73	50
10		575.807503	13.03	50
20		575.806275	10.90	50
30		575.806114	10.62	50
40		575.806622	11.50	50
50		575.806248	10.85	50
20	3.3	575.804940	8.58	50
20	4.1	575.807556	13.12	50

Group B:

Low channel: 580.8 MHz				
Temperature (°C)	Power Supplied (DC V)	Measured frequency (MHz)	Error (ppm)	Limit (ppm)
-30	3.7	580.804838	8.33	50
-20		580.804477	7.71	50
-10		580.804248	7.31	50
0		580.804854	8.36	50
10		580.804608	7.93	50
20		580.803854	6.64	50
30		580.803756	6.47	50
40		580.804067	7.00	50
50		580.803838	6.61	50
20	3.3	580.803034	5.22	50
20	4.1	580.804641	7.99	50



Mid channel: 582.8 MHz				
Temperature (°C)	Power Supplied (DC V)	Measured frequency (MHz)	Error (ppm)	Limit (ppm)
-30	3.7	582.809322	16.00	50
-20		582.808627	14.80	50
-10		582.808184	14.04	50
0		582.809354	16.05	50
10		582.808880	15.24	50
20		582.807426	12.74	50
30		582.807236	12.42	50
40		582.807837	13.45	50
50		582.807394	12.69	50
20	3.3	582.805846	10.03	50
20	4.1	582.808943	15.34	50

High channel: 585.8 MHz				
Temperature (°C)	Power Supplied (DC V)	Measured frequency (MHz)	Error (ppm)	Limit (ppm)
-30	3.7	585.805163	8.81	50
-20		585.804778	8.16	50
-10		585.804533	7.74	50
0		585.805180	8.84	50
10		585.804918	8.39	50
20		585.804113	7.02	50
30		585.804008	6.84	50
40		585.804340	7.41	50
50		585.804095	6.99	50
20	3.3	585.803238	5.53	50
20	4.1	585.804953	8.45	50

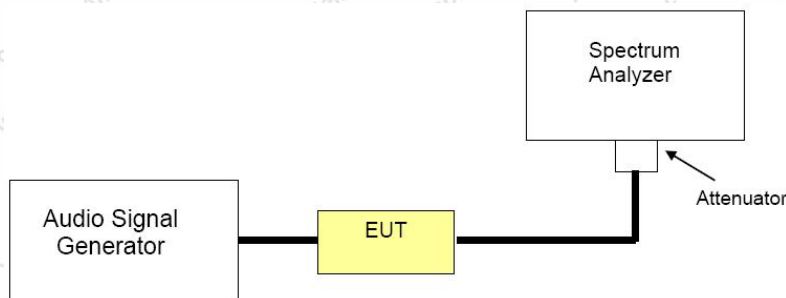


6. Operating Bandwidth & Emission Mask Test

6.1. Test Standard and Limit

Test Standard	FCC Part 74 Subpart H, §74.861(e)(5)(7)
Test Limit	<p>The operating bandwidth shall not exceed 200 kHz.</p> <p>Analog emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in section 8.3.1.2 of the European Telecommunications Institute Standard ETSI EN 300 422-1 v1.4.2 (2011-08), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; part 1: Technical characteristics and methods of measurement. Digital emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in section 8.3.2.2 (Figure 4) of the European Telecommunications Institute Standard ETSI EN 300 422-1 v1.4.2 (2011-08), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; part 1: Technical characteristics and methods of measurement. Beyond one megahertz below and above the carrier frequency, emissions shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 v1.4.2 (2011-08). The requirements of this paragraph (e)(7) shall not apply to applications for certification of equipment in these bands until nine months after release of the Commission's Channel Reassignment Public Notice, as defined in § 73.3700(a)(2) of this chapter.</p>

6.1. Test Setup



6.2. Test Procedure

The OBW is according to KDB 971168 D01v03r01

The Emission Mask is according to section 8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08).



6.2. Test Data

Test Item	:	Bandwidth	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 7.2V battery inside	Temperature	:	23.6℃
Test Result	:	PASS	Humidity	:	53 %

Group A:

Test Channel	Bandwidth (kHz)	Limit (kHz)	Test Result
Low Channel	119.98	200	Pass
Mid Channel	119.65	200	Pass
High Channel	119.45	200	Pass

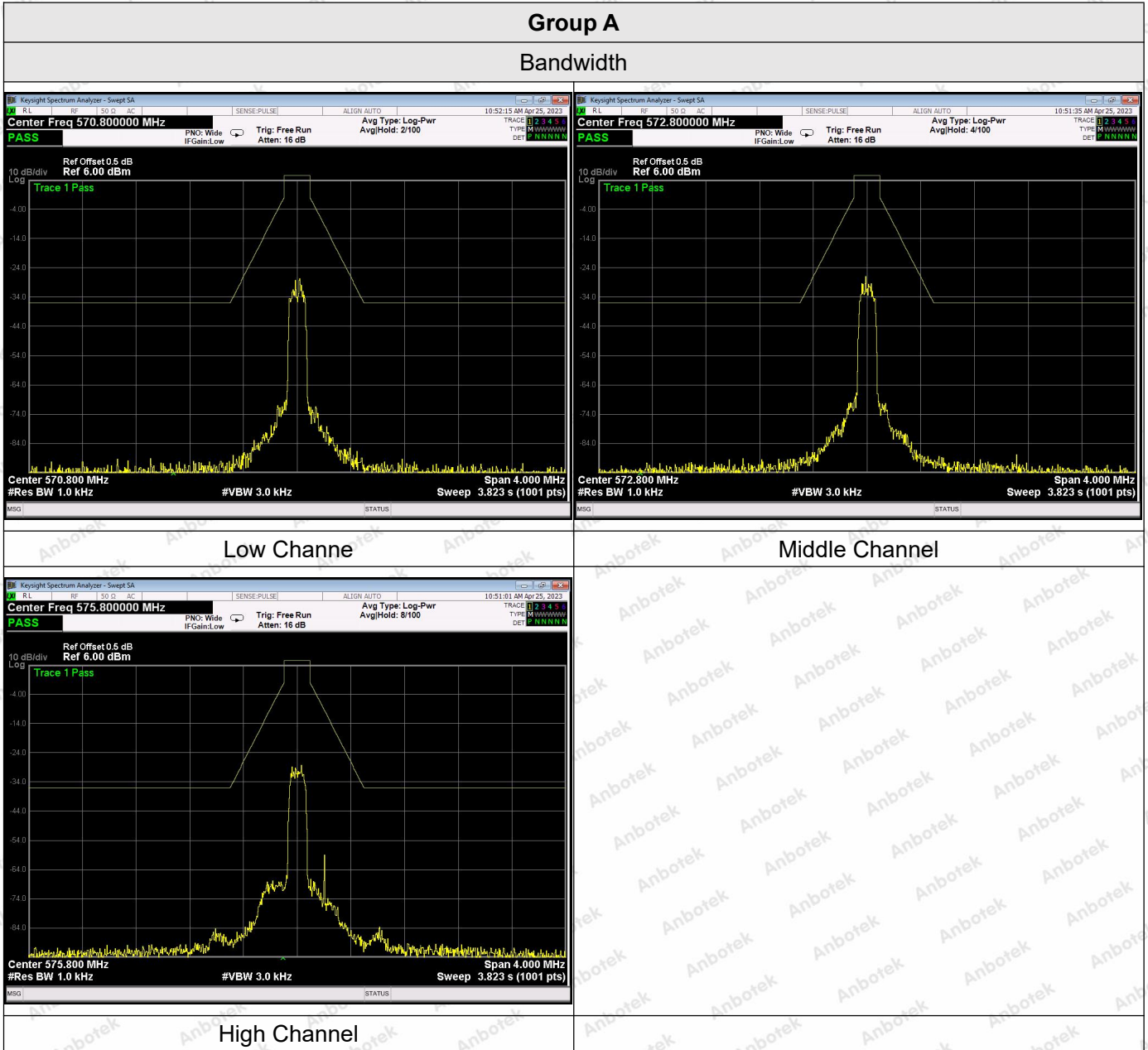
Group B:

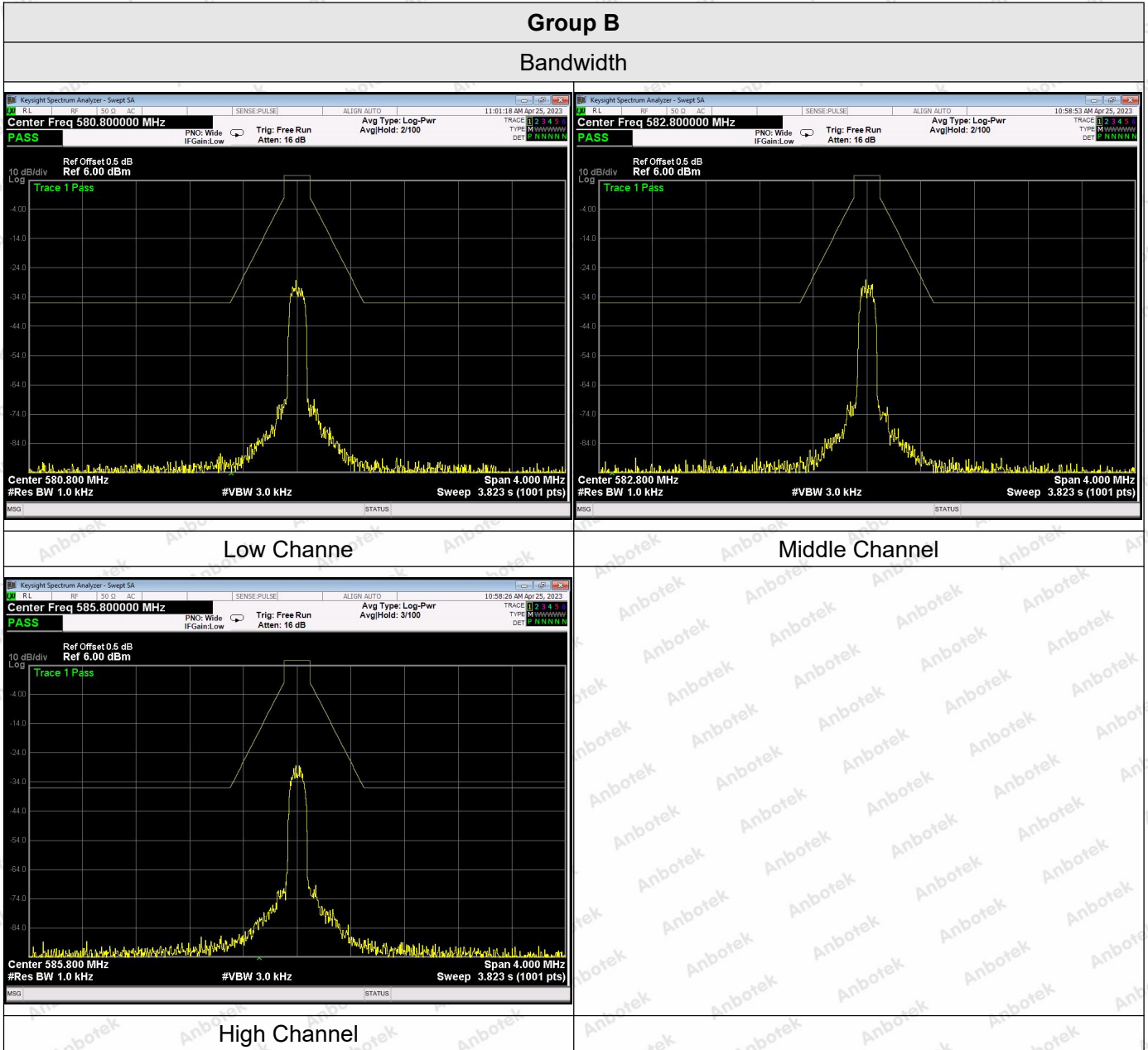
Test Channel	Bandwidth (kHz)	Limit (kHz)	Test Result
Low Channel	119.95	200	Pass
Mid Channel	119.33	200	Pass
High Channel	119.76	200	Pass











7. Radiation Spurious Emission Test

7.1. Test Standard and Limit

Test Standard	FCC Part 74 Subpart H, §74.861(e)(7)
Test Limit	<p>Analog emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in section 8.3.1.2 of the European Telecommunications Institute Standard ETSI EN 300 422-1 v1.4.2 (2011-08), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; part 1: Technical characteristics and methods of measurement. Digital emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in section 8.3.2.2 (Figure 4) of the European Telecommunications Institute Standard ETSI EN 300 422-1 v1.4.2 (2011-08), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; part 1: Technical characteristics and methods of measurement. Beyond one megahertz below and above the carrier frequency, emissions shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 v1.4.2 (2011-08). The requirements of this paragraph (e)(7) shall not apply to applications for certification of equipment in these bands until nine months after release of the Commission's Channel Reassignment Public Notice, as defined in § 73.3700(a)(2) of this chapter.</p>

7.2. Test Setup

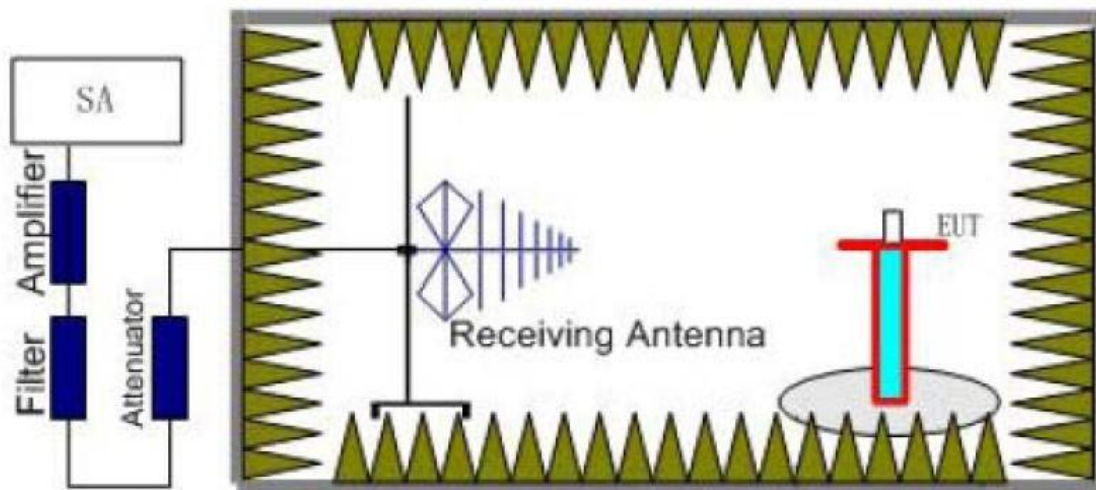


Figure 1



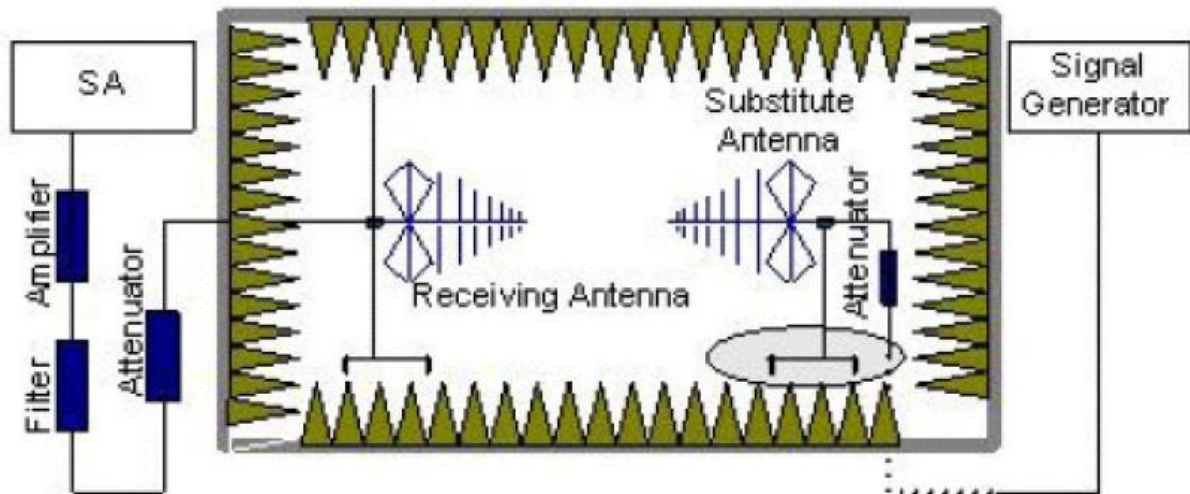


Figure 2

7.3. Test Procedure

1. EUT was placed on a 0.8 meter for below 1GHz and 1.5 meter for above 1GHz high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.0m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz for above 1GHz and RBW=100kHz, VBW=300kHz for 30MHz to 1GHz, And the maximum value of the receiver should be recorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (P_{Cl}), the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test.



6. The measurement results are obtained as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$

We used SMF100A microwave signal generator which signal level can up to 33dBm, so we not used power Amplifier for substitution test; The measurement results are amend as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$

7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15\text{dBi}$.

7.4. Test Data

PASS

The test data are shown in the following pages.

During the test, pre-scan the Group A and Group B, and found the Group B modulation is worse case, the report only record this mode.



Test Results:

Test Channel: Low Channel				
Below 1GHz:				
Frequency MHz	Measurement (dBm)	Limit (dBm)	Margin (dB)	Antenna Polar (H/V)
68.63	-67.83	-13.00	-54.83	H
121.35	-54.30	-13.00	-41.30	H
188.79	-71.49	-13.00	-58.49	H
599.28	-15.32	-13.00	-2.32	H
610.94	-64.02	-13.00	-51.02	H
1000.00	-66.82	-13.00	-53.82	H
50.72	-74.61	-13.00	-61.61	V
125.32	-51.79	-13.00	-38.79	V
207.67	-68.65	-13.00	-55.65	V
557.48	-29.51	-13.00	-16.51	V
791.13	-64.03	-13.00	-51.03	V
1000.00	-63.25	-13.00	-50.25	V
Above 1GHz:				
Frequency MHz	Measurement (dBm)	Limit (dBm)	Margin (dB)	Antenna Polar (H/V)
1742.40	-30.57	-13.00	-17.57	H
1864.37	-44.47	-13.00	-31.47	H
2323.20	-49.23	-13.00	-36.23	H
1864.37	-33.17	-13.00	-20.17	V
1742.40	-51.95	-13.00	-38.95	V
2323.20	-50.56	-13.00	-37.56	V

Remark: 1.Margin = Measurement - Limit



Test Channel: Mid Channel				
Below 1GHz:				
Frequency MHz	Measurement (dBm)	Limit (dBm)	Margin (dB)	Antenna Polar (H/V)
57.79	-71.93	-13.00	-58.93	H
147.12	-56.19	-13.00	-43.19	H
203.38	-67.83	-13.00	-54.83	H
564.25	-19.27	-13.00	-6.27	H
730.20	-67.78	-13.00	-54.78	H
1000.00	-63.66	-13.00	-50.66	H
66.52	-67.22	-13.00	-54.22	V
154.75	-60.94	-13.00	-47.94	V
221.61	-70.18	-13.00	-57.18	V
591.88	-29.77	-13.00	-16.77	V
710.43	-60.08	-13.00	-47.08	V
1000.00	-59.71	-13.00	-46.71	V
Above 1GHz:				
Frequency MHz	Measurement (dBm)	Limit (dBm)	Margin (dB)	Antenna Polar (H/V)
1748.40	-30.37	-13.00	-17.37	H
1870.79	-46.76	-13.00	-33.76	H
2331.20	-50.14	-13.00	-37.14	H
1870.79	-36.25	-13.00	-23.25	V
1748.40	-47.35	-13.00	-34.35	V
2331.20	-46.15	-13.00	-33.15	V

Remark: Margin = Measurement - Limit



Test Channel: High Channel				
Below 1GHz:				
Frequency MHz	Measurement (dBm)	Limit (dBm)	Margin (dB)	Antenna Polar (H/V)
60.06	-67.47	-13.00	-54.47	H
166.64	-51.73	-13.00	-38.73	H
201.56	-67.07	-13.00	-54.07	H
562.44	-20.14	-13.00	-7.14	H
693.11	-69.55	-13.00	-56.55	H
1000.00	-59.20	-13.00	-46.20	H
73.21	-67.47	-13.00	-54.47	V
167.51	-52.34	-13.00	-39.34	V
226.45	-69.77	-13.00	-56.77	V
599.95	-33.89	-13.00	-20.89	V
797.47	-59.50	-13.00	-46.50	V
1000.00	-61.14	-13.00	-48.14	V
Above 1GHz:				
Frequency MHz	Measurement (dBm)	Limit (dBm)	Margin (dB)	Antenna Polar (H/V)
1757.40	-31.12	-13.00	-18.12	H
1880.42	-45.42	-13.00	-32.42	H
2343.20	-49.65	-13.00	-36.65	H
1880.42	-34.13	-13.00	-21.13	V
1757.40	-47.83	-13.00	-34.83	V
2343.20	-48.83	-13.00	-35.83	V

Remark: Margin = Measurement - Limit



APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

----- End of Report -----

