

# TEST REPORT

## Client Information:

Applicant: Enping Fly Sound Equipment Co.,Ltd.  
Applicant add.: Fourth Floor, 12th Building, No. 33, Enzhou Industrial Avenue, Enping City, Guangdong Province, China  
Manufacturer: ENPING FLY SOUND EQUIPMENT CO.,LTD.  
Manufacturer add.: Fourth Floor, 12th Building, No. 33, Enzhou Industrial Avenue, Enping City, Guangdong Province, China

## Product Information:

Product Name: UHF Wireless Microphone  
Model No.: FS-204B  
Brand Name: **decibel PYLE**

Test samples.: AIT24060409001  
FCC ID: 2AUCK-FS204B

Applicable standards: FCC Part 15.236

## Prepared By:

Guangdong Asia Hongke Test Technology Limited

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Date of Receipt: June 07, 2024

Date of Test: June 07~ June 18, 2024

Date of Issue: June 18, 2024

Test Result: Pass

This device described above has been tested by Guangdong Asia Hongke Test Technology Limited and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Reviewed by:

*Leon Yi*

Leon.yi

Approved by:

*Sean She*

Sean She



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**Revision History**

Revision	Issue Date	Revisions	Revised By
01	June 18, 2024	Initial Issue	Sean She

## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

The EUT has been tested according to FCC CFR 47:

Part 15.236: Operation of wireless microphones in the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz and 614-698 MHz.

Emission			
Standard	Item	Limit	Result
FCC 15.236(g)	Radiated Spurious Emission	Refer to 300 422-1 V1.4.2 (8.4)	PASS
FCC 15.236(d)(1)	EIRP	≤50 mW	PASS
FCC 15.215	Occupied Bandwidth	--	PASS
FCC 15.236(f)(3)	Frequency tolerance	±0.005%	PASS
FCC 15.236(g)	Necessary Bandwidth (Mask)	Refer to 300 422-1 V1.4.2 (8.3)	PASS
FCC 15.207	Conducted Emission	--	PASS

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report.

## 1.1 TEST FACTORY

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

### **FCC-Registration No.: 251906 Designation Number: CN1376**

Guangdong Asia Hongke Test Technology Limited 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.

### **IC —Registration No.: 31737 CAB identifier: CN0165**

The 3m Semi-anechoic chamber of Guangdong Asia Hongke Test Technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 31737

### **A2LA-Lab Cert. No.: 7133.01**

Guangdong Asia Hongke Test Technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

## 1.2 DEVIATION FROM STANDARD

None

## 1.3 ABNORMALITIES FROM STANDARD CONDITIONS

None

## 1.4 TEST LOCATION

### **Guangdong Asia Hongke Test Technology Limited**

Address: B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Tel.: +86 0755-230967639 Fax.: +86 0755-230967639

## 1.5 MEASUREMENT UNCERTAINTY

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	0.009MHz-30MHz	3.10dB	(1)
Radiated Emission	30MHz-1GHz	3.75dB	(1)
Radiated Emission	1GHz-18GHz	3.88dB	(1)
Radiated Emission	18GHz-40GHz	3.88dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	1.20dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	UHF Wireless Microphone
Brand Name:	<b>decibel PYLE</b>
Model Name:	FS-204B
Series Model :	FS-104B, FS-2023D, FS-2023, FS-201, FS-202, FS-203, FS-204, FS-206, FS-207, FS-211, PDWMU112, PDWMU214, PDWMU211, PDWMU105, PDWM4120, PDWM2125, VocalAi202, VocalAi201, FS-2025
Model Difference description:	Only different of model name and brand name.
Power supply:	DC 5V IN Battery: DC 3.7V 18650
Operation Frequency Range	470.2 – 607.7 MHz
Maximum Transmitter Power:	6.34 dBm
Modulation mode / type:	FM
Temperature Range:	-20℃-50℃
Antenna Type:	Spring antenna
Antenna gain:	4 dBi
Test frequency list:	Please refer to the Note 4.
Software version number:	N/A
Hardware version number:	N/A
Connecting I/O Port(s):	Please refer to the Note 1.

#### Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
2. Note: The product has the same digital working characters when operating in both two digitized voice/data mode. So only one set of test results for digital modulation modes are provided in this test report.

3.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	470.2	02	563	03	607.7

4. Test frequency list

Test Channel List		
Test Channel	EUT Channel	Test Frequency (MHz)
CH01	CH01	470.2
CH02	CH02	563
CH03	CH03	607.7

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the above listed frequency for testing.

## 2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

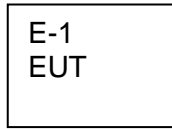
Pretest Mode	Description
Mode 1	CH01
Mode 2	CH02
Mode 3	CH03

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH01
Mode 2	CH02
Mode 3	CH03

Note:

(1) Due to the different configuration and test, in this list only some worse mode. The worst test data of the worse modeis reported by this report.

### 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



### 2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND 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.

#### Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
N/A	Adapter	N/A	GQ12-120100-CU	N/A	N/A

#### Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
N/A	N/A	N/A	N/A	N/A	N/A

Note:

(1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



## 2.5 TEST EQUIPMENT

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Spectrum Analyzer	R&S	FSV40	101470	2023.09.08	2024.09.07
2	Spectrum Analyzer	Keysight	N9020A	MY51280643	2023.09.08	2024.09.07
3	EMI Measuring Receiver	R&S	ESR	101660	2023.09.08	2024.09.07
4	Low Noise Pre-Amplifier	HP	HP8447E	1937A01855	2023.09.08	2024.09.07
5	Low Noise Pre-Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2023.09.08	2024.09.07
6	Passive Loop	ETS	6512	00165355	2022.09.04	2024.09.03
7	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2021.08.29	2024.08.28
8	Broadband Horn Antenna	SCHWARZBECK	BBHA9120D	452	2021.08.29	2024.08.28
9	SHF-EHF Horn Antenna 15-40GHz	SCHWARZBECK	BBHA9170	BBHA9170367d	2021.08.29	2024.08.28
10	EMI Measuring Receiver	R&S	ESR	101160	2023.09.13	2024.09.12
11	LISN	SCHWARZBECK	NNLK 8129	8130179	2023.10.29	2024.10.28
12	Pulse Limiter	R&S	ESH3-Z2	102789	2023.09.13	2024.09.12
13	Pro.Temp&Humi.chamber	MENTEK	MHP-150-1C	MAA08112501	2023.09.08	2024.09.07
14	RF Automatic Test system	MW	MW100-RFCB	21033016	2023.09.08	2024.09.07
15	Signal Generator	Agilent	N5182A	MY50143009	2023.09.08	2024.09.07
16	Wideband Radio communication tester	R&S	CMW500	1201.0002K50	2023.09.08	2024.09.07
17	RF Automatic Test system	MW	MW100-RFCB	21033016	2023.09.08	2024.09.07
18	DC power supply	ZHAOXIN	RXN-305D-2	28070002559	N/A	N/A
19	RE Software	EZ	EZ-EMC_RE	Ver.AIT-03A	N/A	N/A
20	CE Software	EZ	EZ-EMC_CE	Ver.AIT-03A	N/A	N/A
21	RF Software	MW	MTS 8310	2.0.0.0	N/A	N/A
22	temporary antenna connector(Note)	NTS	R001	N/A	N/A	N/A

Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

FREQUENCY (MHz)	Conducted Emissionlimit (dBUV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of “ \* ” marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

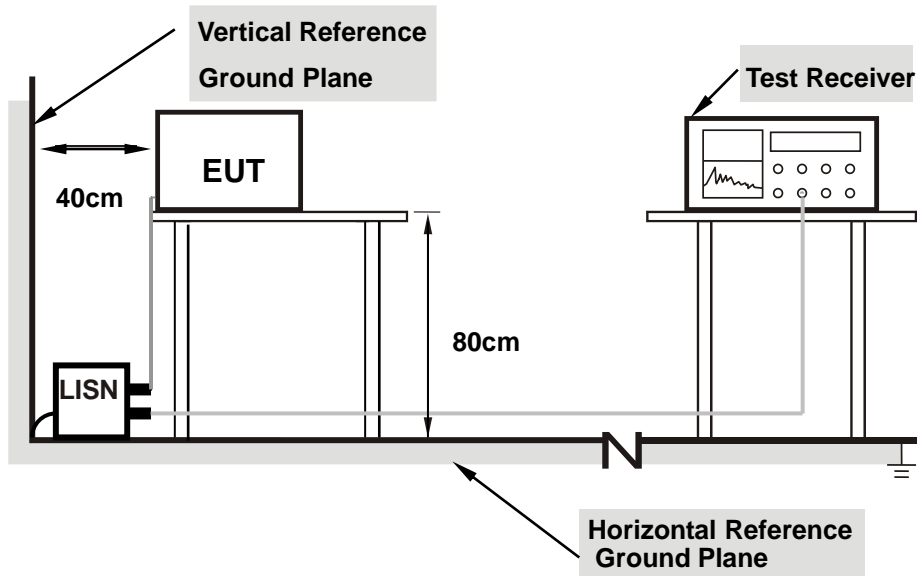
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

### 3.1.2 TEST PROCEDURE

- The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN is at least 80 cm from the nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.1.3 TEST SETUP

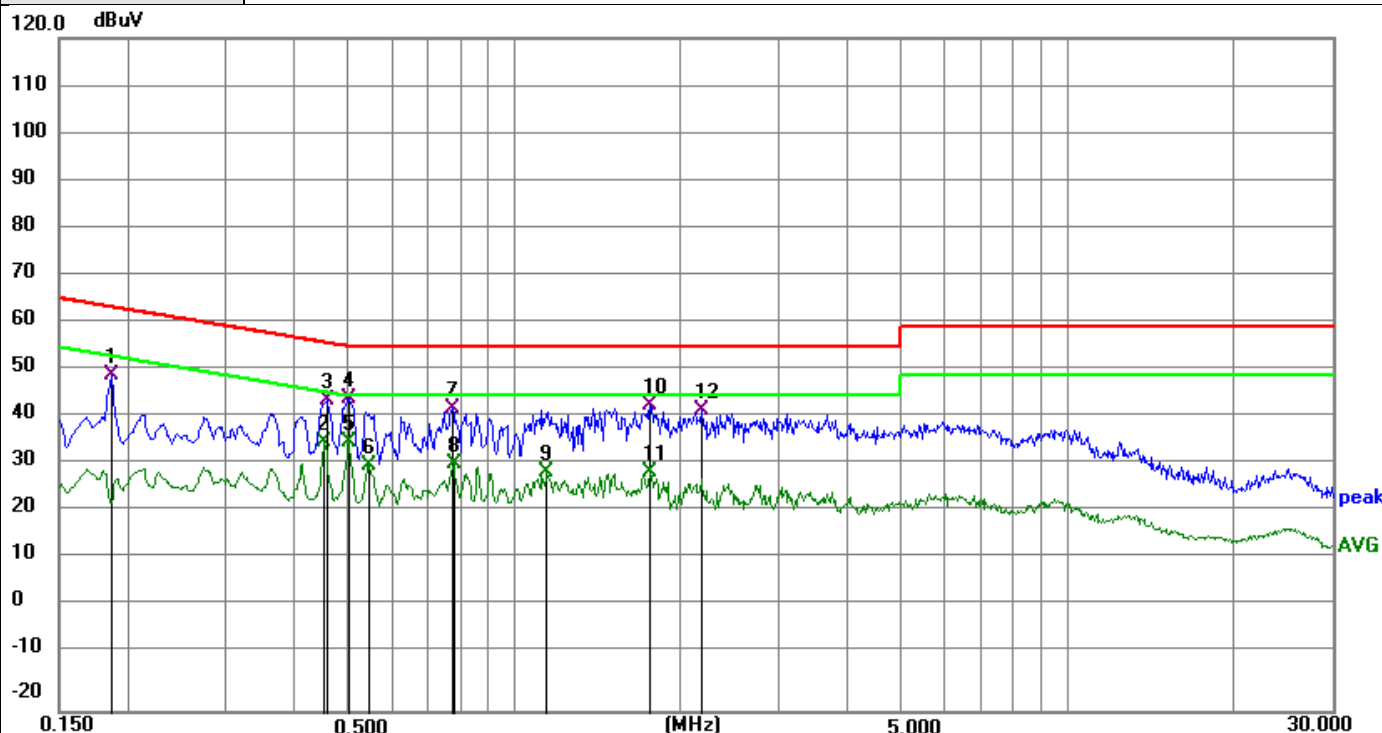


**Note: 1.Support units were connected to second LISN.**

**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes support.**

### 3.1.4 TEST RESULT

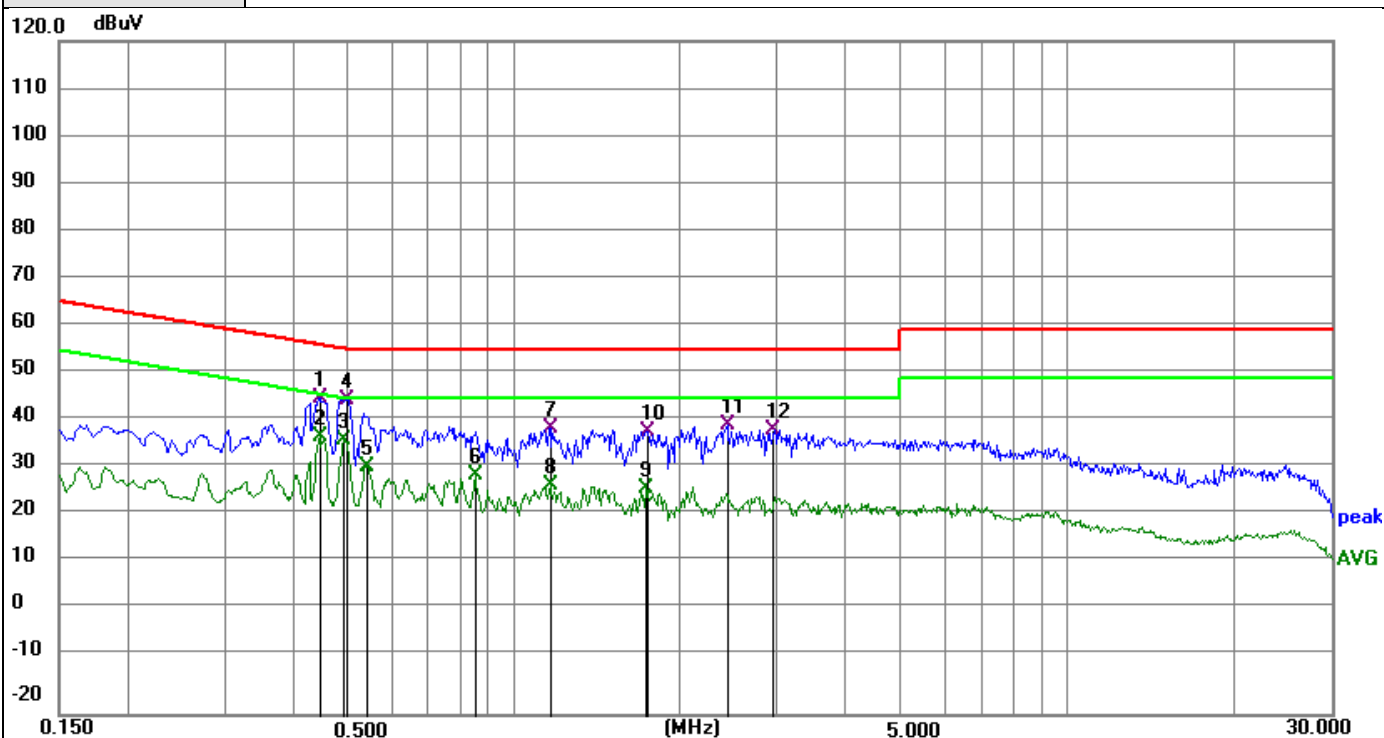
Test Mode:	CH02	Test Date :	2024-06-18
ATM Pressure:	101 kPa	Test Result:	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Phase :	Line		



Remark: Correct Factor = Insertion loss of LISN + Cable loss + Insertion loss of Pulse Limiter;  
Measurement Result = Reading Level +Correct Factor;  
Margin = Measurement Result- Limit;

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1860	39.23	10.69	49.92	64.21	-14.29	QP
2	0.4515	25.27	10.69	35.96	46.85	-10.89	AVG
3	0.4560	34.11	10.69	44.80	56.77	-11.97	QP
4	0.5010	34.42	10.69	45.11	56.00	-10.89	QP
5	0.5010	25.40	10.69	36.09	46.00	-9.91	AVG
6	0.5460	20.69	10.68	31.37	46.00	-14.63	AVG
7	0.7710	32.35	10.67	43.02	56.00	-12.98	QP
8	0.7753	20.78	10.67	31.45	46.00	-14.55	AVG
9	1.1445	19.13	10.67	29.80	46.00	-16.20	AVG
10	1.7610	32.89	10.75	43.64	56.00	-12.36	QP
11	1.7610	19.10	10.75	29.85	46.00	-16.15	AVG
12	2.1750	32.07	10.79	42.86	56.00	-13.14	QP

Test Mode:	CH02	Test Date :	2024-06-18
ATM Pressure:	101 kPa	Test Result:	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Phase :	Neutral		



Remark: Correct Factor = Insertion loss of LISN + Cable loss + Insertion loss of Pulse Limiter;  
Measurement Result = Reading Level +Correct Factor;  
Margin = Measurement Result- Limit;

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.4425	35.18	10.69	45.87	57.01	-11.14	QP
2	0.4425	27.32	10.69	38.01	47.01	-9.00	AVG
3	0.4920	26.29	10.69	36.98	46.13	-9.15	AVG
4	0.4964	34.95	10.69	45.64	56.06	-10.42	QP
5	0.5413	20.96	10.68	31.64	46.00	-14.36	AVG
6	0.8520	19.34	10.65	29.99	46.00	-16.01	AVG
7	1.1625	29.06	10.66	39.72	56.00	-16.28	QP
8	1.1625	17.15	10.66	27.81	46.00	-18.19	AVG
9	1.7295	16.45	10.74	27.19	46.00	-18.81	AVG
10	1.7383	28.18	10.74	38.92	56.00	-17.08	QP
11	2.4270	29.41	10.78	40.19	56.00	-15.81	QP
12	2.9534	28.56	10.78	39.34	56.00	-16.66	QP

### 3.2 RADIATED EMISSIONS MEASUREMENT

#### 3.2.1 STANDARD REQUIREMENT:

**Table 3: Limits for spurious emissions**

State	Frequency		
	47 MHz to 74 MHz 87,5 MHz to 137 MHz 174 MHz to 230 MHz 470 MHz to 862 MHz	Other Frequencies below 1 000 MHz	Frequencies above 1 000 MHz
Operation	4 nW	250 nW	1 µW
Standby	2 nW	2 nW	20 nW

#### 3.2.2 MEASURING INSTRUMENTS AND SETTING:

Please refer to equipment list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10 <sup>th</sup> carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB/VB 200Hz/1KHz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB/VB 9kHz/30KHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB/VB 120kHz/1MHz for QP

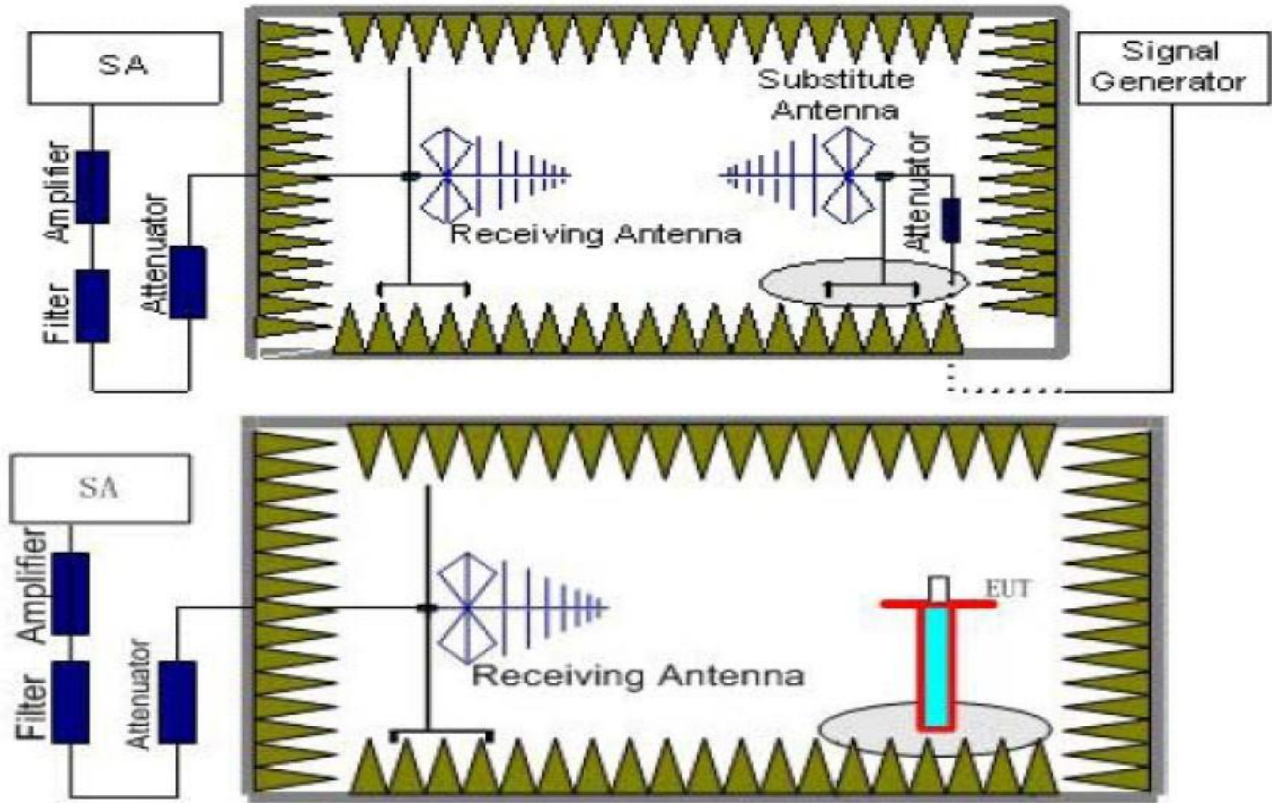
### 3.2.3 TEST PROCEDURES

1. Please refer to ETSI EN 300 422-1 V1.4.2 (2011-08) clause 6.1 for the test conditions.
2. Please refer to ETSI EN 300 422-1 V1.4.2 (2011-08) clause 8.4.2 for the measurement method.

### 3.2.4 TEST SETUP LAYOUT

#### Test Configuration

Effective Radiated Power measurement (30 MHz to 12.75 GHz)



### 3.2.5 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

### 3.2.6 TEST RESULT

Temperature	26°C	Humidity	53%
Configurations	TX		

#### Remarks:

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

## Spurious emissions

The test frequency range from 25MHz to 6GHz and recorded worst at below:

Test mode: Tx (470.2MHz)					
Frequency (MHz)	Pol./Ant	Measurement EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
54.1	V	-80.13	-54	26.13	PASS
331.5	V	-70.56	-36	34.56	
642.4	V	-66.79	-54	12.79	
940.4	V	-60.27	-54	6.27	
1410.6	V	-41.78	-30	11.78	
1880.8	V	-40.75	-30	10.75	
2351	V	-37.71	-30	7.71	
2821.2	V	-36.94	-30	6.94	
--	--	--	--	--	
54.7	V	-80.33	-54	26.33	
331.2	V	-71.47	-36	35.47	
641.5	V	-65.33	-54	11.33	
940.4	H	-61.55	-54	7.55	
1410.6	H	-42.63	-30	12.63	
1880.8	H	-39.86	-30	9.86	
2351	H	-38.31	-30	8.31	
2821.2	H	-37.05	-30	7.05	
--	--	--	--	--	

Test mode: Tx (563MHz)					
Frequency (MHz)	Pol./Ant	Measurement EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
58.3	V	-80.89	-54	26.89	PASS
334.2	V	-70.28	-36	34.28	
641.5	V	-66.31	-54	12.31	
1126	V	-44.16	-30	14.16	
1689	V	-41.30	-30	11.30	
2252	V	-40.42	-30	10.42	
2815	V	-38.18	-30	8.18	
3378	V	-37.36	-30	7.36	
--	--	--	--	--	
57.2	H	-80.26	-54	26.26	
321.4	H	-70.51	-36	34.51	
638.7	H	-67.44	-54	13.44	
1126	H	-44.47	-30	14.47	
1689	H	-41.63	-30	11.63	
2252	H	-40.04	-30	10.04	
2815	H	-38.63	-30	8.63	
3378	H	-37.54	-30	7.54	
--	--	--	--	--	



Test mode: Tx (607.7MHz)					
Frequency (MHz)	Pol./Ant	Measurement EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
53.5	V	-78.18	-54	24.18	PASS
335.8	V	-71.332	-36	35.33	
643.6	V	-66.31	-54	12.31	
1215.4	V	-43.30	-30	13.30	
1823.1	V	-42.18	-30	12.18	
2430.8	V	-39.73	-30	9.73	
3038.5	V	-37.44	-30	7.44	
3646.2	V	-36.57	-30	6.57	
--	--	--	--	--	
54	V	-80.67	-54	26.67	
334.2	V	-70.21	-36	34.21	
642.7	V	-66.34	-54	12.34	
1215.4	H	-44.06	-30	14.06	
1823.1	H	-42.00	-30	12.00	
2430.8	H	-40.35	-30	10.35	
3038.5	H	-37.07	-30	7.07	
3646.2	H	-36.86	-30	6.86	
--	--	--	--	--	

**Remark:**

1. The test frequency range from 25MHz to 6GHz, RBW/VBW: 100 KHz/300KHz below 1GHz, RBW/VBW: 1000 KHz/3000KHz above 1GHz.
2. "--"Other emission levels were very low against the limit and not reported.

## Emission Mask

ETSI EN 300 422-1 V1.4.2 Clause 8.3.1.2 The Maximum Measurement of Necessary Bandwidth Test Plot:

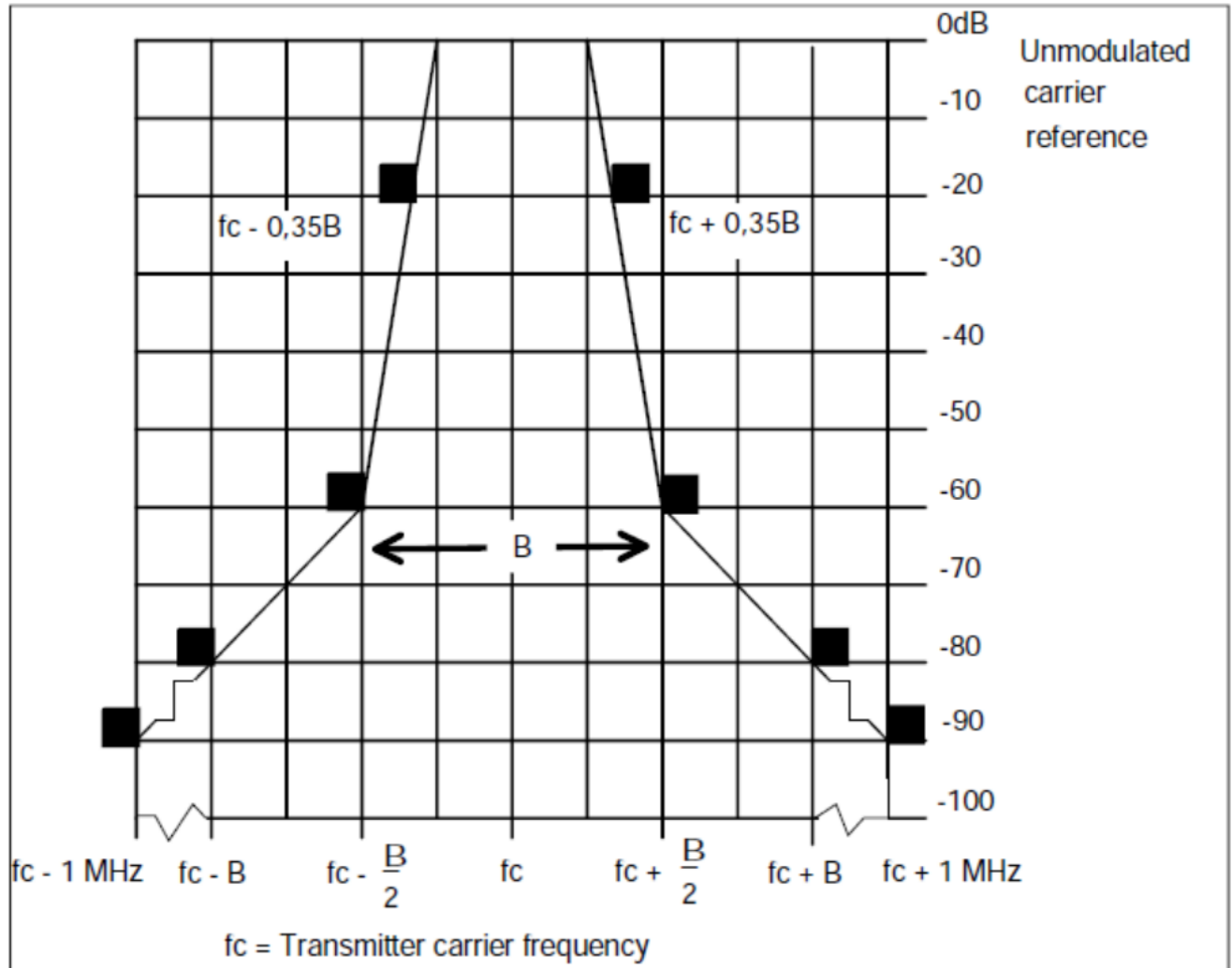
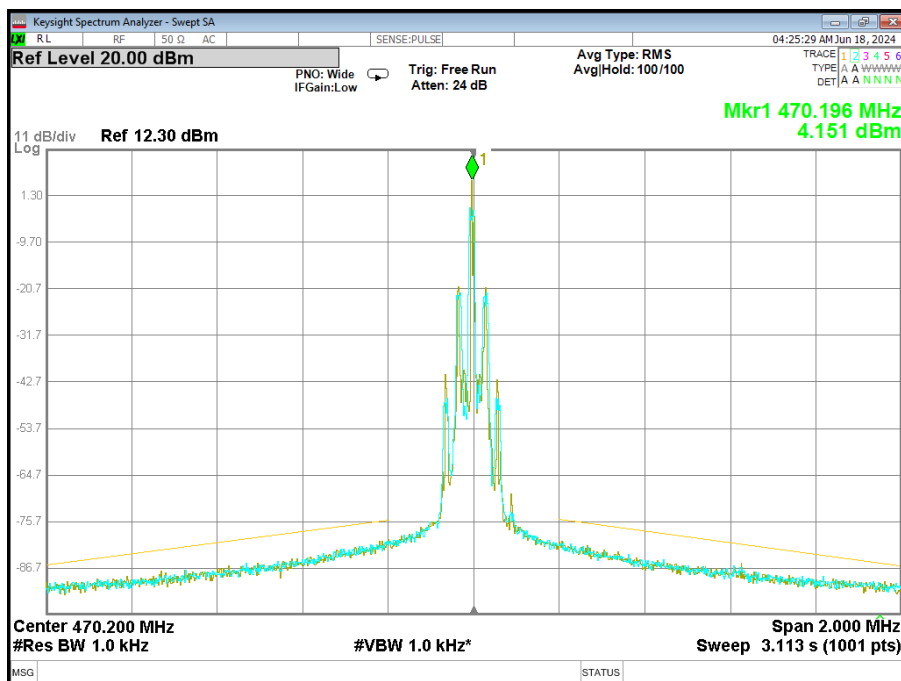
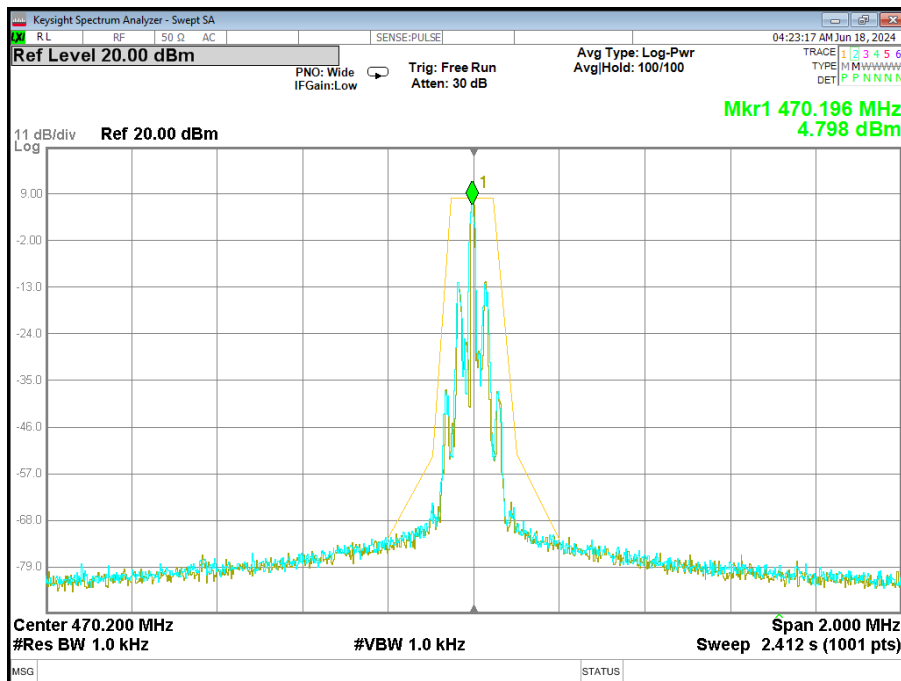


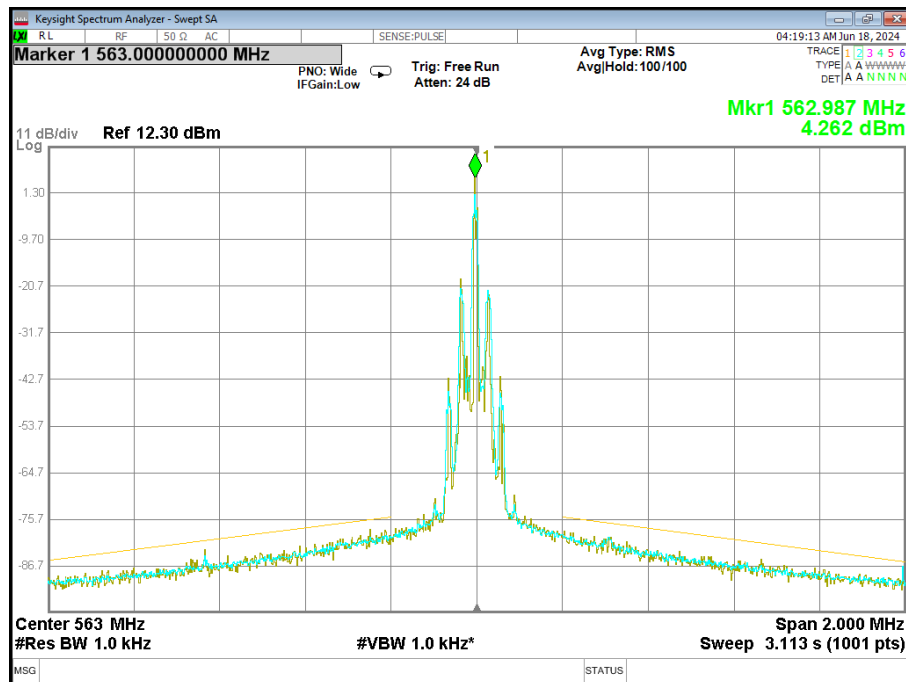
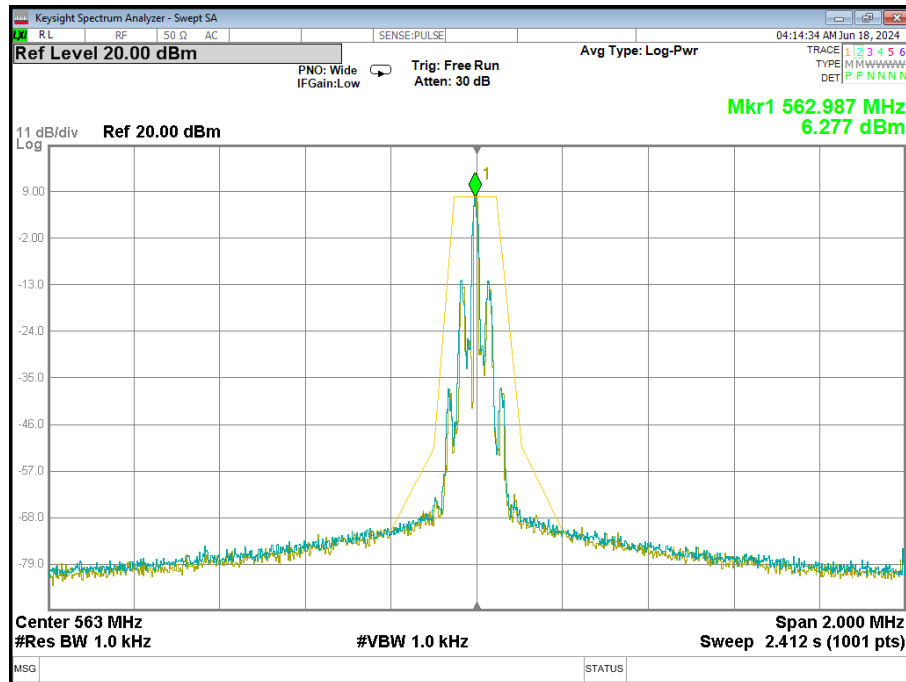
Figure 3: Spectrum mask for analogue systems in all bands

Frequency (MHz)	Declared Bandwidth B (KHz)	B/2 (KHz)	0.35B (KHz)
470.2	200	100	70
563	200	100	70
607.7	200	100	70

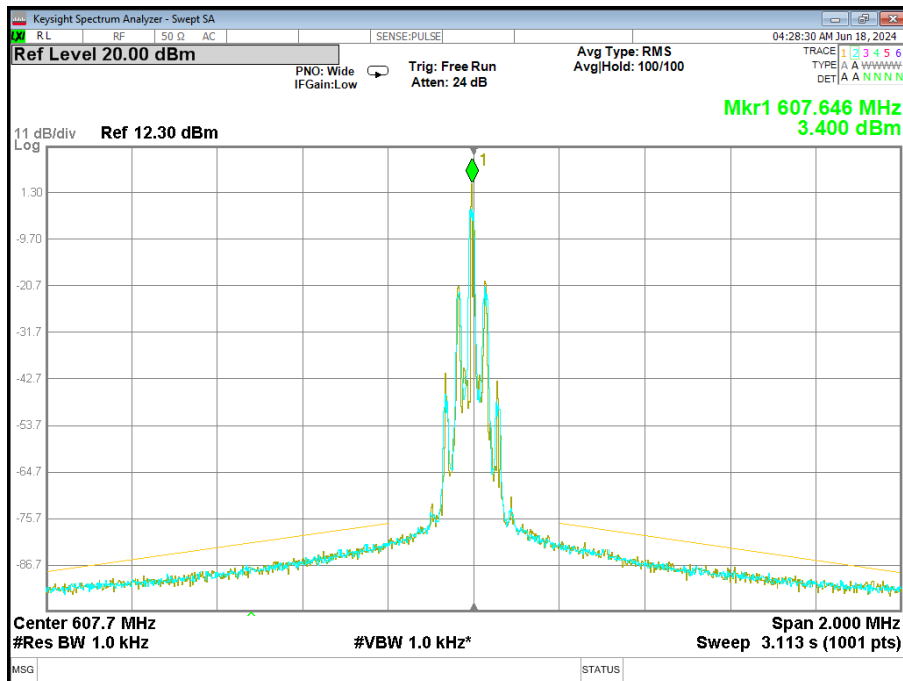
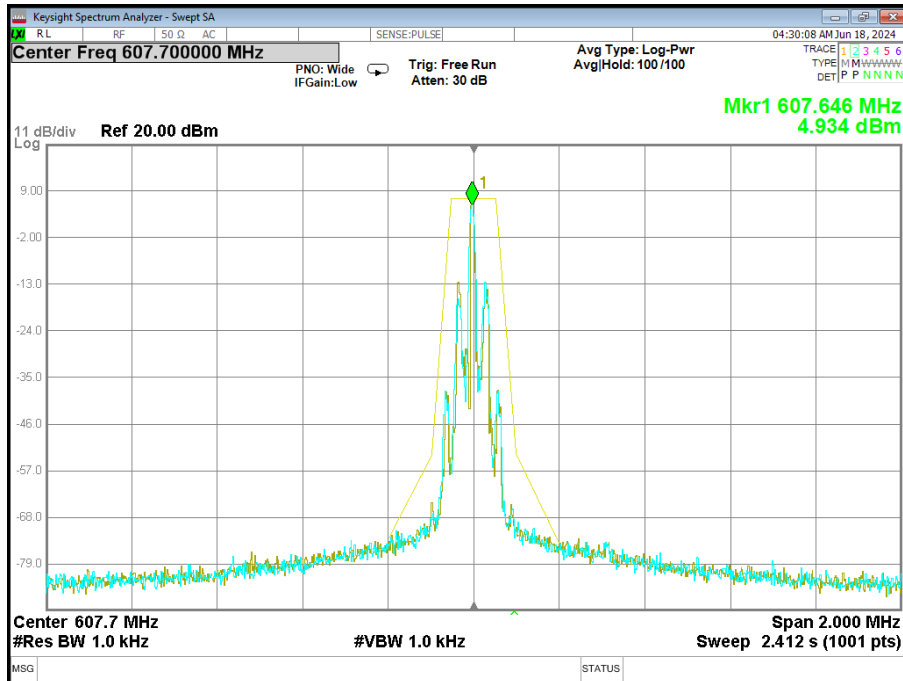
### CH 01



## CH 02



### CH 03



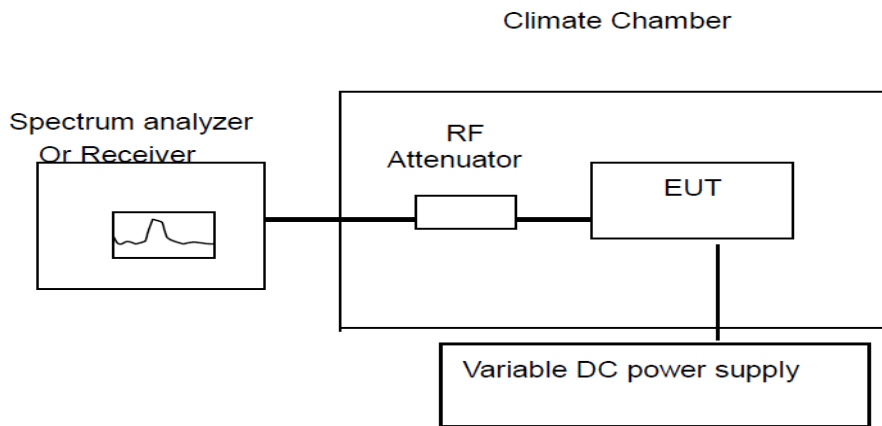
#### 4. Part 15.236 REQUIREMENTS

##### 4.1 FREQUENCY STABILITY VS. TEMPERATURE & VOLTAGE

###### TEST LIMIT

According to Part 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

The EUT was connected to an external DC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature a chamber. The DC leads and the RF output cable, exited the chamber through an opening made for that purpose.

After the temperature stabilized the frequency output was recorded form the counter.

An external variable DC power supply was connected to the battery terminals of the equipment under test.

- b. For hand carried, battery powered equipment primary supply voltage was reduced to the battery operating end point as specified by the manufacturer. The output frequency was recorded for each battery voltage.

## TEST RESULTS

(1) Frequency stability versus input voltage (Supply Nominal voltage is DC 3.7V)

Reference Frequency: 470.2MHz					
Power Supply (V)	Environment Temperature (°C)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
4.07	20	4980	0.00106	±0.005	PASS
3.7	20	4971	0.00106		
3.33	20	4974	0.00106		

Reference Frequency: 470.2MHz				
Environment Temperature(°C)	Frequency Deviation measured with time Elapse(30 minutes)			
	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	4917	0.00105	±0.005	PASS
40	5078	0.00108		
30	5015	0.00107		
20	4972	0.00106		
10	5031	0.00107		
0	5042	0.00107		
-10	4927	0.00105		
-20	5009	0.00107		

Reference Frequency: 563MHz					
Power Supply (V)	Environment Temperature (°C)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
4.07	20	5020	0.00089	±0.005	PASS
3.7	20	4924	0.00087		
3.33	20	5004	0.00089		

Reference Frequency: 563MHz				
Environment Temperature(°C)	Frequency Deviation measured with time Elapse(30 minutes)			
	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	4957	0.00088	±0.005	PASS
40	5000	0.00089		
30	4993	0.00089		
20	4938	0.00088		
10	5005	0.00089		
0	5004	0.00089		
-10	5014	0.00089		
-20	5008	0.00089		

Reference Frequency: 607.7MHz					
Power Supply (V)	Environment Temperature (°C)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
4.07	20	4993	0.00082	±0.005	PASS
3.7	20	4994	0.00082		
3.33	20	4955	0.00082		

Reference Frequency: 607.7MHz				
Environment Temperature(°C)	Frequency Deviation measured with time Elapse(30 minutes)			
	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Results
50	4997	0.00082	±0.005	PASS
40	4957	0.00082		
30	5023	0.00083		
20	5020	0.00083		
10	5010	0.00082		
0	4990	0.00082		
-10	4964	0.00082		
-20	4974	0.00082		



#### 4.2 OCCUPIED BANDWIDTH LIMIT

The operating bandwidth shall not exceed 200 kHz.

#### TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting : RBW= 3KHz, VBW $\geq$ RBW, Sweep time = Auto.

#### TEST CONFIGURATION

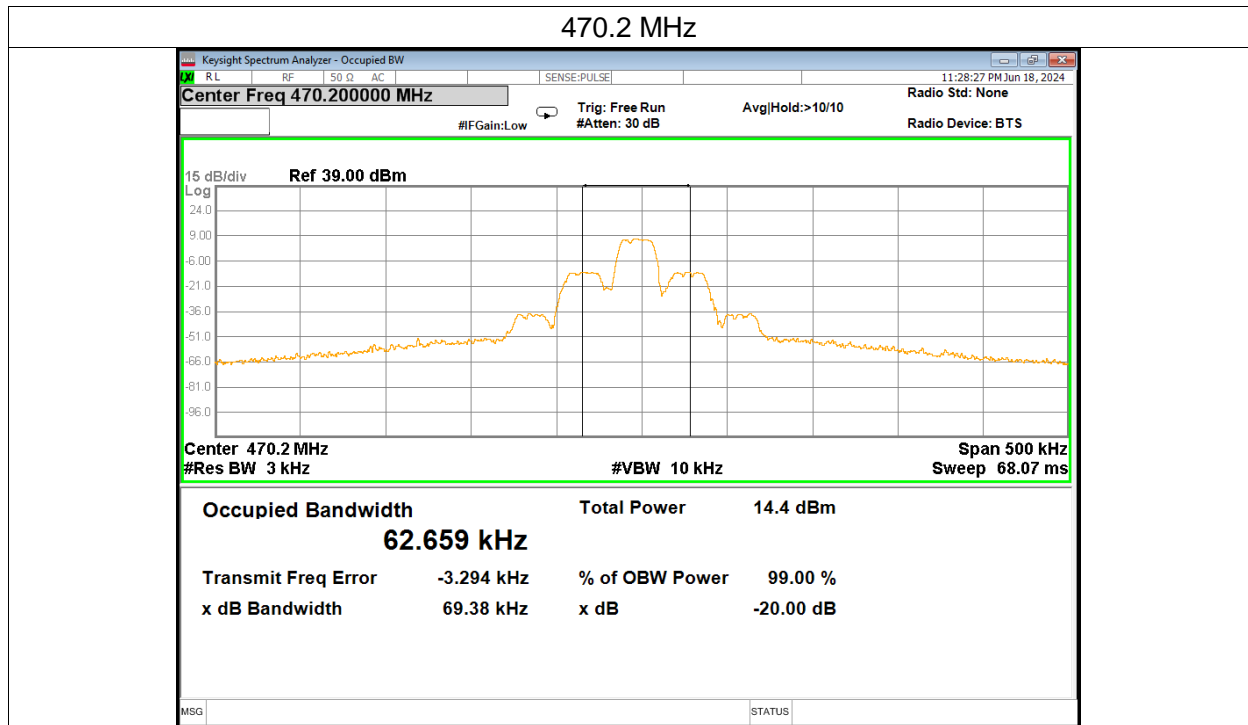


#### EUT OPERATION CONDITIONS

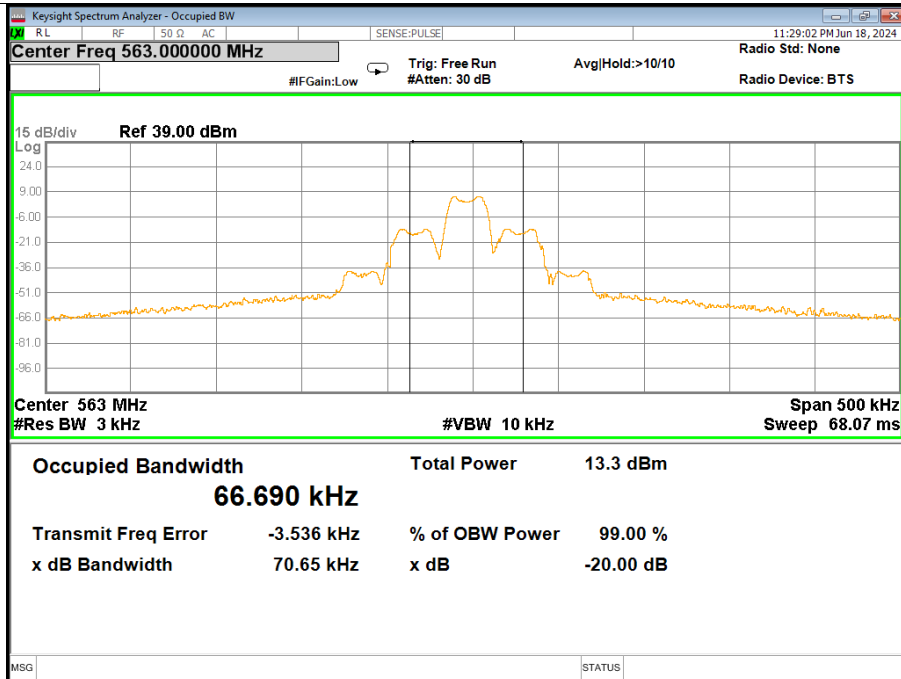
TX mode.

## TEST RESULT

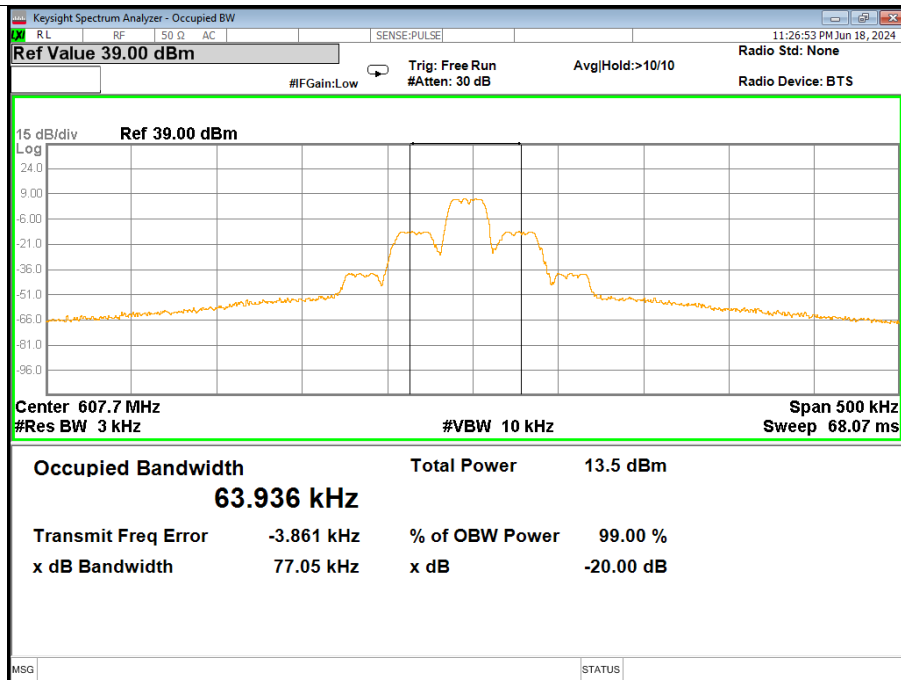
Frequency (MHz)	99% Occupied Bandwidth (KHz)	20dB Bandwidth (KHz)	Result
470.2	62.659	69.38	Pass
563	66.690	70.65	Pass
607.7	63.936	77.05	Pass



### 563 MHz



### 607.7 MHz



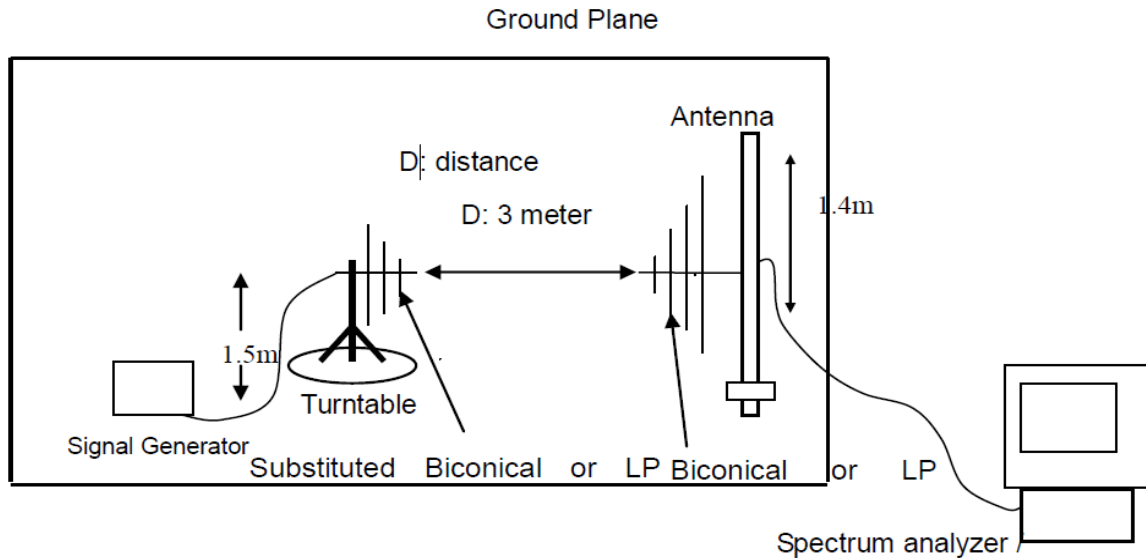
### 4.3 RADIATED POWER

#### TEST LIMIT

According to Part 15.236(d), the maximum radiated power shall not exceed the following:

- (1) In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP
- (2) In the 600 MHz guard band and the 600 MHz duplex gap: 20 mW EIRP.

#### TEST CONFIGURATION



#### TEST PROCEDURE

- a. 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.
- b. The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- c. 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.
- d. 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.
- e. The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- f. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g. The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- h. The maximum signal level detected by the measuring receiver shall be noted.
- i. The measurement shall be repeated with the test antenna set to horizontal polarization.
- j. Replace the antenna with a proper Antenna (substitution antenna).
- k. 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.
- l. The substitution antenna shall be connected to a calibrated signal generator.

- m If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- n The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- o 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.
- p 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.
- q The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

## TEST RESULT

Maximum Equivalent Isotropically Radiated Power								
Ambient temperature: 22 °C			Relative humidity: 55%					
Frequency	S.G.Lev	Ant	Loss	EIRP	EIRP	Limit	Polarity	Result
(MHz)	(dBm)	( dBi)	(dB)	(dBm)	(mW)	(mW)		
470.2	0.07	4.8	1.6	3.27	2.13	50	H	Pass
470.2	2.91	4.8	1.6	6.11	4.08	50	V	Pass
563	-0.98	6	1.9	3.12	2.05	50	H	Pass
563	2.24	6	1.9	6.34	4.31	50	V	Pass
607.7	-1.40	6.1	2	2.70	1.86	50	H	Pass
607.7	1.61	6.1	2	5.71	3.72	50	V	Pass

Note: 1. EIRP (dBm) = S.G.Lev + Ant – Loss

2. mW =  $10^{(dBm/10)}$

## PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

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