

TEST REPORT

Reference No. : WTS14S0715884E
FCC ID : CCRUH7
Applicant : Sam Ash Music Corporation
Address : 262 Duffy Avenue Hicksville, NY 11801 United States
Manufacturer : The same as above
Address : The same as above
Product Name : Wireless Microphone System
Model No. : UH7
Standards : FCC CFR47 Part 74
Date of Receipt sample..... : Jul.04, 2014
Date of Test..... : Jul.15~31, 2014
Date of Issue : Aug.13, 2014
Test Result : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Services (Shenzhen) Co., Ltd.

Address: 1/F., Fukangtai Building, West Baima Road, Songgang Street, Baoan District, Shenzhen, Guangdong, China

Testing location: 1/F., Fukangtai Building, West Baima Road, Songgang Street, Baoan District, Shenzhen, Guangdong, China

Tel :+86-755-83551033

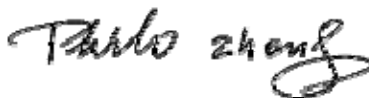
Fax:+86-755-83552400

Compiled by:



Zero Zhou / Project Engineer

Approved by:



Philo Zhong / Manager

2 Test Summary

Test Items	Test Requirement	Test Method	Result
RF Output Power	74.861(e)(1)(ii)	TIA/EIA-603-C-2004	PASS
Modulation Characteristics	2.1047(a)	TIA/EIA-603-C-2004	PASS
Occupied Bandwidth	2.1049(c)(1)	TIA/EIA-603-C-2004	PASS
Radiated Emissions	2.1053 & 74.861(e)(6)	TIA/EIA-603-C-2004	PASS
Spurious emissions at antenna terminals	2.1051	TIA/EIA-603-C-2004	PASS
Frequencies Stability	2.1055(a)(1)	TIA/EIA-603-C-2004	PASS

Remark:

PASS means that the test results complies with related requirements.

N/A means that the test is not applicable for the EUT.

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4 General Information

4.1 General Description of E.U.T.

Product Name	: Wireless Microphone System
Model No.	: UH7
Differences describe	: N/A
Operation Frequency	: 518 MHz ~ 546.9 MHz, 638 MHz ~ 666 MHz
The Lowest Oscillator	: 8 MHz
Antenna installation	: Integrated Antenna

4.2 Details of E.U.T.

Technical Data	: Battery: DC 1.5V*2
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4.3 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A-1**

Waltek Services (Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files.

Registration No.:7760A-1, July 12, 2012.

- **FCC – Registration No.: 880581**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

4.4 Test Location

All the tests were performed at:

Waltek Services (Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District, Shenzhen, China

5 Equipment Used during Test

5.1 Equipments List

3m Semi-anechoic Chamber for Radiation Emissions						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	EMC Analyzer	Agilent	E7405A	MY45114943	Sep.18,2013	Sep.17,2014
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Sep.18,2013	Sep.17,2014
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.19,2014	Apr.18,2015
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.18,2013	Sep.17,2014
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.19,2014	Apr.18,2015
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	Apr.19,2014	Apr.18,2015
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Mar.17,2014	Mar.16,2015
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	Apr.10,2014	Apr.09,2015
RF Conducted Testing						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1.	EMC Analyzer	R&S	ESCI	101155	Sep.18,2013	Sep.17,2014
2.	Humidity Chamber	GF	GTH-225-40-1P	IAA061213	May 16,2014	May 15,2015
3.	DC Power Supply	EVERFINE	WY305	1004002	Apr.11,2014	Apr.10,2015

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-6}$
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

6 RF Output Power

Test requirement:	FCC CFR47 Part 74 Section 74.861(e)(1)(ii)
Test method:	Based on TIA/EIA-603-C-2004
Limit:	According to Part 74.861(e)(1)(ii), the output power shall not exceed 250mW (23.98 dBm).

6.1 Test Procedure

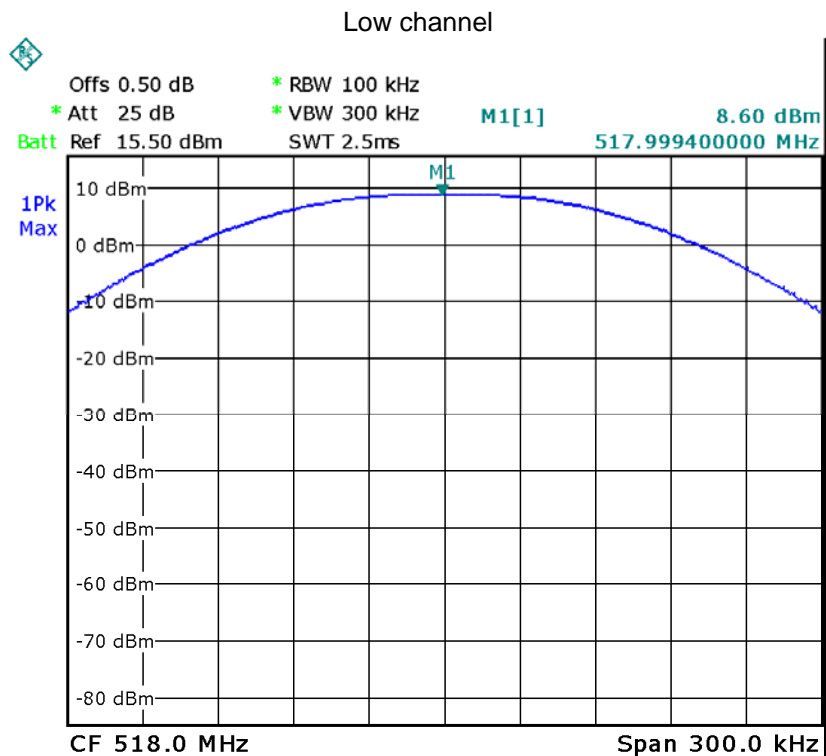
The maximum peak output power was measured with a spectrum analyzer connected to the antenna terminal (conducted measurement) while EUT was operating in normal situation.

6.2 Test result

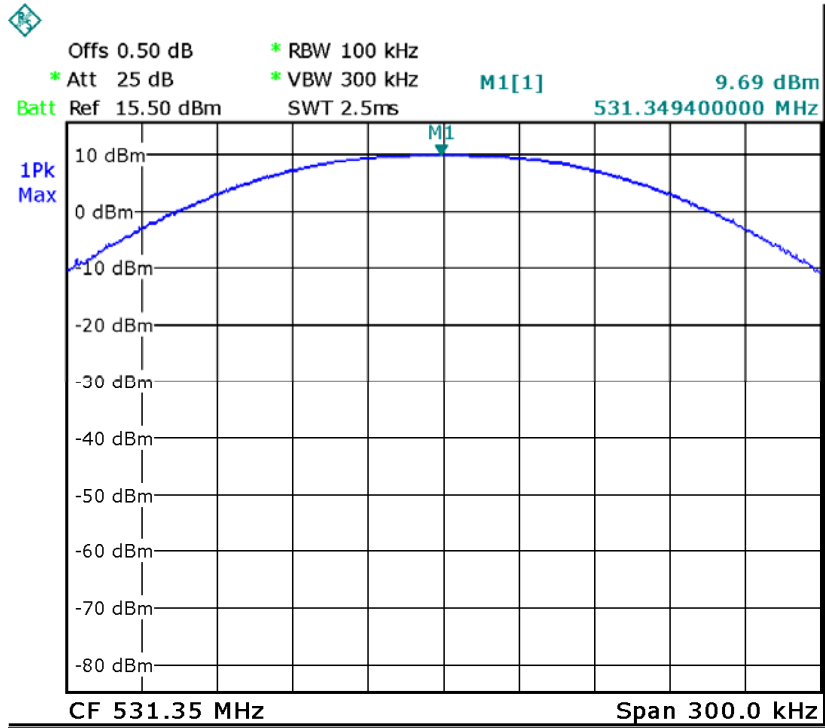
518MHz-546.9MHz:

Frequency (MHz)	RF Output Power (dBm)	Limit (dBm)	Result
518	8.6	23.98	PASS
531.35	9.69	23.98	PASS
546.9	9.34	23.98	PASS

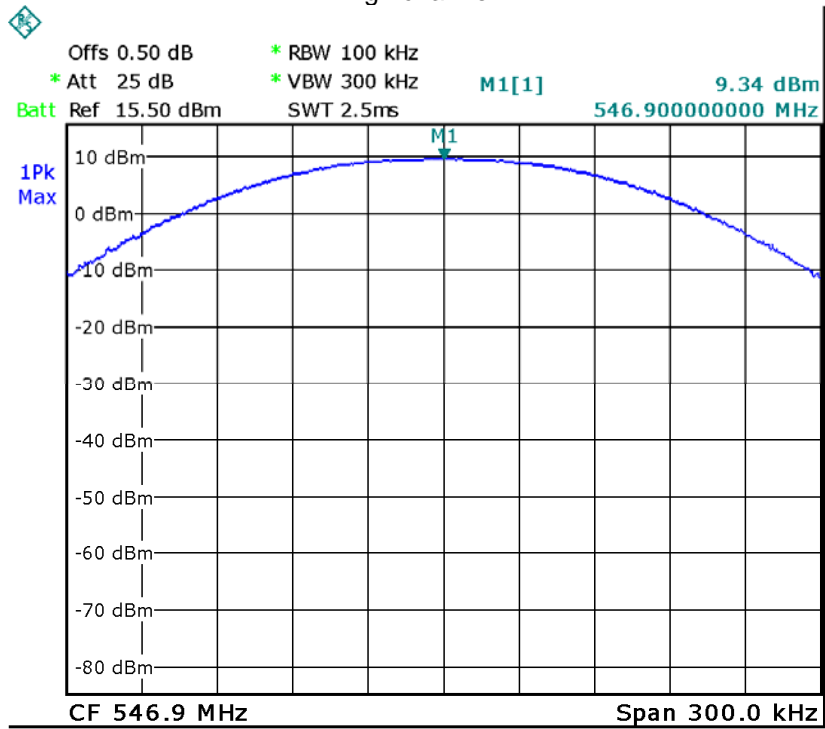
Please refer to following plot:



Middle channel



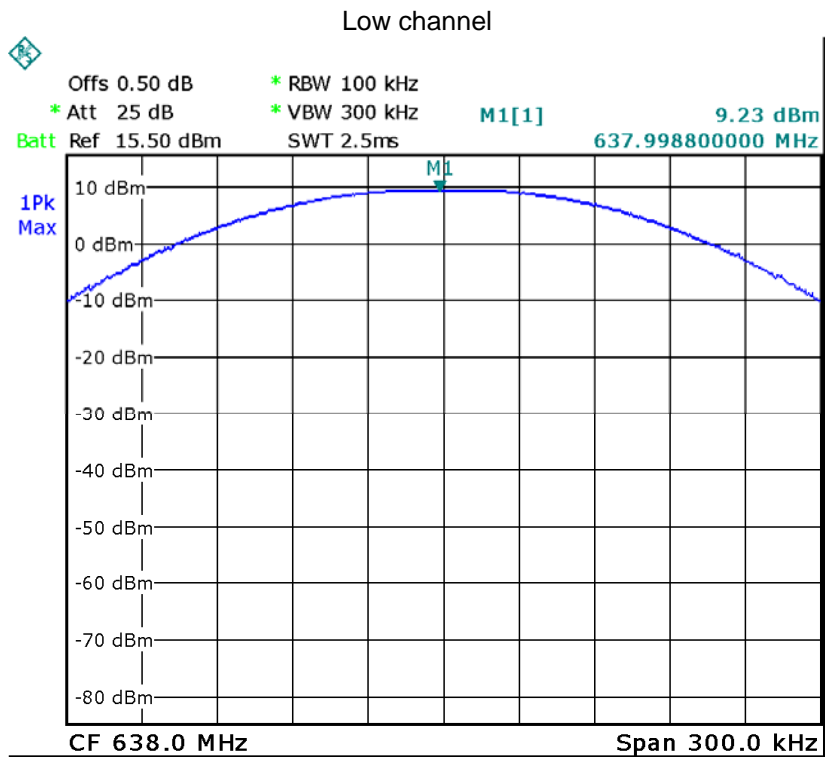
High channel



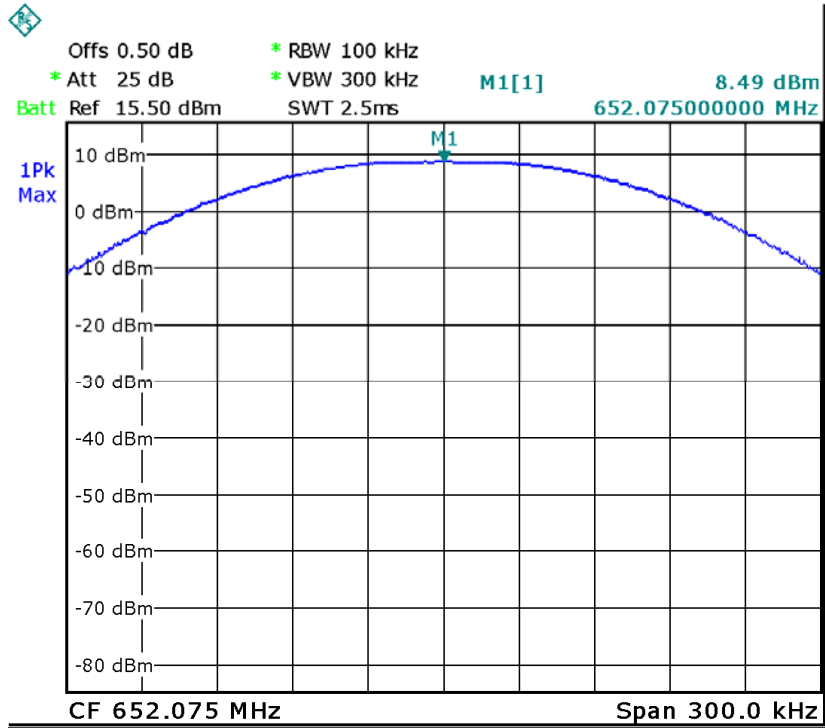
638MHz-666MHz:

Frequency (MHz)	RF Output Power (dBm)	Limit (dBm)	Result
638	9.23	23.98	PASS
652.075	8.49	23.98	PASS
666	8.25	23.98	PASS

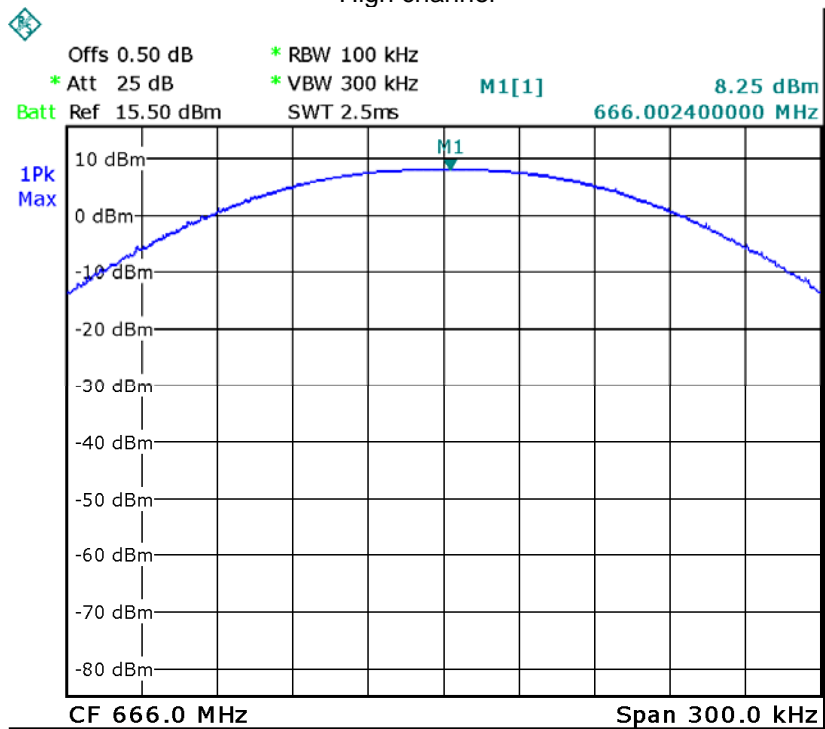
Please refer to following plot:



Middle channel



High channel

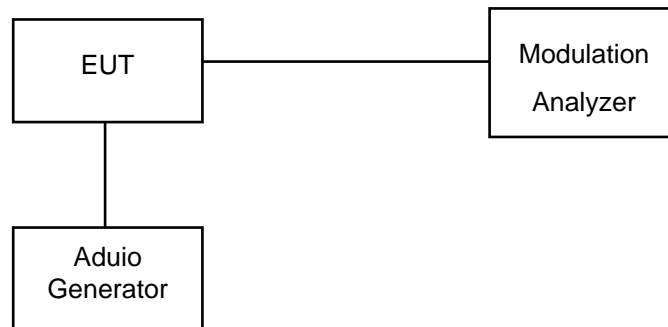


7 Modulation Characteristics

Test requirement:	FCC CFR47 Part 2 Section 2.1047(a)
Test method:	Based on TIA/EIA-603-C-2004
Requirement:	According to Part 2.1047(a), for Voice Modulated Communication Equipment, the frequency response of the audio modulating circuit over a range of 100Hz to 5000Hz shall be measured.

7.1 Test Procedure

(a) Test Configuration



(b) Audio Frequency Response:

- 1) Apply a 1000 Hz tone and adjust the audio frequency generator to produce 20% of the rated system deviation.
- 2) Set the test receiver to measure rms deviation and record the deviation reading as DEV_{REF} .
- 3) Set the audio frequency generator to the desired test frequency between 100 Hz and 5000 Hz.
- 4) Record the test receiver deviation reading as DEV_{FREQ} .
- 5) Calculate the audio frequency response at the present frequency as:

$$\text{audio frequency response} = 20\lg(DEV_{FREQ} / DEV_{REF})$$
- 6) Repeat steps 4) through 5) for all the desired test frequencies.

(c) Modulation Limiting:

- 1) 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.
- 2) Measure both the instantaneous and steady-state deviation at and after the time of increasing the audio input level.
- 3) With the level from the audio frequency generator held constant at the level obtained in step e), slowly vary the audio frequency from 300 Hz to 3000 Hz and observe the steady-state deviation. Record the maximum deviation.
- 4) Set the test receiver to measure peak negative deviation and repeat steps 1) through 3).
- 5) The values recorded in steps 3) and 4) are the modulation limiting.

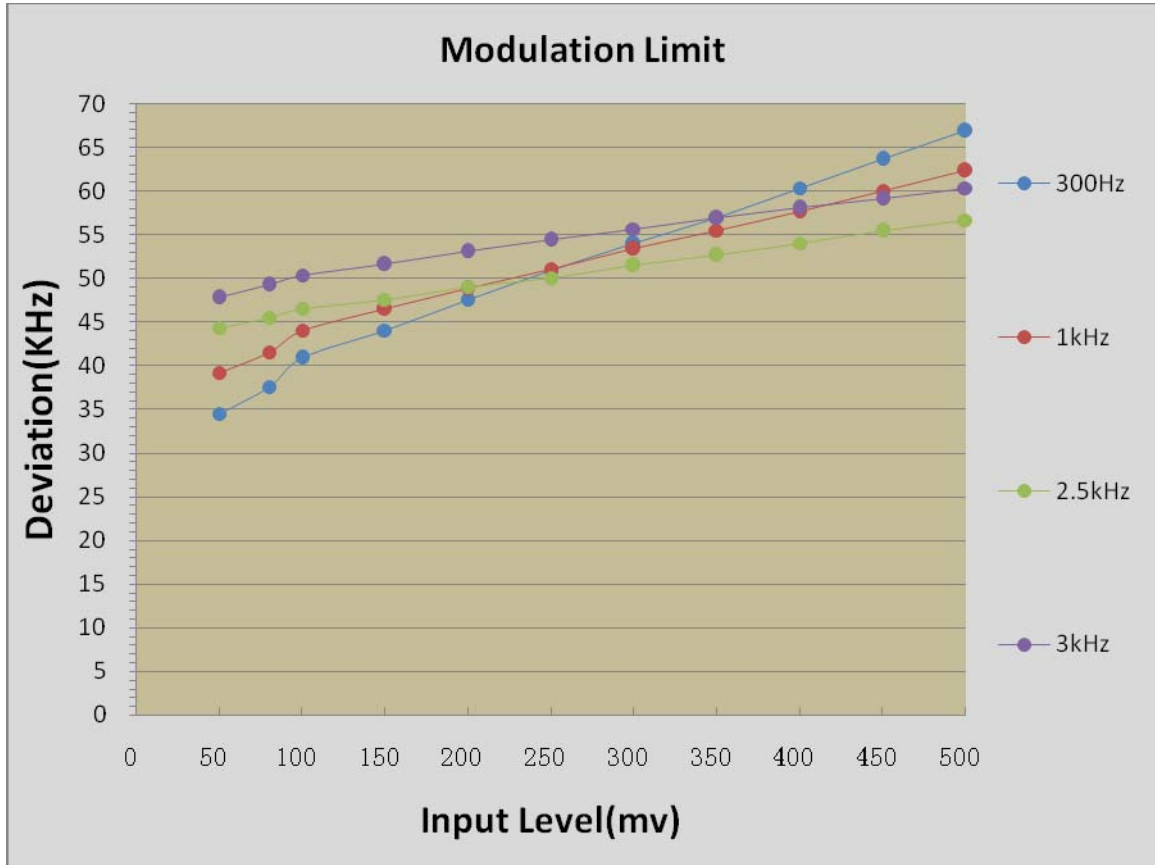
7.2 Test Result

The test data of modulation characteristic is showing as below:

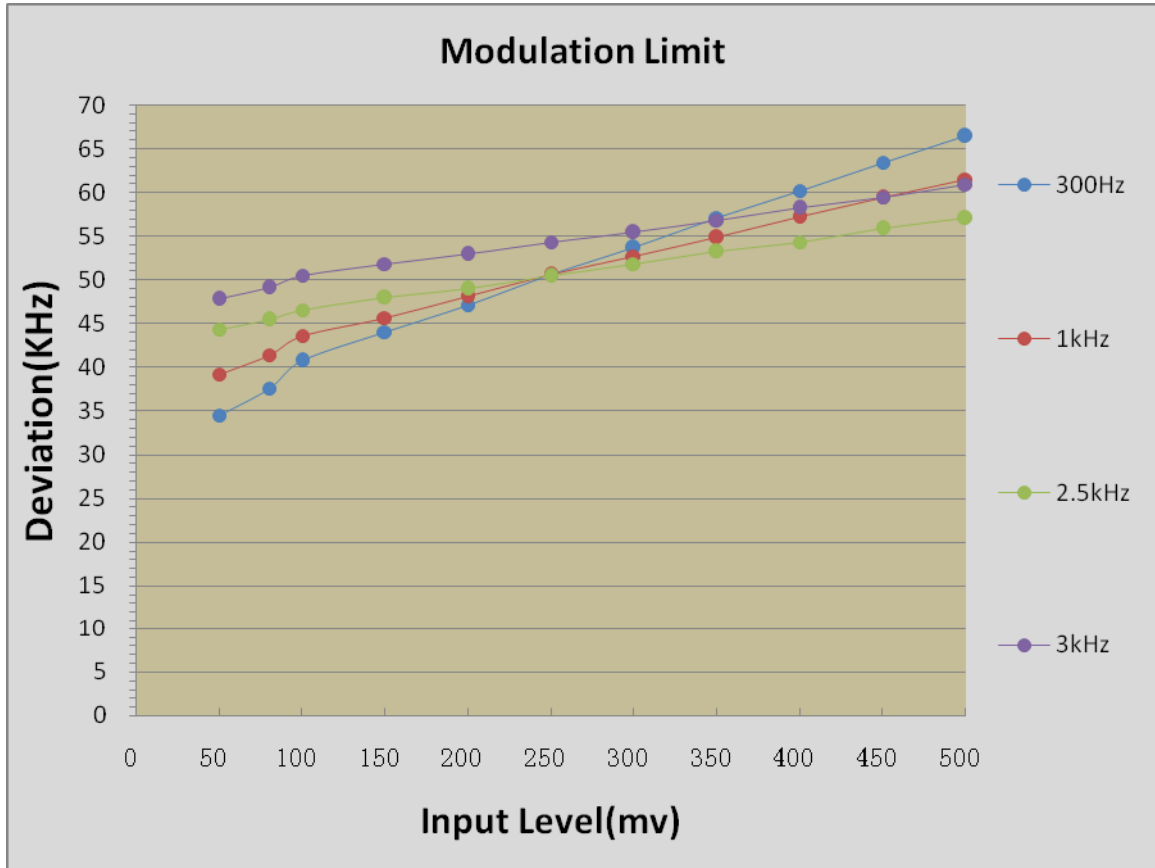
Audio Frequency Response

518MHz-546.9MHz:

Middle Channel



638MHz-666MHz:
Middle Channel



8 Occupied Bandwidth of Emission

Test requirement: FCC CFR47 Part 2 Section 2.1049©(1)
 Test method: Based on TIA/EIA-603-C-2004
 Limit: According to FCC 74.861 (e)(5), the frequency emission bandwidth shall not exceed 200 kHz.

8.1 Test Procedure

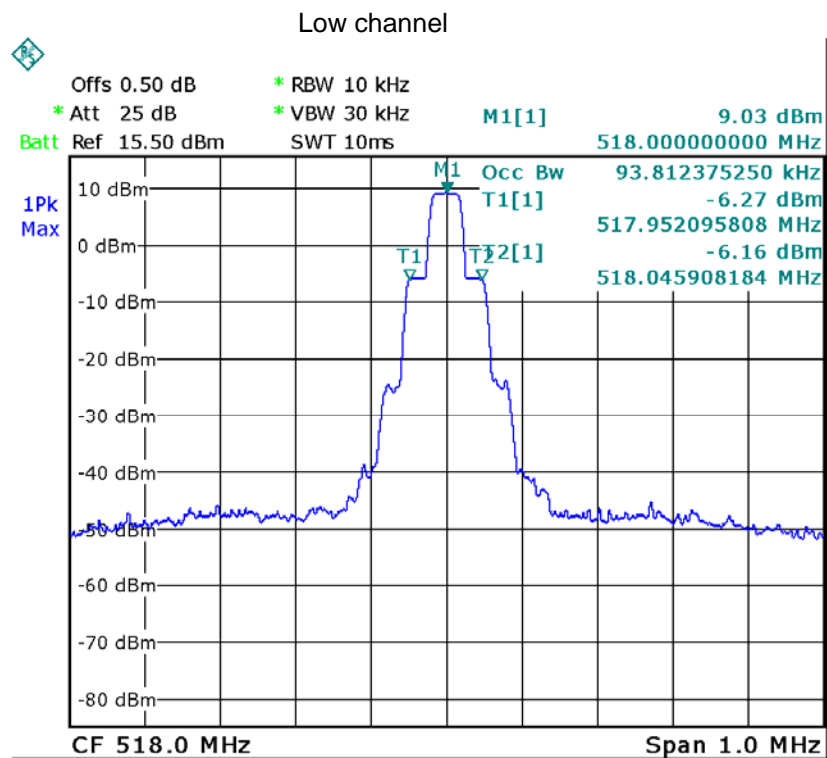
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and set it to any one convenient frequency within its operating range.

8.2 Test Result

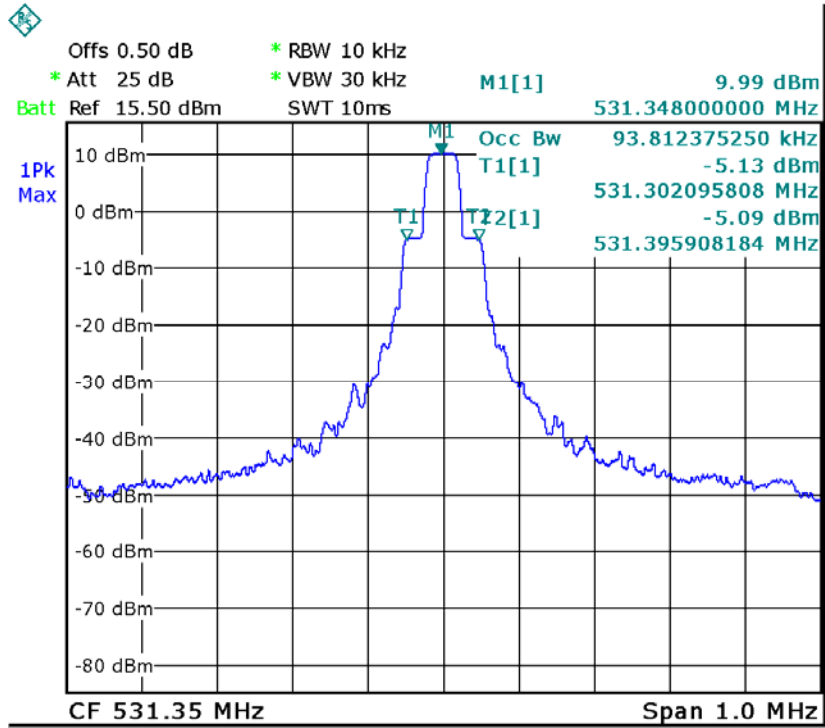
518MHz-546.9MHz:

Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)	Result
518	93.81	200	PASS
531.35	93.81	200	PASS
546.9	93.81	200	PASS

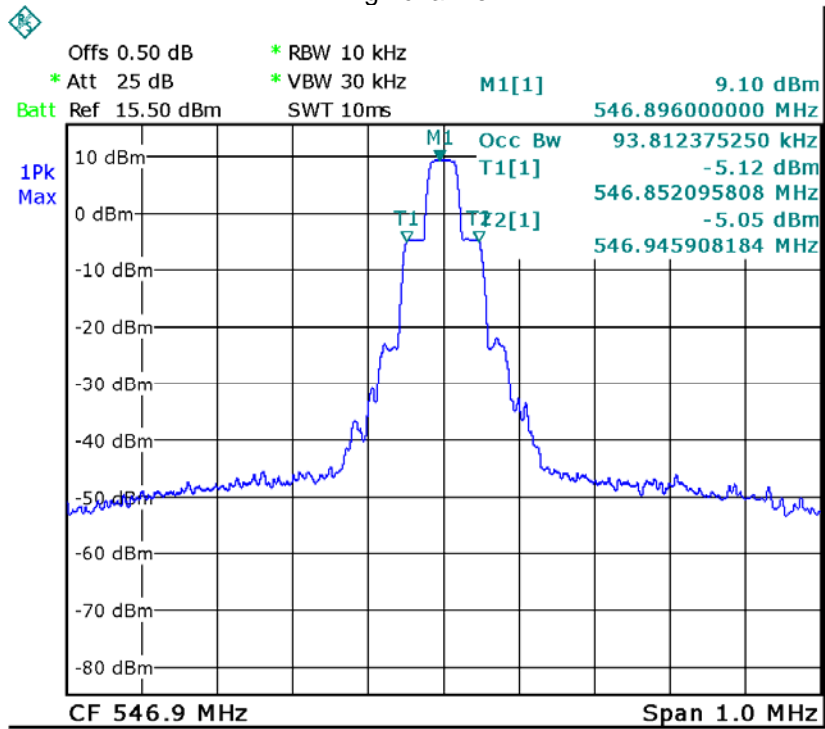
Test Plot:



Middle channel



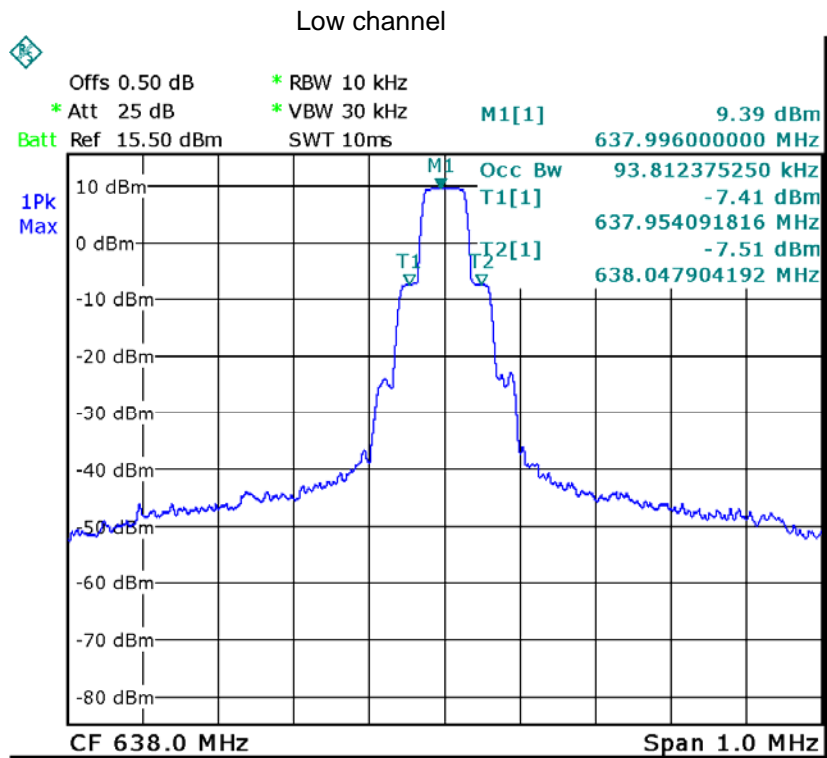
High channel



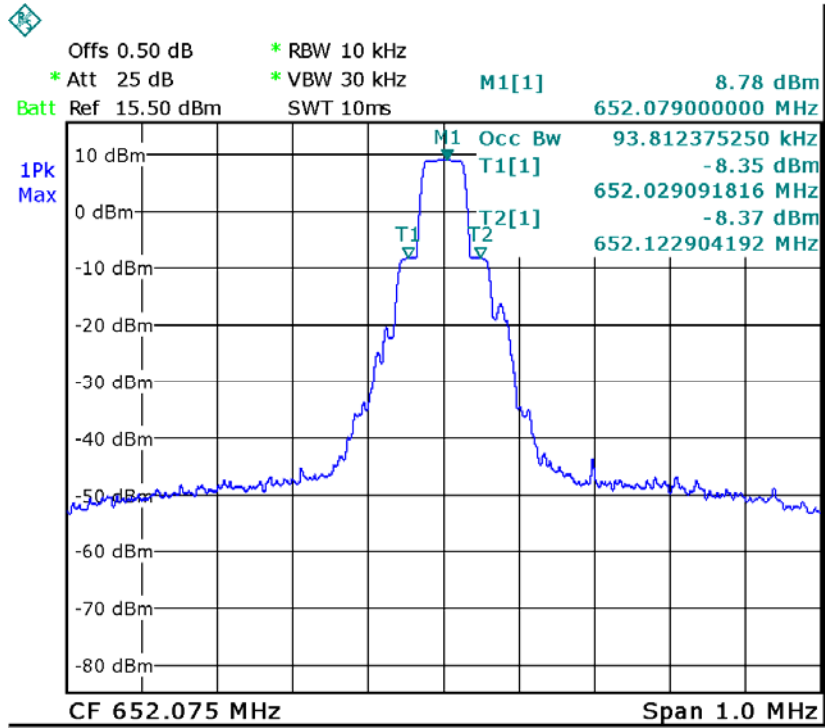
638MHz-666MHz:

Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)	Result
638	93.81	200	PASS
652.075	93.81	200	PASS
666	98.81	200	PASS

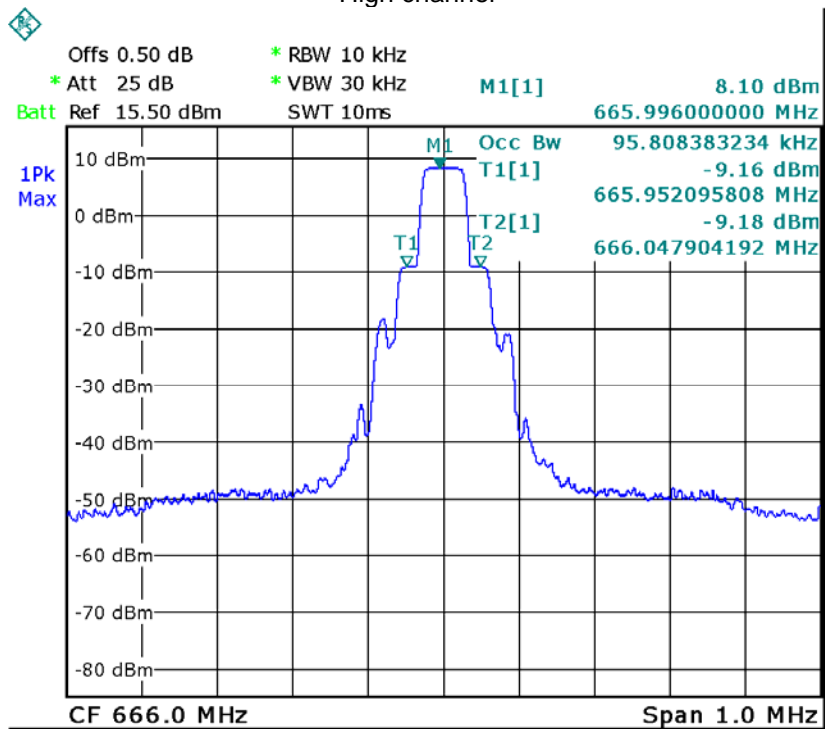
Test Plot:



Middle channel



High channel



9 Spurious Emissions at Antenna Terminals

Test requirement:	FCC CFR47 Part 2 Section 2.1053
Test method:	Based on TIA/EIA-603-C-2004
Limit:	According to Part 74.861 (e)(6), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule: (i) on any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB. (ii) on any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB. (iii) on any frequency removed from the operating frequency by more than 250 percent up to and the authorized bandwidth shall be attenuated below the un-modulated carrier by at least $43 + 10 \text{ Log}$ (output power in watts)dB.

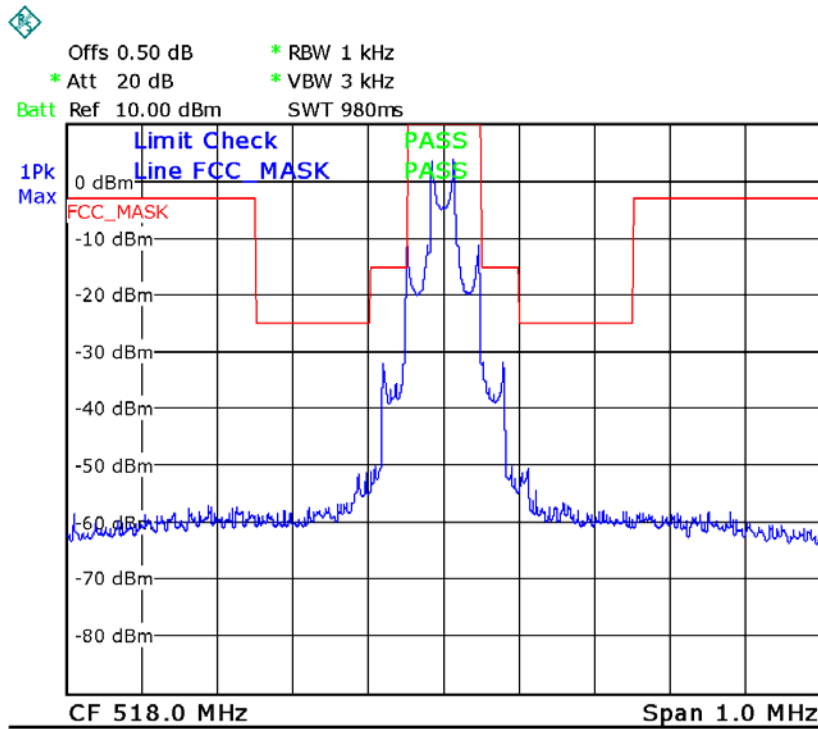
9.1 Test Procedure

1. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
2. Set the SA on Max-Hold Mode, and then keep the EUT in transmitting mode. Record all the signals from each channel until each one has been recorded.
3. Set the SA on View mode and then plot the result on SA screen.
4. Repeat above procedures until all frequencies measured were complete.

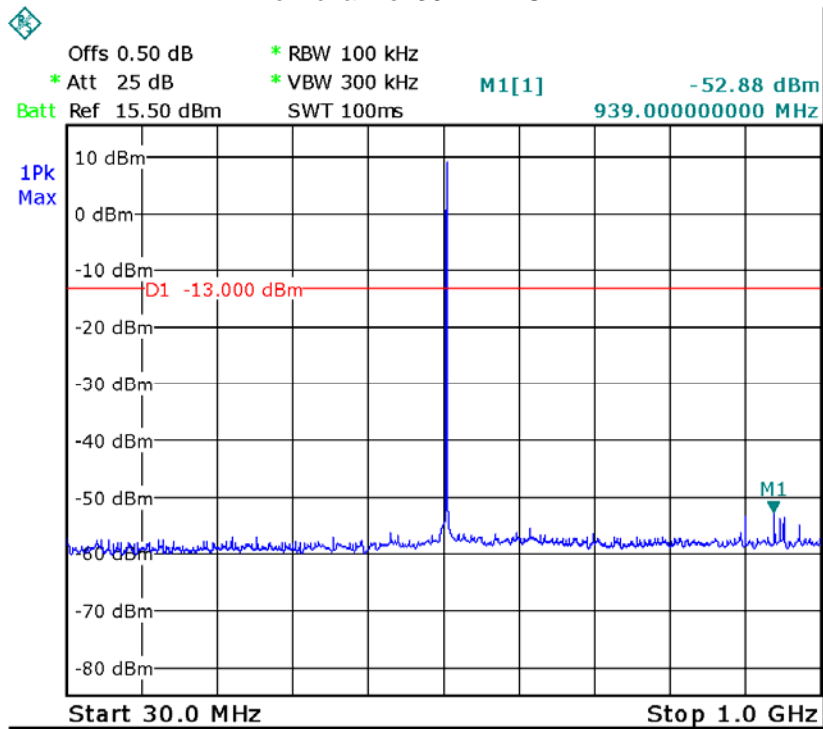
9.2 Test Data

518MHz-546.9MHz:

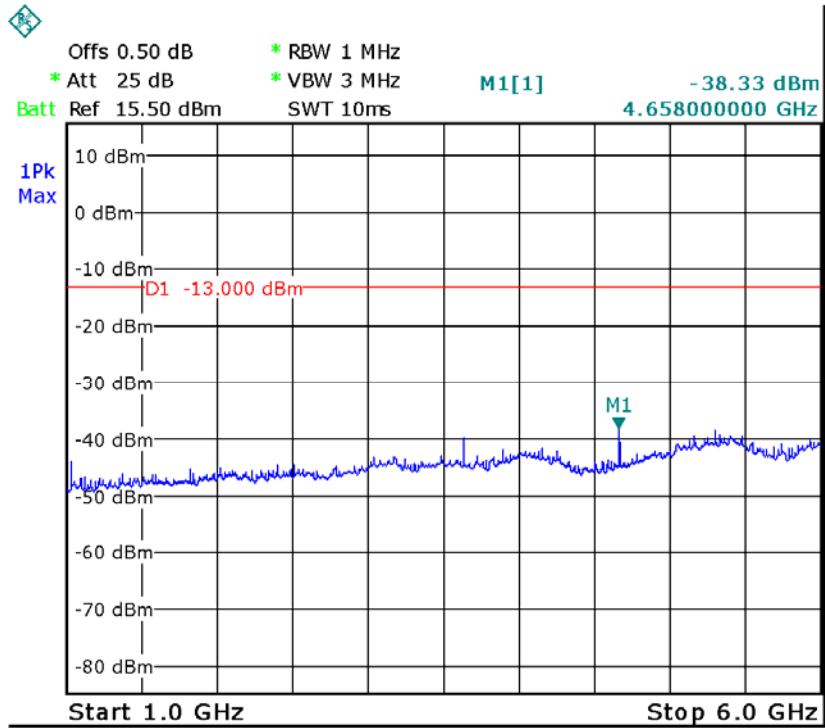
Emission Mask Low Channel



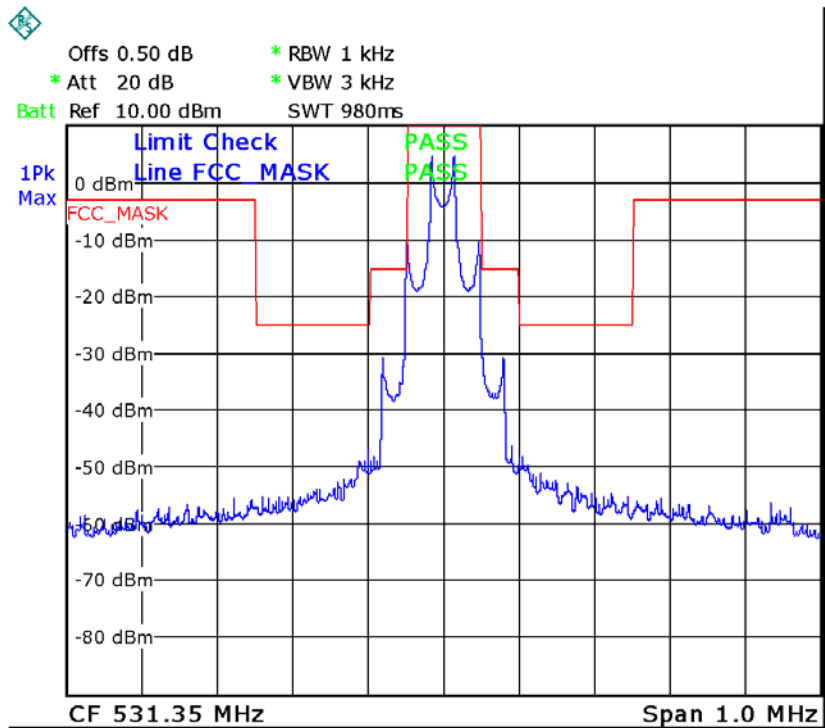
Low channel 30MHz-1GHz



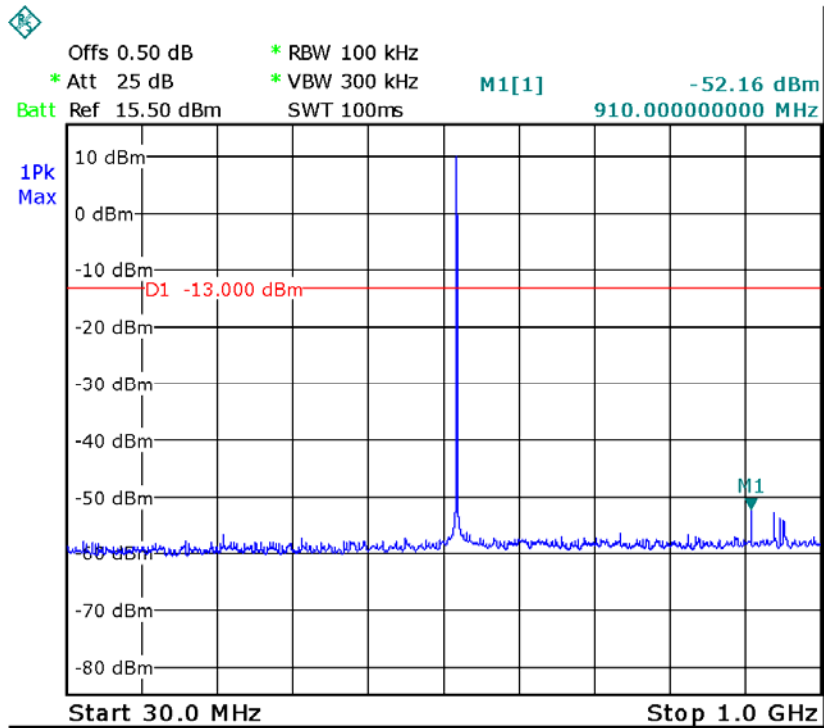
Low channel 1GHz-6GHz



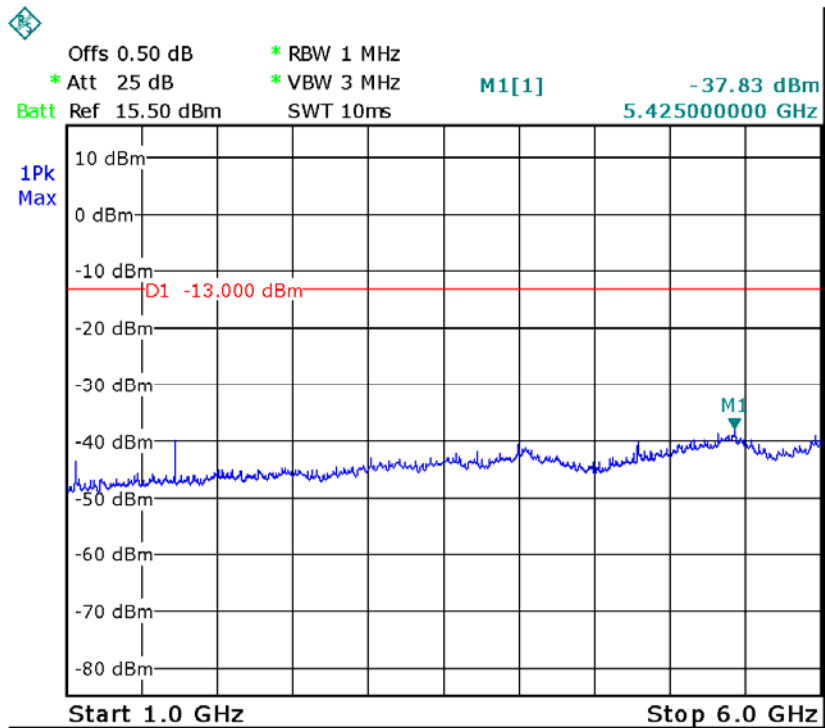
Emission Mask Middle Channel



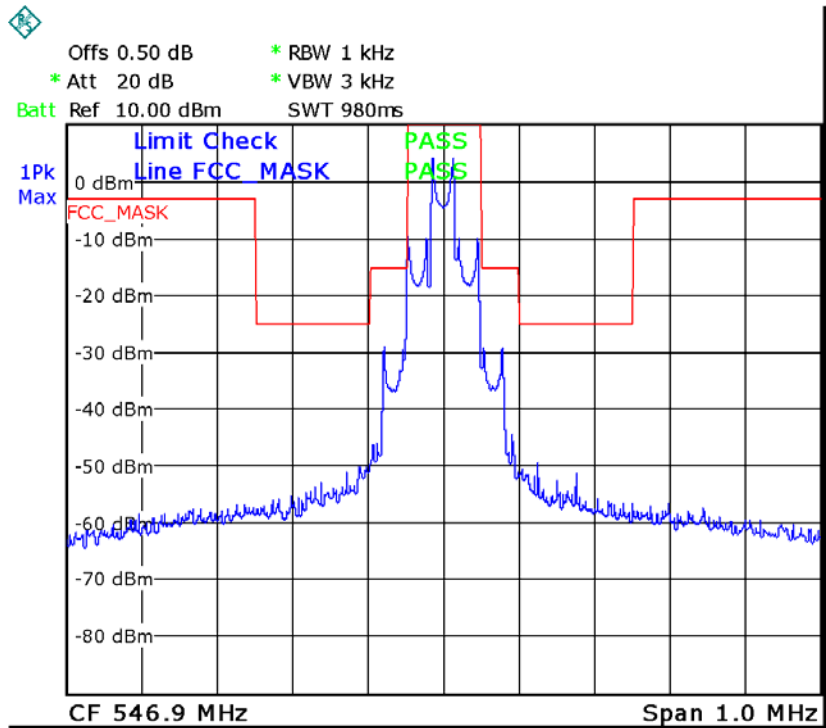
Middle channel 30MHz-1GHz



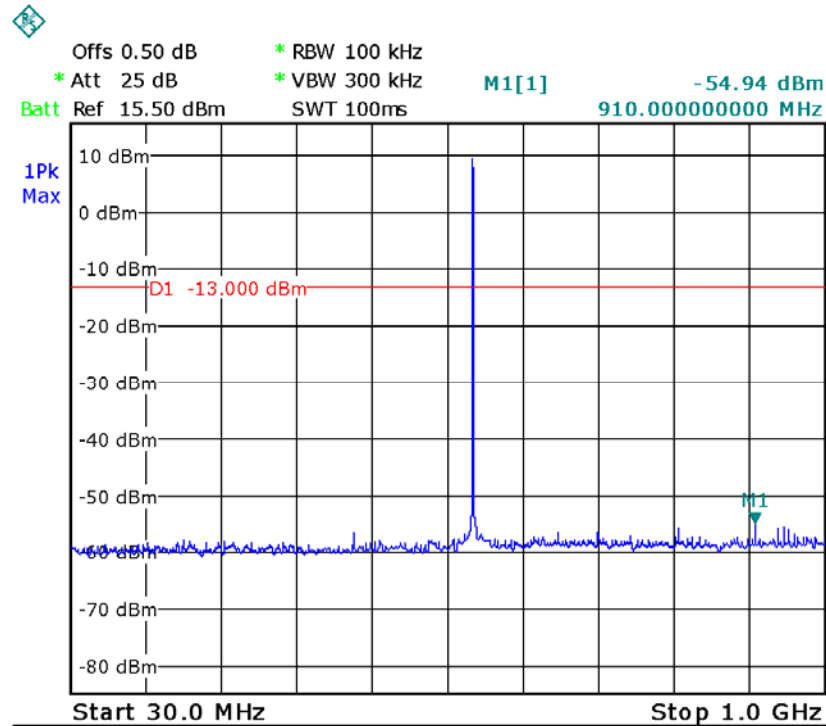
Middle channel 1GHz-6GHz

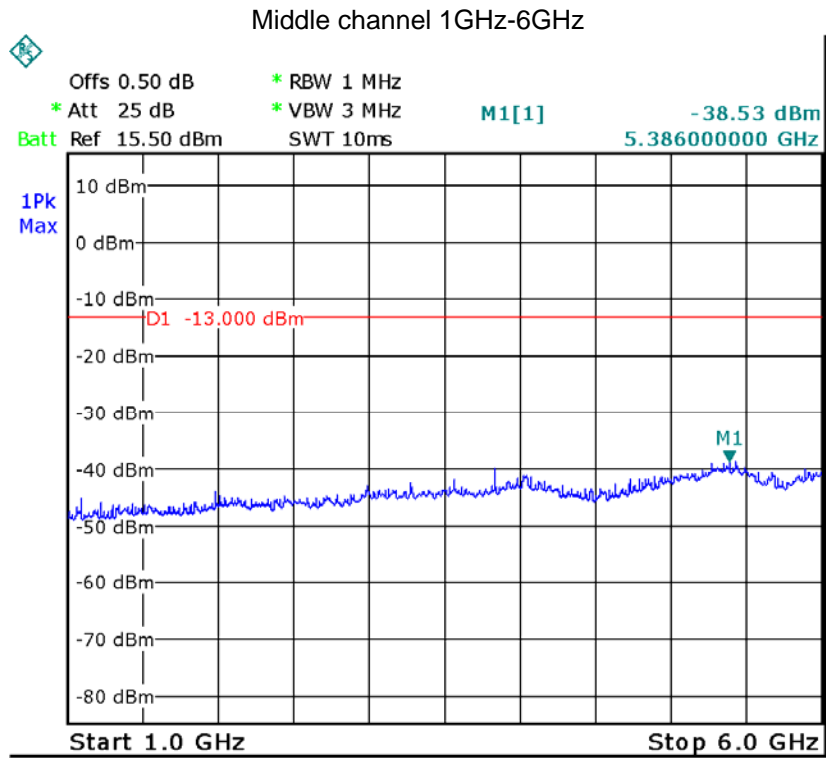


Emission Mask High Channel



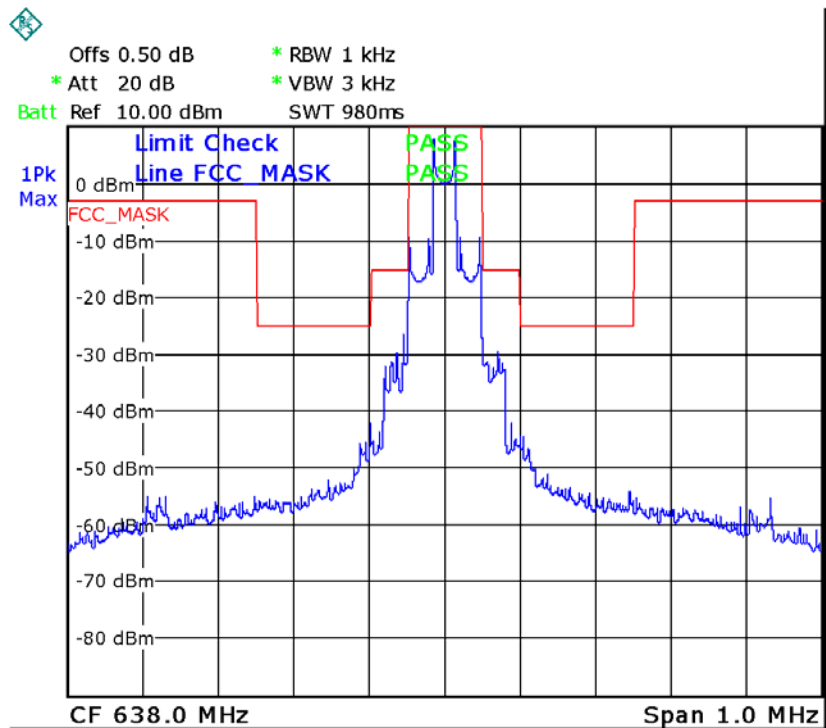
Middle channel 30MHz-1GHz



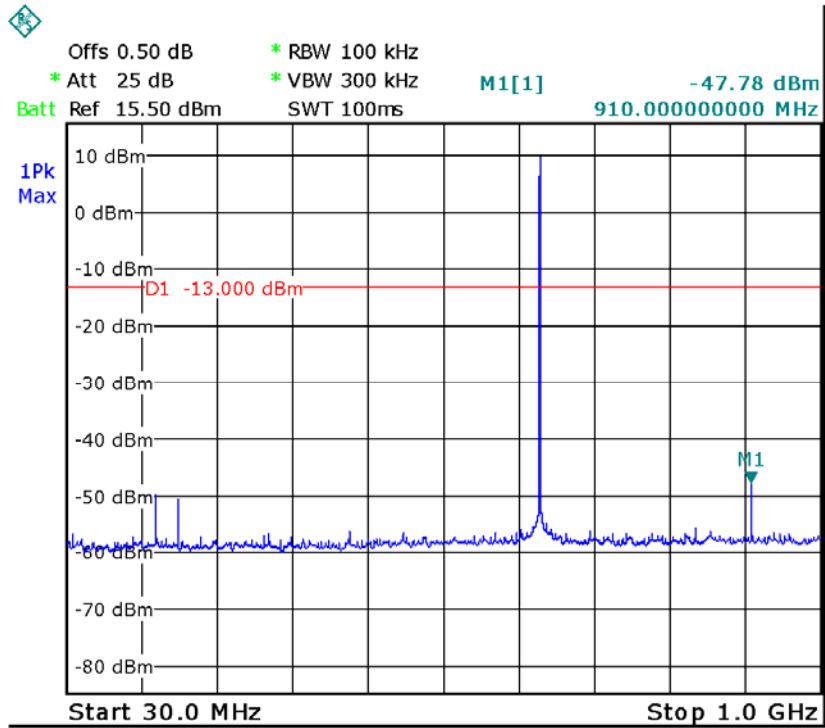


638MHz-666MHz:

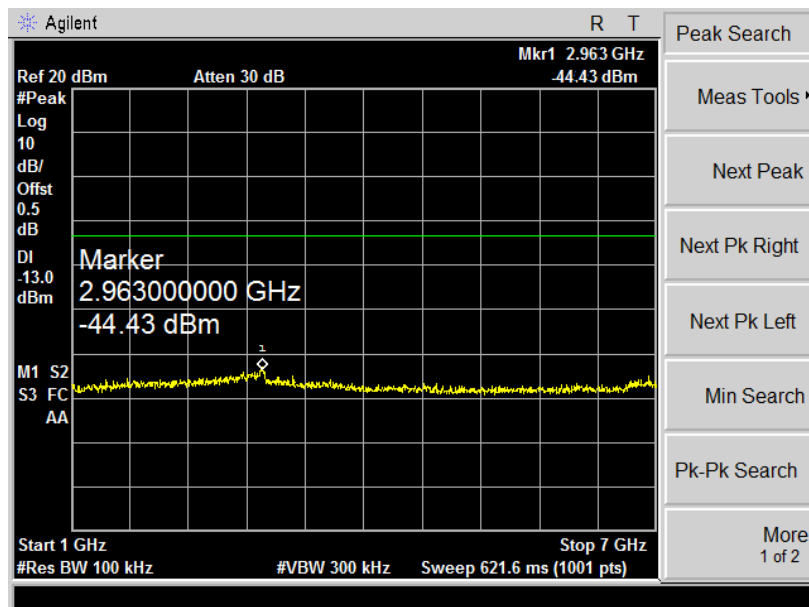
Emission Mask Low Channel



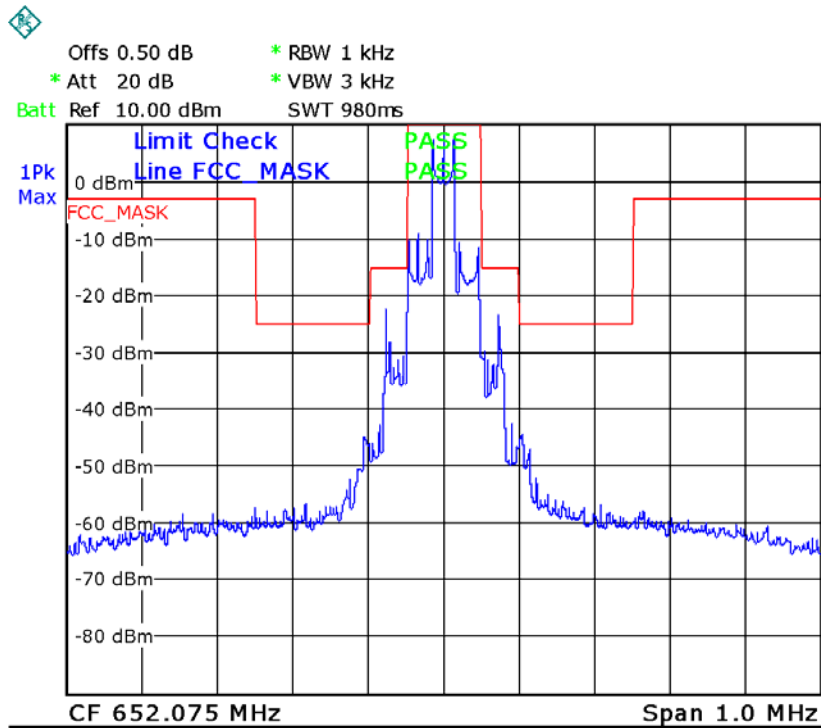
Low channel 30MHz-1GHz



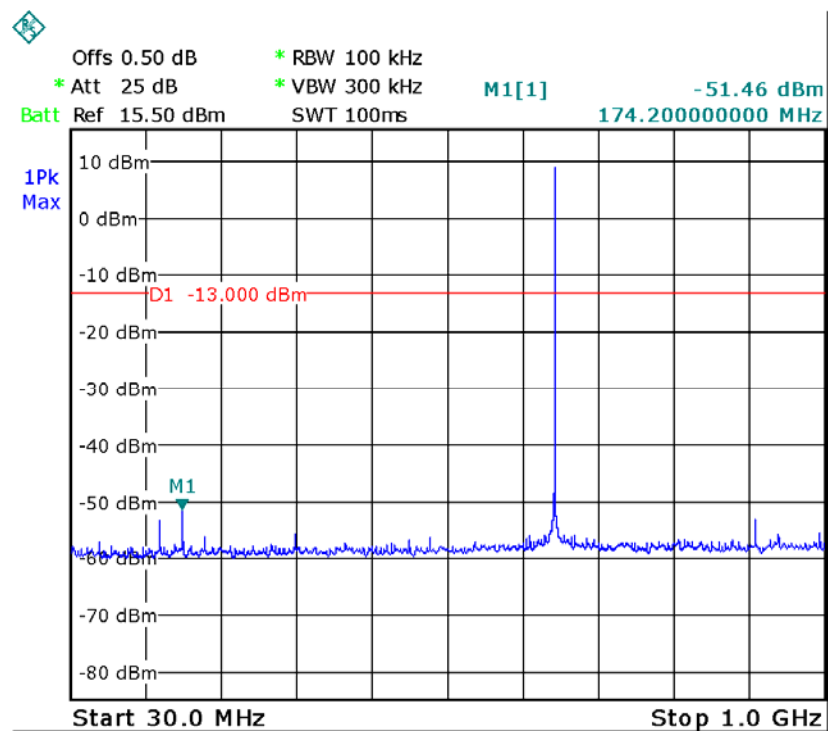
Low channel 1GHz-7GHz



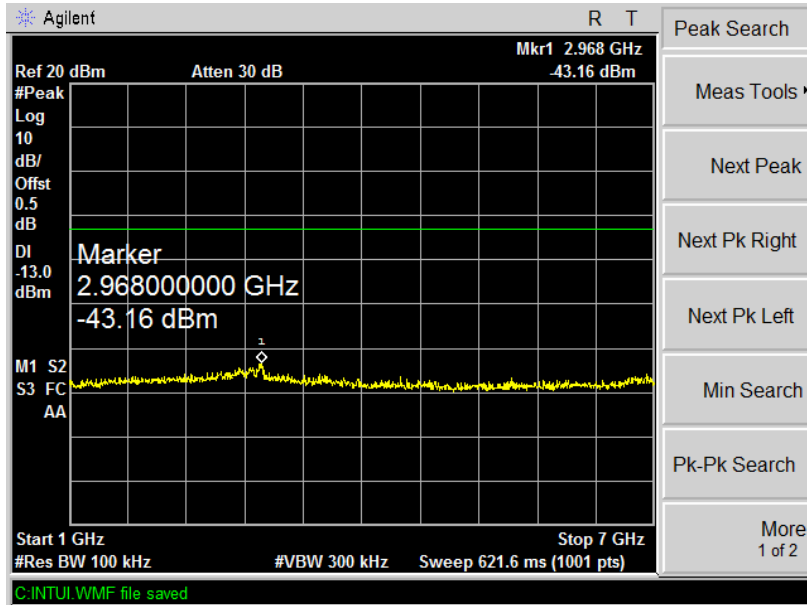
Emission Mask Middle Channel



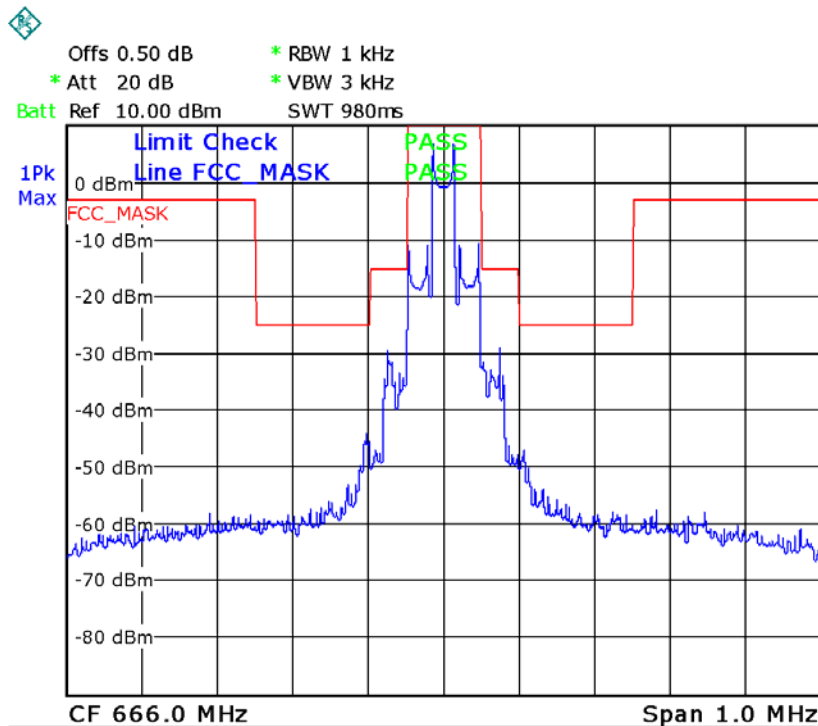
Middle channel 30MHz-1GHz

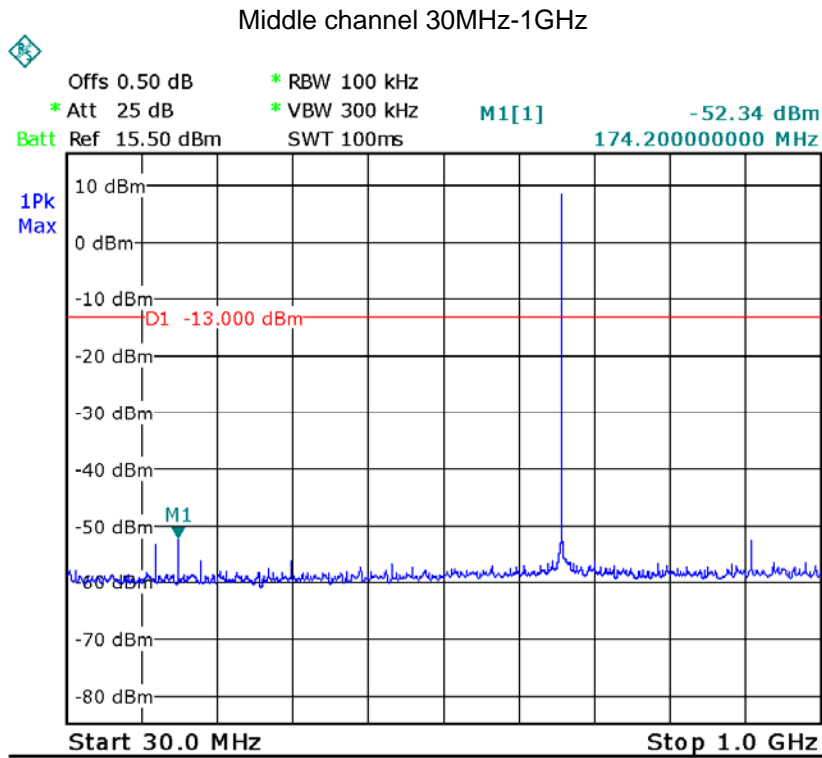


Middle channel 1GHz-7GHz

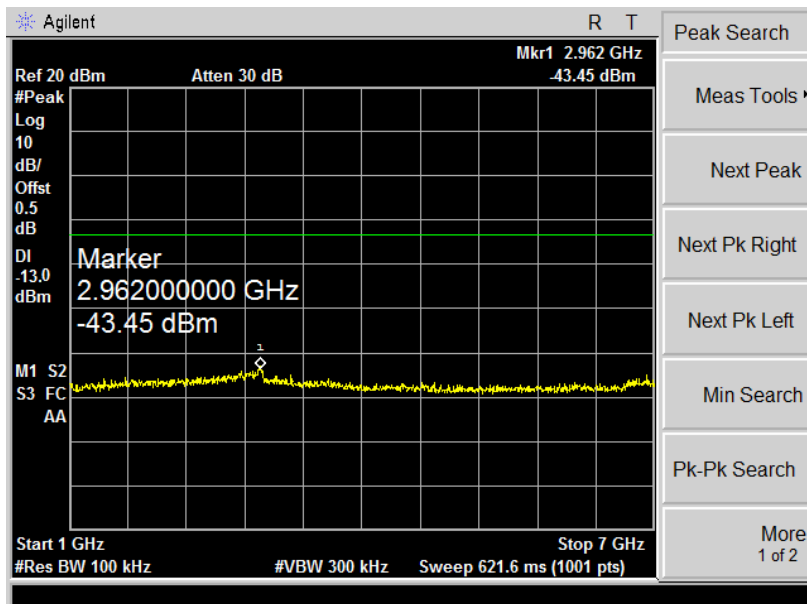


Emission Mask High Channel





Middle channel 1GHz-7GHz



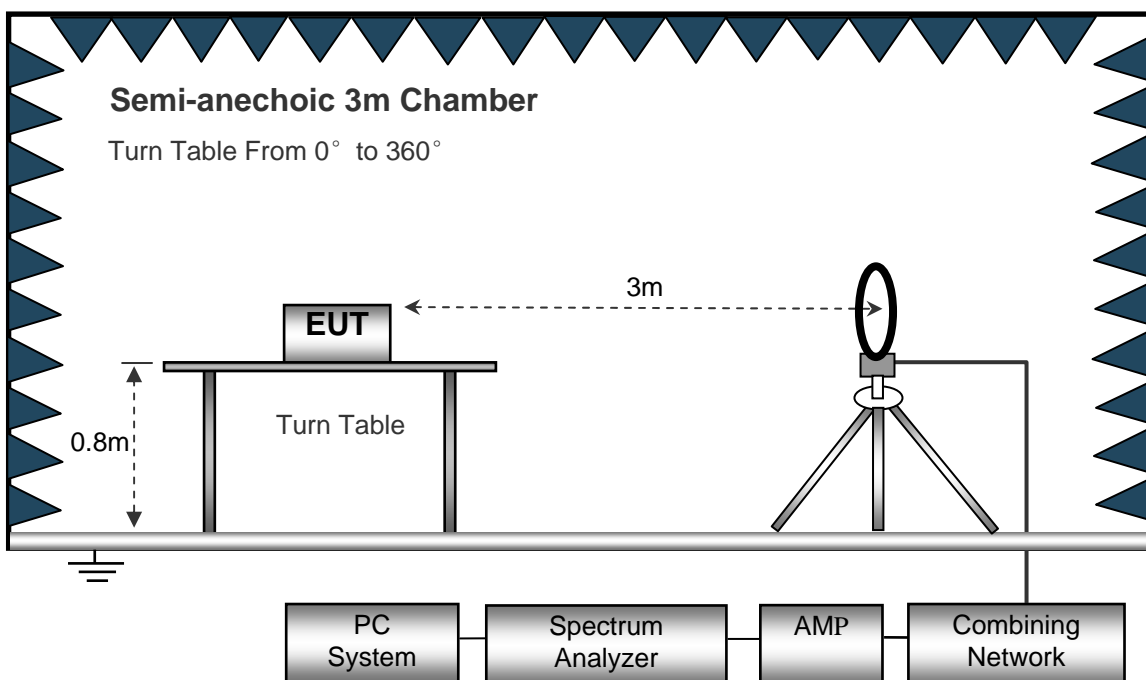
10 Radiated Emission Test

Test requirement:	FCC CFR47 Part 2 Section 2.1053
Test method:	Based on TIA/EIA-603-C-2004
Limit:	According to Part 74.861 (e)(6), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule: <ul style="list-style-type: none"> (i) on any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB. (ii) on any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB. (iii) on any frequency removed from the operating frequency by more than 250 percent up to and the authorized bandwidth shall be attenuated below the un-modulated carrier by at least $43 + 10 \text{ Log (output power in watts)dB}$.

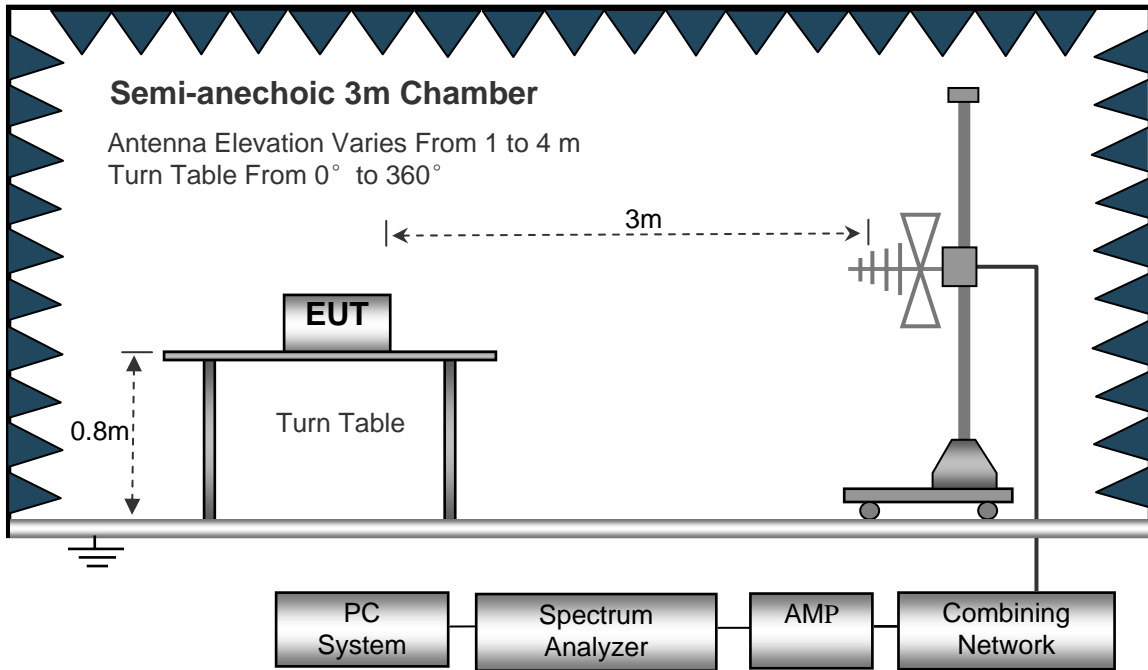
10.1 EUT Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003.

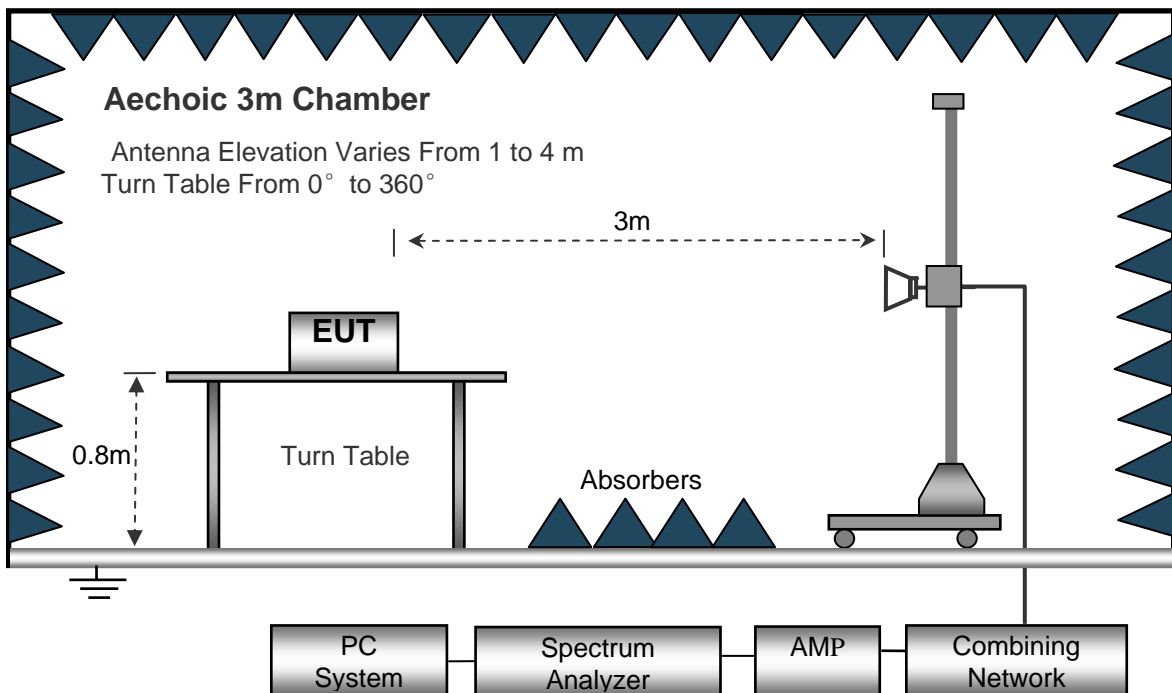
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 KHz to 30 MHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz Emissions.



10.2 Spectrum Analyzer Setup

According to FCC Part15 Rules, the system was tested 8MHz to 7000MHz.

9kHz ~ 30MHz

Start Frequency9kHz
 Stop Frequency30MHz
 Sweep SpeedAuto
 IF Bandwidth.....10KHz
 Video Bandwidth.....10KHz
 Resolution Bandwidth10KHz

30MHz ~ 1GHz

Start Frequency30 MHz
 Stop Frequency.....1000MHz
 Sweep Speed.....Auto
 IF Bandwidth120 KHz
 Video Bandwidth300KHz
 Quasi-Peak Adapter Bandwidth.....120 KHz
 Quasi-Peak Adapter ModeNormal
 Resolution Bandwidth100KHz

Above 1GHz

Start Frequency1000 MHz
 Stop Frequency.....7000MHz
 Sweep Speed.....Auto
 IF Bandwidth120 KHz
 Video Bandwidth3MHz
 Quasi-Peak Adapter Bandwidth.....120 KHz
 Quasi-Peak Adapter ModeNormal
 Resolution Bandwidth1MHz

10.3 Test Procedure

1. Place the transmitter to be tested on the turntable in the standard test site. The transmitter is Transmitting into a non-radiating load, which is placed on the turntable.
2. The output of the antenna was connected to the measuring receiver and a peak detector was used for the measurement as indicated on the report.
3. The transmitter was switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
4. The test antenna shall be raised and Lowed through the specified range of height until the measuring receiver detects a maximum signal level.
5. The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

6. The test antenna shall be raised and Lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
7. The maximum signal level detected by the measuring receiver shall be noted.
8. The measurement shall be repeated with the test antenna set to horizontal polarization.
9. Replace the antenna with a proper antenna (substitution antenna).
10. 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.
11. The substitution antenna shall be connected to a calibrated signal generator.
12. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
13. The test antenna shall be raised and Lowered through the specified range of the height to ensure that the maximum signal is received.
14. 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.
15. 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.
16. The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.
17. The radiation emission was tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
18. The EUT was under working mode during the final qualification test and the configuration was used to represent the worst case results.

10.4 Test Result

Test Frequency: 8MHz-30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency: 30MHz ~ 7GHz

518MHz-546.9MHz:

Frequency (MHz)	Detector	Ant. Pol	Antenna Height (m)	Turntable Angle (°)	Emission Level (dBm)	Limit (dBm)	Margin (dB)
Low Channel:518MHz							
463.58	Peak	H	1.81	288.84	-44.96	-13.00	-31.96
463.58	Peak	V	1.49	313.03	-51.62	-13.00	-38.62
1036.00	Peak	H	1.12	198.00	-49.02	-13.00	-36.02
1036.00	Peak	V	1.44	280.28	-41.22	-13.00	-28.22
1554.00	Peak	H	1.46	264.42	-52.58	-13.00	-39.58
1554.00	Peak	V	1.98	33.56	-44.86	-13.00	-31.86
Middle Channel:531.35MHz							
463.58	Peak	H	1.27	295.61	-44.26	-13.00	-31.26
463.58	Peak	V	1.15	318.80	-51.36	-13.00	-38.36
1062.70	Peak	H	1.55	69.13	-48.69	-13.00	-35.69
1062.70	Peak	V	1.41	86.27	-41.08	-13.00	-28.08
1594.05	Peak	H	1.33	115.46	-52.67	-13.00	-39.67
1594.05	Peak	V	1.83	282.51	-45.25	-13.00	-32.25
High Channel: 546.9MHz							
463.58	Peak	H	1.40	295.56	-44.62	-13.00	-31.62
463.58	Peak	V	1.90	94.17	-51.58	-13.00	-38.58
1093.80	Peak	H	1.37	35.21	-46.85	-13.00	-33.85
1093.80	Peak	V	1.68	8.14	-41.25	-13.00	-28.25
1640.70	Peak	H	1.71	33.20	-55.32	-13.00	-42.32
1640.70	Peak	V	1.02	350.12	-44.89	-13.00	-31.89

638MHz-666MHz:

Frequency (MHz)	Detector	Ant. Pol	Antenna Height (m)	Turntable Angle (°)	Emission Level (dBm)	Limit (dBm)	Margin (dB)
Low Channel:638MHz							
513.52	Peak	H	1.66	34.58	-51.36	-13.00	-38.36
513.52	Peak	V	1.44	132.92	-47.51	-13.00	-34.51
1276.00	Peak	H	1.62	235.60	-46.92	-13.00	-33.92
1276.00	Peak	V	1.07	40.49	-39.58	-13.00	-26.58
1914.00	Peak	H	1.82	191.10	-55.63	-13.00	-42.63
1914.00	Peak	V	1.67	87.46	-47.81	-13.00	-34.81
Middle Channel: :652.075MHz							
513.52	Peak	H	1.26	71.61	-51.28	-13.00	-38.28
513.52	Peak	V	1.97	276.42	-46.02	-13.00	-33.02
1304.15	Peak	H	1.59	184.74	-48.11	-13.00	-35.11
1304.15	Peak	V	1.33	313.54	-41.35	-13.00	-28.35
1956.23	Peak	H	1.89	264.58	-55.74	-13.00	-42.74
1956.23	Peak	V	1.36	358.07	-45.78	-13.00	-32.78
High Channel: 666MHz							
513.52	Peak	H	1.20	211.09	-45.85	-13.00	-32.85
513.52	Peak	V	1.21	231.52	-51.42	-13.00	-38.42
1332.00	Peak	H	1.48	204.35	-46.98	-13.00	-33.98
1332.00	Peak	V	1.60	184.72	-41.38	-13.00	-28.38
1998.00	Peak	H	1.04	287.58	-56.41	-13.00	-43.41
1998.00	Peak	V	1.52	118.27	-46.71	-13.00	-33.71

11 Frequency Stability

Test requirement:	FCC CFR47 Part 2 Section 2.1055(a)(a)
Test method:	Based on TIA/EIA-603-C-2004
Limit:	According to FCC 74.86(e)(4), the frequency tolerance of the transmitter shall be 0.005 percent.

11.1 Test Configuration

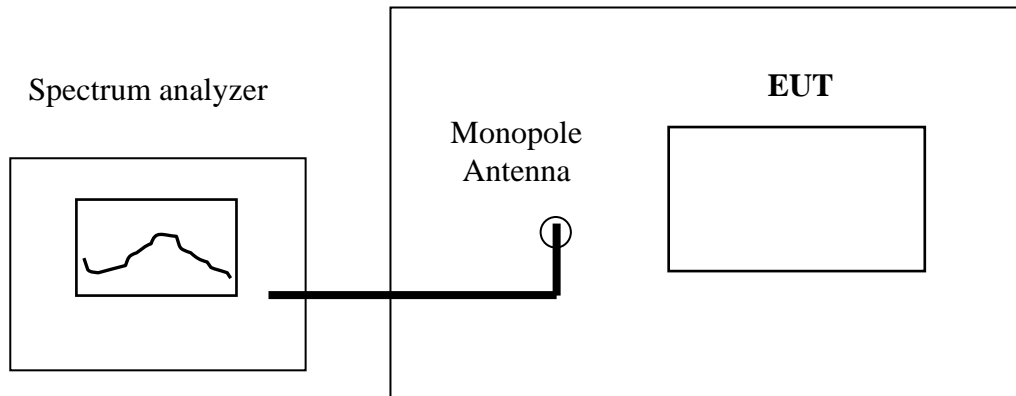


Figure 1

11.2 Test Procedure

A) Frequency stability versus input voltage

1. Setup the configuration per figure 1 for frequencies measured at an environmental chamber whose temperature is set to 20 °C. Install new batteries in the EUT.
2. Set SA center frequency to the EUT operation frequency. Then set SA RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.
3. Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

B) Frequency stability versus environmental temperature

1. Setup the configuration per figure 1 for frequencies measured at an environmental chamber, Install new batteries in the EUT.
2. Turn on EUT and set SA center frequency to the EUT operation frequency, then set SA RBW to 30kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.
3. Set the temperature of chamber to 50°C. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.
4. Repeat step 2 with a 10°C decreased per stage until the lowest temperature -30°C is measured, record all measurement frequencies.

11.3 Test Result

a) Frequency stability versus input voltage

518MHz-546.9MHz:

Low channel

Power Supply	Reference Frequency (MHz)	Environment Temperature (°C)	Frequency Measured	Frequency Tolerance (%)
3V, DC	518	20	517.9981	-0.0004
3.45V, DC	518	20	517.9895	-0.0020

Middle channel

Power Supply	Reference Frequency (MHz)	Environment Temperature (°C)	Frequency Measured	Frequency Tolerance (%)
3V, DC	531.35	20	531.3471	-0.0005
3.45V, DC	531.35	20	531.3377	-0.0023

High channel

Power Supply	Reference Frequency (MHz)	Environment Temperature (°C)	Frequency Measured	Frequency Tolerance (%)
3V, DC	546.9	20	546.8972	-0.0005
3.45V, DC	546.9	20	546.8973	-0.0005

638MHz-666MHz:

Low channel

Power Supply	Reference Frequency (MHz)	Environment Temperature (°C)	Frequency Measured	Frequency Tolerance (%)
3V, DC	638	20	638.0021	0.0003
3.45V, DC	638	20	638.0033	0.0005

Middle channel

Power Supply	Reference Frequency (MHz)	Environment Temperature (°C)	Frequency Measured	Frequency Tolerance (%)
3V, DC	652.075	20	652.0761	0.0000
3.45V, DC	652.075	20	652.0806	0.0001

High channel

Power Supply	Reference Frequency (MHz)	Environment Temperature (°C)	Frequency Measured	Frequency Tolerance (%)
3V, DC	666	20	665.9972	-0.0004
3.45V, DC	666	20	666.0027	0.0004

b) Frequency stability versus environmental temperature:

518MHz-546.9MHz:

Low Frequency: 518MHz, Limit: 0.005%			
Environment Temperature(°C)	Power Supply	Frequency Deviation measured with time Elapse(30 minutes)	
		MHz	%
50	3.0V, DC	517.9909	-0.0018
40	3.0V, DC	517.9833	-0.0032
30	3.0V, DC	517.9809	-0.0037
20	3.0V, DC	517.9994	-0.0001
10	3.0V, DC	517.9926	-0.0014
0	3.0V, DC	517.9856	-0.0028
-10	3.0V, DC	517.9791	-0.0040
-20	3.0V, DC	517.9774	-0.0044
-30	3.0V, DC	517.9768	-0.0045

Middle Frequency: 531.35MHz, Limit: 0.005%			
Environment Temperature(°C)	Power Supply	Frequency Deviation measured with time Elapse(30 minutes)	
		MHz	%
50	3.0V, DC	531.3493	-0.0001
40	3.0V, DC	531.3482	-0.0003
30	3.0V, DC	531.3392	-0.0020
20	3.0V, DC	531.3502	0.0000
10	3.0V, DC	531.3498	0.0000
0	3.0V, DC	531.3461	-0.0007
-10	3.0V, DC	531.3419	-0.0015
-20	3.0V, DC	531.3419	-0.0015
-30	3.0V, DC	531.3407	-0.0018

High Frequency: 546.9MHz, Limit: 0.005%			
Environment Temperature(°C)	Power Supply	Frequency Deviation measured with time Elapse(30 minutes)	
		MHz	%
50	3.7V, DC	546.8927	-0.0013
40	3.7V, DC	546.8966	-0.0006
30	3.7V, DC	546.8824	-0.0032
20	3.7V, DC	546.9011	0.0002
10	3.7V, DC	546.8996	-0.0001
0	3.7V, DC	546.8906	-0.0017
-10	3.7V, DC	546.8863	-0.0025
-20	3.7V, DC	546.8804	-0.0036
-30	3.7V, DC	546.8782	-0.0040

Test Result: The max frequency tolerance rating is 0.0045% < 0.005%. Passed.

638MHz-666MHz:

Low Frequency: 638MHz, Limit: 0.005%			
Environment Temperature(°C)	Power Supply	Frequency Deviation measured with time Elapse(30 minutes)	
		MHz	%
50	3.0V, DC	637.9976	-0.0004
40	3.0V, DC	637.9886	-0.0018
30	3.0V, DC	637.9770	-0.0036
20	3.0V, DC	637.9972	-0.0004
10	3.0V, DC	637.9912	-0.0014
0	3.0V, DC	637.9822	-0.0028
-10	3.0V, DC	637.9758	-0.0038
-20	3.0V, DC	637.9767	-0.0037
-30	3.0V, DC	637.9765	-0.0037

Middle Frequency: 652.075MHz, Limit: 0.005%			
Environment Temperature(°C)	Power Supply	Frequency Deviation measured with time Elapse(30 minutes)	
		MHz	%
50	3.0V, DC	652.0698	-0.0008
40	3.0V, DC	652.0658	-0.0014
30	3.0V, DC	652.0700	-0.0008
20	3.0V, DC	652.0781	0.0005
10	3.0V, DC	652.0724	-0.0004
0	3.0V, DC	652.0687	-0.0010
-10	3.0V, DC	652.0592	-0.0024
-20	3.0V, DC	652.0573	-0.0027
-30	3.0V, DC	652.0567	-0.0028

High Frequency: 666MHz, Limit: 0.005%			
Environment Temperature(°C)	Power Supply	Frequency Deviation measured with time Elapse(30 minutes)	
		MHz	%
50	3.7V, DC	665.9933	-0.0010
40	3.7V, DC	665.9897	-0.0015
30	3.7V, DC	665.9813	-0.0028
20	3.7V, DC	665.9994	-0.0001
10	3.7V, DC	665.9915	-0.0013
0	3.7V, DC	665.9834	-0.0025
-10	3.7V, DC	665.9787	-0.0032
-20	3.7V, DC	665.9779	-0.0033
-30	3.7V, DC	665.9765	-0.0035

Test Result: The max frequency tolerance rating is 0.0037% < 0.005%. Passed.

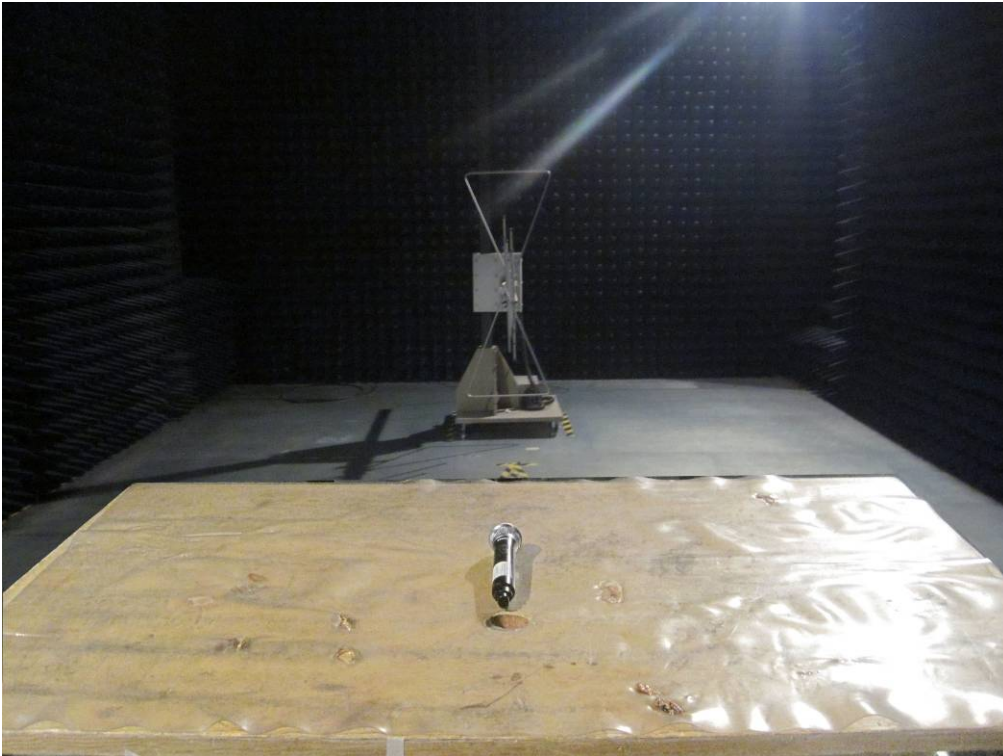
12 Photographs –Model UH7 Test Setup

12.1 Photograph – Radiation Spurious Emission Test Setup

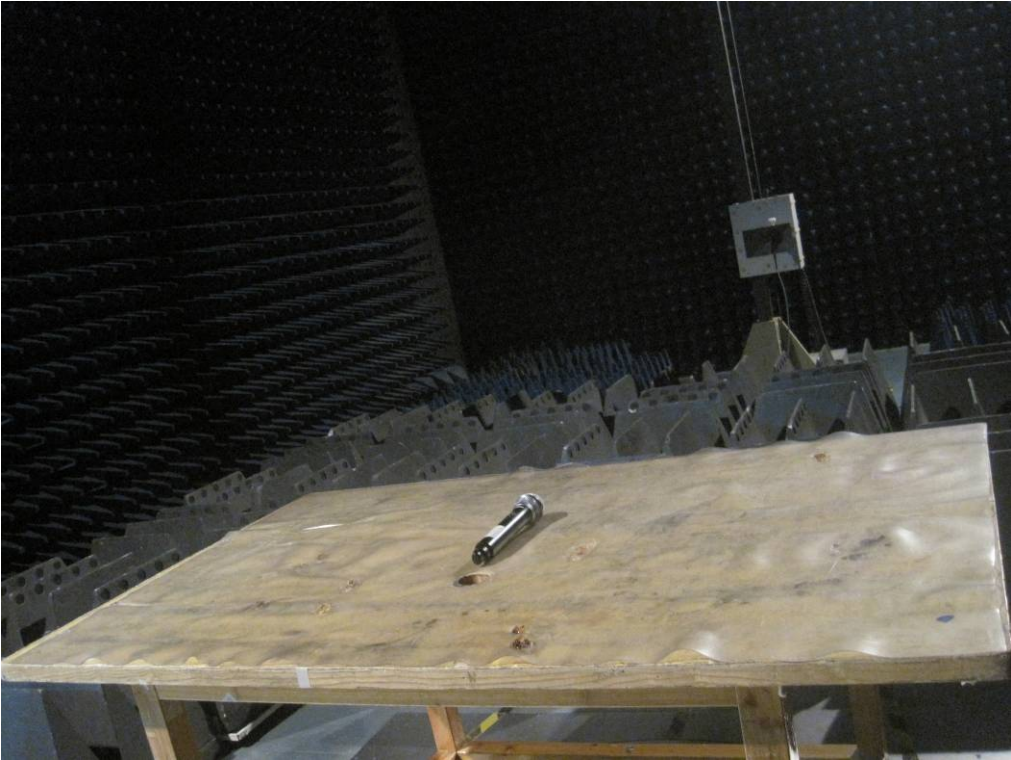
8MHz ~30MHz



30MHz-1GHz



1 GHz~7 GHz



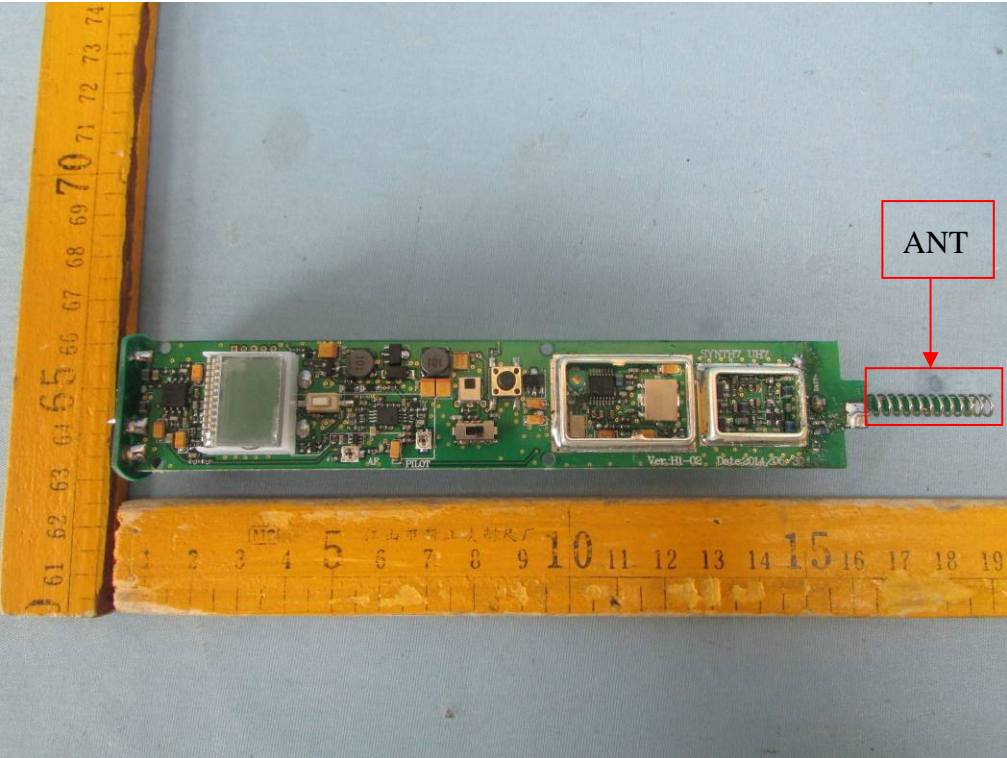
13 Photographs – Constructional Details

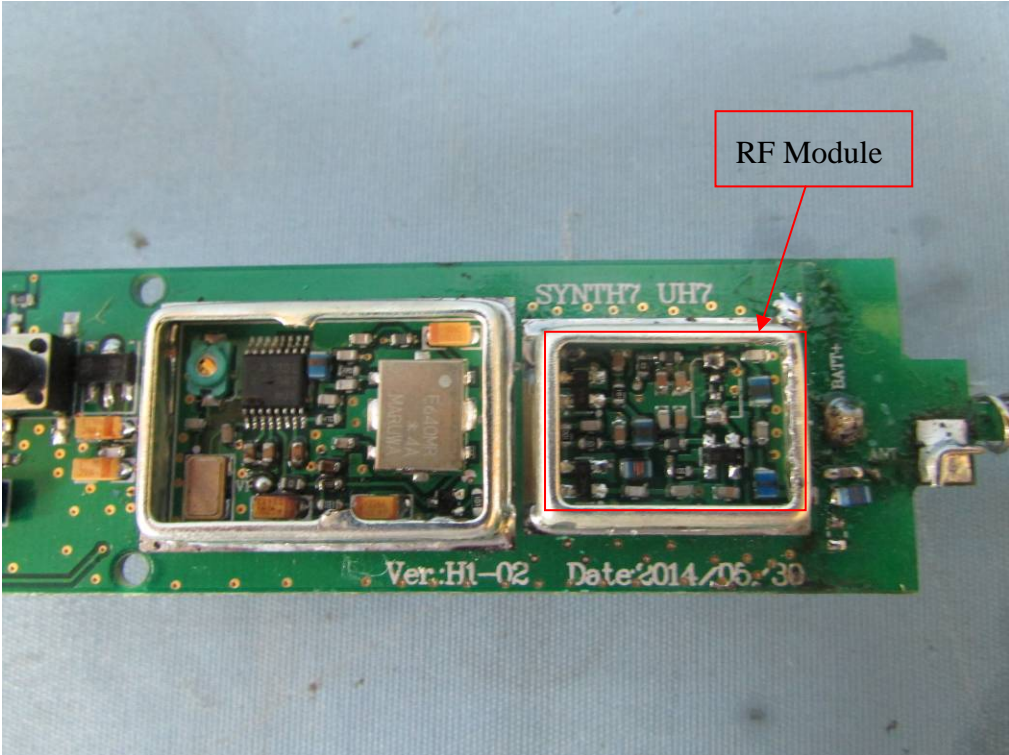
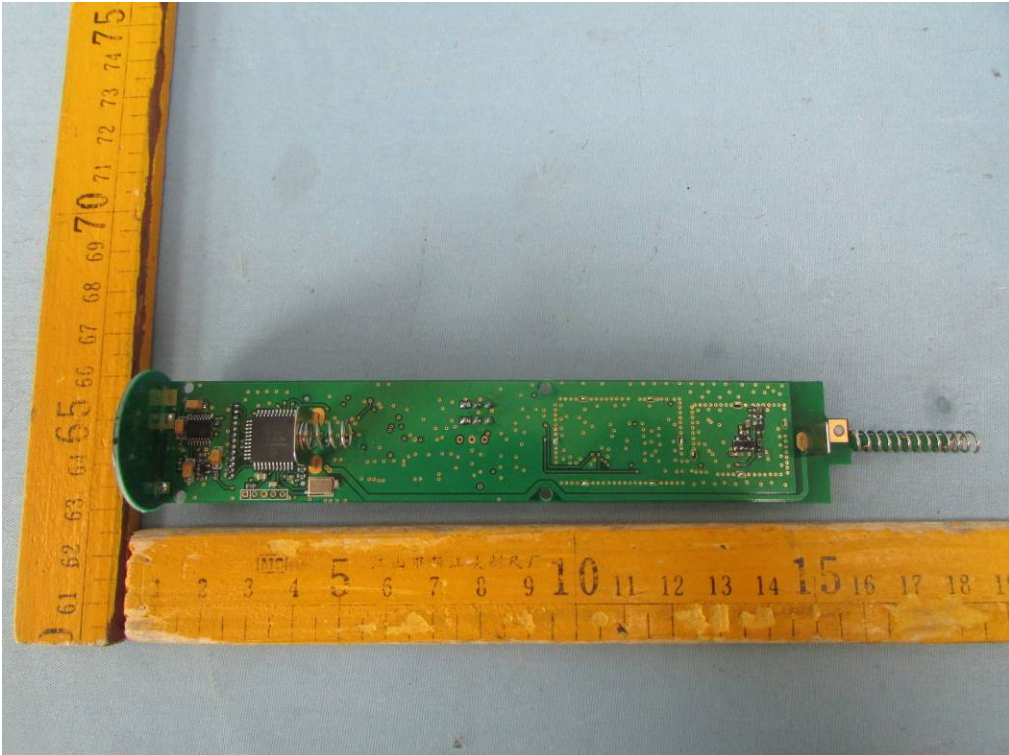
13.1 EUT – Appearance View for UH7

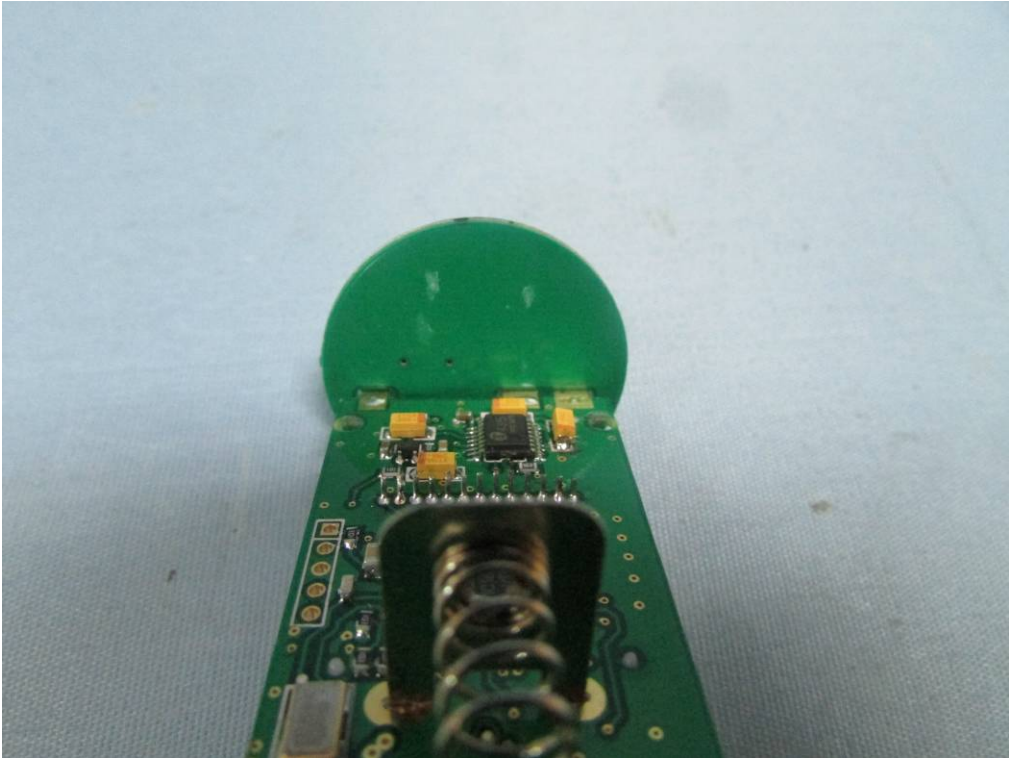




13.2 EUT – Open View for UH7







====End of Report====