FCC TEST REPORT
for
Boya Audio Equipment (Shenzhen) Co., Ltd.

BOYA UHF Wireless Microphone System
Model No.: BY-WM6

Prepared for	:	Boya Audio Equipment (Shenzhen) Co., Ltd.
Address	:	Building#A16, Silicon Valley, Intellectual Terminal Industrial Park, Guanlan Street, Longhua District, Shenzhen, China

Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China Tel: (86) 755-26066544 Fax: (86) 755-26014772

Report Number	:	R011508386I
Date of Test	:	Aug. 18~ Sept. 10, 2015
Date of Report	:	Sept. 10, 2015

TABLE OF CONTENTS

Description

Page

Test Report

TEST REPORT

Applicant	:	Boya Audio Equipment (Shenzhen) Co., Ltd.
Manufacturer	:	Boya Audio Equipment (Shenzhen) Co., Ltd.
EUT	:	BOYA UHF Wireless Microphone System
Model No.	:	BY-WM6
Trade Mark	:	BOYA
Rating	:	DC 3V, 130mA

Measurement Procedure Used:

FCC Title 47 CFR Part 74 Subpart H, Paragraph 74.861e

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 Test : Aug. 18~ Sept. 10, 2015

Prepared by : Kebo Zhang
(Tested Engineer / Kebo Zhang)

Reviewer : Amy Ding
(Project Manager / Amy Ding)

Approved & Authorized Signer : Tom Chen
(Manager / Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	BOYA UHF Wireless Microphone System
Model Number	:	BY-WM6
Test Power Supply	:	DC 3V
Frequency	:	584-608MHz For more details, refer to clause 1.5.
Modulation	:	FM
Antenna Specification	:	Integrated: 2dBi
Applicant	:	Boya Audio Equipment (Shenzhen) Co., Ltd.
Address	:	Building#A16, Silicon Valley, Intellectual Terminal Industrial Park, Guanlan Street, Longhua District, Shenzhen, China
Manufacturer	:	Boya Audio Equipment (Shenzhen) Co., Ltd.
Address	:	Building#A16, Silicon Valley, Intellectual Terminal Industrial Park, Guanlan Street, Longhua District, Shenzhen, China
Factory	:	Boya Audio Equipment (Shenzhen) Co., Ltd.
Address	:	Building#A16, Silicon Valley, Intellectual Terminal Industrial Park, Guanlan Street, Longhua District, Shenzhen, China
Date of receipt	:	Aug. 18, 2015
Date of Test	:	Aug. 18~ Sept. 10, 2015

1.2. Auxiliary Equipment Used during Test

Audio Signal Generator : M/N: TAG-101
S/N: 20030759
Manufacturer: U-TEK

1.3. Description of Test Facility

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

CNAS - LAB Code: L3503
Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

FCC-Registration No.: 752021
Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed 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 752021, July 10, 2013.

IC-Registration No.: 8058A-1
Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, February 22, 2013.

Test Location
All Emissions tests were performed at
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

1.4. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1 dB (Horizontal) Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

1.5. Operating Frequency

Channel (CH)	Frequency (MHz)	Channel (CH)	Frequency (MHz)
1	584.4	25	588.8
2	585.9	26	590.3
3	587.4	27	591.8
4	588.9	28	593.3
5	590.4	29	594.8
6	591.9	30	596.3
7	593.4	31	597.8
8	594.9	32	599.3
9	596.4	33	600.8
10	597.9	34	602.3
11	599.4	35	603.8
12	600.9	36	605.3
13	586.6	37	590.9
14	588.1	38	592.4
15	589.6	39	593.9
16	591.1	40	595.4
17	592.6	41	596.9
18	594.1	42	598.4
19	595.6	43	599.9
20	597.1	44	601.4
21	598.6	45	602.9
22	600.1	46	604.4
23	601.6	47	605.9
24	603.1	48	607.4

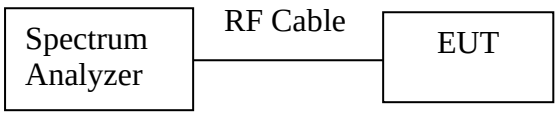
Note: Channel Low(584.4MHz), Channel Mid(595.6MHz) and Channel High(607.4MHz) are chosen for the final testing.

2. Transmitter Output Power

2.1. Requirements

Test Standard: FCC Part 74.861(e)(1)
(e) For low power auxiliary stations operating in the bands allocated for TV broadcasting, the following technical requirements apply:
(1) The power of the measured unmodulated carrier power at the out-put of the transmitter power amplifier (antenna input power) may not exceed the following:
(i) 54–72, 76–88, and 174–216 MHz bands—50 mW
(ii) 470–608 and 614–698 MHz bands—250 mW

2.2. Test Setup



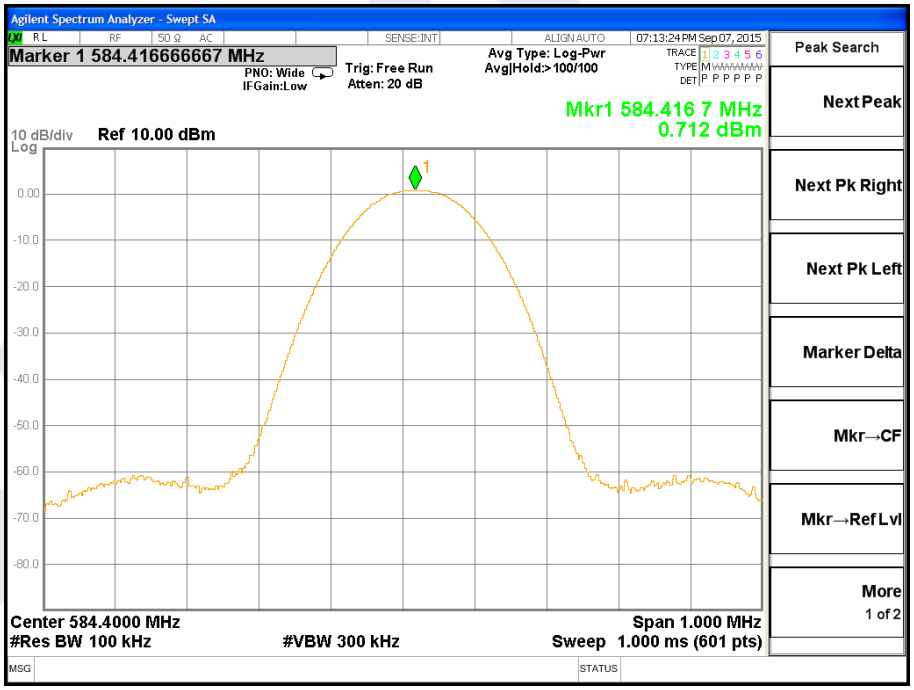
2.3. Test Equipment

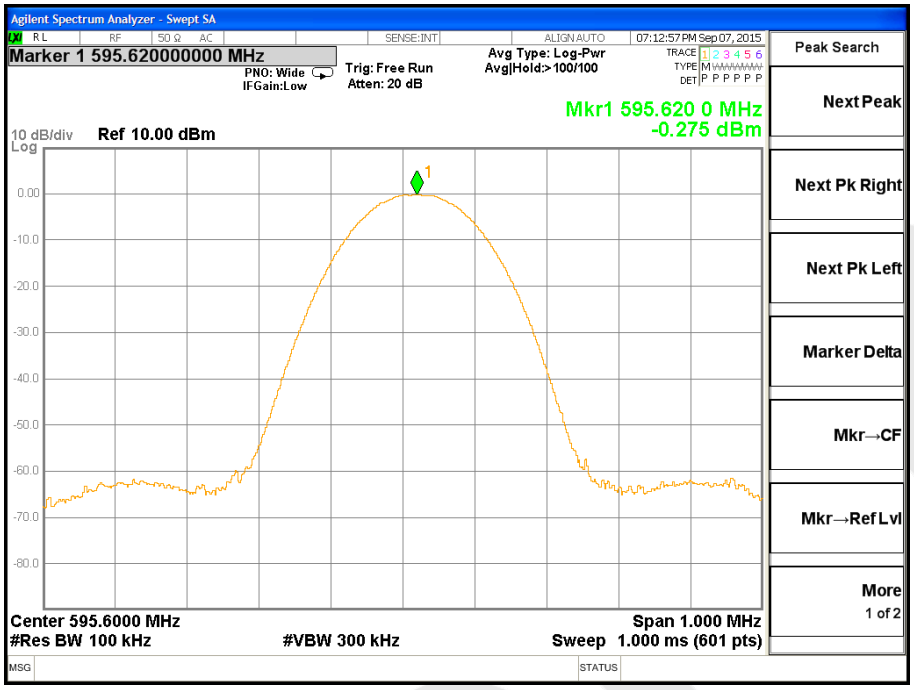
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Apr. 17, 2015	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Apr. 17, 2015	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 17, 2015	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Apr. 20, 2015	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 20, 2015	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Apr. 17, 2015	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8	Power Sensor	DAER	RPR3006W	15I00041SN046	Jun 30, 2015	1 Year
9	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Jun 30, 2015	1 Year
10	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Jun 30, 2015	1 Year
11	Signal Generator	Agilent	E4421B	MY41000743	Jun 30, 2015	1 Year
12	DC Power supply	IV	IV-8080	YQSB0096	Jun 30, 2015	1 Year
13	TEMP&HUMI PROGRAMMABLE CHAMBER	Bell Group	BE-THK-150M8	SE-0137	Mar 16, 2015	1 Year
14	RF communication Test Set	HP	8920A	3498A05658	Aug 16, 2015	1 Year

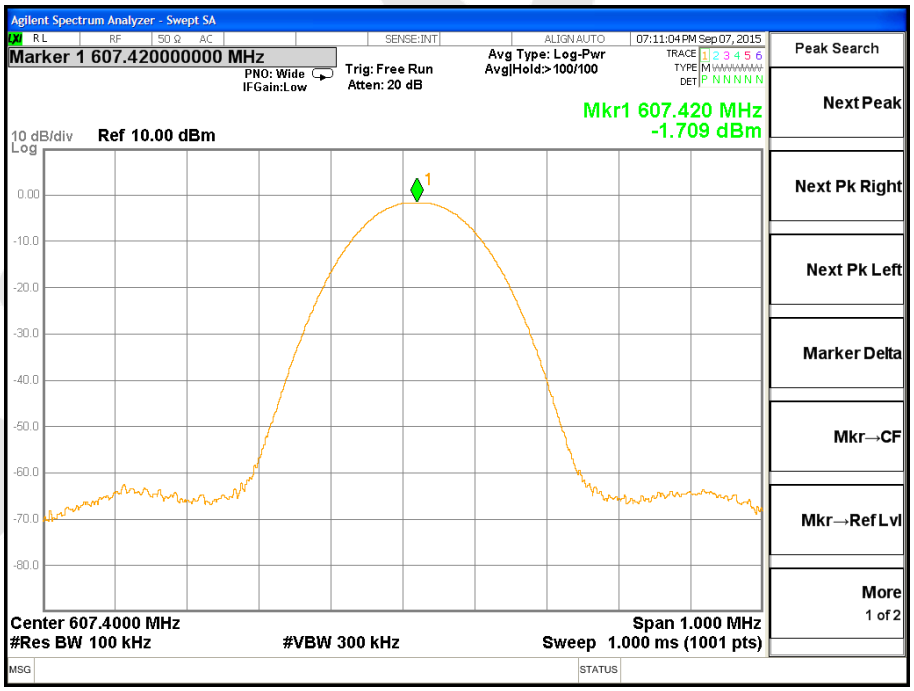
2.4. Test Results

PASS.
Please refer the following pages.
Data:

Channel	Channel Frequency	Peak Output Power		Limit
	(MHz)	(dBm)	(mW)	(mW)
Channel Low	584.4MHz	0.712	1.178	250
Channel Mid	595.6MHz	-0.275	0.939	250
Channel High	607.4MHz	-1.709	0.675	250




Agilent Spectrum Analyzer - Swept SA
Marker 1 595.620000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
07:12:57 PM Sep 07, 2015
Mkr1 595.620 0 MHz
-0.275 dBm
10 dB/div
Log
Ref 10.00 dBm
Center 595.6000 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 1.000 MHz
Sweep 1.000 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 607.420000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
07:11:04 PM Sep 07, 2015
Mkr1 607.420 MHz
-1.709 dBm
10 dB/div
Log
Ref 10.00 dBm
Center 607.4000 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 1.000 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

3. Spurious Radiation Emissions

3.1. Requirements

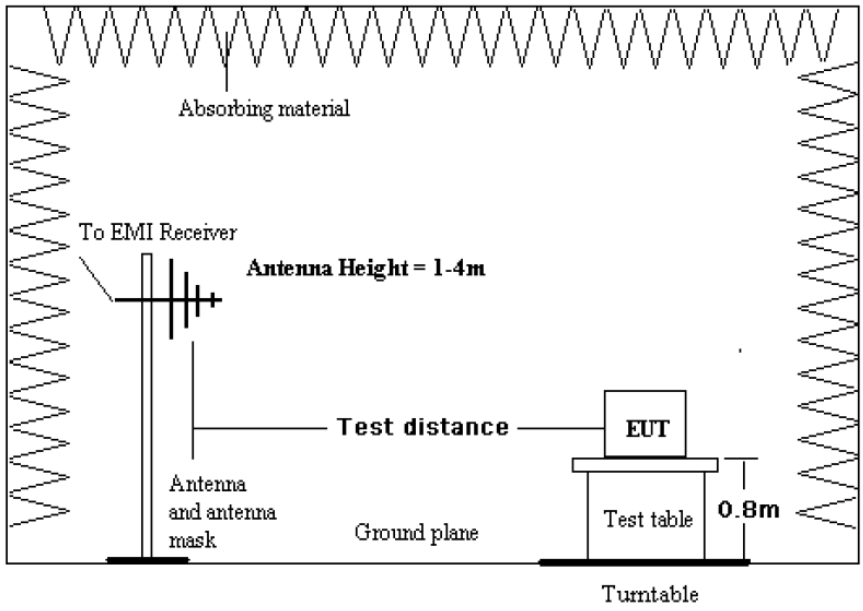
Test Standard: FCC Part 74.861(e)(6)(iii)
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:
(i) On any frequency removed from the operating frequency by more than 50 percent up to and including 100 per-cent of the 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 per-cent of the authorized bandwidth: at least 35 dB;
(iii) On any frequency removed from the operating frequency by more than 250 percent of the authorized band-width: at least 43+10log10(mean output power in watts) dB.

3.2. Test Procedure

The procedure used was EIA/TIA 603-D:2010. The receiver was scanned from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading +Antenna Factor +Cable Factor –Preamplifier Factor
An initial pre-scan was performed in the 3m chamber using the spectrum analyzer in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the Carrier Radiated Power and spurious emissions were measured by the substitution.



3.3. Test Equipment

as same as clause 2.3.

3.4. Test Results

Pass.
Please refer the following plot.

Limit Calculation:

Channel	Output Power		Formula	Attenuation	Absolute Limit
	dBm	mW		(dB)	(dBm)
Channel Low	0.712	1.178	$43+10\log_{10}(P)$ dB	13.712	-13
Channel Mid	-0.275	0.939	$43+10\log_{10}(P)$ dB	12.725	-13
Channel High	-1.709	0.675	$43+10\log_{10}(P)$ dB	11.291	-13

Test Results of Spurious Radiation Emission:

Channel Low:

Frequency (MHz)	Polarization of Antenna (V/H)	Results (dBm)	Limit (dBm)	Margin (dB)
31.24	H	-57.9	-13	-44.9
92.11	H	-54.3	-13	-41.3
147.85	H	-59.1	-13	-46.1
215.62	H	-56.5	-13	-43.5
1168.8	H	-45.3	-13	-32.3
1753.2	H	-53.7	-13	-40.7
2337.6	H	-55.2	-13	-42.2
---	---	---	---	---
47.61	V	-63.8	-13	-50.8
83.55	V	-55.1	-13	-42.1
135.44	V	-54.6	-13	-41.6
211.05	V	-51.5	-13	-38.5
1168.8	V	-47.3	-13	-34.3
1753.2	V	-50.7	-13	-37.7
2337.6	V	-56.2	-13	-43.2
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Channel Mid:

Frequency (MHz)	Polarization of Antenna (V/H)	Results (dBm)	Limit (dBm)	Margin (dB)
39.55	H	-56.3	-13	-56.3
94.84	H	-54.9	-13	-54.9
149.79	H	-58.7	-13	-58.7
243.66	H	-56.2	-13	-56.2
1191.2	H	-46.4	-13	-33.4
1786.8	H	-51.3	-13	-38.3
2382.4	H	-56.7	-13	-43.7
---	---	---	---	---
41.05	V	-61.7	-13	-48.7
93.22	V	-56.2	-13	-43.2
151.11	V	-54.1	-13	-41.1
246.39	V	-52.9	-13	-39.9
1191.2	V	-47.7	-13	-34.7
1786.8	V	-53.5	-13	-40.5
2382.4	V	-54.9	-13	-41.9
---	---	---	---	---

Channel High:

Frequency (MHz)	Polarization of Antenna (V/H)	Results (dBm)	Limit (dBm)	Margin (dB)
37.11	H	-58.2	-13	-58.2
95.59	H	-55.1	-13	-55.1
148.21	H	-57.9	-13	-57.9
244.07	H	-56.4	-13	-56.4
1214.8	H	-45.1	-13	-32.1
1822.2	H	-49.7	-13	-36.7
2429.6	H	-56.4	-13	-43.4
---	---	---	---	---
38.25	V	-62.6	-13	-49.6
95.31	V	-51.5	-13	-38.5
148.65	V	-54.2	-13	-41.2
244.84	V	-50.3	-13	-37.3
1214.8	V	-46.9	-13	-33.9
1822.2	V	-48.7	-13	-35.7
2429.6	V	-55.8	-13	-42.8
---	---	---	---	---

Note:We put the device flat, upright on the table; flat test mode in which the worst, so the data is recorded flat.

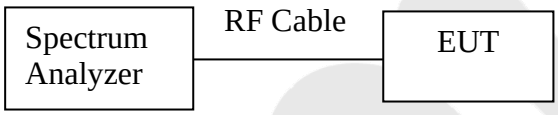
4. Operating Bandwidth and Emissions Mask

4.1. Requirements

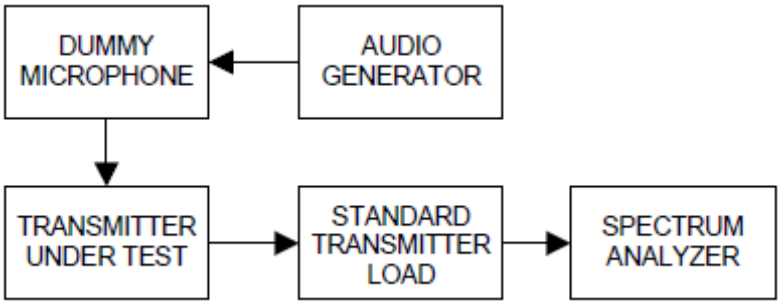
Test Standard: FCC Part 74.861(e)(3) & (5), (6)(i)(iii)
(5) The operating bandwidth shall not exceed 200 kHz.
(6) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:
(i) On any frequency removed from the operating frequency by more than 50 percent up to and including 100 per-cent of the authorized bandwidth: at least 25 dB;
(iii) On any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth: at least 43+10log10(mean output power in watts) dB.

4.2. Test Setup

1) Operating Bandwidth Test:



2) Emission Mask:



4.3. Test Procedure

a) Operating Bandwidth:
1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as:
RBW = 3kHz, VBW =30kHz,
Detector= Peak
Trace mode= Max hold.
Sweep- auto couple.
4. Mark the 99% of peak frequency.
5. Repeat until all the rest channels are investigated.

b) Emission:
1. Connect the equipment as illustrated.
Use the table 16 to determine the spectrum analyzer resolution bandwidth:

Table 16
Spectrum Analyzer Resolution Bandwidth

Frequency Band (MHz)	Mask for Equipment with Audio Low Pass Filter	Mask for Equipment without Low Pass Filter	Spectrum Analyzer Resolution Bandwidth (Hz)
25-50	B	C	300
72-76	B	C	300
138-174	NTIA	NTIA	300
150-174	B	C	300
150-174	D or E	D or E	100
406-420	NTIA	NTIA	300
421-512	B	C	300
421-512	D or E	D or E	100
806-821/851-866	B or EA	G or EA	300
821-824/866-869	B	H	300
896-901/935-940	I	J	300

2. Adjust the spectrum analyzer for the following settings:
Resolution Bandwidth per the above table.
Video Bandwidth at least 10 times the resolution bandwidth.
Sweep Speed slow enough to maintain measurement calibration.
Detector Mode = Positive Peak.
Span that will allow proper viewing of the test bandwidth

3. Set the center frequency of the spectrum analyzer to the assigned transmitter frequency. Key the transmitter, and set the level of the unmodulated carrier to a full scale reference line.
This is the 0 dB reference for the measurement.

4. Modulate the transmitter with a 2500 Hz sine wave at an input level 16 dB greater than that necessary to produce 50% of rated system deviation. The input level shall be established at the frequency of maximum response of the audio modulating circuit.
Transmitters employing digital modulation techniques that bypass the limiter and the audio low-pass filter shall be modulated as specified by the manufacturer.

5. Record the resulting spectrum analyzer presentation of the emission level with an on-line recording device or in a photograph. It is recommended that the emission limit be drawn on the plotted graph or photograph.
The spectrum analyzer presentation is the sideband spectrum.

4.4. Test Equipment

as same as clause 2.3.

4.5. Test Results

Pass.

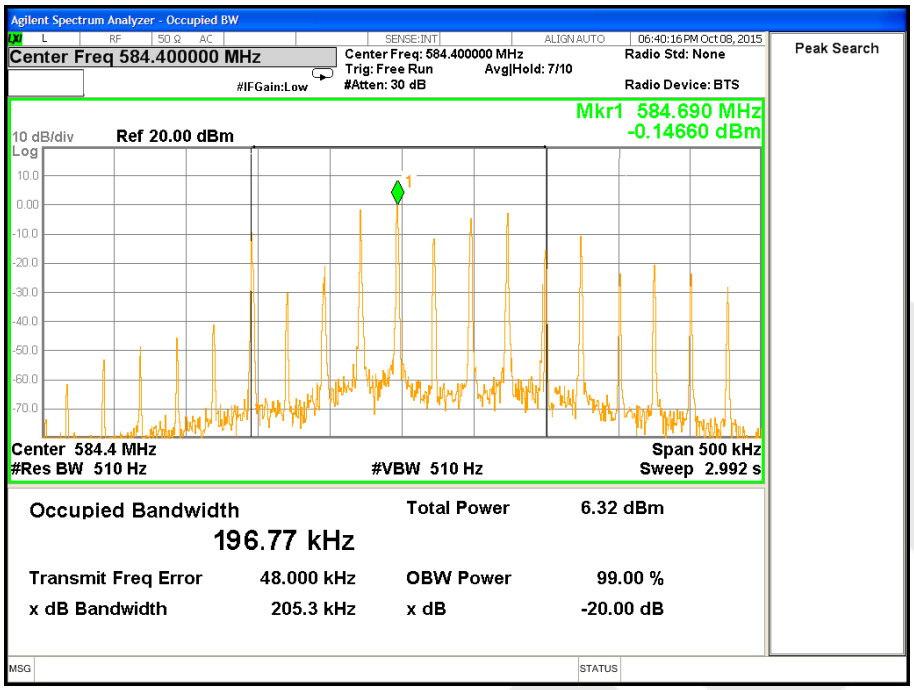
Please refer the following plot.

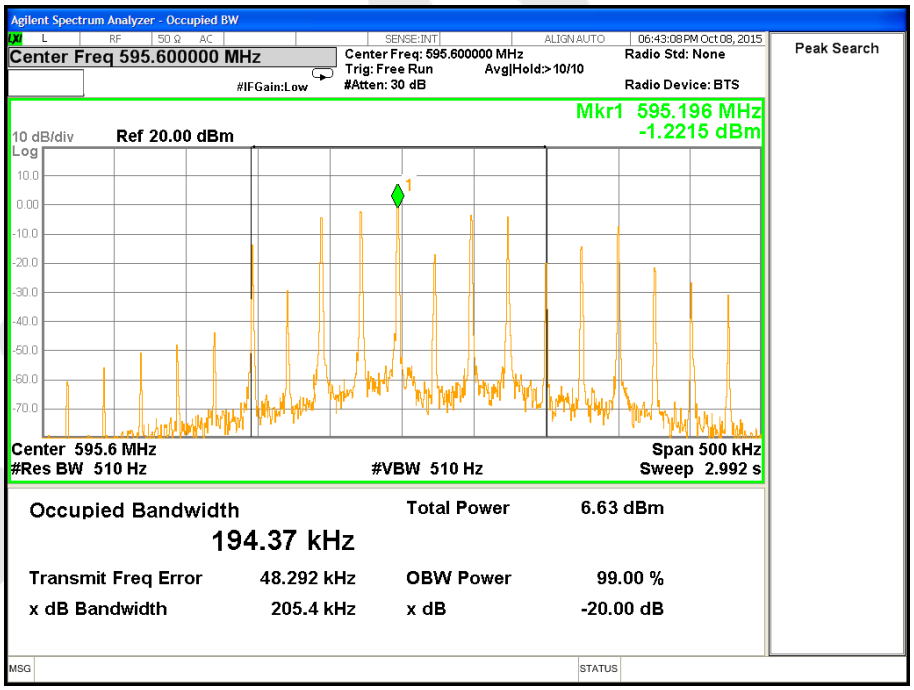
Test Results of Operating Bandwidth

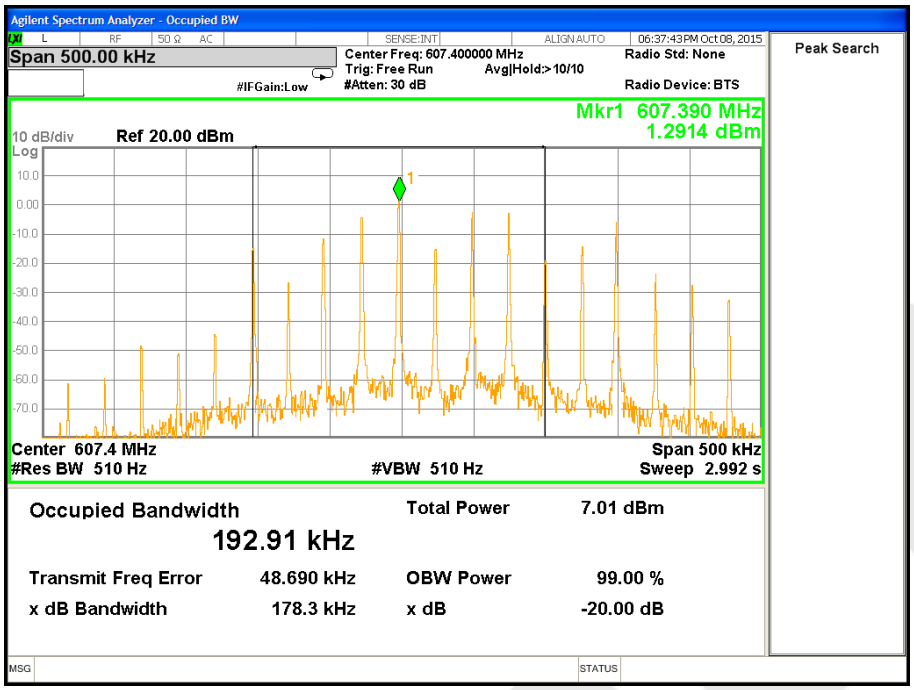
Channel	Frequency (MHz)	Results (kHz)	Limits (kHz)
Channel Low	584.4	196.77	200
Channel Mid	595.6	194.37	200
Channel High	607.4	192.91	200

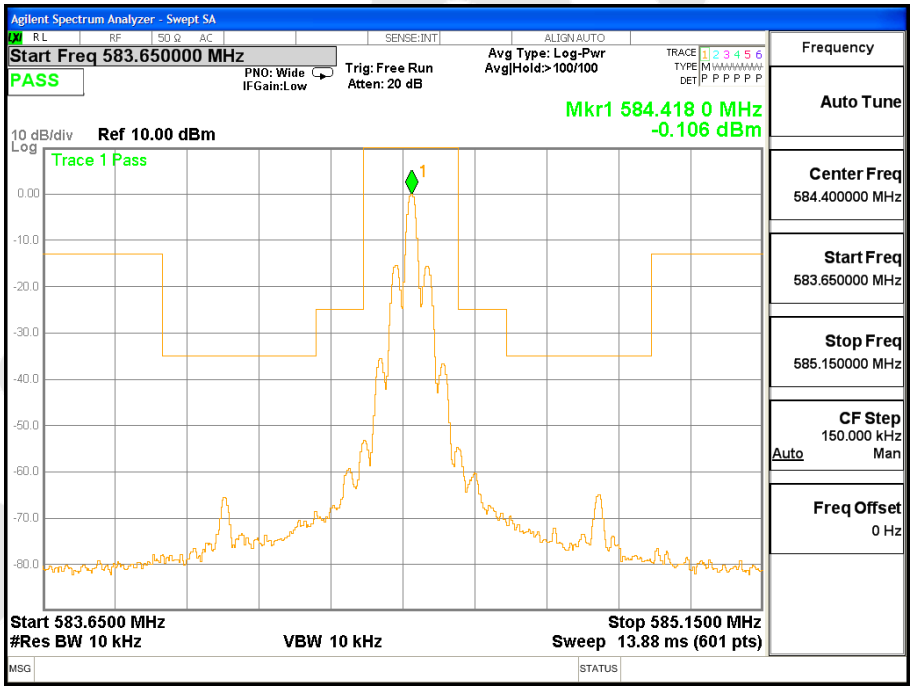
Test Results of Emission Mask

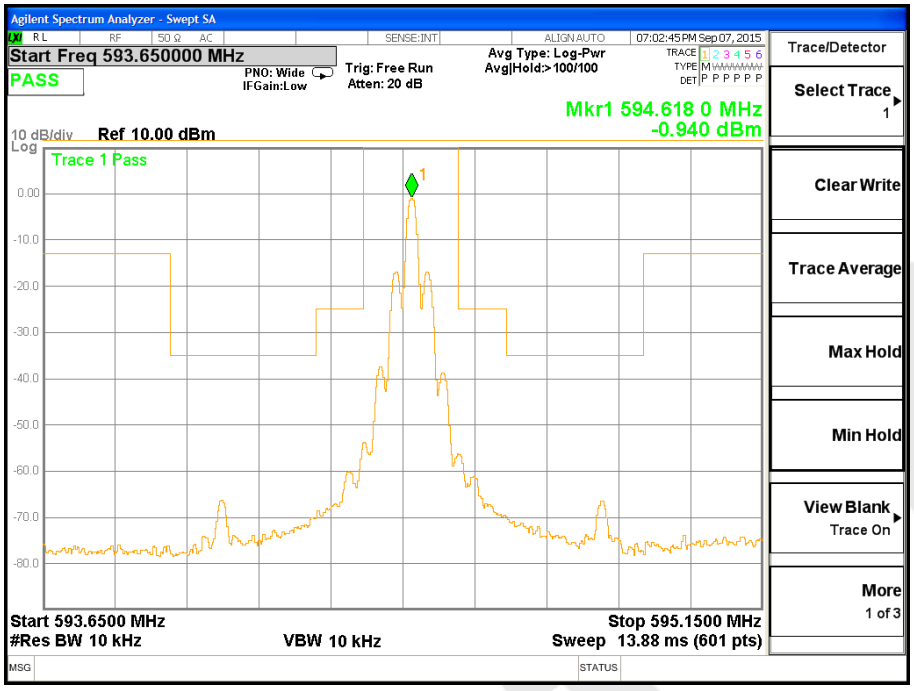
Channel	Frequency (MHz)	Results	Remark
Channel Low	584.4	PASS	Refer to following test plots.
Channel Mid	595.6	PASS	Refer to following test plots.
Channel High	607.4	PASS	Refer to following test plots.

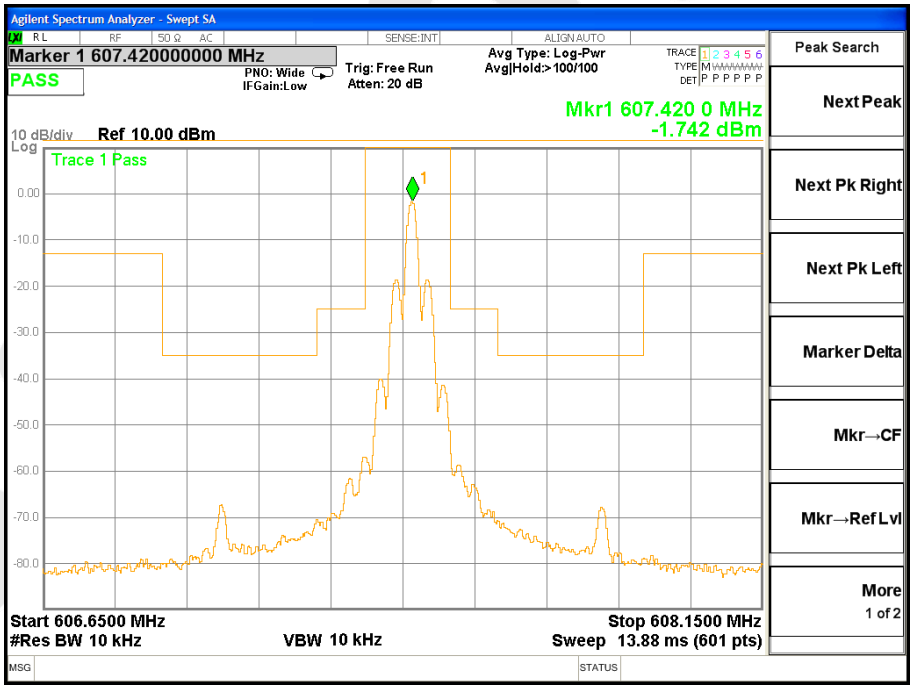

Agilent Spectrum Analyzer - Occupied BW
Center Freq 584.400000 MHz
Center Freq: 584.400000 MHz
Trig: Free Run
Avg|Hold: 7/10
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
06:40:16 PM Oct 08, 2015
Peak Search
Mkr1 584.690 MHz
-0.14660 dBm
10 dB/div
Log
Ref 20.00 dBm
Center 584.4 MHz
#Res BW 510 Hz
#VBW 510 Hz
Span 500 kHz
Sweep 2.992 s
Occupied Bandwidth
196.77 kHz
Total Power 6.32 dBm
Transmit Freq Error 48.000 kHz
OBW Power 99.00 %
x dB Bandwidth 205.3 kHz
x dB -20.00 dB
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 595.600000 MHz
Center Freq: 595.600000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
06:43:08 PM Oct 08, 2015
Peak Search
Mkr1 595.196 MHz
-1.2215 dBm
10 dB/div
Log
Ref 20.00 dBm
Center 595.6 MHz
#Res BW 510 Hz
#VBW 510 Hz
Span 500 kHz
Sweep 2.992 s
Occupied Bandwidth
194.37 kHz
Total Power 6.63 dBm
Transmit Freq Error 48.292 kHz
OBW Power 99.00 %
x dB Bandwidth 205.4 kHz
x dB -20.00 dB
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Span 500.00 kHz
Center Freq: 607.400000 MHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Peak Search
Mkr1 607.390 MHz
1.2914 dBm
10 dB/div
Ref 20.00 dBm
Log
Center 607.4 MHz
#Res BW 510 Hz
#VBW 510 Hz
Span 500 kHz
Sweep 2.992 s
Occupied Bandwidth
192.91 kHz
Total Power
7.01 dBm
Transmit Freq Error
48.690 kHz
OBW Power
99.00 %
x dB Bandwidth
178.3 kHz
x dB
-20.00 dB
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Start Freq 583.650000 MHz
PASS
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Frequency
Auto Tune
Mkr1 584.418 0 MHz
-0.106 dBm
10 dB/div
Ref 10.00 dBm
Log
Trace 1 Pass
Center Freq
584.400000 MHz
Start Freq
583.650000 MHz
Stop Freq
585.150000 MHz
CF Step
150.000 kHz
Auto
Man
Freq Offset
0 Hz
Start 583.6500 MHz
#Res BW 10 kHz
VBW 10 kHz
Stop 585.1500 MHz
Sweep 13.88 ms (601 pts)
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Start Freq 593.650000 MHz
PASS
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
07:02:45 PM Sep 07, 2015
Mkr1 594.618 0 MHz
-0.940 dBm
10 dB/div
Log
Ref 10.00 dBm
Trace 1 Pass
Start 593.6500 MHz
#Res BW 10 kHz
VBW 10 kHz
Stop 595.1500 MHz
Sweep 13.88 ms (601 pts)
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3

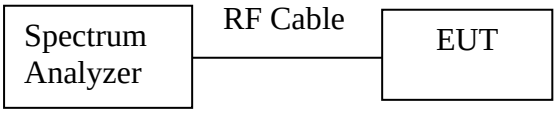

Agilent Spectrum Analyzer - Swept SA
Marker 1 607.420000000 MHz
PASS
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Mkr1 607.420 0 MHz
-1.742 dBm
10 dB/div
Log
Ref 10.00 dBm
Trace 1 Pass
Start 606.6500 MHz
#Res BW 10 kHz
VBW 10 kHz
Stop 608.1500 MHz
Sweep 13.88 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

5. Frequency Tolerance

5.1. Requirements

Test Standard: FCC Part 74.861(e)(4)
(4) The frequency tolerance of the transmitter shall be 0.005 percent.

5.2. Test Setup



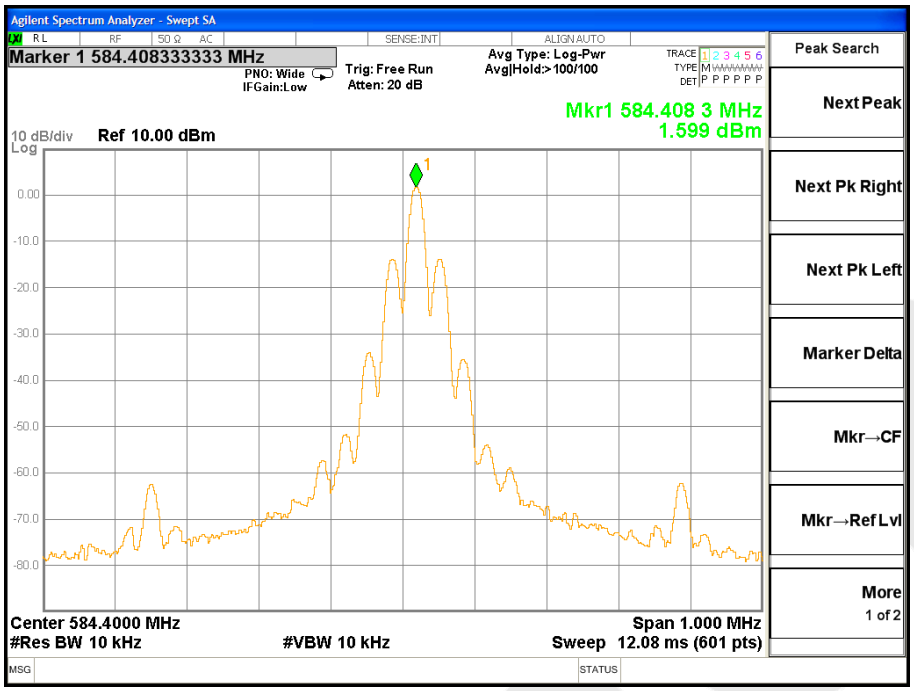
5.3. Test Equipment

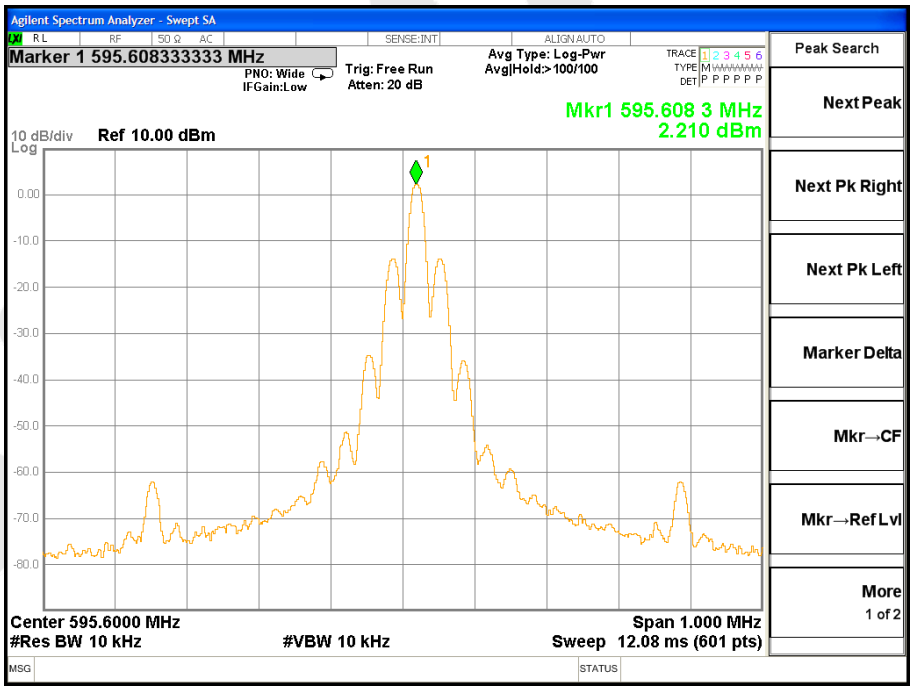
as same as clause 2.3.

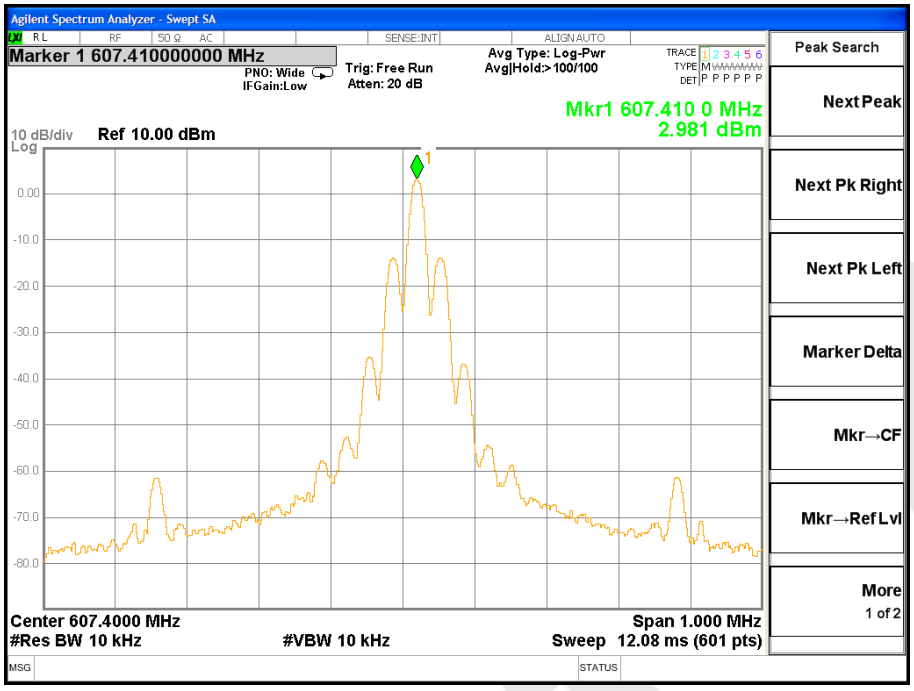
5.4. Test Results

Pass.
Please refer the following plot.

Test Condition	Power Supply	Channel Low (584.4MHz)	Channel Mid (595.6MHz)	Channel High (607.4MHz)
-30℃	DC 3.0	584.4089	595.6094	607.4110
-20℃	DC 3.0	584.4088	595.6091	607.4105
-10℃	DC 3.0	584.4084	595.6088	607.4101
0℃	DC 3.0	584.4085	595.6084	607.4104
10℃	DC 3.0	584.4081	595.6083	607.4105
20℃	DC 3.0	584.4083	595.6083	607.4100
30℃	DC 3.0	584.4083	595.6085	607.4101
40℃	DC 3.0	584.4087	595.6087	607.4106
50℃	DC 3.0	584.4091	595.6090	607.4103
20℃	DC 3.3	584.4084	595.6085	607.4103
20℃	DC 2.7	584.4085	595.6084	607.4105
Maximum Frequency Error (MHz)		0.0091	0.0094	0.0110
Frequency Tolerance		0.0016%	0.0016%	0.0018%
Limit		0.005%		


Agilent Spectrum Analyzer - Swept SA
Marker 1 584.408333333 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Mkr1 584.408 3 MHz
1.599 dBm
10 dB/div
Log
Ref 10.00 dBm
Center 584.4000 MHz
#Res BW 10 kHz
#VBW 10 kHz
Span 1.000 MHz
Sweep 12.08 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 595.608333333 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Mkr1 595.608 3 MHz
2.210 dBm
10 dB/div
Log
Ref 10.00 dBm
Center 595.6000 MHz
#Res BW 10 kHz
#VBW 10 kHz
Span 1.000 MHz
Sweep 12.08 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 607.410000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Mkr1 607.410 0 MHz
2.981 dBm
10 dB/div
Log
Ref 10.00 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 607.4000 MHz
#Res BW 10 kHz
#VBW 10 kHz
Span 1.000 MHz
Sweep 12.08 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

6. Modulation Characteristics

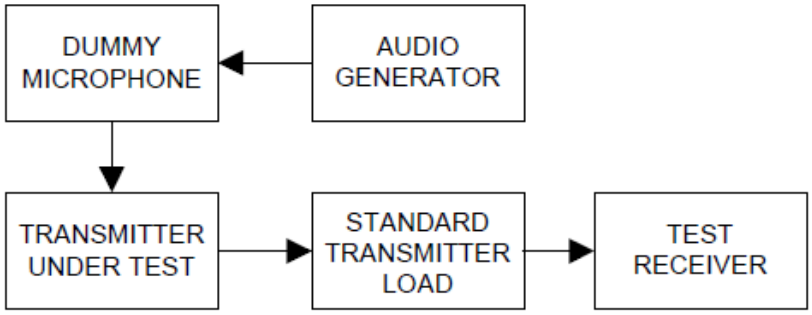
6.1. Requirements

Test Standard: FCC Part 74.861(e)(3) & (5), (6)(i)(iii)
(3) Any form of modulation may be used. A maximum deviation of ±75 kHz is permitted when frequency modulation is employed.

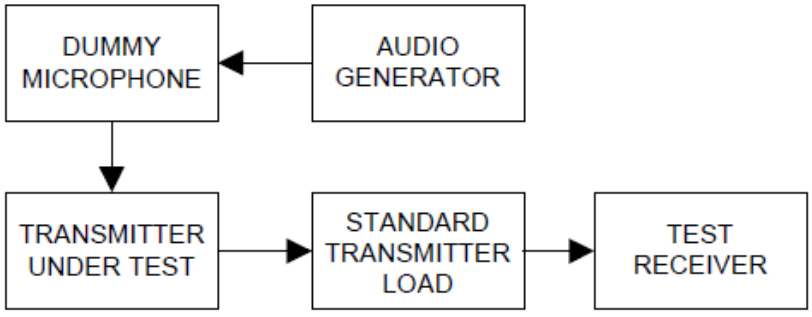
Test Standard: FCC Part 2.1047(a) & (b)
(a) Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.
(b) Equipment which employs modulation limiting. A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed.

6.2. Test Setup

a) Audio Frequency Response



b) Modulation Limiting



6.3. Test Procedure

a) Audio Frequency Response

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

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

9. Repeat steps 6 through 8 for all the desired test frequencies.

b) Modulation Limiting

1. Connect the equipment as illustrated.
2. Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
3. Set the test receiver to measure peak positive deviation.
Set the audio bandwidth for ≤0.25 Hz to ≥15,000 Hz.
Turn the de-emphasis function off.
4. 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.
5. Increase the level from the audio frequency generator by 20 dB in one step (rise time between the 10% and 90% points shall be 0.1 second maximum).
6. Measure both the instantaneous and steady-state deviation at and after the time of increasing the audio input level.
7. With the level from the audio frequency generator held constant at the level obtained in step 5, slowly vary the audio frequency from 300 Hz to 3000 Hz and observe the steady-state deviation.
Record the maximum deviation.
8. Set the test receiver to measure peak negative deviation and repeat steps 4 through 7.
9. The values recorded in steps 7 and 8 are the modulation limiting.

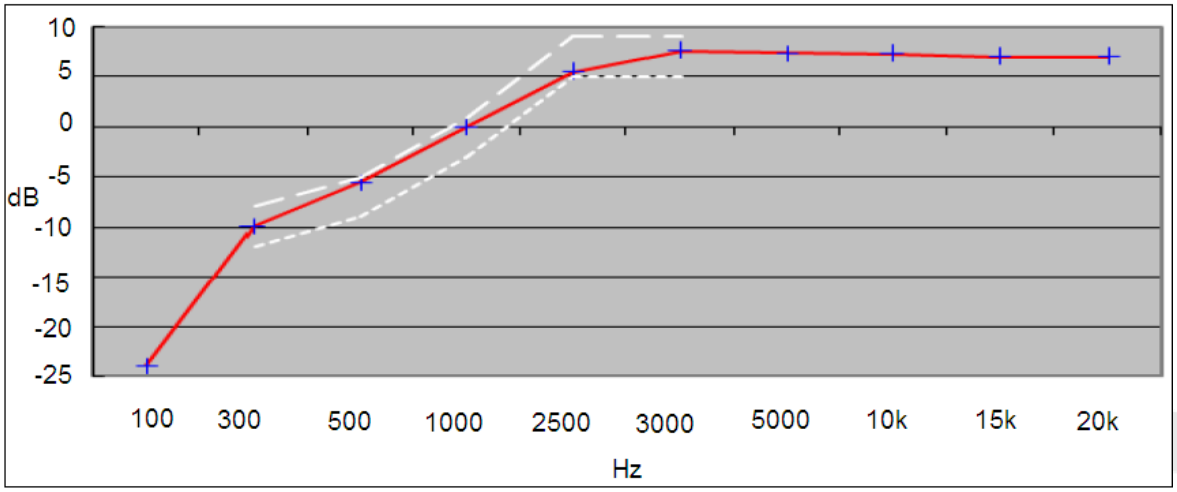
6.4. Test Equipment

as same as clause 2.3..

6.5. Test Results

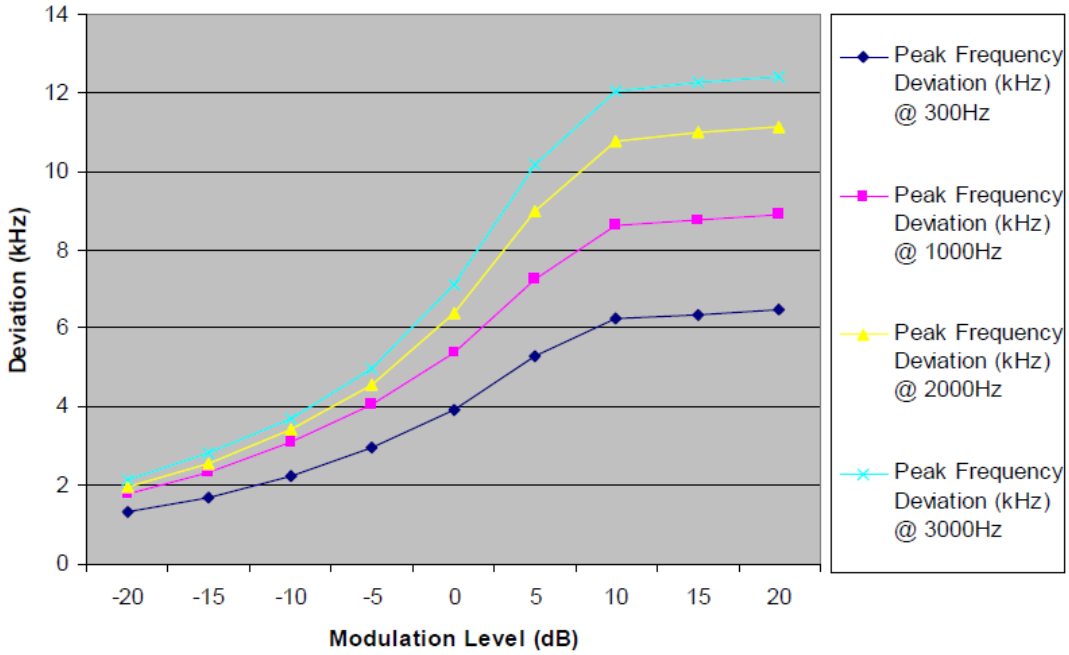
Pass.
Please refer the following data.

Audio Frequency Response:



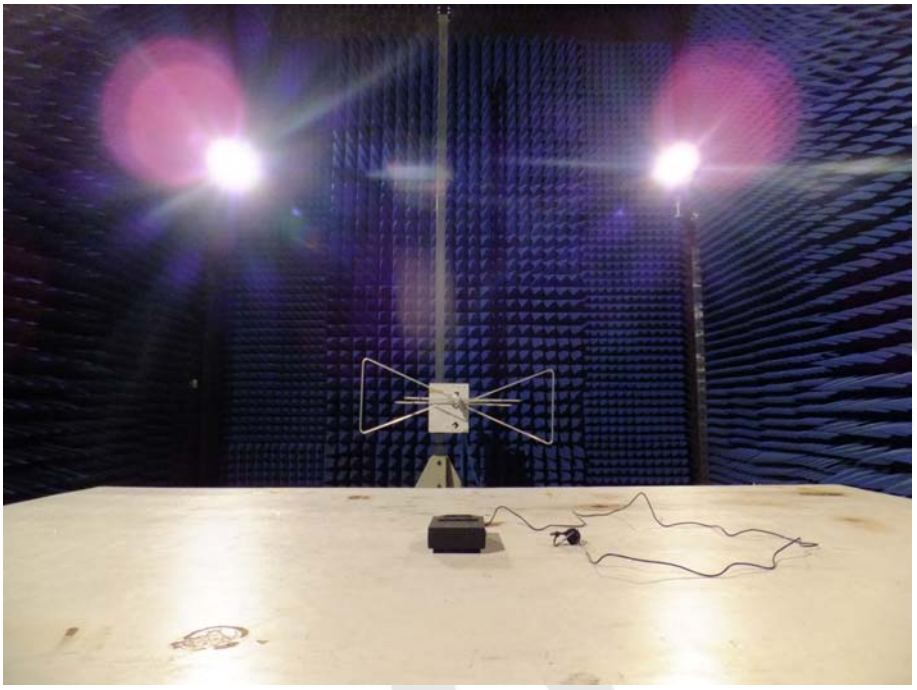
0dB=10mV at 1kHz (20% of the maximum rated system deviation.)

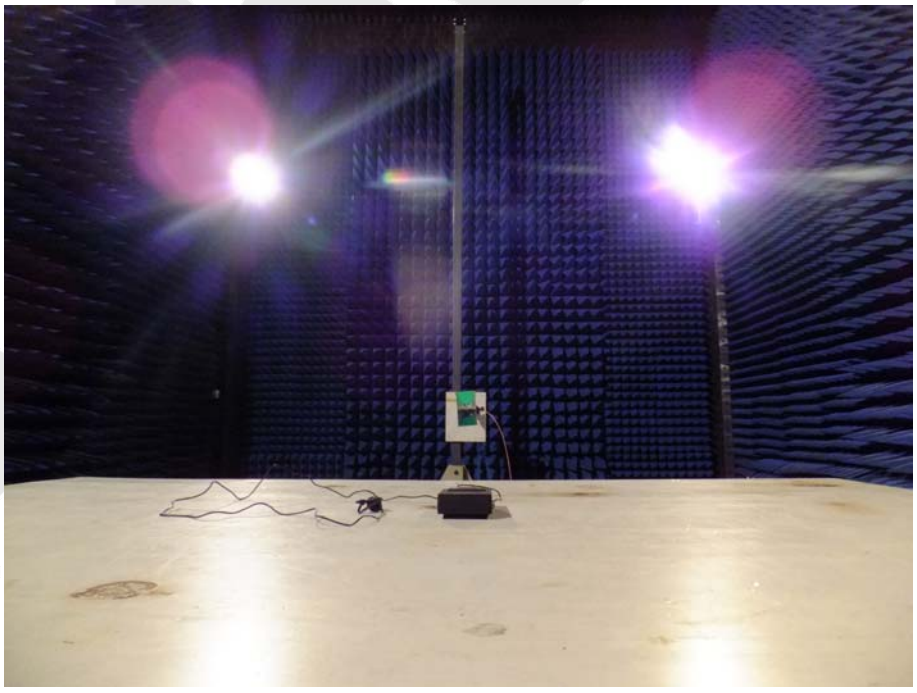
Test at four different modulating frequencies (300Hz, 1000Hz, 2000Hz, 3000Hz), the output level of the audio generator was varied up to 1V and the FM deviation level was recorded.



7. PHOTOGRAPH

7.1. Photo of Radiation Emission Test





APPENDIX I (EXTERNAL PHOTOS)

Figure 1
The EUT-Front View

Figure 2
The EUT-Back View

Figure 3
The EUT-Top View

Figure 4
The EUT-Bottom View

APPENDIX Ⅱ(INTERNAL PHOTOS)

Figure 5
The EUT-Inside View

Figure 6
PCB of the EUT-Front View (With Shielding)

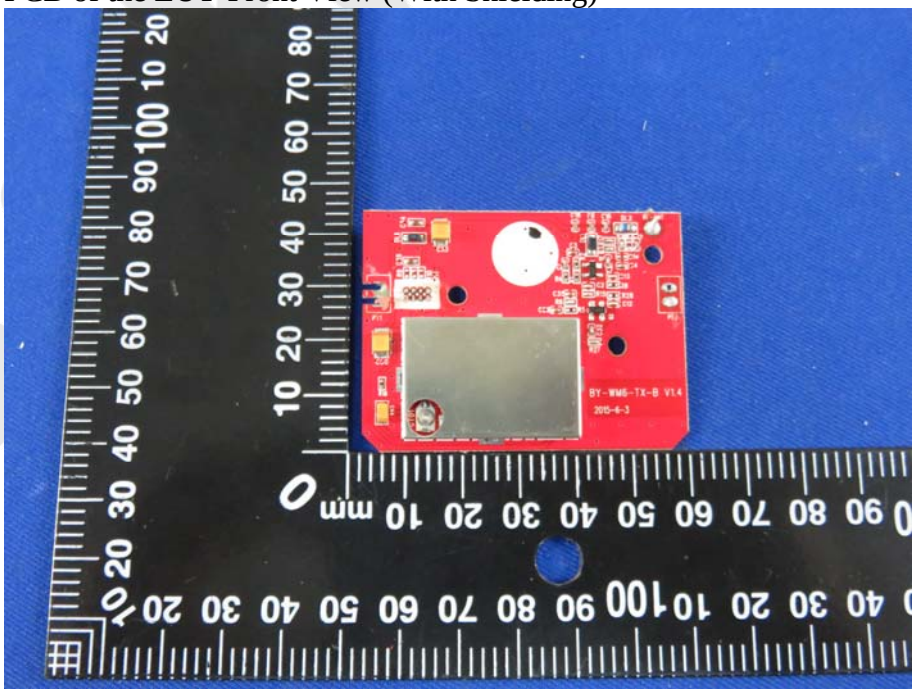


Figure 7
PCB of the EUT-Front View (Without Shielding)

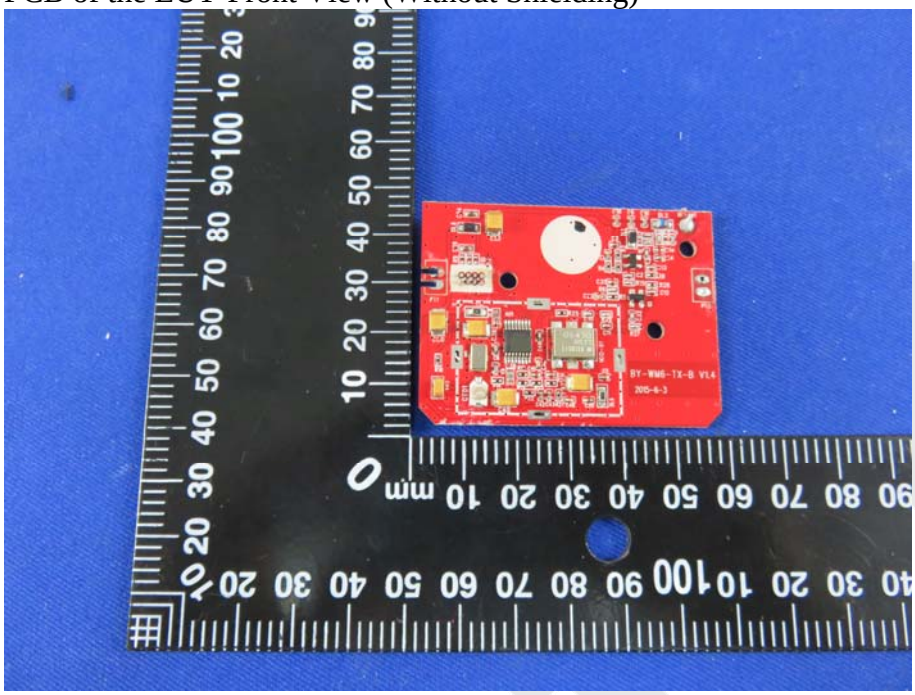


Figure 8
PCB of the EUT-Back View (With Shielding)

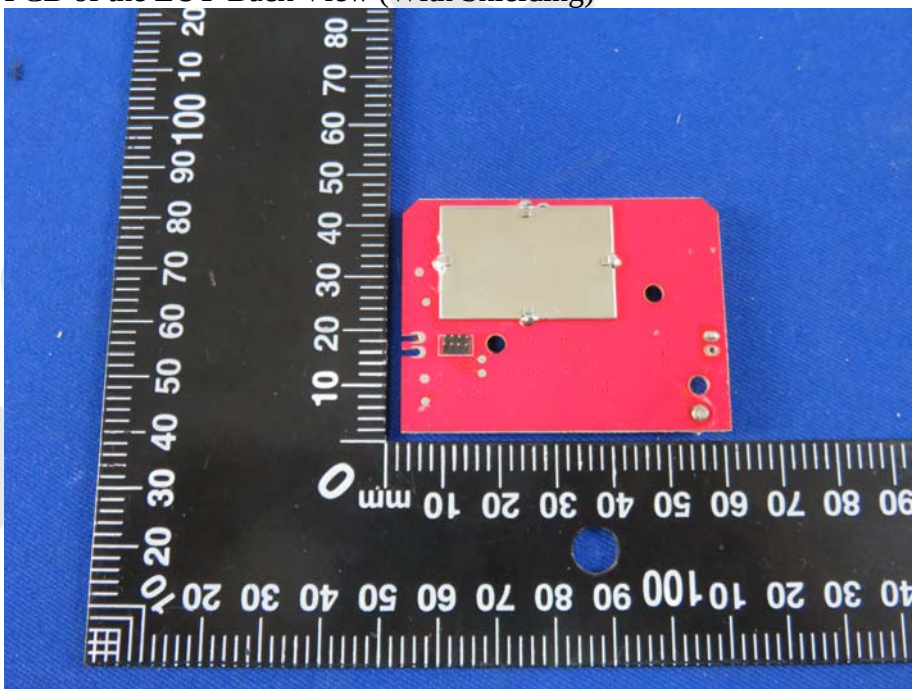


Figure 9
PCB of the EUT-Back View (Without Shielding)

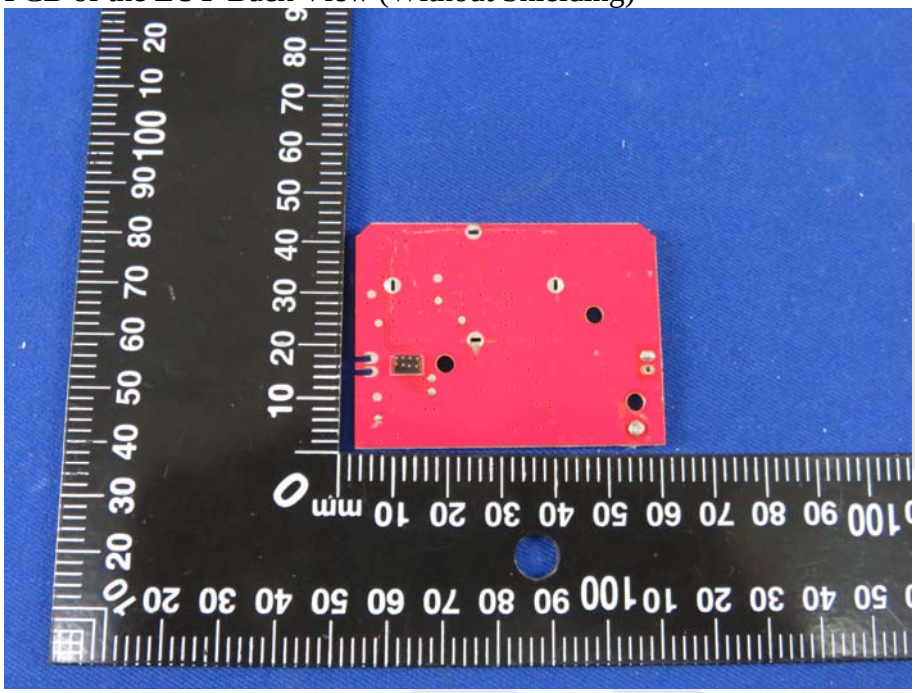


Figure 10
PCB of the EUT-Front View

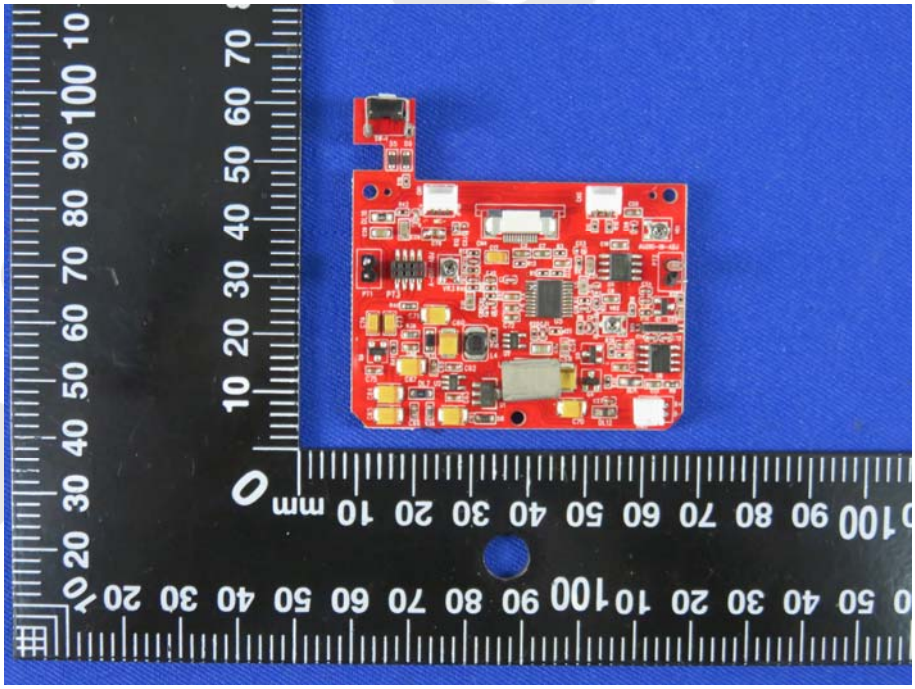


Figure 11
PCB of the EUT-Back View

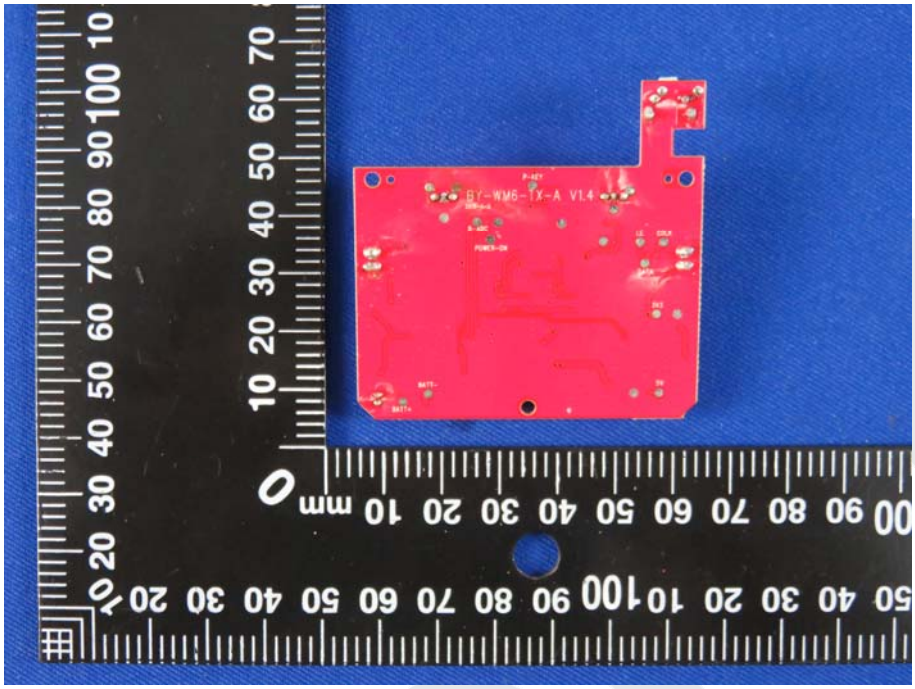


Figure 12
PCB of the EUT-Front View

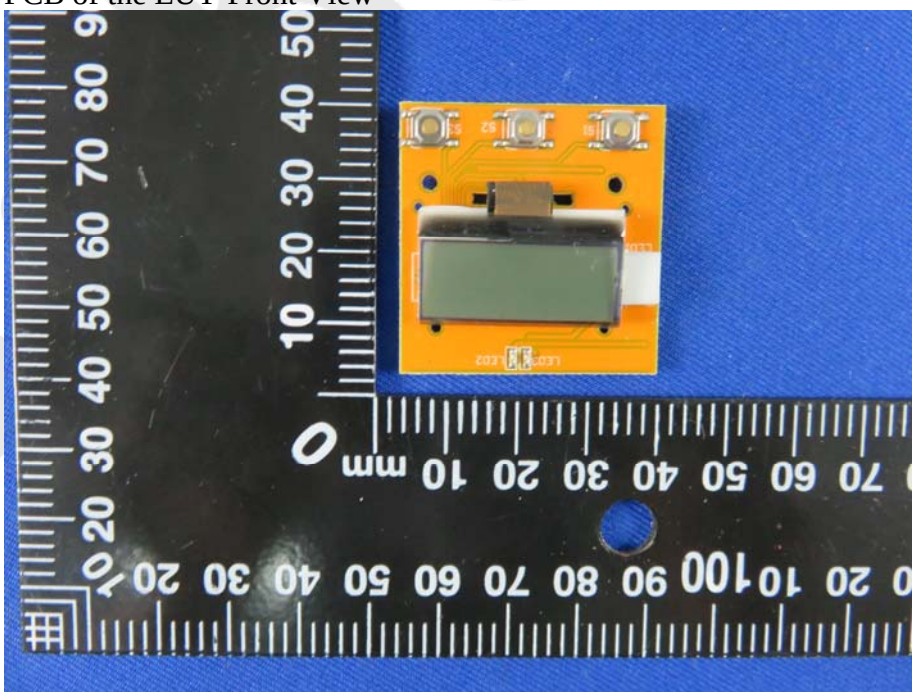


Figure 13
PCB of the EUT-Back View