

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C REQUIREMENT**

OF

FM-Transmitter

MODEL No.: MT150N

FCC ID: S7JMT150N

REPORT NO: E0907054F

ISSUE DATE: July 16, 2009

Prepared for

Shenzhen Yifang Digital Technology Co., Ltd.

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Prepared by

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VERIFICATION OF COMPLIANCE

Applicant:	Shenzhen Yifang Digital Technology Co., Ltd. Building NO.23, Fifth Region, Baiwangxin Industrial Park, Songbai Rd., Nanshan, Shenzhen, 518108, China
Product Description:	FM-Transmitter
Brand Name:	N/A
Model Number:	MT150N
Serial Number:	N/A
File Number:	E0907054F
Date of Test:	July 13, 2009 to July 16, 2009

We hereby certify that:

The above equipment was tested by SHENZHEN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.239.

The test results of this report relate only to the tested sample identified in this report.

Approved By



David Lee / Q.A. Manager
SHENZHEN EMTEK CO., LTD.

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APPENDIX I (2 Pages)

1. GENERAL INFORMATION

1.1 Product Description

The Shenzhen Yifang Digital Technology Co., Ltd. Model: MT150N (referred to as the EUT in this report). The EUT is a FM-Transmitter; The actual tuning Controls can be manually adjusted to from 88.1MHz to 107.9MHz .

A major technical descriptions of EUT is described as following:

- A). Operation Frequency: 88.1MHz, 88.3 MHz , 88.5 MHz , 88.7 MHz , 107.3 MHz , 107.5 MHz , 107.7 MHz ,107.9MHz
- B). Antenna Designation: PCB antenna.
- C). Power Supply: DC 8-20V

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: S7JMT150N filing to comply with Section 15.239 of the FCC Part 15, Subpart C Rules.

1.3 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

1.6 Test Facility

Site Description
EMC Lab. : Accredited by CNAS, 2005.11.02
The certificate is valid until 2010.11
The Laboratory has been assessed and proved to be in compliance
with CNAS-CL01: 2006(identical to ISO/IEC17025: 2005)
The Certificate Registration Number is L2291

Accredited by TUV Rheinland Guangzhou, 2008.3
The Laboratory has been assessed according to the requirements
ISO/IEC 17025

Accredited by FCC, March 18, 2008
The Certificate Registration Number is 709623.

Accredited by Industry Canada, May 24, 2008
The Certificate Registration Number is 46405-4480

Name of Firm : SHENZHEN EMTEK CO., LTD
Site Location : Bldg 69, Majialong Industry Zone,
Nanshan District, Shenzhen, Guangdong, China

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The Tx frequency was 88.1MHz~107.9MHz.

2.3 Test Procedure

2.3.1 Conducted Emissions (Not apply in the report)

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the **frequency range between 0.15 MHz and 30MHz** using **CISPR Quasi-Peak and average detector mode**.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

2.4 Limitation

(1) Radiated Emission

- (b) The field strength of any emissions within the permitted 200kHz band shall not exceed 250 microvolts/meter at 3 meters, The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in section 15.35 for limiting peak emissions apply.
- (c) The field strength of any emissions radiated on any frequency outside of the specified 200Khz band shall not exceed the general radiated emission limits in Section 15.209.

Remark: The limit for average field strength dBuv/m for the fundamental frequency=48.0 dBuv/m.
And the limit for peak field strength dBuv/m for the fundamental frequency=68.0 dBuv/m.

Intentional Radiators general limit).as below.

Frequency (MHz)	Field strength $\mu\text{V/m}$	Distance(m)	Field strength at 3m $\text{dB}\mu\text{V/m}$
1.705-30	30	30	69.54
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

(2) Occupied Bandwidth

- (a) Emissions from the intentional radiator shall be confined within a band 200kHz wide centered on the operation frequency; The 200kHz band shall lie within the frequency range of 88.1 to 88.9MHz and 107.3 MHz to 107.9 MHz.

2.5 Configuration of Tested System

Fig. 2-1 Configuration of Tested System



Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
1.	FM-Transmitter	Yifang	MT150N	S7JMT150N	N/A	<i>EUT</i>
2.	iPod player	Apple	A1136	N/A	N/A	

Note:

- (1) Unless otherwise denoted as EUT in 『Remark』 column , device(s) used in tested system is a support equipment.

3. Summary Of Test Results

FCC Rules	Description Of Test	Result
§ 15.239	Radiated Emission	Compliant
§ 15.239	Bandwidth Test	Compliant

4. Description of test modes

The EUT (FM-Transmitter) has been tested under normal operating condition.

Four channels of EUT (88.1~107.9MHz) have been chosen for testing under Normal Operating condition. In this report, all the measured datum of the three channels have been reported. No software used to control the EUT for staying in continuous transmitting mode for testing.

1. For lowest channel : 88.1MHz
2. For middle channel : 88.7MHz
3. For middle channel : 107.3MHz
4. For highest channel: 107.9MHz

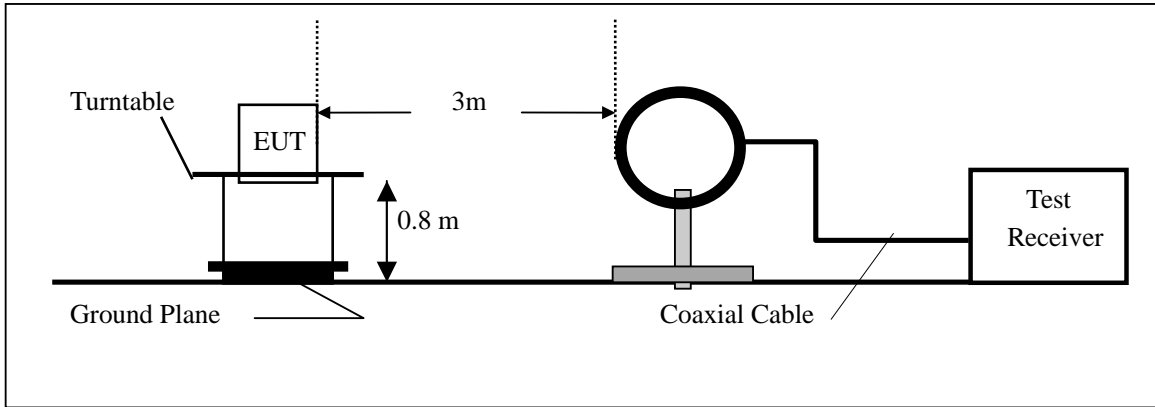
5. Radiated Emission Test

5.1 Measurement Procedure

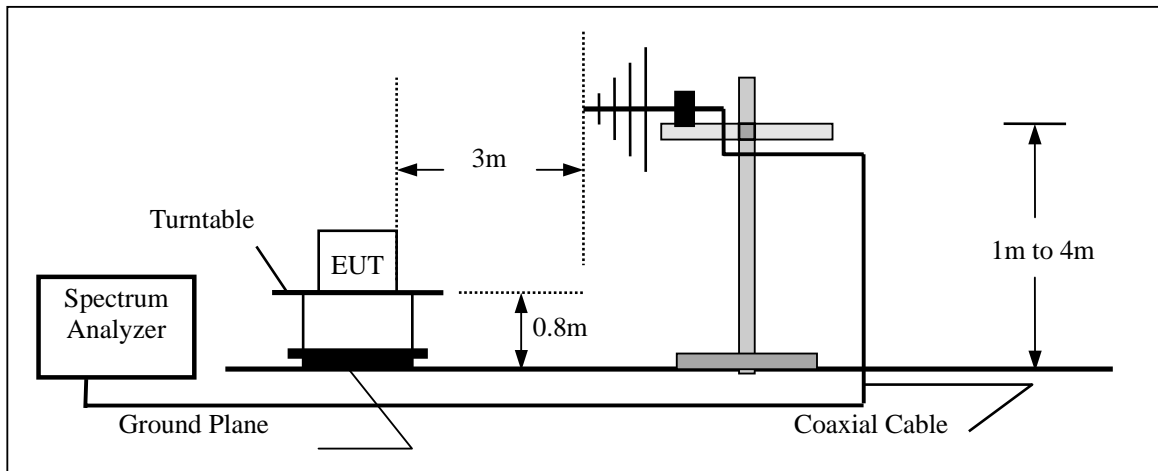
- 1 The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

5.2 Test SET-UP (Block Diagram of Configuration)

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



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



5.3 Measurement Equipment Used:

Test Site # 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	05/29/2009	05/29/2010
Pre-Amplifier	HP	8447D	2944A07999	05/29/2009	05/29/2010
Bilog Antenna	Schwarzbeck	VULB9163	142	05/29/2009	05/29/2010
Loop Antenna	ARA	PLA-1030/B	1029	05/29/2009	05/29/2010

5.4 Measurement Result

A. Fundamental Radiated Emission Data

Operation Mode: Transmitting Mode Test Date : July 13, 2009
Test Item: Fundamental Radiated Emission Data Temperature : 28 °C
Fundamental Frequency: Lowest channel(88.1MHz) Humidity : 65 %
Test Result: PASS Test By: Andy

Peak Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
88.10	V	46.62	68.00	-21.38	Peak
88.10	H	47.52	68.00	-20.48	Peak

Average Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
88.10	V	41.62	48.00	-6.38	AV
88.10	H	42.02	48.00	-5.98	AV

- Note:**
- (1) All Readings are Peak Value.
 - (2) Emission Level= Reading Level+Probe Factor +Cable Loss
 - (3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode Test Date : July 13, 2009
 Test Item: Fundamental Radiated Emission Data Temperature : 28 °C
 Fundamental Frequency: Middle channel (88.7MHz) Humidity : 65 %
 Test Result: PASS Test By: Andy

Peak Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
88.7	V	46.42	68.00	-21.58	Peak
88.7	H	47.62	68.00	-20.38	Peak

Average Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
88.7	V	40.82	48.00	-7.18	AV
88.7	H	41.12	48.00	-6.88	AV

Note: (1) All Readings are Peak Value.
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss
 (3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode Test Date : July 13, 2009
 Test Item: Fundamental Radiated Emission Data Temperature : 28 °C
 Fundamental Frequency: Middle channel (107.3MHz) Humidity : 65 %
 Test Result: PASS Test By: Andy

Peak Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
107.30	V	43.28	68.00	-24.72	Peak
107.30	H	49.90	68.00	-18.10	Peak

Average Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
107.30	V	36.62	48.00	-11.38	AV
107.30	H	42.20	48.00	-6.80	AV

Note: (1) All Readings are Peak Value.
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss
 (3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode Test Date : July 13, 2009
 Test Item: Fundamental Radiated Emission Data Temperature : 28 °C
 Fundamental Frequency: Highest channel (107.9MHz) Humidity : 65 %
 Test Result: PASS Test By: Andy

Peak Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
107.90	V	43.32	68.00	-24.68	Peak
107.90	H	50.20	68.00	-17.80	Peak

Average Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
107.90	V	36.82	48.00	-11.18	AV
107.90	H	41.80	48.00	-6.20	AV

Note: (1) All Readings are Peak Value.
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss
 (3) The average measurement was not performed when the peak measured data under the limit of average detection.

B. Harmonics Radiated Emission Data

Operation Mode: Transmitting Mode Test Date : July 13, 2009
 Test Item: Radiated Emission Data Temperature : 28 °C
 Fundamental Frequency: Lowest channel (88.1MHz) Humidity : 65 %
 Test Result: PASS Test By: Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
60.59	V	35.72	40.00	-4.28	Peak
202.54	V	26.20	43.50	-17.30	Peak
275.61	V	24.71	46.00	-21.29	Peak
323.80	V	23.06	46.00	-22.94	Peak
661.12	V	28.23	46.00	-17.77	Peak
54.87	H	27.29	40.00	-12.71	Peak
270.95	H	32.01	46.00	-13.99	Peak
588.06	H	27.07	46.00	-18.93	Peak
695.88	H	26.98	46.00	-19.02	Peak
769.05	H	29.90	46.00	-16.10	Peak

No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.239

Note: (1) All Readings are Peak Value.

(2) Emission Level= Reading Level+Probe Factor +Cable Loss

(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode Test Date : July 13, 2009
 Test Item: Radiated Emission Data Temperature : 28 °C
 Fundamental Frequency: Middle channel (88.7MHz) Humidity : 65 %
 Test Result: PASS Test By: Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
60.56	V	34.34	40.00	-4.66	Peak
200.99	V	26.21	43.50	-17.29	Peak
269.39	V	25.52	46.00	-20.48	Peak
328.46	V	22.96	46.00	-23.04	Peak
659.12	V	28.47	46.00	-17.53	Peak
53.99	H	23.73	43.50	-19.77	Peak
280.27	H	31.01	46.00	-14.99	Peak
592.03	H	26.98	46.00	-19.02	Peak
715.53	H	26.73	46.00	-19.27	Peak
780.82	H	27.41	46.00	-18.59	Peak

No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.239

- Note:** (1) All Readings are Peak Value.
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss
 (3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode
Test Item: Radiated Emission Data
Fundamental Frequency: Middle channel (107.3)
Test Result: PASS

Test Date : July 13, 2009
Temperature : 28 °C
Humidity : 65 %
Test By: Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
61.59	V	35.34	40.00	-4.66	Peak
210.32	V	27.15	43.50	-16.35	Peak
273.49	V	24.56	46.00	-21.44	Peak
387.74	V	23.98	46.00	-22.02	Peak
672.52	V	28.07	46.00	-17.93	Peak
64.99	H	25.96	40.00	-13.80	Peak
283.06	H	32.31	46.00	-13.53	Peak
589.37	H	21.85	46.00	-23.57	Peak
711.45	H	26.34	46.00	-19.32	Peak
782.81	H	25.27	46.00	-20.20	Peak

No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.239

- Note:** (1) All Readings are Peak Value.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode Test Date : July 13, 2009
 Test Item: Radiated Emission Data Temperature : 28 °C
 Fundamental Frequency: High channel (107.9) Humidity : 65 %
 Test Result: PASS Test By: Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
61.60	V	35.62	40.00	-4.38	Peak
200.99	V	27.95	43.50	-15.55	Peak
281.13	V	24.86	46.00	-21.14	Peak
392.41	V	24.32	46.00	-21.68	Peak
668.23	V	28.94	46.00	-17.06	Peak
64.20	H	26.20	40.00	-13.80	Peak
278.72	H	32.47	46.00	-13.53	Peak
597.74	H	22.43	46.00	-23.57	Peak
723.81	H	26.68	46.00	-19.32	Peak
781.40	H	25.80	46.00	-20.20	Peak

No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.239

Note: (1) All Readings are Peak Value.

(2) Emission Level= Reading Level+Probe Factor +Cable Loss

(3) The average measurement was not performed when the peak measured data under the limit of average detection.

5.5 Radiation Measurement Photos



6. Occupied Bandwidth

6.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation
3. Set SPA Center Frequency = fundamental frequency, RBW = 10KHz, VBW= 30KHz
4. Set SPA Max hold. Mark peak.

Note: The EUT can be connected to iPod Player. The input signal of EUT is controlled by iPod Player. So the volume control of iPod Player was set to maximum during the test. It means that the test was performed with the maximum audio input.

6.2 Test SET-UP (Block Diagram of Configuration)

Same as 4.2 Radiated Emission Measurement.

6.3 Measurement Equipment Used:

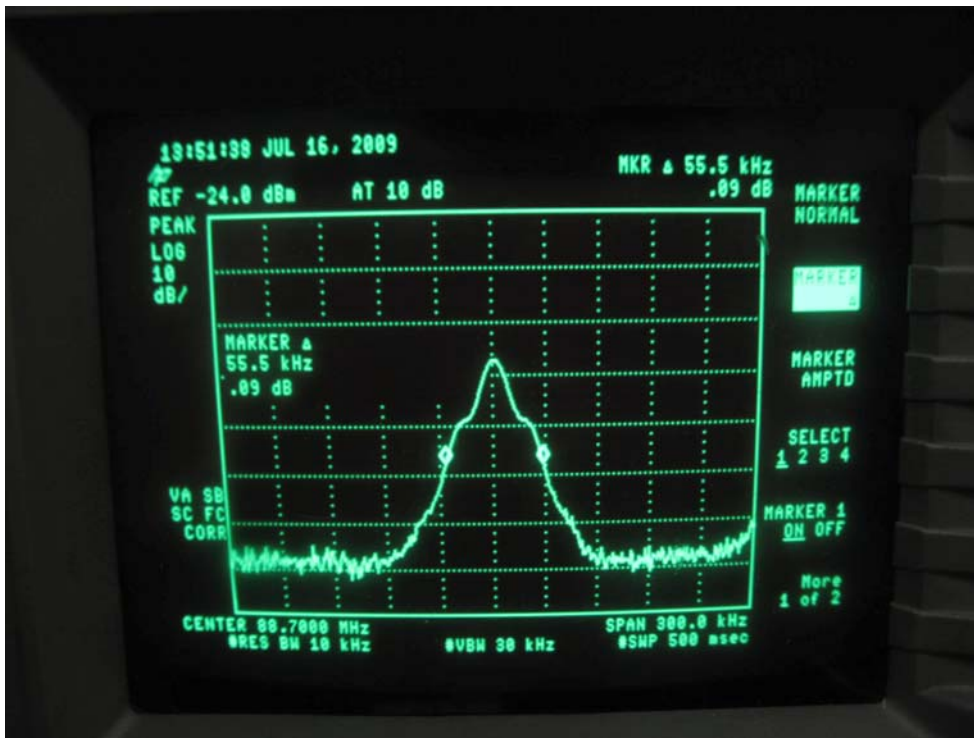
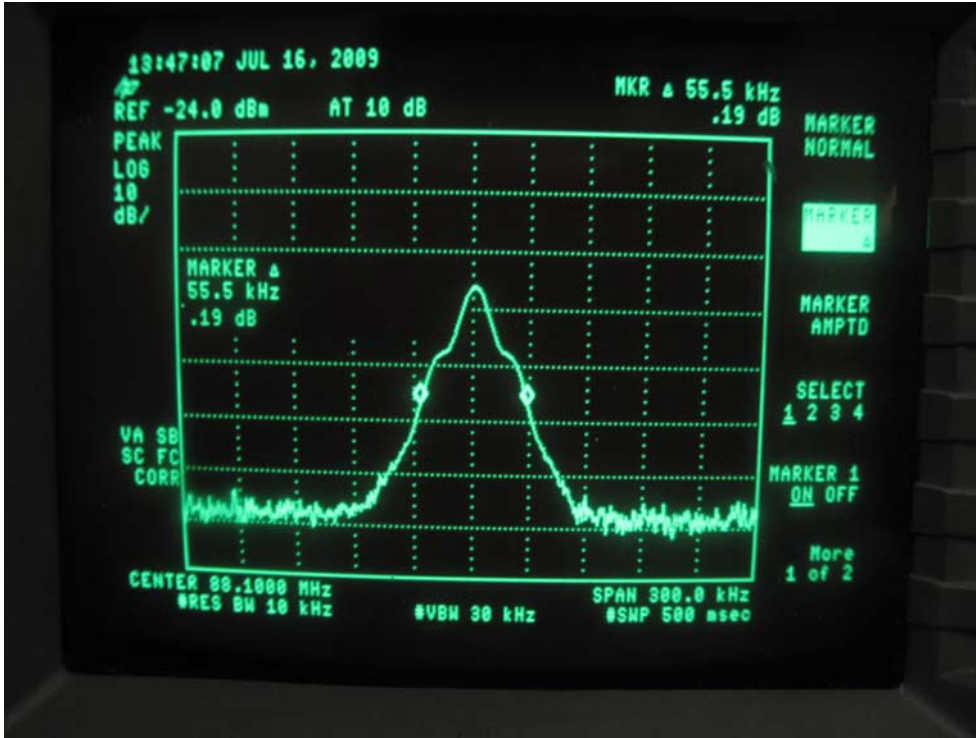
Same as 4.2 Radiated Emission Measurement.

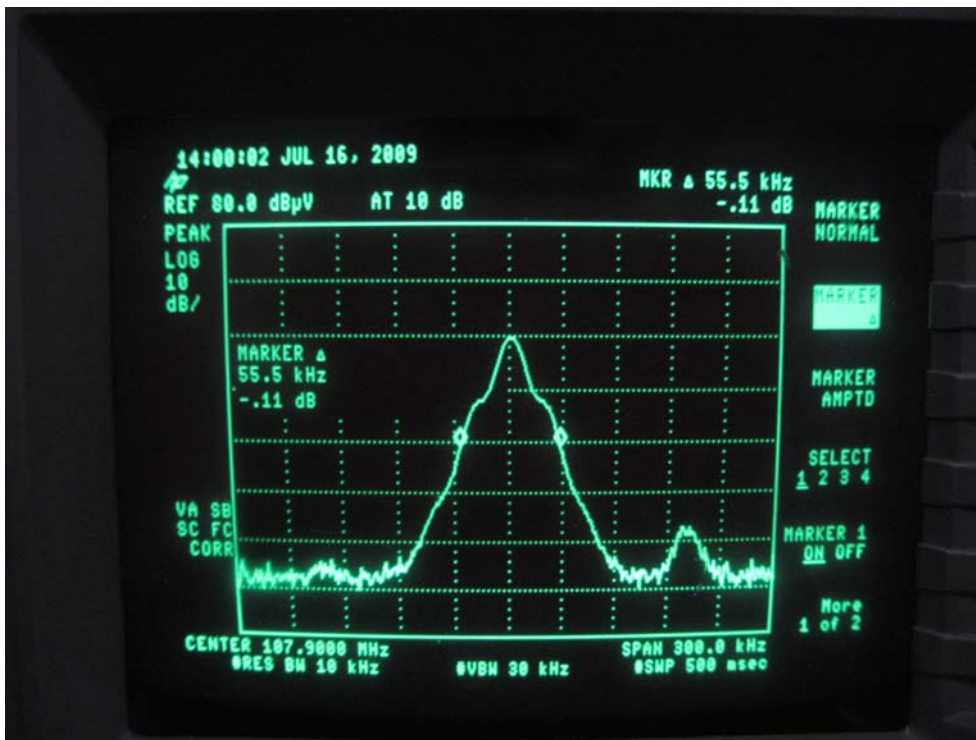
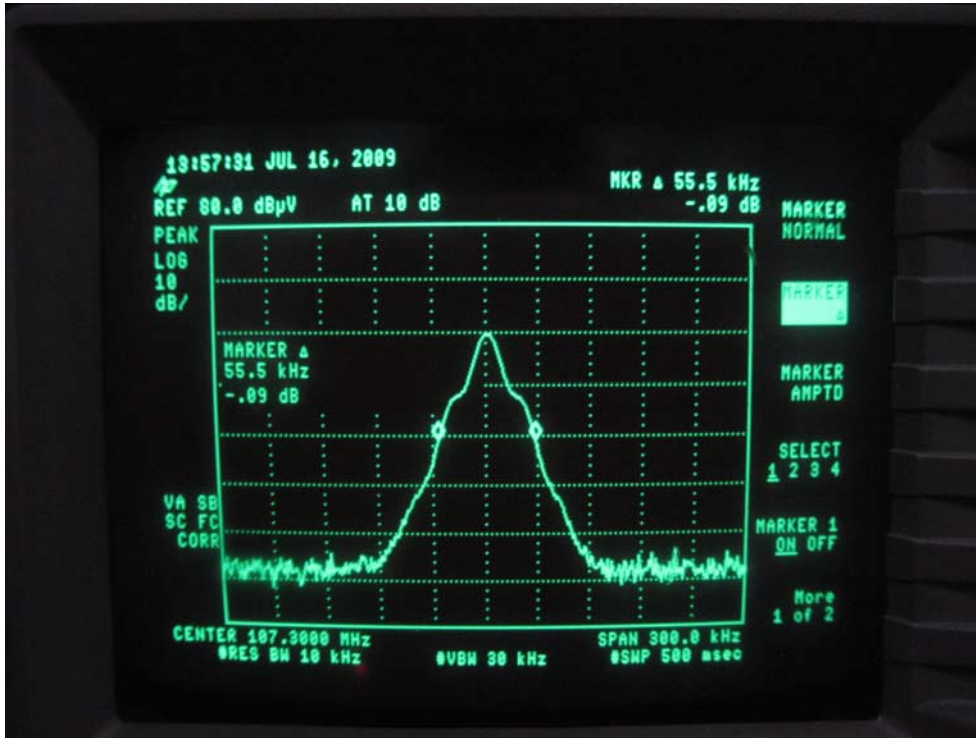
6.4 Measurement Results:

The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in section 15.209.

Refer to attached data chart.

Band Width Test Data





7. Antenna Application

7.1 Antenna requirement

The EUT's antenna used a dipole antenna and integrated on PCB, The EUT'S antenna is met the requirement of FCC part 15C section 15.203