Shenzhen EMTEK Co.,Ltd.
Building 69, Majialong Industry Zone, Nanshan District, Shenzhen,Guangdong,China
www.emtek.com.cn Tel: +86-755-2695 4280 Fax: +86-755-2695 4282

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

OF

The Smurfs

MODEL No.: H1

FCC ID: 2ABRP-IVCARH1

Trademark: The Smurfs

REPORT NO: ES131031192E2

ISSUE DATE: January 17, 2014

Prepared for

Shandong EasyNet Information Technology Co., Ltd

Floor 4, Kehui Building Block B, hunhua Road No. 109, High-tech Development Zone, Jinan City, Shandong Province, China

Prepared by

SHENZHEN EMTEK CO., LTD

**Bldg 69, Majialong Industry Zone, Nanshan District,
Shenzhen, Guangdong, China
TEL: 86-755-26954280
FAX: 86-755-26954282**

VERIFICATION OF COMPLIANCE

Applicant:	Shandong EasyNet Information Technology Co., Ltd Floor 4, Kehui Building Block B, hunhua Road No. 109, High-tech Development Zone, Jinan City, Shandong Province, China
Manufacturer:	Shandong EasyNet Information Technology Co., Ltd Floor 4, Kehui Building Block B, hunhua Road No. 109, High-tech Development Zone, Jinan City, Shandong Province, China
Product Description:	The Smart Motor-Vehicle Utility Reformation Functional Service
Brand Name:	The Smurfs
Model Number:	H1
Serial Number:	N/A
File Number:	ES131031192E2
Date of Test:	January 7, 2014 to January 10, 2014

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 (2009) 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.

Date of Test : January 7, 2014 to January 10, 2014

Prepared by : Joe Xia

Joe Xia/Editor

Reviewer : June Xie

June Xie/Supervisor

Approve & Authorized Signer :

Lisa Wang/Manager

Table of Contents

1. GENERAL INFORMATION

1.1 Product Description

A major technical descriptions of EUT is described as following:

A). Operation Frequency: 2402-2480MHz for Bluetooth; 88.1MHz~107.9MHz for FM
B). Modulation: GFSK, 1/4∏-DQPSK, 8DPSK for Bluetooth; FM for FM
C). Number of Channel: 79 for Bluetooth
D). Channel space: 1MHz for Bluetooth
E). RF Output Power: 5.11dBm for Bluetooth
F). BIT Rate of Transmission: 1Mbps, 2Mbps, 3Mbps for Bluetooth
G). Antenna Type: PCB antenna for Bluetooth; Monopole Antenna for FM
H). Antenna GAIN: 1.9dBi for Bluetooth; 2dBi for FM
I). Power Supply: DC 12V from Cigar Lighter

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2ABRP-IVCARH1 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 (2009). 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, 2013.10.29
The certificate is valid until 2016.10.28
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, 2010.10.25
The Laboratory has been assessed according to the requirements ISO/IEC 17025

Accredited by FCC, April 17, 2013
The Certificate Registration Number is 406365.

Accredited by Industry Canada, March 5, 2010
The Certificate Registration Number is 4480A-2.

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 C63.4-2009.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 C63.4-2009.

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 μV/m	Distance(m)	Field strength at 3m dBμV/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 wholly within the frequency range of 88.1MHz~107.9MHz.

2.5 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

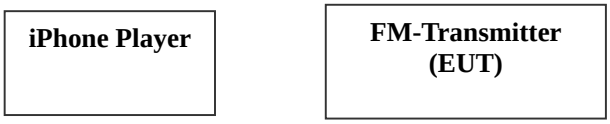


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
1.	The Smurfs	The Smurfs	H1	2ABRP-IVCARH1	N/A	***EUT***
2.	iPhone	Apple	A1324	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	Pass
§ 15.209	Band Edge	Pass
§ 15.239	Bandwidth Test	Pass

4. Description of test modes

The EUT has been tested under normal operating condition.
Three channels of EUT (the lowest channel, the middle channel and the highest channel) 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 : 98 MHz
3. For highest channel: 107.9MHz

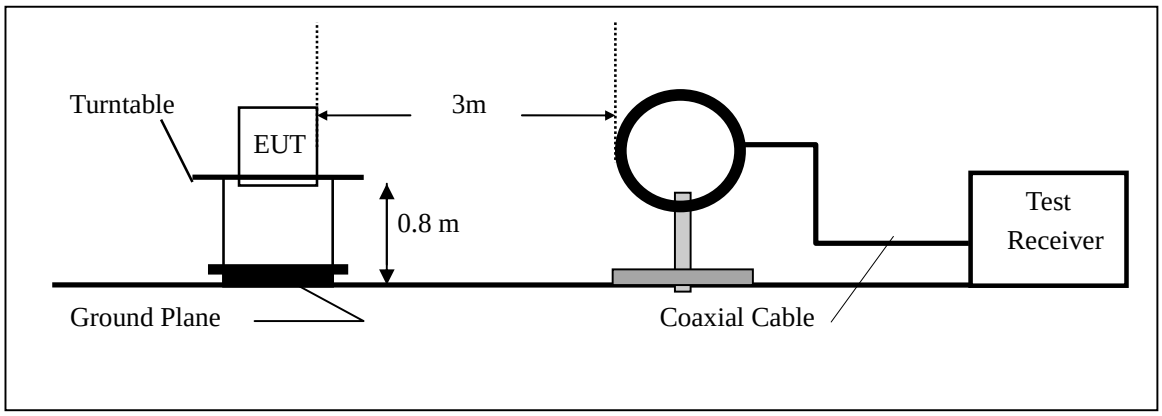
5. Radiated Emission and Band Edge Test

5.1 Measurement Procedure

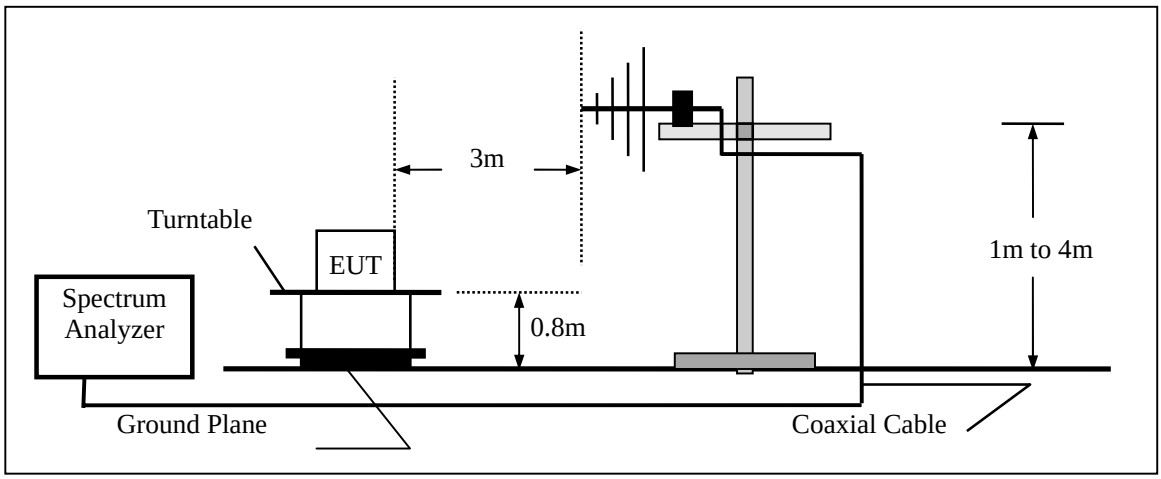
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above 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	05/29/2013	05/28/2014
Pre-Amplifier	HP	8447D	2944A07999	05/29/2013	05/28/2014
Bilog Antenna	Schwarzbeck	VULB9163	142	05/14/2013	05/13/2014
Loop Antenna	ARA	PLA-1030/ B	1029	05/14/2013	05/13/2014

5.4 Measurement Result

A. Fundamental Radiated Emission Data

Operation Mode:	Transmitting Mode	Test Date :	January 7, 2014
Test Item:	Fundamental Radiated Emission Data	Temperature :	28 ℃
Fundamental Frequency:	Lowest channel	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	40.82	68.00	-27.18	Peak
88.10	H	47.68	68.00	-20.32	Peak

Average Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
88.10	V	39.82	48.00	-8.18	AV
88.10	H	46.92	48.00	-1.08	AV

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

Operation Mode:	Transmitting Mode	Test Date :	January 7, 2014
Test Item:	Fundamental Radiated Emission Data	Temperature :	28 ℃
Fundamental Frequency:	Middle channel	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
98	V	39.89	68.00	-28.11	Peak
98	H	45.56	68.00	-22.44	Peak

Average Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
98	V	38.57	48.00	-7.43	AV
98	H	44.77	48.00	-3.23	AV

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

Operation Mode:	Transmitting Mode	Test Date :	January 7, 2014
Test Item:	Fundamental Radiated Emission Data	Temperature :	28 ℃
Fundamental Frequency:	Highest channel	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	39.27	68.00	-27.73	Peak
107.90	H	45.03	68.00	-19.97	Peak

Average Measurement

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
107.90	V	38.24	48.00	-8.76	AV
107.90	H	44.10	48.00	-1.9	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 :	January 7, 2014
Test Item:	Radiated Emission Data	Temperature :	28 ℃
Fundamental Frequency:	Lowest channel	Humidity :	65 %
Test Result:	PASS	Test By:	Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
176.12	V	23.87	43.50	-19.63	Peak
264.73	V	21.78	46.00	-24.22	Peak
645.58	V	25.09	46.00	-20.91	Peak
704.65	V	26.37	46.00	-19.63	Peak
954.92	V	29.71	46.00	-16.29	Peak
176.12	H	36.30	43.50	-7.20	Peak
264.73	H	32.91	46.00	-13.09	Peak
351.78	H	25.86	46.00	-20.14	Peak
706.20	H	25.89	46.00	-20.11	Peak
815.02	H	27.73	46.00	-18.27	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 :	January 7, 2014
Test Item:	Radiated Emission Data	Temperature :	28 ℃
Fundamental Frequency:	Middle channel	Humidity :	65 %
Test Result:	PASS	Test By:	Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
196.33	H	38.65	43.50	-4.85	Peak
294.26	H	37.70	46.00	-8.30	Peak
392.20	H	29.93	46.00	-16.07	Peak
490.13	H	25.14	46.00	-20.86	Peak
783.93	H	31.25	46.00	-14.75	Peak
194.78	V	31.15	43.50	-12.35	Peak
294.26	V	24.80	46.00	-21.20	Peak
703.09	V	26.60	46.00	-19.40	Peak
841.44	V	26.56	46.00	-19.44	Peak
959.58	V	28.28	46.00	-17.72	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 :	January 7, 2014
Test Item:	Radiated Emission Data	Temperature :	28 ℃
Fundamental Frequency:	High channel	Humidity :	65 %
Test Result:	PASS	Test By:	Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
214.98	V	31.82	43.50	-11.68	Peak
323.80	V	30.00	46.00	-16.00	Peak
706.20	V	27.92	46.00	-18.08	Peak
914.50	V	28.88	46.00	-17.12	Peak
954.92	V	29.94	46.00	-16.06	Peak
214.98	H	40.84	43.50	-2.66	Peak
323.80	H	41.77	46.00	-4.23	Peak
647.13	H	26.37	46.00	-19.63	Peak
755.95	H	28.46	46.00	-17.54	Peak
895.85	H	29.63	46.00	-16.37	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.

C. Band Edge Data

Operation Mode:	Transmitting Mode	Test Date :	January 7, 2014
Test Item:	Band Edge Data	Temperature :	28 ℃
Fundamental Frequency:	88.1 MHz	Humidity :	65 %
Test Result:	PASS	Test By:	Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
86.8559	H	9.13	40.00	-30.87	QP
88.0000	H	37.35	40.00	-2.65	QP
88.2000	H	36.72	43.50	-6.78	QP
89.7840	H	9.11	43.50	-34.39	QP
86.1765	V	9.11	40.00	-30.89	QP
88.0000	V	36.68	40.00	-3.32	QP
88.2000	V	36.54	43.50	-6.96	QP
89.7840	V	8.95	43.50	-34.55	QP

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 :	January 7, 2014
Test Item:	Band Edge Data	Temperature :	28 ℃
Fundamental Frequency:	98.1 MHz	Humidity :	65 %
Test Result:	PASS	Test By:	Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
97.1250	H	7.48	43.50	-36.02	QP
98.0000	H	39.87	43.50	-3.63	QP
98.2000	H	39.11	43.50	-4.39	QP
98.8420	H	7.05	43.50	-36.45	QP
96.6710	V	7.27	43.50	-36.23	QP
98.0000	V	35.14	43.50	-8.36	QP
98.2000	V	34.85	43.50	-8.65	QP
99.1015	V	7.36	43.50	-36.14	QP

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 :	January 7, 2014
Test Item:	Band Edge Data	Temperature :	28 ℃
Fundamental Frequency:	107.9 MHz	Humidity :	65 %
Test Result:	PASS	Test By:	Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
106.7490	H	8.86	43.50	-34.64	QP
107.8000	H	39.55	43.50	-3.95	QP
108.0000	H	38.67	43.50	-4.83	QP
108.8549	H	6.72	43.50	-36.78	QP
106.1120	V	7.09	43.50	-36.41	QP
107.8000	V	34.72	43.50	-8.78	QP
108.0000	V	34.59	43.50	-8.91	QP
108.9220	V	7.88	43.50	-35.62	QP

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.

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.

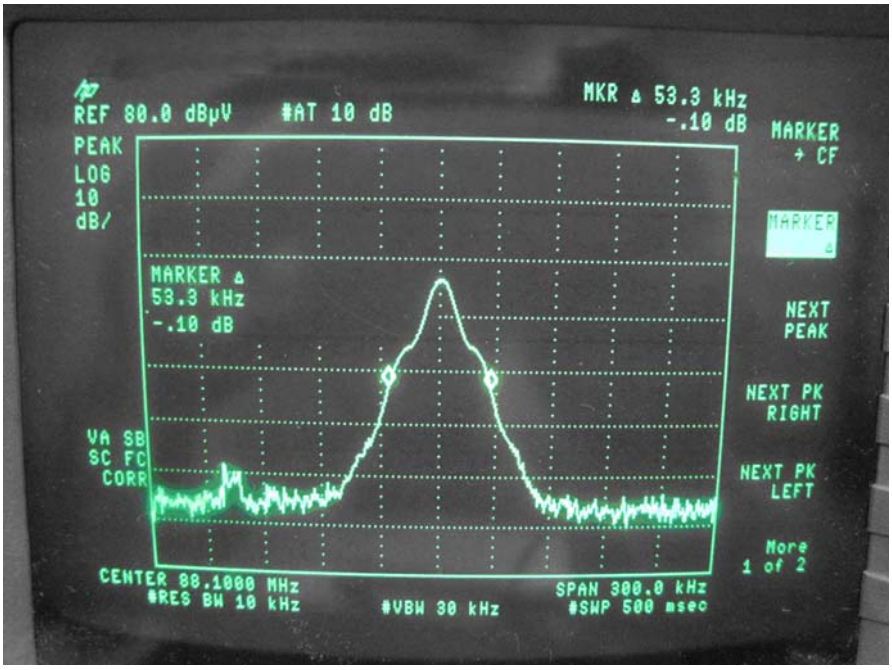
6.3 Measurement Equipment Used:

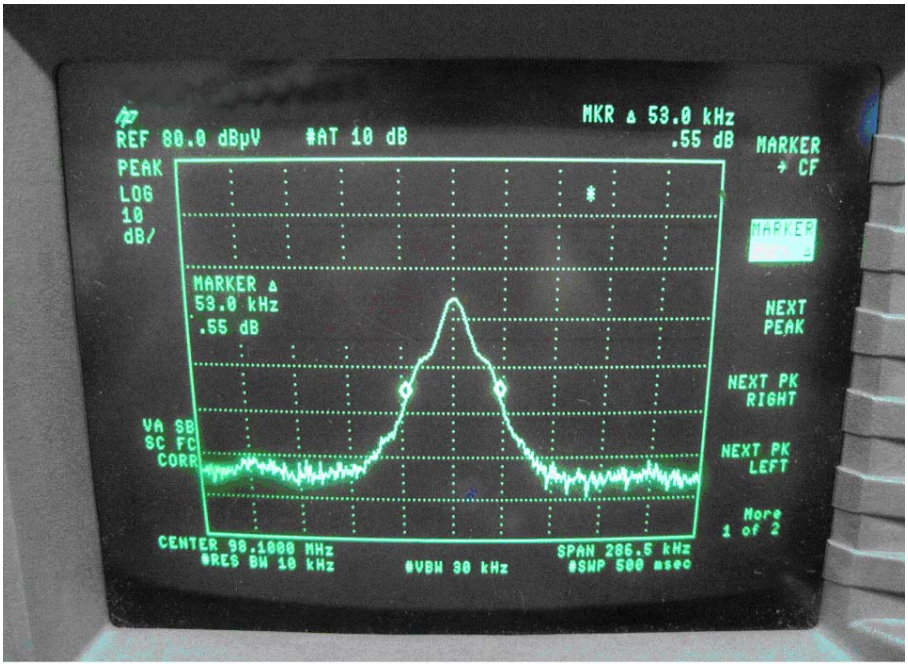
Same as 4.2 Radiated Emission Measurement.

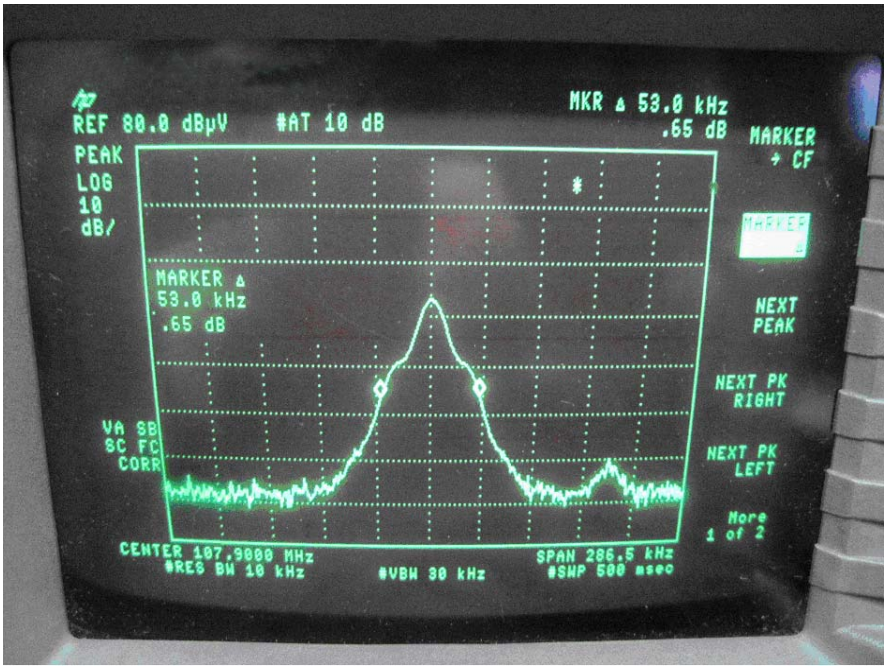
6.4 Measurement Results:

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



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.65 dB
MARKER
→ CF
PEAK
LOG
10
dB/
MARKER Δ
53.0 kHz
.65 dB
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 2
VA SB
SC FC
CORR
CENTER 107.9000 MHz
#RES BW 10 kHz
#VBW 30 kHz
SPAN 286.5 kHz
#SWP 500 msec

7. Antenna Application

7.1 Antenna requirement

The EUT's antenna used a monopole antenna, The EUT'S antenna is met the requirement of FCC part 15C section 15.203

7.2 Result

Monopole Antenna is for FM, the antenna's gain is 2dBi and meets the requirement.