FCC CFR47 PART 74 SUBPART H

CERTIFICATION

TEST REPORT

FOR

Relacart Electronics Co., Ltd.

Wireless In-Ear Monitor Systems

Model No.: PM-160

Prepared for	:	Relacart Electronics Co., Ltd.
Address	:	No.10 Fu Xing Road, Ping Shi Industrial Zone, Enping City, Guangdong, China
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	:	1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd., Bao'an District, Shenzhen, Guangdong, China
Date of receipt of test sample	:	December 17,2011
Number of tested samples	:	1
Report Number	:	LCS1112173538F
Date of Test	:	December 17,2011 - January 13, 2012
Date of Report	:	January 13, 2012

TEST REPORT
FCC CFR 47 PART 74 SUBPART H

Report Reference No.	**:**	**LCS1112173538F**
Date of issue	:	January 13, 2012
Testing Laboratory Name.....	**:**	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address	:	1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd., Bao'an District, Shenzhen, Guangdong, China
Testing location/ procedure	:	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's name	**:**	**Relacart Electronics Co., Ltd.**
Address	:	No.10 Fu Xing Road, Ping Shi Industrial Zone, Enping City, Guangdong, China
Test specification		
Standard	:	FCC CFR 47 PART 74 SUBPART H, ANSI C63.4-2009
Test Report Form No.....	**:**	LCSEMC-1.0
TRF Originator	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	:	Dated 2011-03

Test item description.	**:**	**Wireless In-Ear Monitor Systems**
Trade Mark	:	RELACART
Manufacturer.....	:	Relacart Electronics Co., Ltd.
Model/Type reference.....	:	PM-160
Ratings	:	AC 100-240V 50/60Hz, (Freq. Range:553.800-568.850MHz)
Result	:	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Bobo Li	Vito Cao	Gavin Liang
Bobo Li/ File administrators	Vito Cao/ Technique principal	Gavin Liang/ Manager

EMC -- TEST REPORT

Test Report No. : LCS1112173538F	January 13, 2012 Date of issue

Type / Model.....	: PM-160
EUT.....	: Wireless In-Ear Monitor Systems
Applicant.....	**: Relacart Electronics Co., Ltd.**
Address.....	: No.10 Fu Xing Road, Ping Shi Industrial Zone, Enping City, Guangdong, China
Telephone.....	: 0750-7181209
Fax.....	: 0750-7181212
Contact.....	: SHARON WU /Sales Manager
Manufacturer.....	**: Relacart Electronics Co., Ltd.**
Address.....	: No.10 Fu Xing Road, Ping Shi Industrial Zone, Enping City, Guangdong, China
Telephone.....	: 0750-7181209
Fax.....	: 0750-7181212
Contact.....	: SHARON WU /Sales Manager
Factory.....	: /
Address.....	: /
Telephone.....	: /
Fax.....	: /
Contact.....	: /

Test Result:	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TABLE OF CONTENTS

Test Report Description Page

1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT : Wireless In-Ear Monitor Systems

Model Number : PM-160

Power Supply : AC 100-240V 50/60Hz

Frequency Range : 553.800-568.850MHz

Modulation Type : FM

1.2 Description of Test Facility

Site Description

EMC Lab. : Accredited by CNAS, June 04, 2010

The Certificate Registration Number. is L4595.

Accredited by FCC, July 14, 2011

The Certificate Registration Number. is 899208.

Accredited by Industry Canada, May. 02, 2011

The Certificate Registration Number. is 9642A-1

1.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.4 Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	30MHz~200MHz	±2.96dB	(1)
		200MHz~1000MHz	±3.10dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±1.63dB	(1)
Power disturbance	:	30MHz~300MHz	±1.60dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 Part 74 Subpart H.

2.1 Frequencies Available

According to sec. 74.802 of Part 74, the following frequencies are available for low power auxiliary station :

Frequency(MHz):	26.100-26.480	455.000-456.000
	54.000-72.000	470.000-488.000
	76.000-88.000	488.000-494.000
	161.625-161.775	494.000-608.000
	174.000-216.000	614.000-806.000
	450.000-451.000	944.000-952.000

2.2 EUT Configuration

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

2.3 EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, and 2.1055 of Part 2 of CFR 47.

2.4 General Test Procedures

2.4.1 Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.4.2 Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable 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 maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4

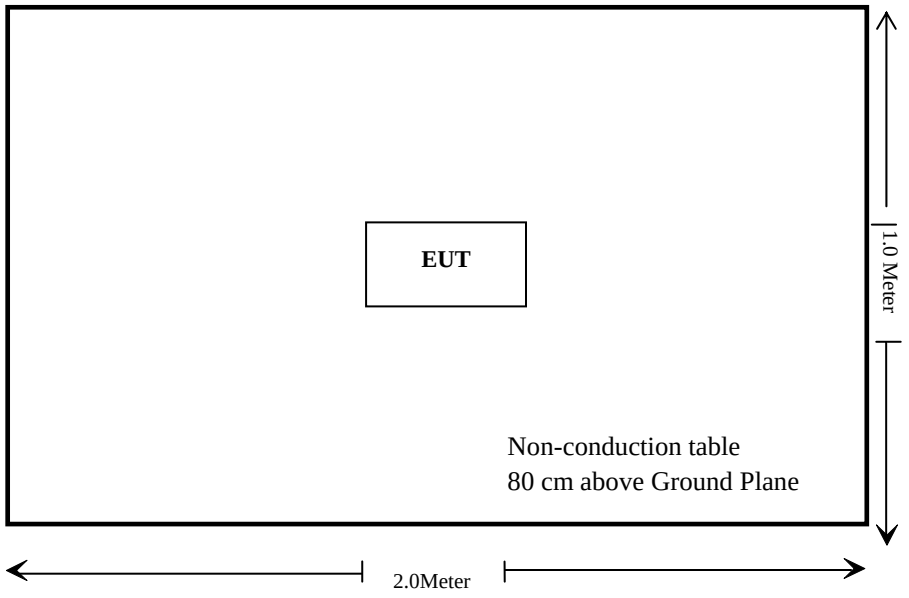
2.4 Description Of Test Modes

The EUT has been tested under operating condition.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only.

Then, the worst case is FM Channel Low (553.8MHz), Mid (560.075MHz) and High (568.85MHz) these were chosen for full testing.

2.5. Connection Diagram of Test System



3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§74.861(e)(1)(ii)	Output Power Measurement	Compliant
§74.861(e)(3)	Modulation Characteristics	Compliant
§74.861(e)(5)	Occupied Bandwidth Emission	Compliant
§74.861(e)(6)	Field Strength of Emission	Compliant
§74.861(e)(6)(f)	Spurious Emission at Antenna Port	Compliant
§74.86(e)(4)	Frequency Stability	Compliant
§15.209	Unintentional Radiated Emission	Compliant
§2.1093, §1.1307(b)(1)	RF Exposure Requirement	N/A
§15.207	AC Line Conducted Emission	Compliant

4. §74.861(E)(1)(II) – OUTPUT POWER MEASUREMENT

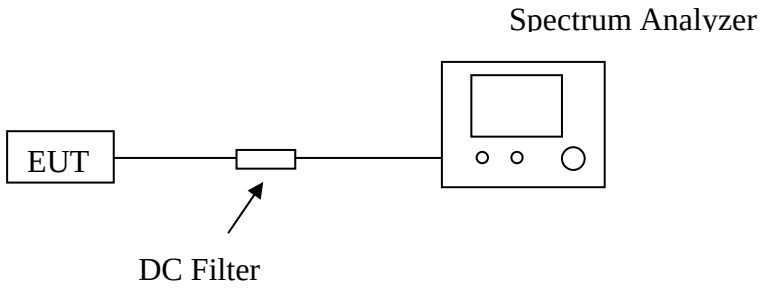
4.1 Standard Applicable

According to §74.861(e)(1)(ii), for low power auxiliary station operating in the 614-806MHz band, the power of the measured unmodulated carrier power ant the output of the transmitter power amplifier (antenna input power) may not exceed 250mW.

4.2 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	2011-06	2012-06
2	Power Sensor	Agilent	E9327A	US40441788	2011-06	2012-06
3	Power Meter	Agilent	E4416A	QB41292714	2011-06	2012-06
4	DC Filter	MPE	23872C	N/A	2011-06	2012-06

4.3 Block Diagram of Test Setup



4.4 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. Set RBW of spectrum analyzer to 100 kHz and VBW to 100 kHz.

4.5 Test Results

Operation Mode: TX **Test Date:** 12-29-2011

Temperature: 23°C **Humidity:** 50 % RH

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Limit (mW)	Result
Low	553.800	12.21	16.64	250	Pass
Mid	560.075	12.14	16.36	250	Pass
High	568.850	12.07	16.13	250	Pass

5. §74.861(E)(3) – MODULATION CHARACTERISTICS

5.1 Standard Applicable

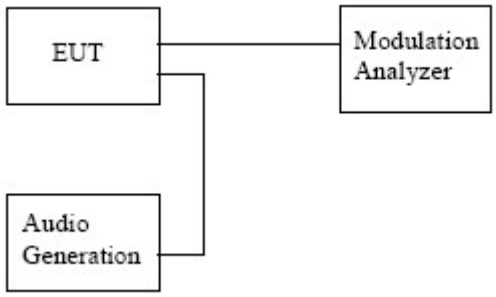
According to FCC 2.1047 (a), for Voice Modulated Communication Equipment, the frequency response of the audio modulating circuit over a range of 100Hz to 5000Hz shall be measured. For equipment required to have an audio low-pass filter, the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be measured.

According to §74.861(e)(3), any form of modulation may be used. A maximum deviation of ±75 kHz is permitted when frequency modulation is employed.

5.2 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
1	Analyzer, Modulation	HP	8901A	2026A00847	2011-06	2012-06
2	Generator, Function	Agilent	33220A	MY43004878	2011-06	2012-06

5.3 Block Diagram of Test Setup



5.4 Test Procedure

5.4.1 Modulation Limit

5.4.1.1 Position the EUT as shown in figure 3, adjust the audio input frequency to 100 Hz and the input level from 0V to maximum permitted input voltage with recording each carrier frequency deviation responding to respective input level.

5.4.1.2 Repeat step 1 with changing the input frequency for 200, 500, 1000, 3000, and 5000 Hz in sequence.

5.4.2 Frequency response of all circuits

5.4.2.1 Position the EUT as shown in 5.3.

5.4.2.2 Vary the modulating frequency from 100 Hz to 15000 Hz with constant input voltage , and observe the change in output.

5.5 Test Results

The plot(s) of modulation characteristic is presented hereinafter as reference.

Operation Mode: Normal **Test Date:** 12-29-2011

Temperature: 23°C **Humidity:** 50 % RH

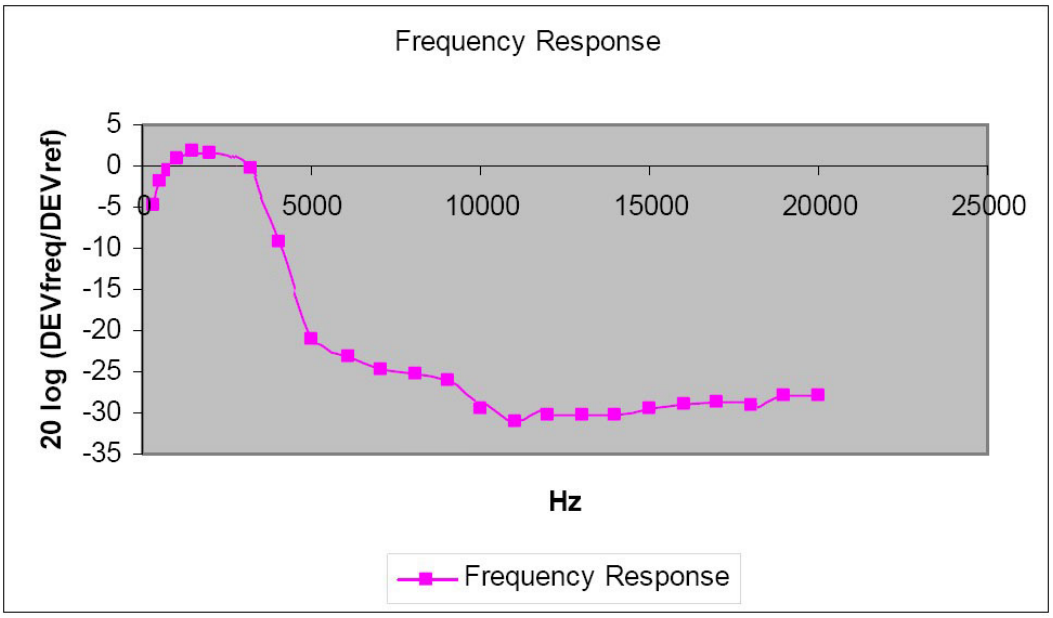


Fig.1

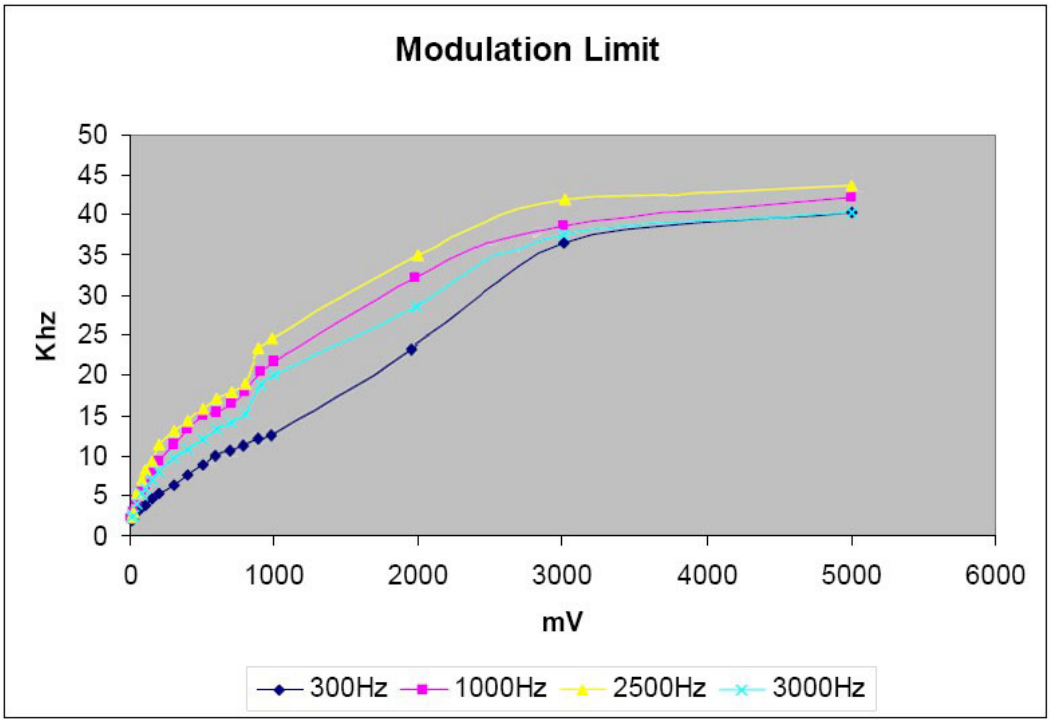


Fig.2

6. §74.861(E)(5)/(E)(6) - OCCUPIED BANDWIDTH OF EMISSION / EMISSION MASK

6.1 Standard Applicable

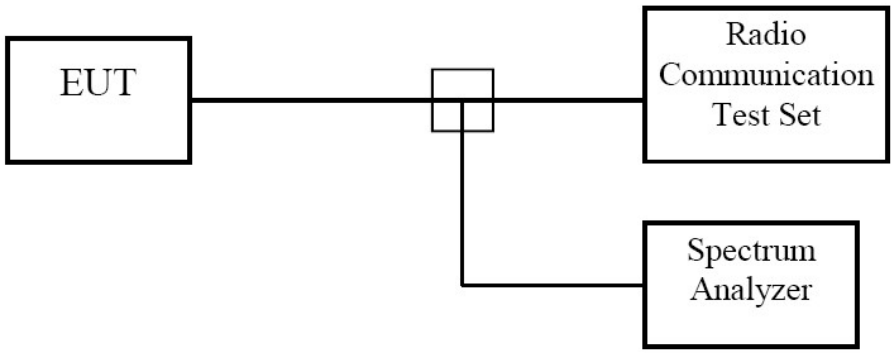
According to FCC 2.1049 (c) (1), for radiotelephone transmitter, other than single sideband or independent sideband transmitter, when modulated by a 2.5 kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation.

According to §74.861(e)(5) & §74.861(e)(6):
(1) the operating bandwidth shall not exceed 200 kHz.
(2)(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 of the authorized bandwidth: at least 43+10log10 (mean output power in watts) dB.

6.2 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
1	Spectrum Analyzer	Rohde & Schwarz	ESCI	1166.5950.03	2011-06	2012-06

6.3 Block Diagram of Test Setup



6.4 Test Procedure

6.4.1 Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
6.4.2 Position the EUT as shown in 6.3, and Install new batteries in the EUT. Turn on the EUT ant set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
6.4.3 Apply a 2.5 kHz modulation signal to EUT and measure the frequencies of the modulated signal from the EUT where it is the specified number of dB below the reference level set in step 6.4.2. This is the occupied bandwidth specified.

6.5 Test Results

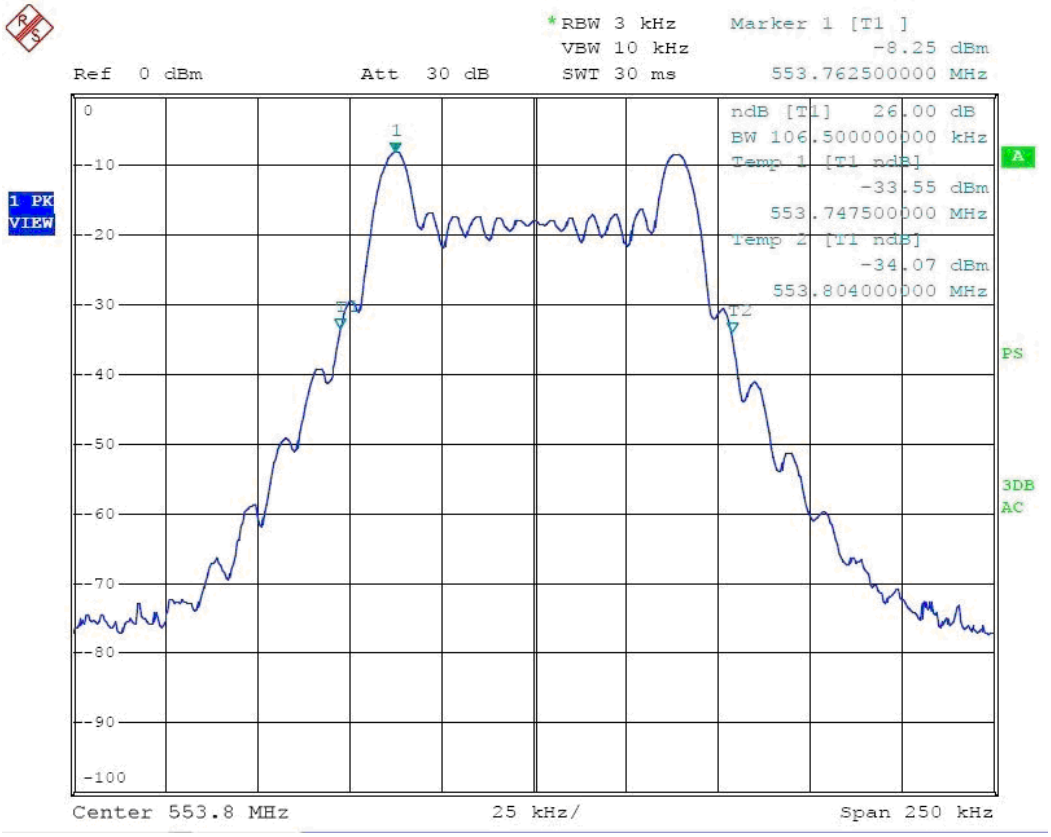
Operation Mode: TX **Test Date:** 12-29-2011

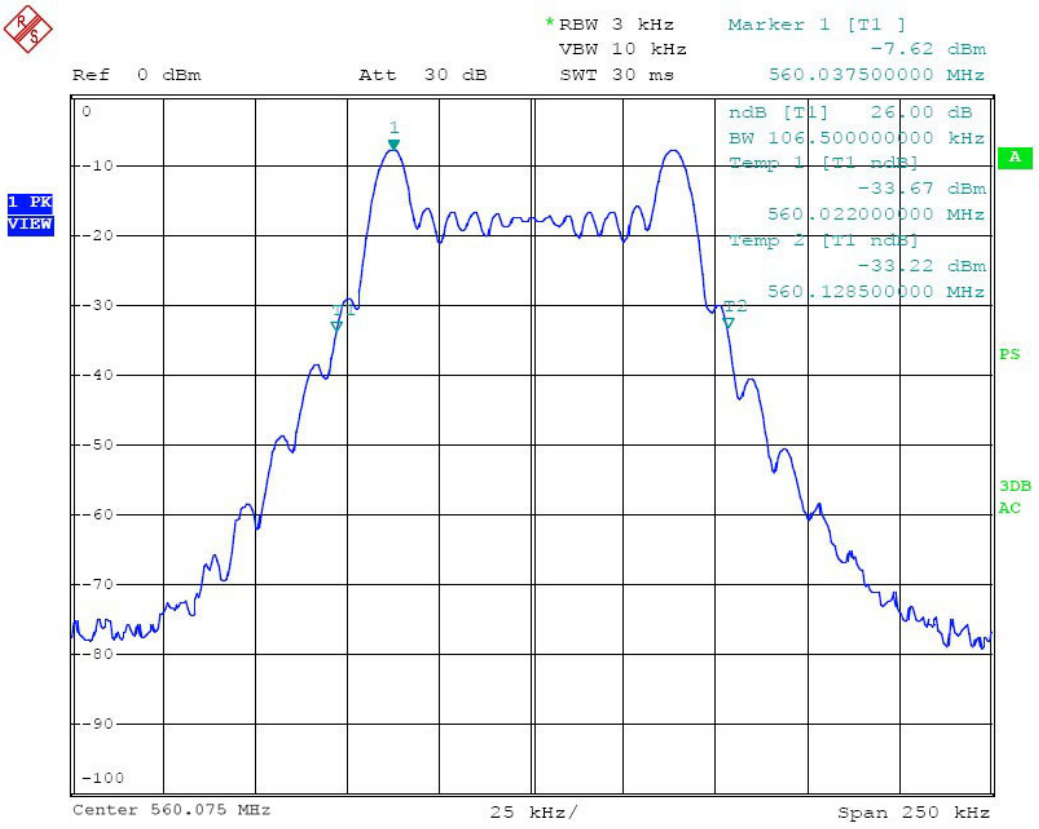
Temperature: 23°C **Humidity:** 50 % RH

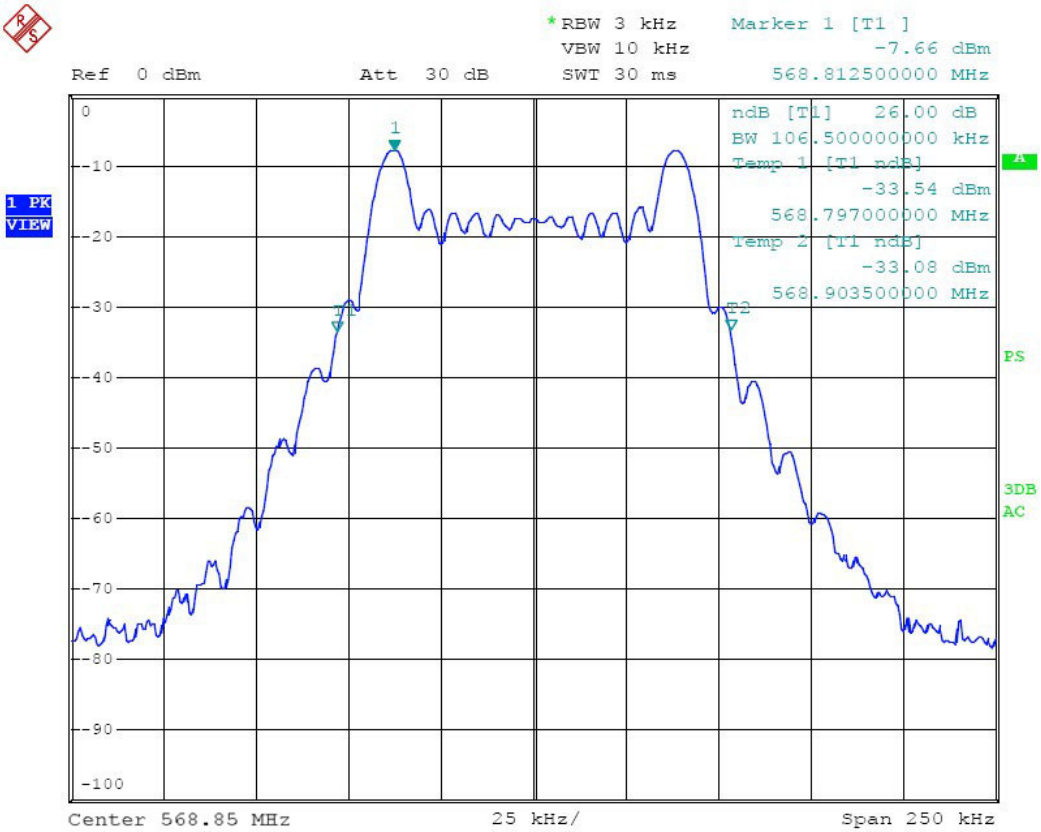
Channel	Frequency (MHz)	26dB Bandwith (kHz)	Limit (kHz)	Result
LOW	553.800	106.5	200	Pass
Mid	560.075	106.5	200	Pass
High	568.850	106.5	200	pass

The test data graph please refer to the following page.

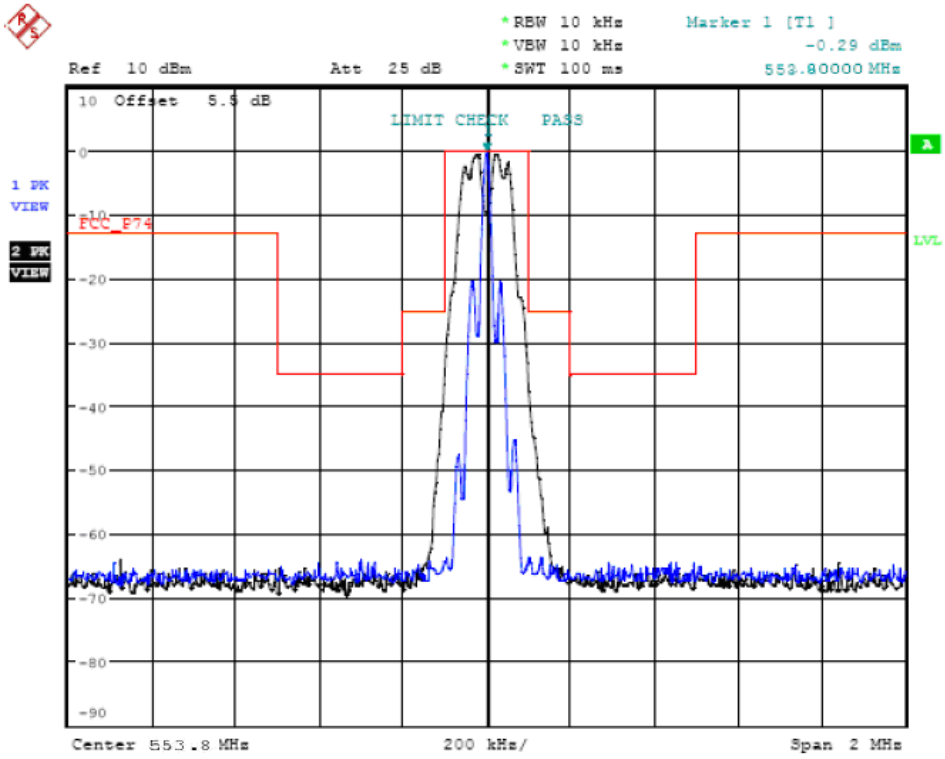
OCCUPIED BANDWIDTH OF EMISSION:

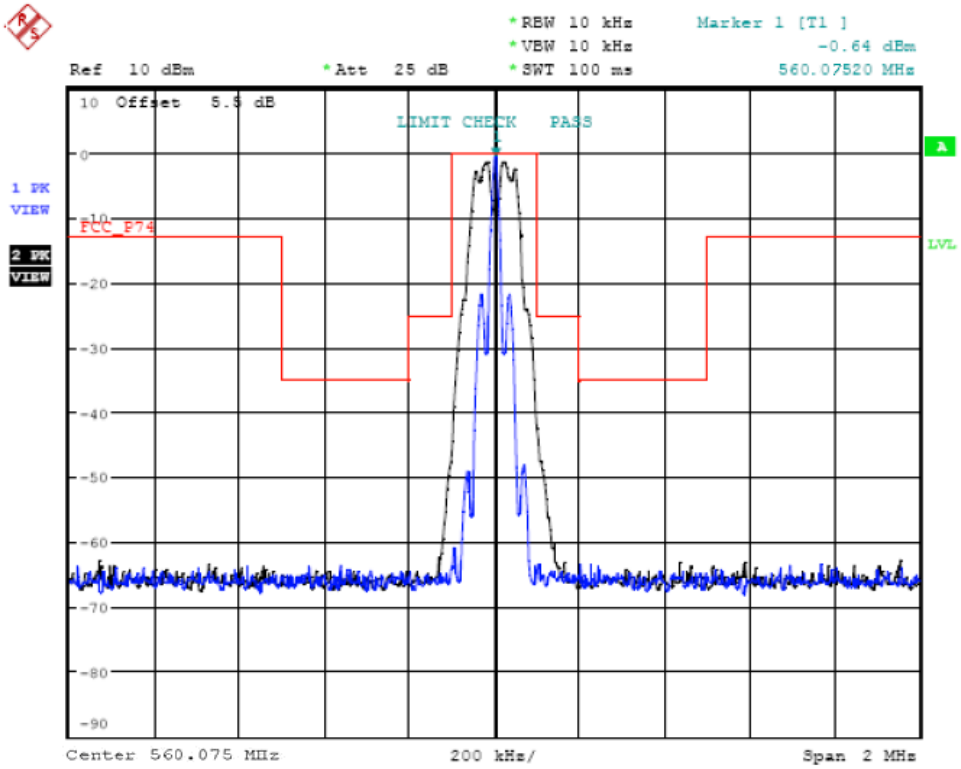


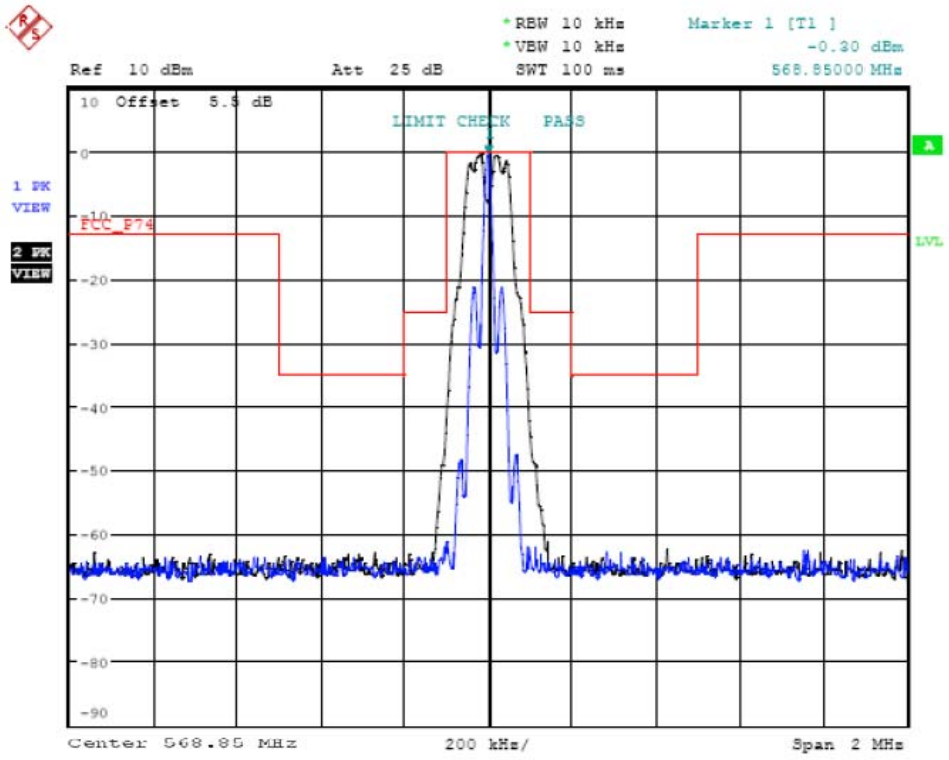

*RBW 3 kHz
VBW 10 kHz
SWT 30 ms
Marker 1 [T1]
-7.62 dBm
560.037500000 MHz
Ref 0 dBm
Att 30 dB
ndB [T1] 26.00 dB
BW 106.500000000 kHz
Temp 1 [T1 ndB]
-33.67 dBm
560.022000000 MHz
Temp 2 [T1 ndB]
-33.22 dBm
560.128500000 MHz
1 PK
VIEW
A
PS
3DB
AC
Center 560.075 MHz
25 kHz/
Span 250 kHz


*RBW 3 kHz
VBW 10 kHz
SWT 30 ms
Marker 1 [T1]
-7.66 dBm
568.812500000 MHz
Ref 0 dBm
Att 30 dB
ndB [T1] 26.00 dB
BW 106.500000000 kHz
Temp 1 [T1 ndB]
-33.54 dBm
568.797000000 MHz
Temp 2 [T1 ndB]
-33.08 dBm
568.903500000 MHz
1 PK
VIEW
A
PS
3DB
AC
Center 568.85 MHz
25 kHz/
Span 250 kHz

EMISSION MASK:






RBW 10 kHz
VBW 10 kHz
SWT 100 ms
Marker 1 [T1]
-0.30 dBm
568.85000 MHz
Ref 10 dBm
Att 25 dB
10 Offset 5.5 dB
LIMIT CHECK PASS
1 PK
VIEW
2 PK
VIEW
FCC_P74
A
LVL
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Center 568.85 MHz
200 kHz/
Span 2 MHz

7. §74.861 (E)(6) / 15.209 – RADIATED SPURIOUS EMISSION

7.1 Standard Applicable

According to FCC2.1053, measurements shall be made to detect spurious emission that may be radiated directly from the cabinet, control circuits, power leads, or intermediated circuit elements under normal condition of installation and operation. Information submitted shall include the relative radiated power of spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from a half wave dipole antenna.

According to FCC74.861 (e)(6), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

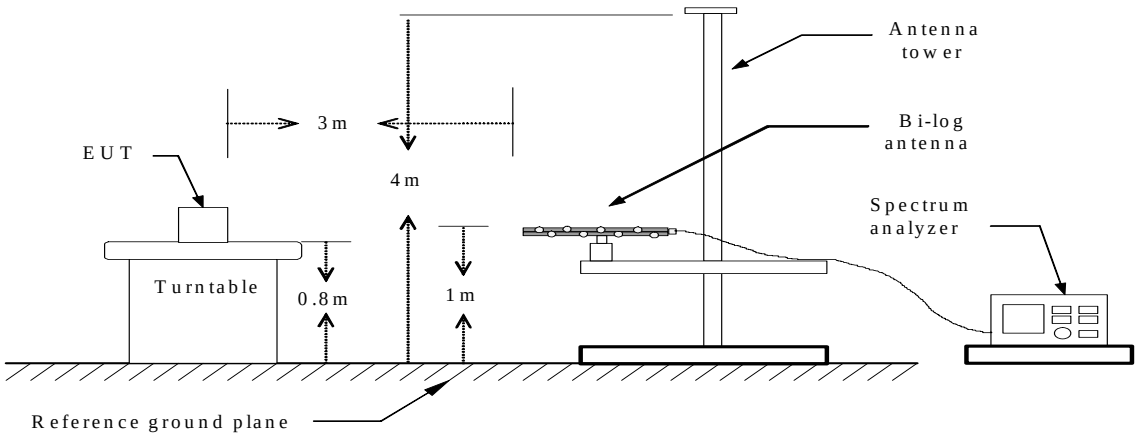
1. on any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB.
2. on any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB.
3. 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 plus 10 Log (output power in watts)dB.

7.2 Test Equipment

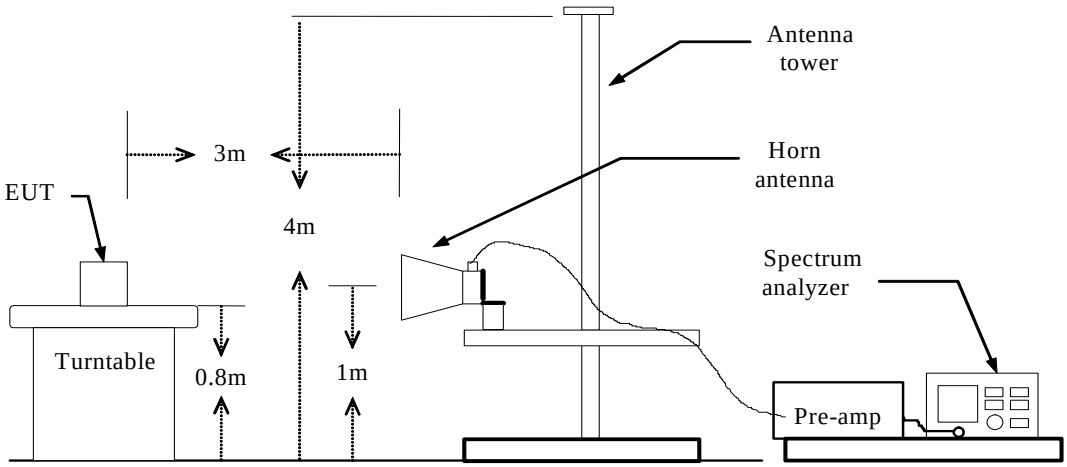
Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	2011-06	2012-06
2	Test Receiver	Rohde & Schwarz	ESCS30	828985/018	2011-06	2012-06
3	Antenna	Schwarzbeck	VULB9163	142	2011-06	2012-06
4	Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2011-06	2012-06
5	DC Filter	MPE	23872C	N/A	2011-06	2012-06

7

.3 Block Diagram of Test Setup



Below 1 GHz



Above 1 GHz

7.4 Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

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 spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level.

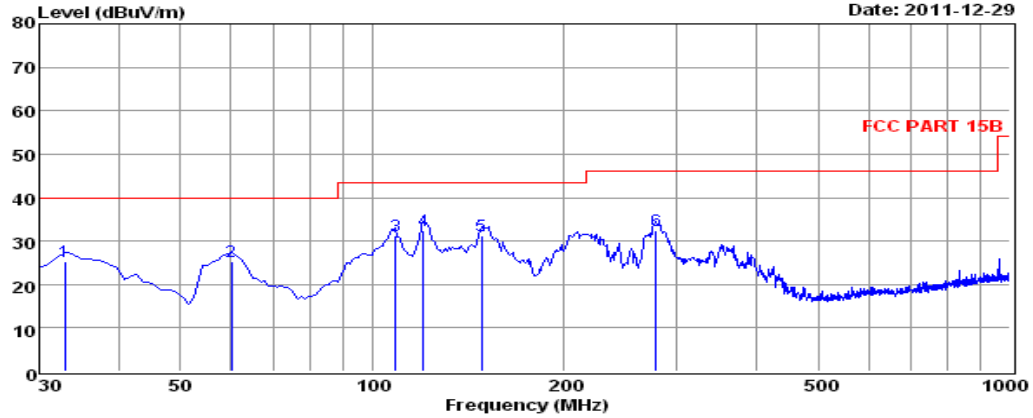
Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts).

7.5 Test Results

Operation Mode: TX **Test Date:** 12-29-2011

Temperature: 23°C **Humidity:** 50 % RH

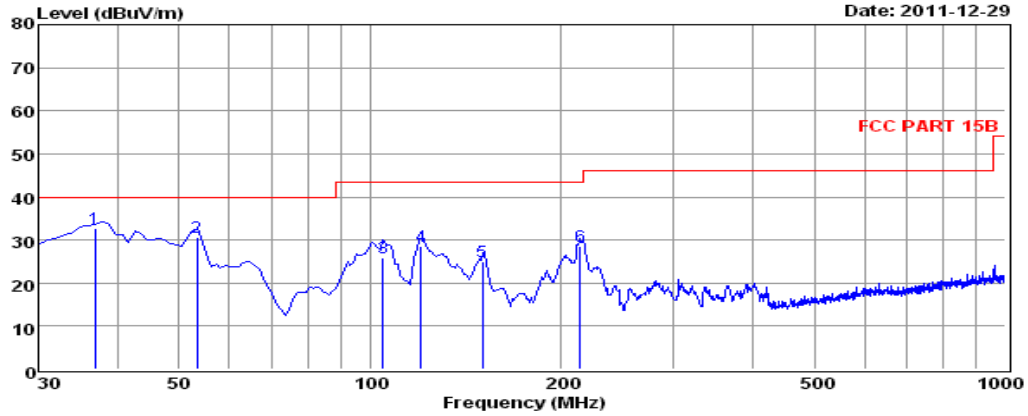
Indicated		Table	Test Antenna		Substituted			Antenna Gain Correction	Cable Loss	Absolute Level	Limit	Margin
Frequency MHz	Reading dBuV/m	Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm	Polar H/V	dBi	dB	dBm	dBm	dB
Low Channel												
1327.2	60.8.3	60	1.1	V	1327.2	-43.2	V	9.1	1.24	-35.34	-13	22.34
1926.42	58.7	0	1.5	V	1926.42	-45.4	V	9.1	1.94	-38.24	-13	25.24
2475.3	49.5	60	1.1	H	2475.3	-54.3	H	9.1	2.38	-47.58	-13	34.58
3523.45	46.9	0	1.5	H	3523.45	-56.8	H	9.1	2.53	-50.23	-13	37.23
3912.12	44.7	90	1.1	V	3912.12	-57.9	V	10.2	3.45	-51.15	-13	38.15
4533.79	42.7	90	1.1	H	4533.79	-59.7	H	10.2	3.57	-53.07	-13	40.07
Middle Channel												
1123.9	59.4	60	1.1	H	1123.9	-45.3	H	9.1	1.24	-37.44	-13	24.44
1906.35	58.9	60	1.1	V	1906.35	-45.4	V	9.1	1.94	-38.24	-13	25.24
2261.42	50.4	0	1.5	H	2261.42	-51.8	H	9.1	2.38	-45.08	-13	32.08
3137.15	47.7	0	1.5	V	3137.15	-54.4	V	9.1	2.53	-47.83	-13	34.83
3415.3	46.1	90	1.1	H	3415.3	-54.5	H	10.2	3.45	-47.75	-13	34.75
4541.5	45.7	90	1.1	V	4541.5	-56.2	V	10.2	3.57	-49.57	-13	36.57
High Channel												
1213.2	61.5	60	1.1	H	1213.2	-42.7	H	9.1	1.24	-34.84	-13	21.84
1906.27	60.7	60	1.1	V	1906.27	-43.3	V	9.1	1.94	-36.14	-13	23.14
2406.4	47.5	0	1.5	V	2406.4	-53.5	V	9.1	2.38	-46.78	-13	33.78
3221.65	47.3	0	1.5	H	3221.65	-54.6	H	9.1	2.53	-48.03	-13	35.03
3609.2	46.7	90	1.1	V	3609.2	-55.2	V	10.2	3.45	-48.45	-13	35.45
4613.1	45.5	90	1.1	H	4613.1	-55.8	H	10.2	3.57	-49.17	-13	36.17



Env. /Ins: 24℃/56%
EUT: Wireless In-Ear Monitor Systems
M/N: PM-160
Power Rating: AC 120V/60Hz
Test Mode: RX
Operator: Willis
Memo:
pol: HORIZONTAL

	Freq.	Reading	CabLos	AntFac	PreFac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	32.91	42.68	0.37	12.31	30.13	25.23	40.00	-14.77	QP
2	60.07	42.26	0.49	12.66	30.16	25.25	40.00	-14.75	QP
3	108.57	48.24	0.68	12.38	30.20	31.10	43.50	-12.40	QP
4	120.21	51.55	0.64	10.45	30.20	32.44	43.50	-11.06	QP
5	148.34	52.36	0.86	8.25	30.20	31.27	43.50	-12.23	QP
6	278.32	48.94	1.01	12.62	30.16	32.41	46.00	-13.59	QP

Note: 1. All readings are Quasi-peak values.
2. Measured = Reading + Antenna Factor + Cable Loss - Amp Factor.
3. The emission levels that ate 20dB below the official limit are not reported.



Env. /Ins: 24℃/56%
EUT: Wireless In-Ear Monitor Systems
M/N: PM-160
Power Rating: AC 120V/60Hz
Test Mode: RX
Operator: Willis
Memo:
pol: VERTICAL

	Freq.	Reading	CabLos	AntFac	PreFac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	36.79	49.54	0.41	12.76	30.13	32.58	40.00	-7.42	QP
2	53.28	47.24	0.46	13.10	30.15	30.65	40.00	-9.35	QP
3	104.69	42.80	0.61	12.73	30.20	25.94	43.50	-17.56	QP
4	120.21	47.54	0.64	10.45	30.20	28.43	43.50	-15.07	QP
5	150.28	45.99	0.86	8.27	30.20	24.92	43.50	-18.58	QP
6	214.30	46.66	0.95	11.02	30.19	28.44	43.50	-15.06	QP

Note: 1. All readings are Quasi-peak values.
2. Measured = Reading + Antenna Factor + Cable Loss - Amp Factor.
3. The emission levels that ate 20dB below the official limit are not reported.

8. §2.1051 / 74.861(E)(6)- SPURIOUS EMISSION AT ANTENNA TERMINAL

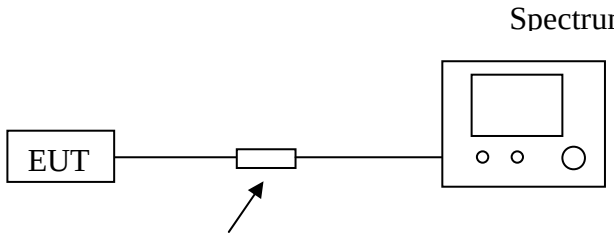
8.1 Standard Applicable

According to §2.1051, the radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

8.2 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	2011-06	2012-06
2	RF Cable	Hubersuhne	Sucoflex104	FP2RX2	2011-06	2012-06
3	DC Filter	MPE	23872C	N/A	2011-06	2012-06

8.3 Block Diagram of Test Setup



8.4 Test Procedure

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 KHz. The video bandwidth is set to 300 KHz.

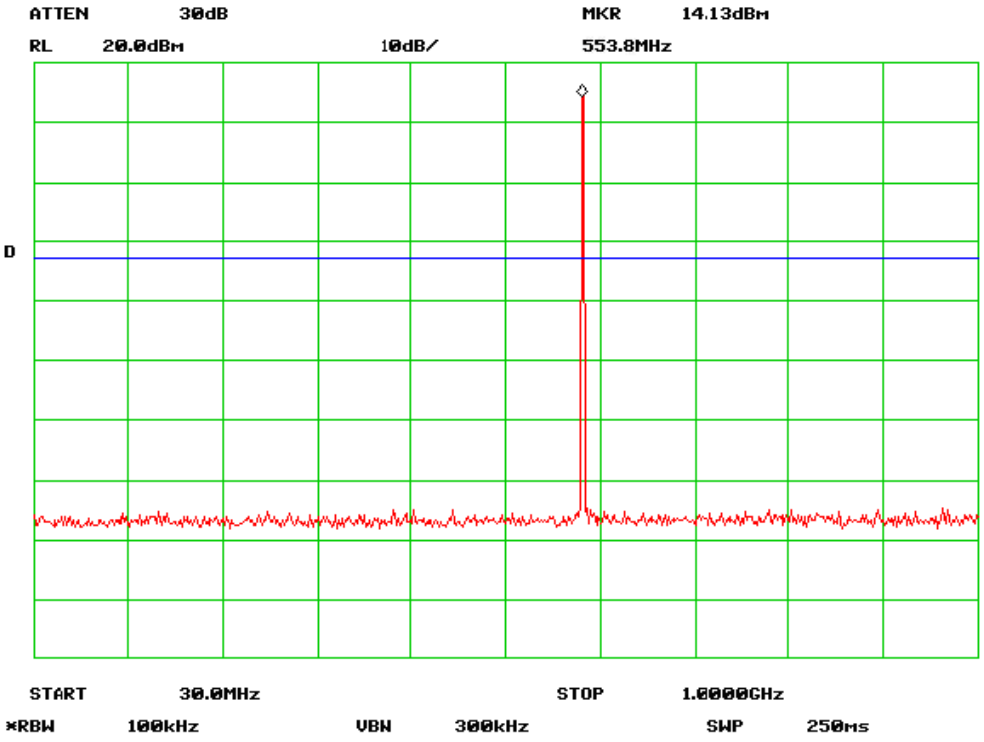
Measurements are made over the 30MHz to 8GHz range with the transmitter set to the lowest, middle, and highest channels.

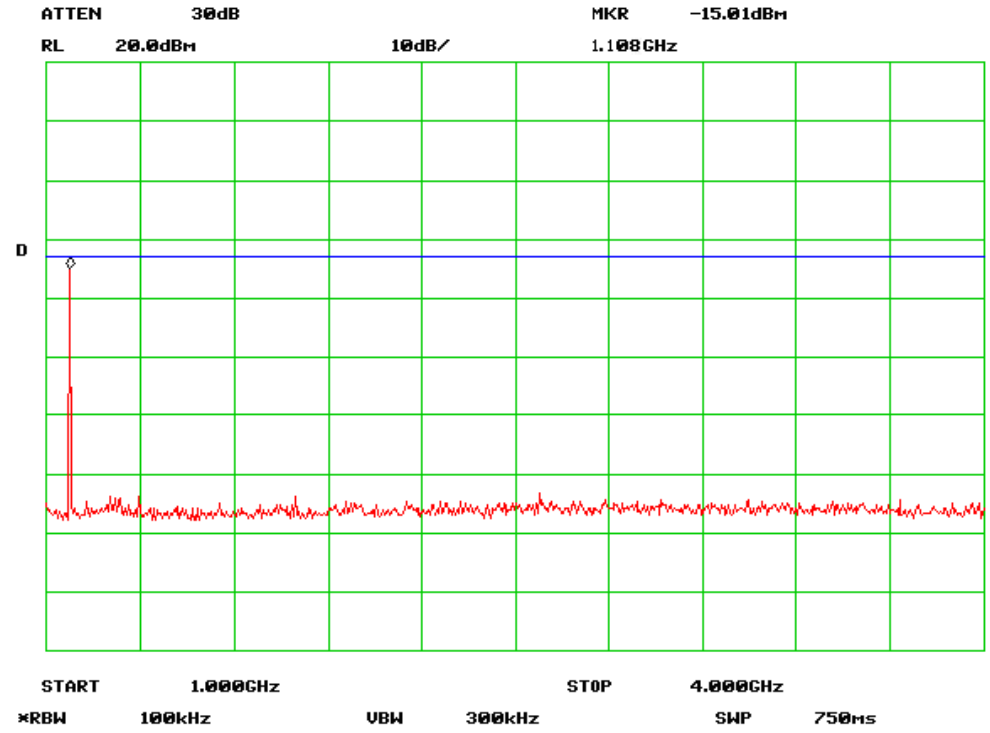
8.5 Test Results

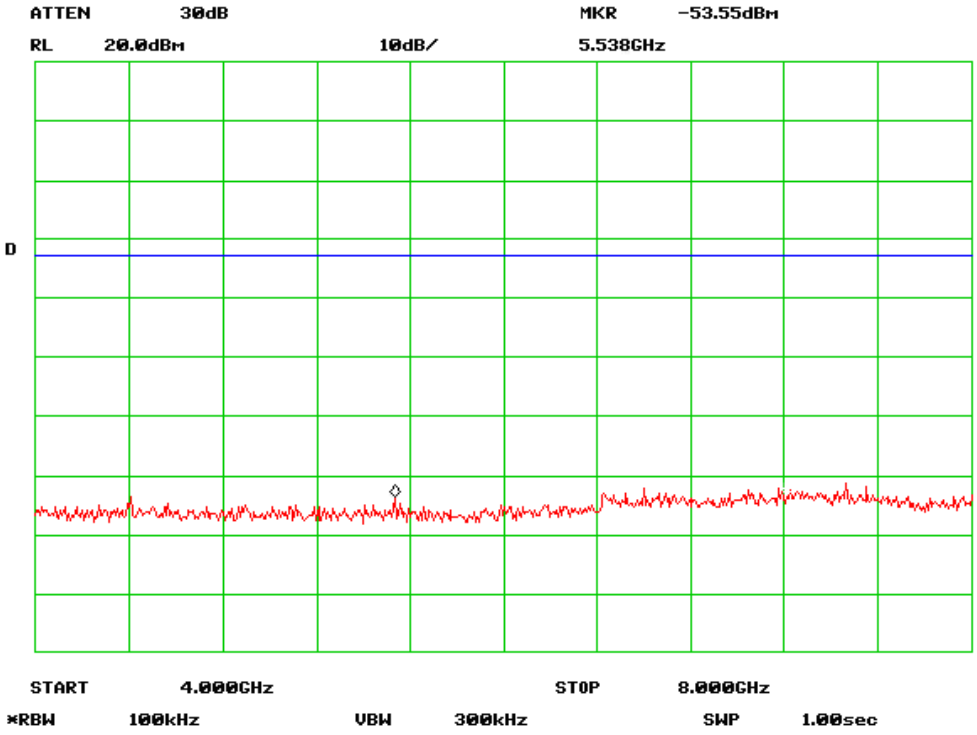
No non-compliance noted

The test data graph please refer to the following page.

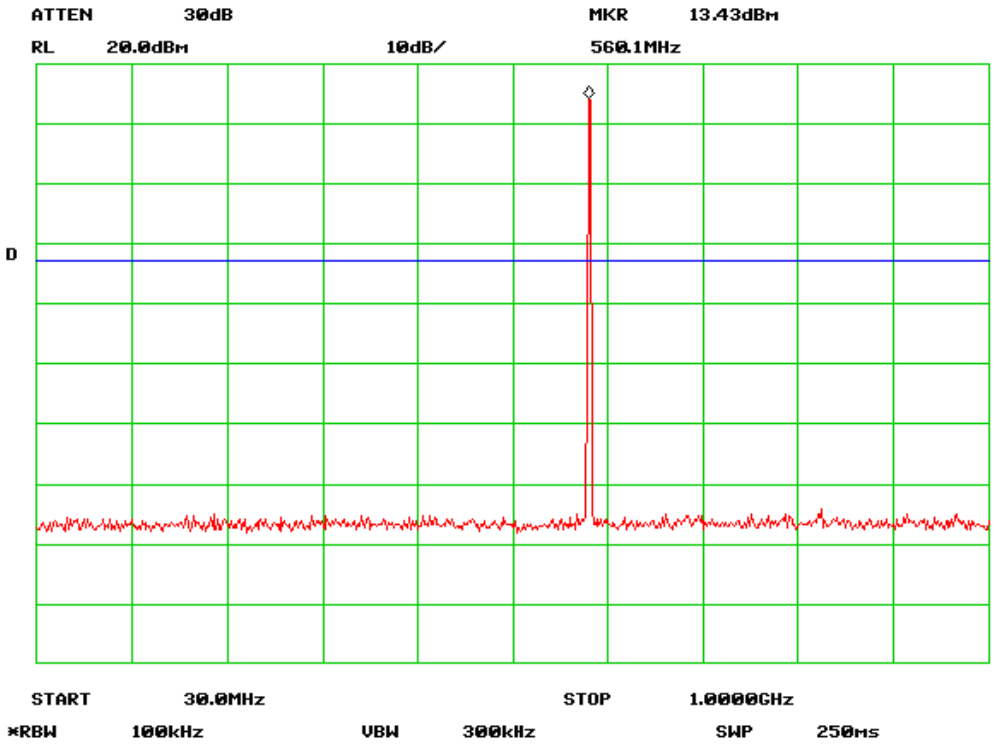
CH Low

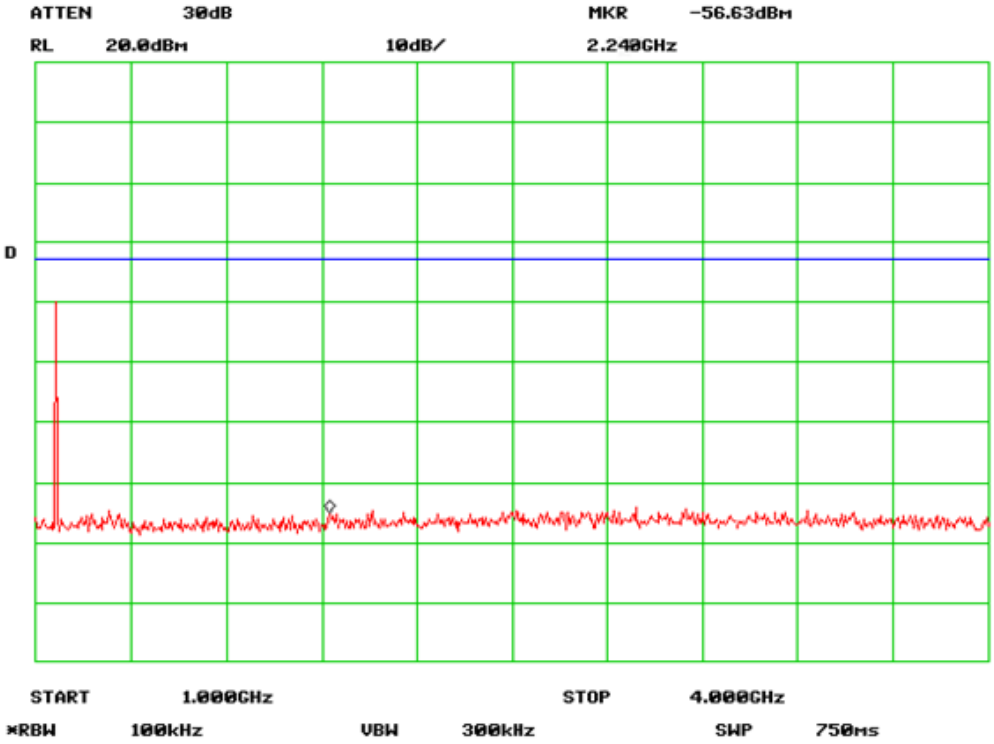


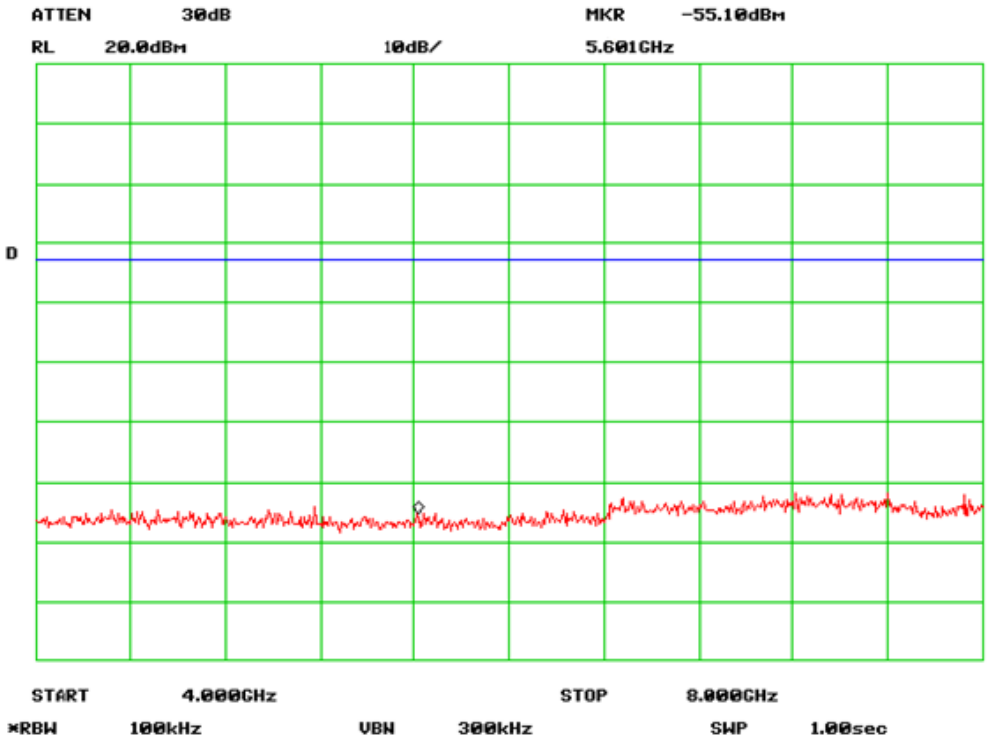




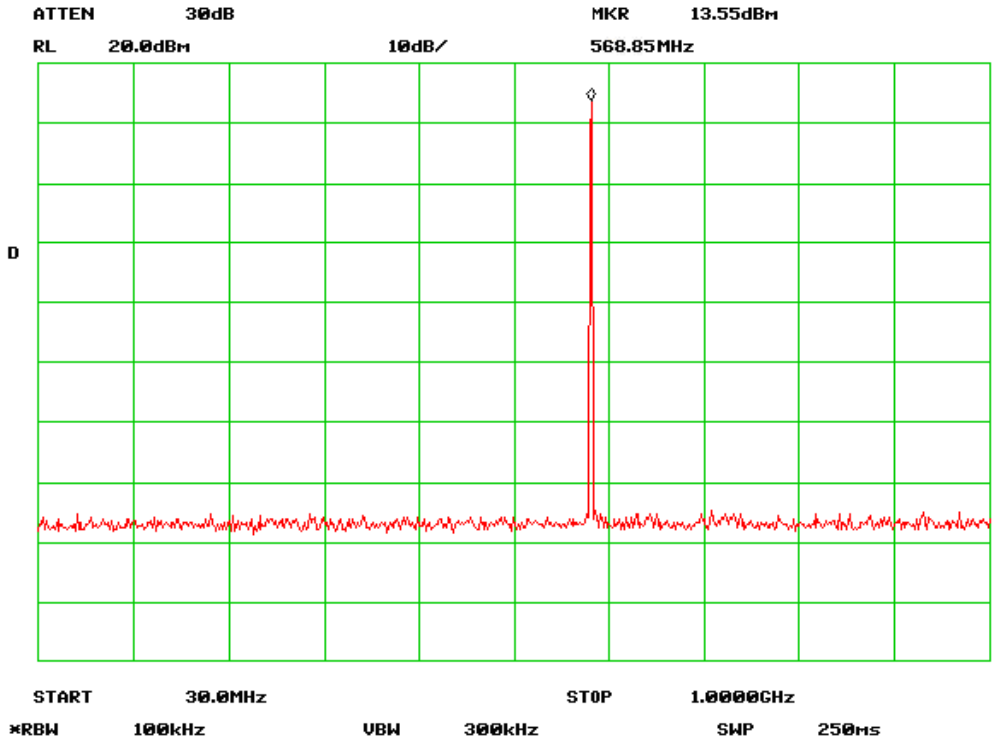
CH Mid

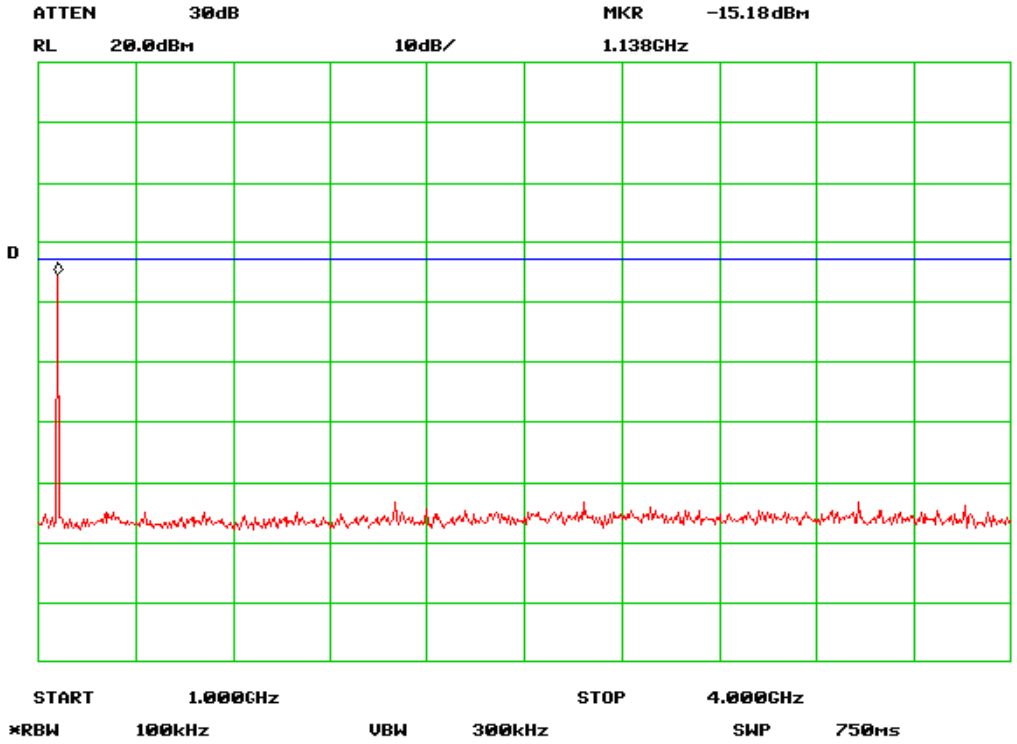


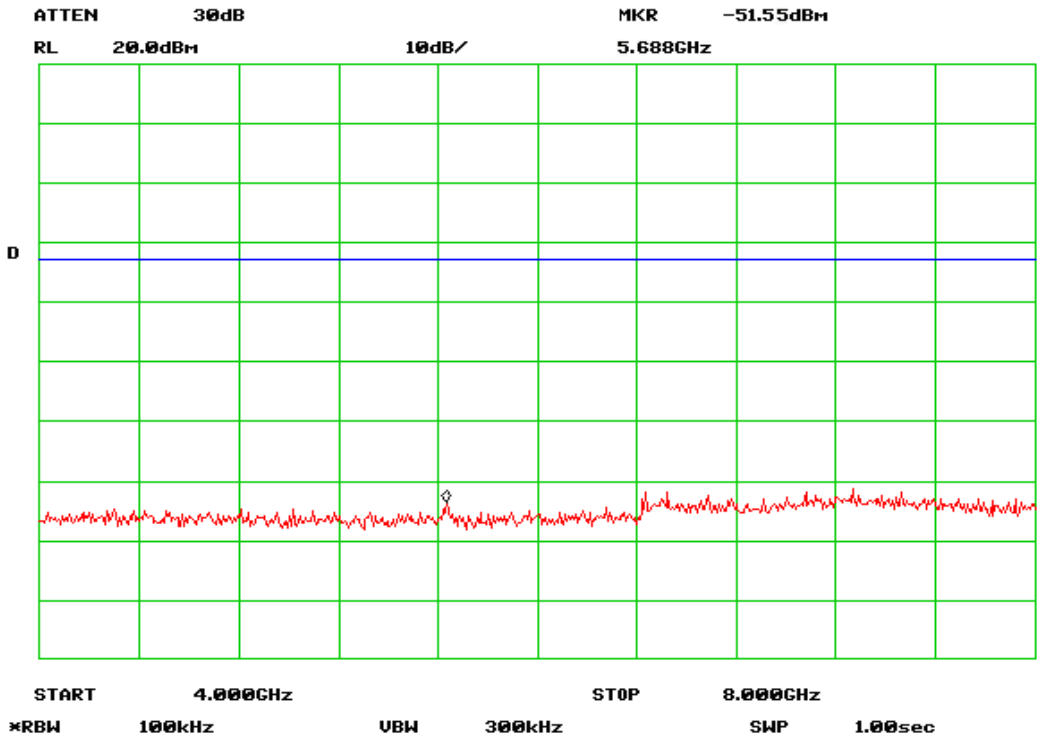




CH High






ATTEN 30dB
MKR -51.55dBm
RL 20.0dBm
10dB/
5.688GHz
D
START 4.000GHz
STOP 8.000GHz
*RBW 100kHz
VBW 300kHz
SWP 1.00sec

9. §74.86(E)(4) - FREQUENCY STABILITY MEASUREMENT

9.1 Standard Applicable

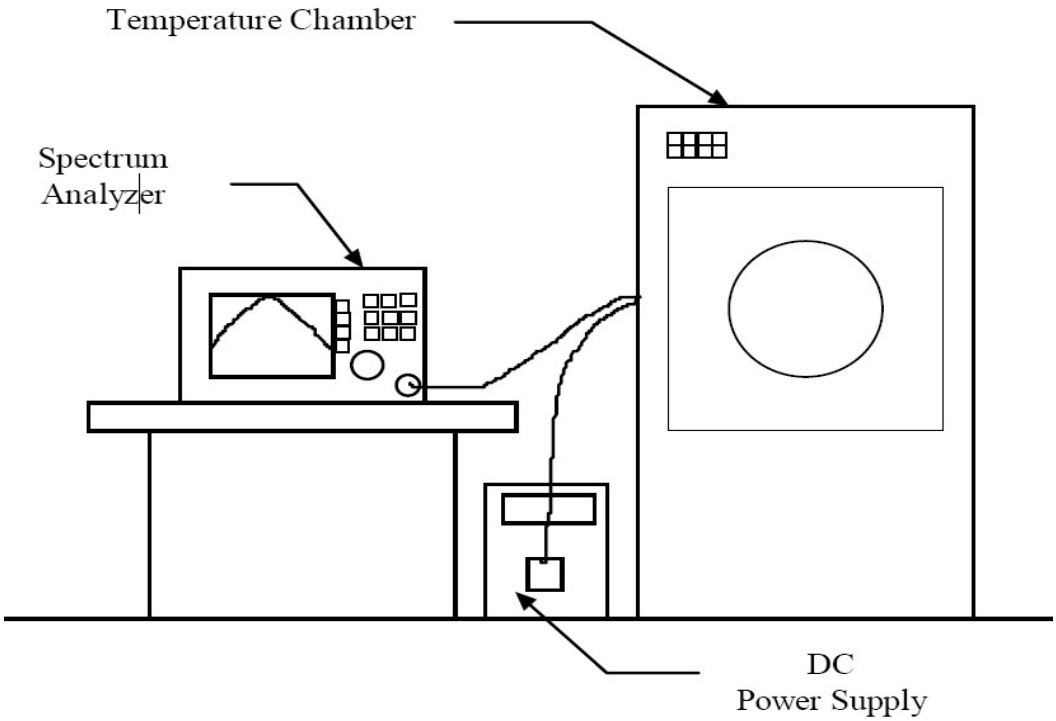
According to FCC 2.1055(a)(1), the frequency stability shall be measure with variation of ambient temperature from –30ºC to +50ºC, and according to FCC 2.1055(d)(2), the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point which is specified by the manufacturer.
According to FCC 74.861, the frequency tolerance of the transmitter shall be 0.005 percent.

According to FCC74.861 (e)(6), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:
1. 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.
2. 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.
3. 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 plus 10 Log (output power in watts)dB.

9.2 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	2011-06	2012-06
2	Temperature Chamber	MALLIER	MCT-2X-M	/	2011-06	2012-06

9.3 Block Diagram of Test Setup



9.4 Test Procedure

9.4.1 Frequency stability versus environmental temperature

9.4.1.1.Setup the configuration per figure 9.3 for frequencies measured at ambient temperature if it is within 15℃to 25℃. Otherwise, an environmental chamber set for a temperature of 20℃ shall be used.

9.4.1.2.Turn on EUT and set Spectrum Analyzer center frequency to the right frequency needs to be measured.

Then set Spectrum Analyzer RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

9.4.1.3 Set the temperature of chamber to 50℃. Allow sufficient time 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.

9.4.1.4 Repeat step 9.4.1.2 with a 10℃ decreased per stage until the lowest temperature -30℃ is measured, record all measurement frequencies.

9.4.2 Frequency stability versus input voltage

9.4.2.1 Frequencies measured at ambient temperature if it is within 15℃ to 25℃. Otherwise, an environmental chamber set for a temperature of 25℃shall be used. Install new batteries in the EUT.

9.4.2.2 Set Spectrum Analyzer center frequency to the right frequency needs to be measured. Then set Spectrum Analyzer RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

9.4.2.3 For non hand carried, battery operated device, supply the EUT primary voltage with 85 and 115 percent of the nominal value and record the frequency.

9.5 Test Results

Operation Mode: TX **Test Date:** 12-29-2011

Temperature: 25°C **Humidity:** 50 % RH

Test Frequency at low channel (553.8MHz) is worst case.

Frequency stability versus environment temperature.

Reference Frequency: 553.8MHz, Limit: 0.005%							
Environment	Power	Frequency measured with time elapsed					
Temperature (℃)	Supply (V)	2 minute		5 minute		10minute	
		Freq (MHz)	Error %	Freq (MHz)	Error %	Freq (MHz)	Error %
50	120	553.79993	-0.00007	553.79994	-0.00006	553.79995	-0.00005
40	120	553.79992	-0.00008	553.79093	-0.00007	553.79994	-0.00006
30	120	553.80054	0.00054	553.80041	0.00041	553.80043	0.00043
20	120	553.80072	0.00072	553.80052	0.00052	553.80054	0.00054
10	120	553.80037	0.00037	553.80028	0.00028	553.80033	0.00033
0	120	553.80028	0.00028	553.80034	0.00034	553.80043	0.00043
-10	120	553.80016	0.00016	553.79993	-0.00007	553.80044	0.00044
-20	120	553.80053	0.00053	553.80021	0.00021	553.80038	0.00038
-30	120	553.80027	0.00027	553.80027	0.00017	553.80033	0.00033

Frequency stability versus supplied voltage (85% - 115%).

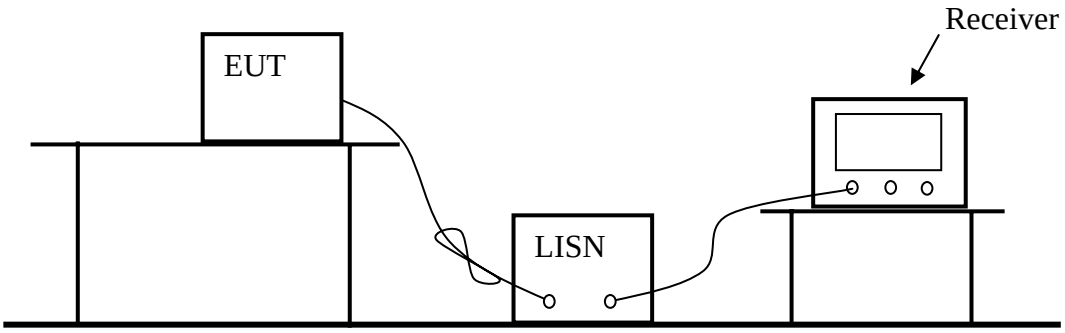
Reference Frequency: 553.8MHz, Limit: 0.005%							
Environment	Power	Frequency measured with time elapsed					
Supply (V)	Temperature (℃)	2 minute		5 minute		10minute	
		Freq (MHz)	Error %	Freq (MHz)	Error %	Freq (MHz)	Error %
138	25	553.79992	-0.00008	553.79994	-0.00006	553.79995	-0.00005
120	25	553.79996	-0.00004	553.79997	-0.00003	553.79994	-0.00006
102	25	553.80031	0.00031	553.80037	0.00037	553.80035	0.00035

10. POWER LINE CONDUCTED EMISSION TEST

10.1 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
1	EMI Test Receiver	Rohde & Schwarz	ESCI	101142	2011-06	2012-06
2	Artificial Mains	Rohde & Schwarz	ENV216	3560.6550.12	2011-06	2012-06
3	EMI Test Software	AUDIX	E3	N/A	2011-06	2011-06

10.2 Block Diagram of Test Setup



Ground

10.3 Power Line Conducted Emission Measurement Limits (Class B)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 ~ 0.50	66 to 56*	56 to 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

10.4 Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

10.5. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2009 on Conducted Emission Measurement.

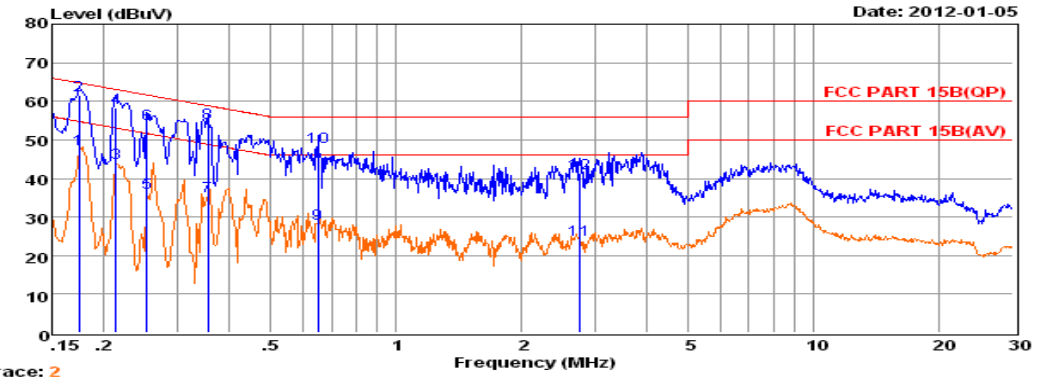
The bandwidth of test receiver is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

10.6. Power Line Conducted Emission Measurement Results

PASS.

All the scanning waveforms for Conducted Emission Measurement are refer to the next page.

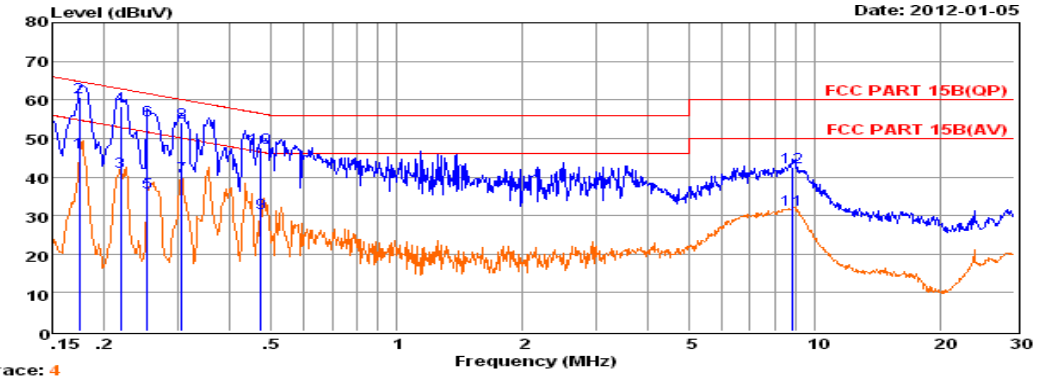


Trace: 2

Env. Ins:	24*/56%
EUT:	Wireless In-Ear Monitor Systems
M/N:	PM-160 + PM-160R
Power Rating:	AC 120V/60Hz
Test Mode:	On
Operator:	Bruce
Memo:	
Pol:	LINE

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuA	dB	dB	dBuA	dBuA	dB	
1	0.17	37.84	9.60	0.02	47.46	54.77	-7.31	Average
2	0.17	51.86	9.60	0.02	61.48	64.77	-3.29	QP
3	0.21	34.50	9.63	0.03	44.16	53.05	-8.89	Average
4	0.21	48.62	9.63	0.03	58.28	63.05	-4.77	QP
5	0.25	26.63	9.63	0.03	36.29	51.64	-15.35	Average
6	0.25	44.44	9.63	0.03	54.10	61.64	-7.54	QP
7	0.35	25.88	9.62	0.03	35.53	48.87	-13.34	Average
8	0.35	44.83	9.62	0.03	54.48	58.87	-4.39	QP
9	0.65	18.58	9.64	0.04	28.26	46.00	-17.74	Average
10	0.65	38.40	9.64	0.04	48.08	56.00	-7.92	QP
11	2.75	14.45	9.64	0.05	24.14	46.00	-21.86	Average
12	2.75	31.60	9.64	0.05	41.29	56.00	-14.71	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.
2. The emission levels that are 20dB below the official limit are not reported.



Trace: 4

Env. Ins:	24*/56%
EUT:	Wireless In-Ear Monitor Systems
M/N:	PM-160 + PM-160R
Power Rating:	AC 120V/60Hz
Test Mode:	On
Operator:	Bruce
Memo:	
Pol:	NEUTRAL

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuA	dB	dB	dBuA	dBuA	dB	
1	0.17	36.81	9.64	0.02	46.47	54.77	-8.30	Average
2	0.17	51.12	9.64	0.02	60.78	64.77	-3.99	QP
3	0.22	31.84	9.59	0.03	41.46	52.88	-11.42	Average
4	0.22	48.67	9.59	0.03	58.29	62.88	-4.59	QP
5	0.25	26.24	9.60	0.03	35.87	51.64	-15.77	Average
6	0.25	44.95	9.60	0.03	54.58	61.64	-7.06	QP
7	0.31	30.48	9.60	0.03	40.11	50.06	-9.95	Average
8	0.31	44.52	9.60	0.03	54.15	60.06	-5.91	QP
9	0.47	20.88	9.62	0.04	30.54	46.45	-15.91	Average
10	0.47	37.91	9.62	0.04	47.57	56.45	-8.88	QP
11	8.82	21.66	9.71	0.08	31.45	50.00	-18.55	Average
12	8.82	32.79	9.71	0.08	42.58	60.00	-17.42	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.
2. The emission levels that are 20dB below the official limit are not reported.

11. MANUFACTURER/ APPROVAL HOLDER DECLARATION

The following identical model(s):

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Belong to the tested device:

Product description : Wireless In-Ear Monitor Systems
Model name : PM-160

No additional models were tested.

---------- END REPORT ----------