FCC 47 CFR PART 90

TEST REPORT

For

Applicant :	**Innovation Specialties**
Address :	**11869 Teale St. Culver City, CA 90230, USA**
Product Name :	**PA SYSTEMP**
Model Name :	**101007PA**
Brand Name :	**N/A**
FCC ID :	**VMH-101007PA**
Report No. :	**MOST120101F1**
Date of Issue :	**February. 17, 2012**

Issued by :	**Most Technology Service Co., Ltd.**
Address :	**No.5, Langshan 2nd Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China**
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CONTENTS

1. TEST RESULT CERTIFICATION

Applicant Name:	Innovation Specialties
Address:	11869 Teale St. Culver City, CA 90230, USA
Manufacturer Name:	Silcon InnoProducts Ltd.
Address:	C1, 6F, Hong Kong Industrial Centre, 489-491 Castle Peak Road, Kowloon, Hong Kong
Brand Name:	N/A
Equipment Under Test:	PA SYSTEMP
Model Number:	101007PA
Series Model Name:	N/A
Difference description:	N/A
FCC ID:	VMH-101007PA
Test Standard:	FCC 47 CFR Part 90
File Number:	MOST120101F1
Date of Test:	January. 07- February. 01, 2012

We (MOST) hereby certify that the te st 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 radiated emission limits of FCC Rules Part 90.

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

Tested by (+ signature): Zhang Ling

Zhang Ling February . 17, 2012

Review by (+ signature):

July Wen February . 17, 2012

Approved by (+ signature): Teo Yang

Terry Yang February. 17, 2012

2. Technical Information

Note: the following data is based on the information by the applicant.

2.1 EUT Description

Product	PA SYSTEMP
Brand Name	N/A
Model Number	101007PA
Series Model Name:	N/A
Series Model Difference description:	N/A
Power Supply	DC 10V by AC/DC Adapter
Frequency Range	461.600 MHz-466.800 MHz
Modulation Technique	FM
Channel Number	16
Channel Spacing	12.5KHz
Test Frequency	461.6MHz – 464MHz – 466.8MHz
Antenna Gain	1dBi
Temperature Range	-10℃-50℃

Note:

1. *This submittal(s) (test report) is intended for FCC ID: VMH-101007PA filing to comply with the FCC Part 90, Subpart I Rules.*
2. *Please refer to Appendix B for the photographs of the EUT. For more details, please refer to the User's manual of the EUT.*

2.2 Objective

The tests documented in this report were performed in accordance with ANSI C63.4 (2009) and FCC CFR 47 Rules Part 90 Subpart I.

No.	Identity	Document Title
1	47 CFR Part 2 (10-1-05 Edition)	Radio Frequency Devices
2	47 CFR Part 90 (10-1-09 Edition)	Private Land Mobile Radio Services

2.3 Test Standards and Results

Test items and the results are as bellow:

№	Test Type	Para. Number	Limit	Result
1	Power and Antenna High Limits	2.1046; 90.205	Refer to 90.205	PASS
2	Modulation Characteristic	2.1047; 90.207	Refer to 90.207	PASS
3	Occupied Bandwidth	2.1049; 90.209	Refer to 90.209	PASS
4	Emission Mask	2.1053; 90.210	Refer to 90.210	PASS
5	Frequency Stability vs. Temperature	2.1055; 90.213	Refer to 90.213	PASS
6	Frequency Stability vs. Voltage	2.1055; 90.213	Refer to 90.213	PASS
7	Transmitter Frequency Behavior	90.214	Refer to 90.214	PASS
8	Lined conducted emission	15.109	Refer to 15.109	PASS

2.4 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35ºC
- Humidity: 30-60%
- Atmospheric pressure: 86-106 k Pa

3. Details of Test

3.1 Identification of the Responsible Testing Laboratory

Company:	Most Technology Service Co., Ltd.
Address:	No.5, Langshan 2nd R d., North H i-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China

3.2 Identification of the Responsible Testing Location

Test Site:	Most Technology Service Co., Ltd.
Location:	No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China
Description:	There is one 3m semi-anechoic an area test sites and two line conducted labs for final test. The Open Are a Test Sites and the Line Conducted labs are constructed an d calibrated to meet the FCC requirements in documents ANSI C63.4:2009 and CISPR 16 requirements. The FCC Registration Number is **490827.**
Site Filing:	The site description is o n file with the Feder al Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4:2009 and CISPR 16 requirements that meet industry r egulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive referenc e ground planes were used dur ing the Line C onducted Emission, one in ve rtical and the oth er in horizontal. The dimensions of these groun d planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wood en test t able on wher e the EU T and the suppo rt equipment were placed during test. The h orizontal ground pl ane projected 50 cm beyond th e footprint of the EUT system and dist anced 80 cm to the wood en test table. For Radiate d Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna.

3.3 List of Test Equipments

No.	Equipment	Manufacturer	Model No.	S/N	Calibration due date
1	Test Receiver	Rohde & Schwarz	ESCI	100492	2012/03/14
2	L.I.S.N.	Rohde & Schwarz	ENV216	100093	2012/03/14
3	Coaxial Switch	Anritsu Corp	MP59B	6200283933	2012/03/14
4	Terminator	Hubersuhner	50Ω	No.1	2012/03/14
5	RF Cable	SchwarzBeck	N/A	No.1	2012/03/14
6	Bilog Antenna	Sunol	JB3	A121206	2012/03/14
7	Cable	Resenberger	N/A	NO.1	2012/03/14
8	DC Power Filter	DuoJi	DL2×30B	N/A	2012/03/14
9	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	2012/03/14
10	3 Phase Power Line Filter	DuoJi	FNF 402B30	N/A	2012/03/14
11	Absorbing Clamp	Luthi	MDS21	3635	2012/03/14
12	Coaxial Switch	Anritsu Corp	MP59B	6200283933	2012/03/14
13	AC Power Source	Kikusui	AC40MA	LM003232	2012/03/14
14	Test Analyzer	Kikusui	KHA1000	LM003720	2012/03/14
15	Line Impendence Network	Kikusui	LIN40MA-PCR-L	LM002352	2012/03/14
16	ESD Tester	Kikusui	KES4021	LM003537	2012/03/14
17	EMCPRO System	EM Test	UCS-500-M4	V0648102026	2012/03/14
18	Signal Generator	IFR	2032	203002/100	2012/03/14
19	Amplifier	A&R	150W1000	301584	2012/03/14
20	CDN	FCC	FCC-801-M3-25	107	2012/03/14
21	EM Injection Clamp	FCC	F-203I-23mm	403	2012/03/14
22	Telecommunication Antenna	European Antennas	PSA 75301R/170	0304213	2012/03/14

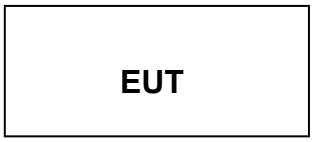
NOTE: Equipments listed above have been calibrated and are in the period of validation.

3.4 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35ºC
- Humidity: 30-60%
- Atmospheric pressure: 86-106 k Pa

3.5 Configuration of Tested System



4. Test Methodology

4.1 General Test Procedures

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above gr ound plane. According to the require ment in Section 13.1.4.1 of ANSI C63.4:2009. Conducted emissions fr om the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

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 anten na, which varied from 1m to 4m to find out the highest emi ssion. And also, each e mission was to be maximized by changing the polarization of receivi ng 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 C63.4:2009.

4.2 Description of Test Modes

The EUT has been tested under normal operating condition.

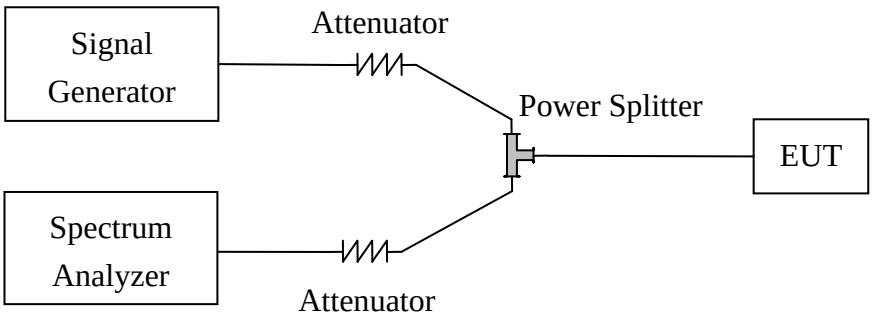
Three channels (The top channel, the middle channel and the bottom channel) are chosen for testing.

5. FCC Part 90 Requirements

5.1 General Information

5.1.1 Conducted Related Tests

Based on ANSI/TIA-603-C-2004

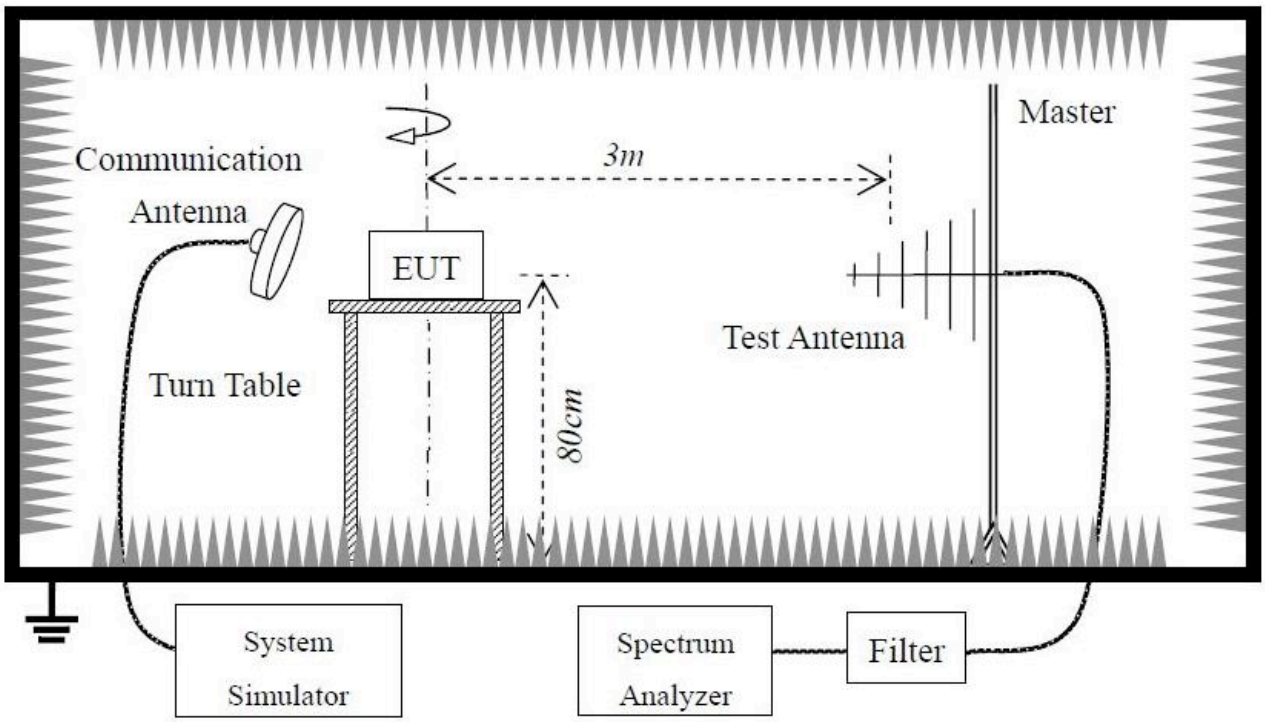


1. The EUT is coupled to the Spectrum Analyzer and the System Simulator with the suitable Attenuators through the Power Splitter; the path loss is calibrated to correct the reading.
2. The EUT is configured here as MS + Battery.
3. Set the spectrum analyzer to measure peak hold with the required settings.
4. Set the signal generator to a known output power and record the path loss in dB (LOSS) for frequencies up to the tenth harmonic of the EUT's carrier frequency. LOSS = Generator Output Power (dBm) – Analyzer reading (dBm).
5. Replace the signal generator with the EUT.
6. Adjust the settings of the Digital Radio communication Tester (DRT) to set the EUT to its maximum power at the required channel.
7. Set the spectrum analyzer to measure peak hold with the required settings. Offset the spectrum analyzer reference level by the path loss measured above.
8. Measure and record all spurious emissions up to the tenth harmonic of the carrier frequency.
9. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.
10. If necessary steps 6 and 7 may be performed with the spectrum analyzer set to average detector.

Note: Step 4 above is pe rformed prior to testing and LOSS is recorded by test software. Steps 3, 7, and 8 above are performed with test software.

5.1.2 Radiated Power and Spurious Emission Tests

Based on ANSI/TIA-603-C-2004



1. The test is performed in a full-Anechoic Chamber, the air loss of the site and the factors of the test system are pre-calibrated using the substitution method.
2. Connect the equipment as shown in the above diagram with the EUT's antenna in a vertical orientation.
3. Adjust the setting of System Simulator to set the EUT to its maximum power at the require channel.
4. Set the Spectrum Analyzer to the channel frequency, set the analyzer to measure peak hold with the required setting.
5. Rotate the EUT 360 degree, recorded the peak level in dBm(LVL).
6. Replace the EUT with a vertically polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
7. Connect the antenna to a signal generator with known output power and record the path loss in dB (Loss), Loss=Generator Output Power(dBm)- Spectrum Analyzer reading Power(dBm).
8. Determine the ERP using the following equation:
   ERP(dBm)=LVL(dBm)+Loss(dB)
9. Determine the EiRP using the following equation:
   EIRP(dBm)= ERP(dBm)+2.14(dB)
10. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.

Note: Steps 6 and 7 above are performed prior to setting and Loss is recorded by test software.

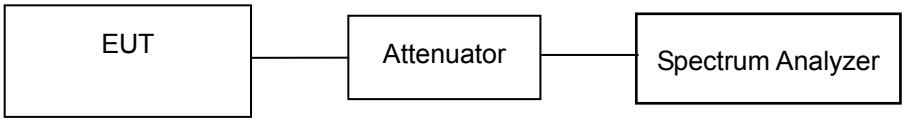
5.2 Power and Antenna High Limits

LIMIT

According to CFR 47 section 90.205, Maximum ERP is dependent upon the station's antenna HAAT and required service area.

5.2.1 Conducted Measurement

TEST CONFIGURATION



TEST PROCEDURE

The RF output of transceiver was conducted to a spectrum analyzer through an appropriate attenuator.

TEST RESULTS

Freq.	Channel	Reading ®	Total Factor(TF)	Power(CP)
(MHz)		(dBm)	(dB)	(dBm)
461.60	Bottom	14.63	22.11	36.74
464.00	Middle	14.49	22.19	36.68
466.80	Top	13.86	22.21	36.07

** Note:*

Calculation Formula: CP = R + TF (A+L)

CP: The final Conducted Power

TF: Total Factor

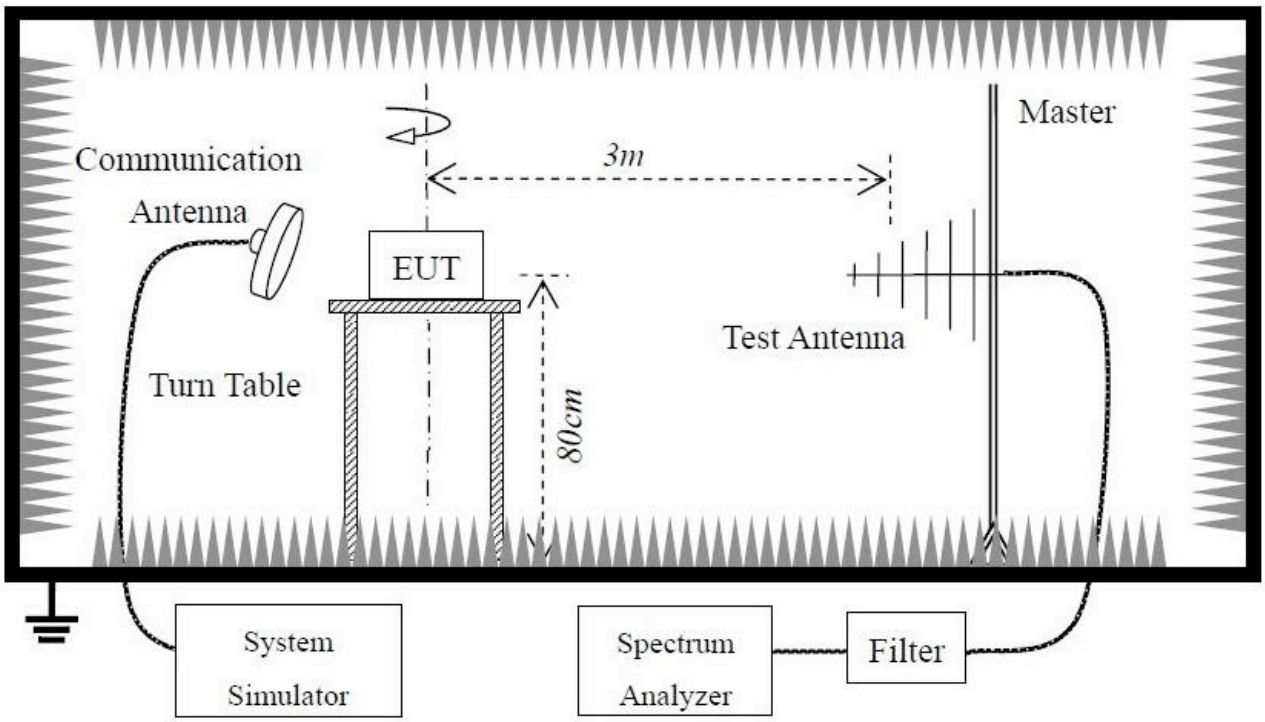
R: The reading value from spectrum analyzer

A: The attenuation value of the used attenuator

L: The loss of all connection cables

5.2.2 Radiated Measurement

TEST CONFIGURATION



TEST PROCEDURE

1. On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.

2. The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.

3. The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.

4. The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.

5. The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.

6. The transmitter shall than be rotated through 360°in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

7. The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.

8. The maximum signal level detected by the measuring receiver shall be noted.

9. The measurement shall be repeated with the test antenna set to horizontal polarization.

10. Replace the antenna with a proper Antenna (substitution antenna).

11. The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.

12. The substitution antenna shall be connected to a calibrated signal generator.

13. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

14. The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

15. The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

16. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

17. The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

TEST RESULTS

Chan	Freq.	Antenna	Reading	Attenuator	E.R.P
	(MHz)	Polarity	(dBm)	(dB)	(dBm)
Low	461.60	V	9.47	25.7	35.17
	461.60	H	11.14	25.7	36.84
Middle	464.00	V	9.35	25.9	35.25
	464.00	H	10.52	25.9	36.42
High	466.80	V	8.76	26.4	35.16
	466.80	H	10.48	26.4	36.88

Note:

E.R.P(dBm) = Reading (dBm) + Attenuator (dB)

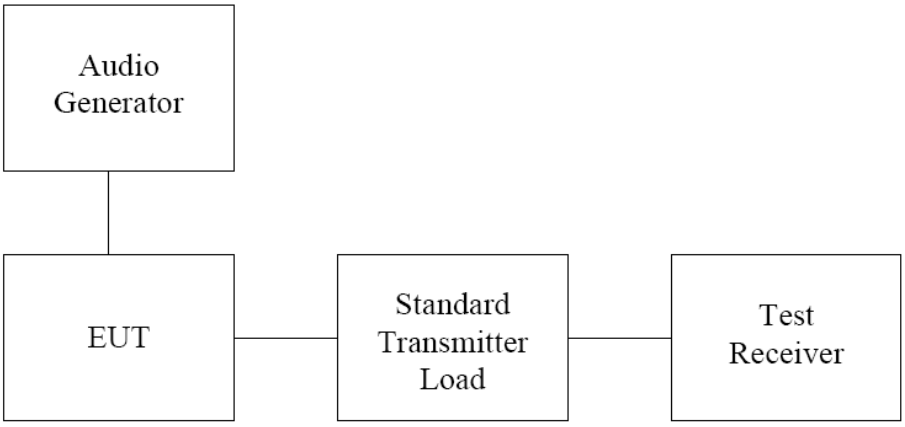
5.3 Modulation Characteristic

LIMIT

According to CFR 47 section 2.104 7 a, for Voic e modulation communication equip ment, the freque ncy response of the audio modulation circuit over a range of 100 to 5000 Hz shall be measured.

According to CFR 47 se ction 90.205, Equipment which employs modulati on limiting, a curve showing the percentage of modulation versus the modulation input voltage shall be supplied.

TEST CONFIGURATION



TEST PROCEDURE

Modulation limits is the transmitter circuit's ability to limit the transmitter form producing deviations in excess of rated system deviation.

The audio signal generator is connected to the audio input of the EUT with its full rating.

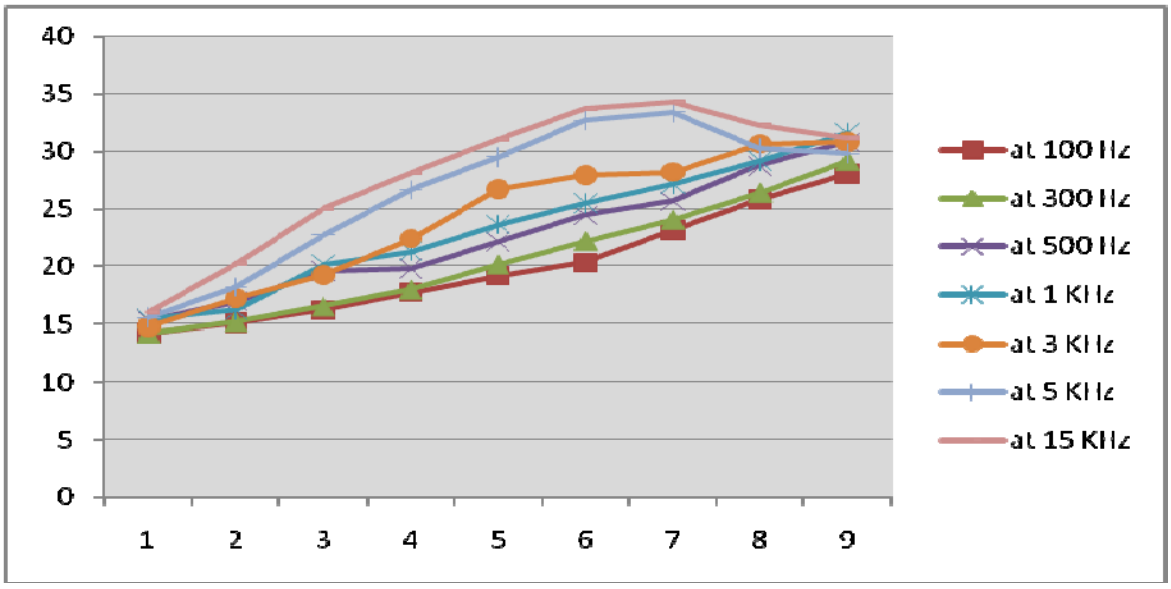
The modulation response is measured at certain modulation frequencies, related to 1000 Hz reference signal.

Tests are performed for positive and negative modulation.

TEST RESULTS

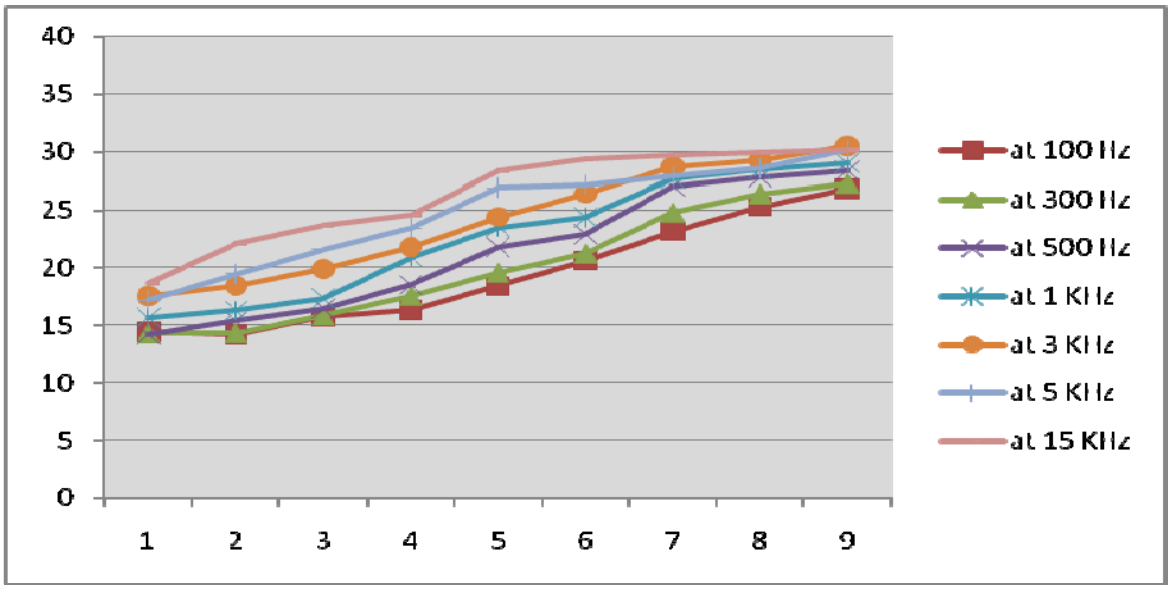
The Low Channel (461.60MHz)

Modulation Level (dB)	Peak Frequency Deviation						
	at 100 Hz	at 300 Hz	at 500 Hz	at 1 KHz	at 3 KHz	at 5 KHz	at 15 KHz
-20	14.39	14.25	14.16	15.62	17.49	17.21	18.58
-15	14.15	14.29	15.33	16.24	18.41	19.46	22.04
-10	15.68	15.79	16.42	17.32	19.85	21.59	23.63
-5	16.28	17.51	18.46	20.92	21.76	23.43	24.54
0	18.36	19.51	21.75	23.48	24.33	26.85	28.33
+5	20.56	21.17	22.82	24.34	26.33	27.14	29.34
+10	23.14	24.69	26.95	27.65	28.63	27.92	29.65
+15	25.24	26.28	27.72	28.45	29.15	28.56	29.83
+20	26.78	27.19	28.31	29.02	30.42	30.12	30.07



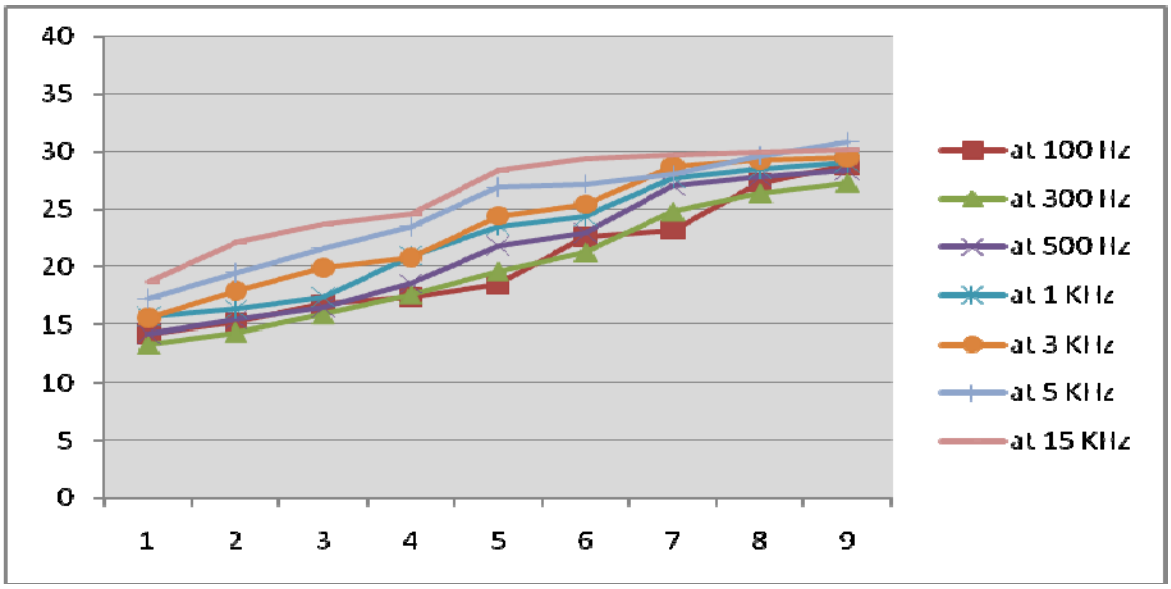
The Middle Channel (464.00 MHz)

Modulation Level (dB)	Peak Frequency Deviation						
	at 100 Hz	at 300 Hz	at 500 Hz	at 1 KHz	at 3 KHz	at 5 KHz	at 15 KHz
-20	14.17	13.25	14.16	15.62	16.49	17.21	18.58
-15	14.15	14.29	15.33	16.24	18.41	19.46	22.04
-10	15.68	15.79	16.42	17.32	19.85	21.59	23.63
-5	16.28	17.51	18.46	20.92	21.76	23.43	24.54
0	18.36	19.51	21.75	23.48	24.33	26.85	28.33
+5	20.56	21.17	22.82	24.34	26.33	27.14	29.34
+10	23.14	24.69	26.95	27.65	28.63	27.92	29.65
+15	25.24	26.28	27.72	28.45	29.15	28.56	29.83
+20	26.78	27.19	28.31	29.02	29.42	30.12	30.07



The High Channel (466.80MHz)

Modulation Level (dB)	Peak Frequency Deviation						
	at 100 Hz	at 300 Hz	at 500 Hz	at 1 KHz	at 3 KHz	at 5 KHz	at 15 KHz
-20	14.17	13.25	14.16	15.62	15.49	17.21	18.58
-15	15.15	14.29	15.33	16.24	17.85	19.46	22.04
-10	16.68	15.79	16.42	17.32	19.85	21.59	23.63
-5	17.28	17.51	18.46	20.92	20.76	23.43	24.54
0	18.36	19.51	21.75	23.48	24.33	26.85	28.33
+5	22.56	21.17	22.82	24.34	25.33	27.14	29.34
+10	23.14	24.69	26.95	27.65	28.63	27.92	29.65
+15	27.24	26.28	27.72	28.45	29.15	29.56	29.83
+20	28.78	27.19	28.31	29.02	29.42	30.75	30.07

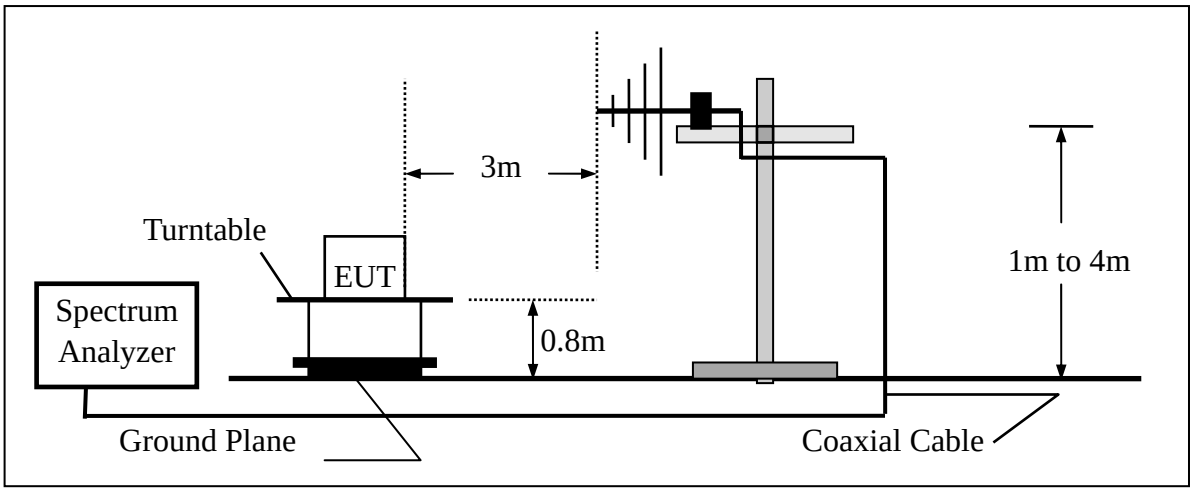


5.4 Occupied Bandwidth

LIMIT

According to FCC CFR 47 Part 90 Section 90.209, fo r other types of e missions, the maximum authorized bandwidth shall not be more than that normally authorized for voice operations.

TEST CONFIGURATION

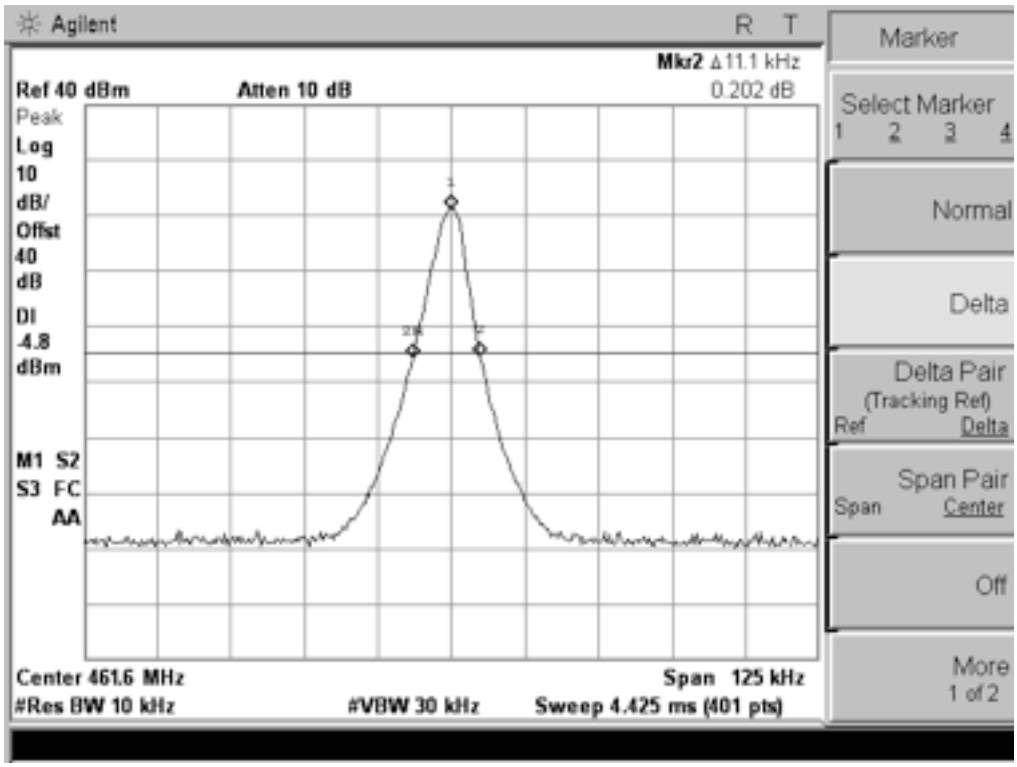


TEST PROCEDURE

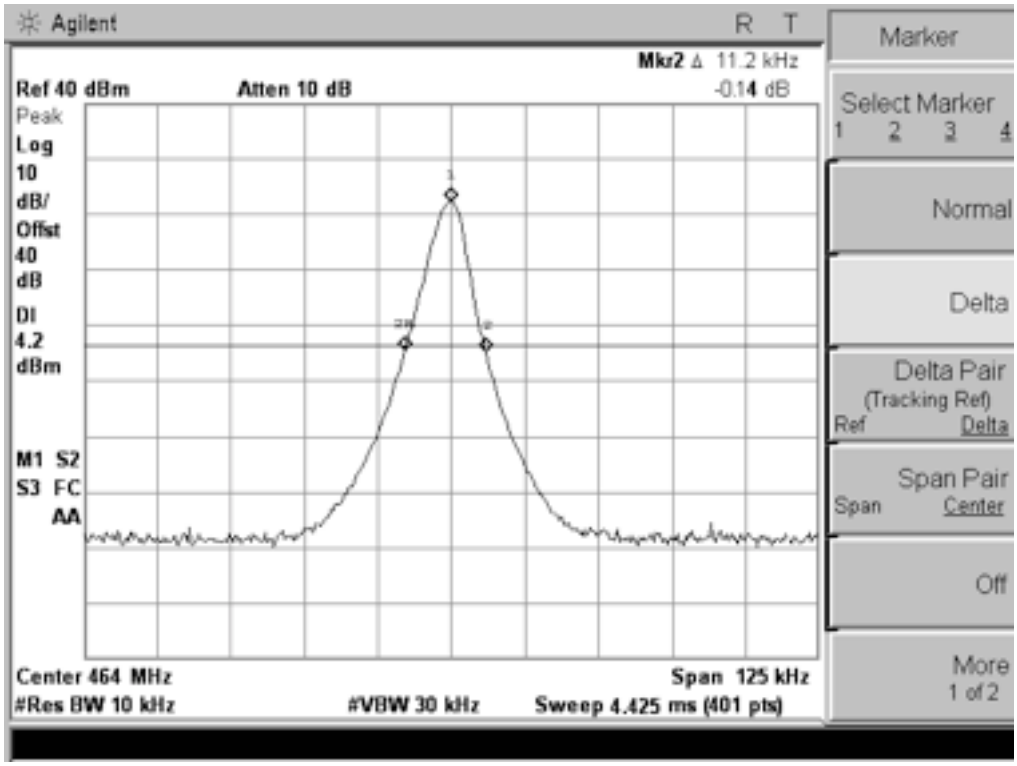
1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. Set EUT as normal operation.
3. Set SPA center frequency=fundamental frequency, RBW=10 KHz, VBW=30 KHz, Span=200 KHz.
4. Set SPA max. Hold. Mark peak, -26dB.

TEST RESULTS

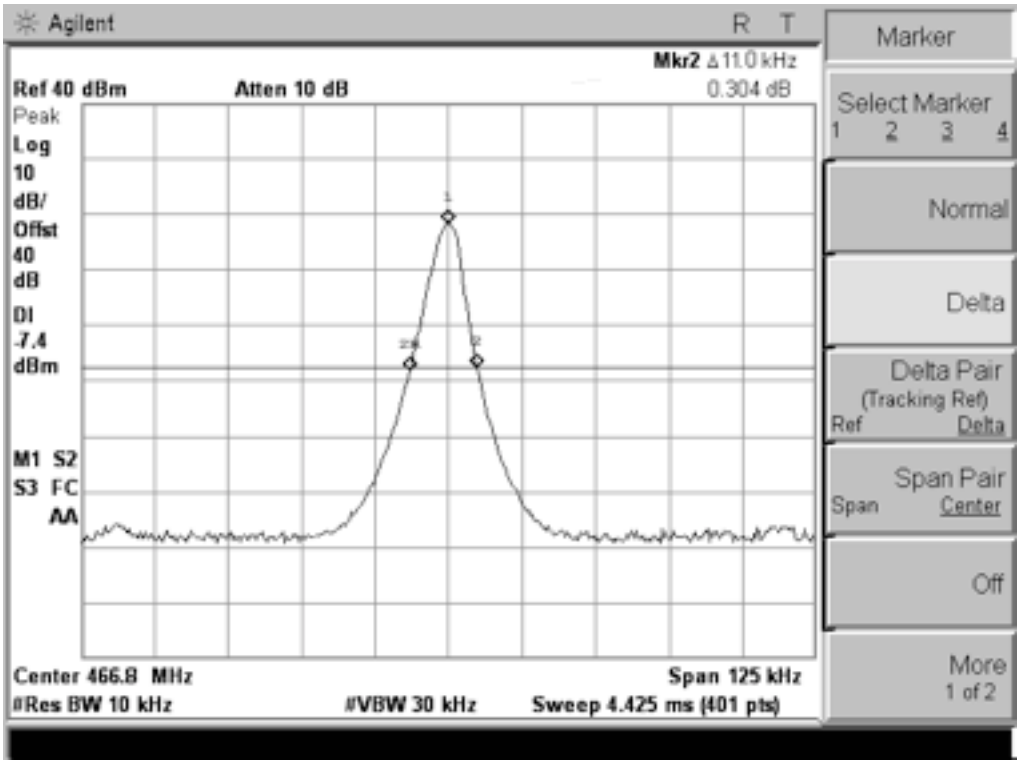
Channel	Frequency	Occupied Bandwidth	Result
Bottom	461.60 MHz	11.10 KHz	PASS
Middle	464.00 MHz	11.20 KHz	PASS
Top	466.80 MHz	11.00 KHz	PASS



(The Low Channel: 461.60 MHz)



(The Middle Channel: 464.00 MHz)



(The High Channel: 466.80 MHz)

5.5 Emission Mask

LIMIT

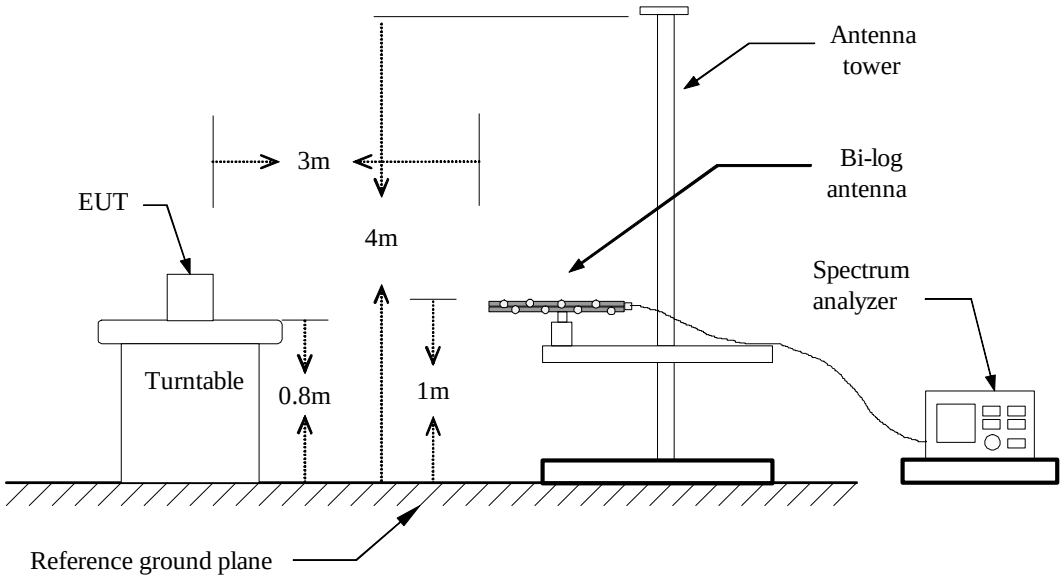
According to CFR 47 section 90.210, the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(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 an y frequency removed from the operati ng frequency by more t han 250 percent of the authorized bandwidth: at least 43+10log $_{10}$ *(mean output power in watts) dB;

TEST CONFIGURATION



TEST PROCEDURE

1. On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.

2. The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.

3. The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.

4. The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.

5. The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.

6. The transmitter shall than be rotated through 360°in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

7. The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.

8. The maximum signal level detected by the measuring receiver shall be noted.

9. The measurement shall be repeated with the test antenna set to horizontal polarization.

10. Replace the antenna with a proper Antenna (substitution antenna).

11. The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.

12. The substitution antenna shall be connected to a calibrated signal generator.

13. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

14. The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

15. The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

16. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

17. The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

TEST RESULTS

The Unwanted Radiated Emission

The Low Channel (461.60 MHz)

Frequency (MHz)	Antenna Polarization	Reading (dBm)	Attenuator (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
924.04	V	-37.37	12.69	-24.68	-13	-11.68
Other	V	--	--	--	-13	> 10 dB
--	V	--	--	--	-13	> 10 dB
--	V	--	--	--	-13	> 10 dB
924.04	H	-35.34	12.69	-22.65	-13	-9.65
Other	H	--	--	--	-13	> 10 dB
--	H	--	--	--	-13	> 10 dB
--						

Notes:

(1) "--" in the table above means that the emissions are too small to be measured and are at least 10 dB below the limit.

(2) Emisiion Level= Reading (dBm) + Attenuator (dB)

The Middle Channel (464.00 MHz)

Frequency (MHz)	Antenna Polarization	Reading (dBm)	Attenuator (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
928.02	V	-36.84	13.17	-23.67	-13	-10.67
Other	V	--	--	--	-13	> 10 dB
--	V	--	--	--	-13	> 10 dB
--	V	--	--	--	-13	> 10 dB
928.02	H	-35.16	13.17	-21.99	-13	-8.99
Other	H	--	--	--	-13	> 10 dB
--	H	--	--	--	-13	> 10 dB
--						

Notes:

(1) "--" in the table above means that the emissions are too small to be measured and are at least 10 dB below the limit.

(2) Emisiion Level= Reading (dBm) + Attenuator (dB)

The High Channel (466.80 MHz)

Frequency (MHz)	Antenna Polarization	Reading (dBm)	Attenuator (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
934.05	V	-37.16	13.84	-23.32	-13	-10.32
Other	V	--	--	--	-13	> 10 dB
--	V	--	--	--	-13	> 10 dB
--	V	--	--	--	-13	> 10 dB
934.05	H	-36.53	13.84	-22.69	-13	-9.69
Other	H	--	--	--	-13	> 10 dB
--	H	--	--	--	-13	> 10 dB
--						

Notes:

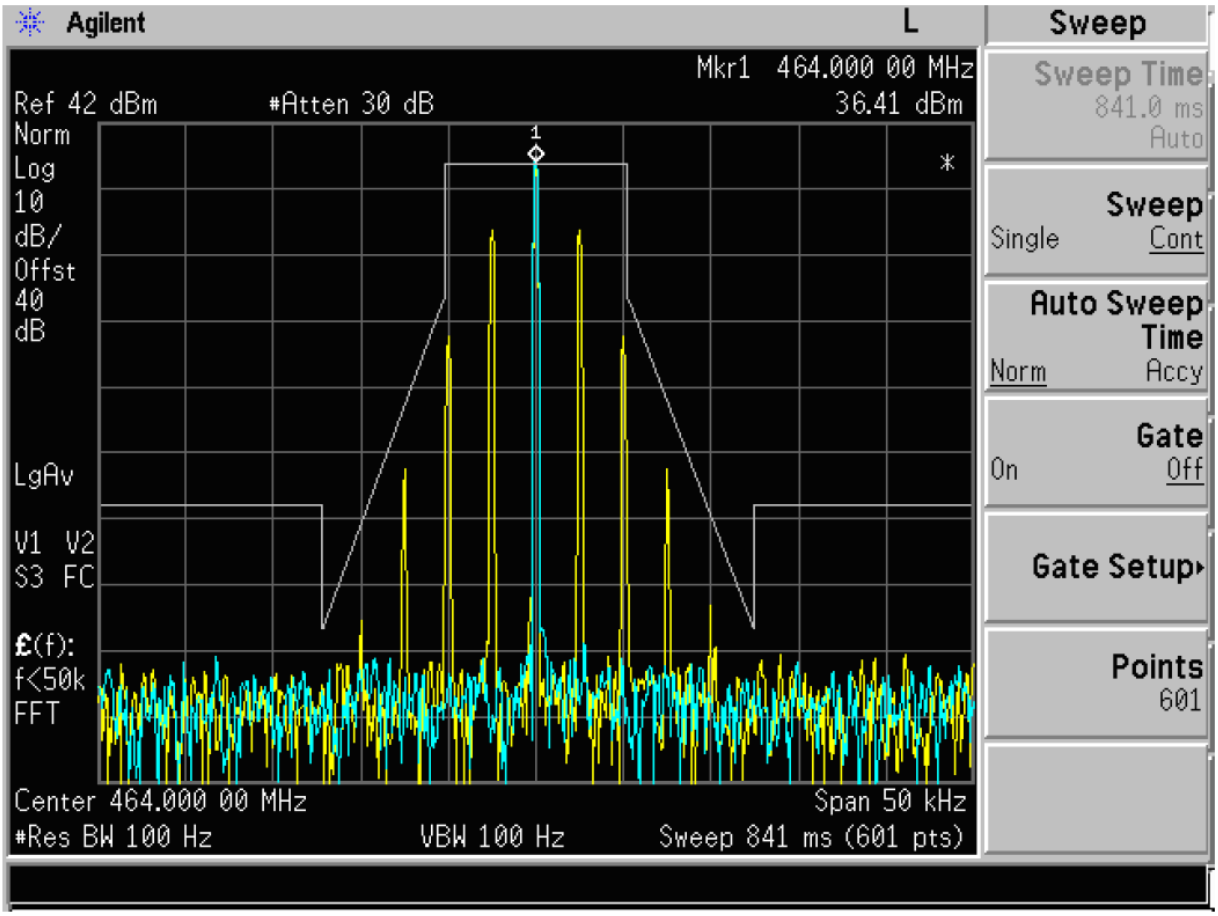
(1) "--" in the table above means that the emissions are too small to be measured and are at least 10 dB below the limit.

(2) Emisiion Level=S.G ourput power(dBm)-Cable loss(db)+Antenna Gain(dBi)

Maximum Transmitter Power (P)	36.88 dBm
Require attenuation	$43+10\log_{10}$ (4.875)= 49.88 dB
Emission Limits	P-[$43+10\log_{10}$ (4.875)]= -13 dBm
Necessary Bandwidth of Emission Designator	2M+2DK=2*30.75+2*12.2=85.9KHz

Emission Mask:

The Middle Channel (464.00 MHz)



5.6 Frequency Stability vs. Temperature

LIMIT

a). According to FCC Part 2 Section 2.1055(a)(1), the frequency stability shall be measured with variation of ambient temperature from –30℃ to +50℃ centigrade.

b). According to FCC Part 2 Section 2.1055(d)(1), vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

c). According to FCC Part 90 Section 90.213, for output power > 2Wats, the limits is 2.5 ppm.

TEST PROCEDURE

The EUT power was supplied by DC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside t he temperature chamber. The DC leads and the RF output cable, exited the chamber through an opening made for that purpose.

After the temperature stabilized the frequency output was recorded form the counter.

RESULTS

The Low Channel (461.60MHz)

Temperature (℃)	Frequency Error (K Hz)	Frequency Error (%)	Frequency Error (ppm)	Limit (ppm)
-30	-7.432	-0.000017	-0.17	±2.5
-20	-5.150	-0.000013	-0.13	±2.5
-10	4.859	0.000012	0.12	±2.5
0	1.524	0.000003	0.03	±2.5
10	5.650	0.000013	0.13	±2.5
20	7.237	0.000016	0.16	±2.5
30	-6.550	-0.000016	-0.16	±2.5
40	-7.831	-0.000019	-0.19	±2.5
50	-8.579	-0.000020	-0.20	±2.5

The Middle Channel (464.00 MHz)

Temperature (℃)	Frequency Error (K Hz)	Frequency Error (%)	Frequency Error (ppm)	Limit (ppm)
-30	-7.062	-0.000016	-0.16	±2.5
-20	-5.156	-0.000012	-0.12	±2.5
-10	3.525	0.000008	0.08	±2.5
0	1.309	0.000003	0.03	±2.5
10	3.580	0.000008	0.08	±2.5
20	4.561	0.000010	0.10	±2.5
30	5.090	-0.000011	-0.11	±2.5
40	-6.650	-0.000015	-0.15	±2.5
50	-7.150	-0.000016	-0.16	±2.5

The High Channel (466.80 MHz)

Temperature (℃)	Frequency Error (K Hz)	Frequency Error (%)	Frequency Error (ppm)	Limit (ppm)
-30	-6.510	-0.000014	-0.14	±2.5
-20	-5.360	-0.000011	-0.11	±2.5
-10	-1.895	0.000004	0.04	±2.5
0	2.535	0.000005	0.05	±2.5
10	2.869	0.000006	0.06	±2.5
20	3.175	0.000007	0.07	±2.5
30	-3.695	0.000008	-0.08	±2.5
40	4.295	0.000009	0.09	±2.5
50	5.350	0.000011	0.11	±2.5

5.7 Frequency Stability vs. Voltage

LIMIT

a). According to FCC Part 2 Section 2.1055(a)(1), the frequency stability shall be measured with variation of ambient temperature from –30℃ to +50℃ centigrade.

b). According to FCC Part 2 Section 2.1055(d)(1), vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

c). According to FCC Part 90 Section 90.213, for output power > 2Wats, the limits is 2.5 ppm.

TEST PROCEDURE

An external variable DC power supply was connected to the EUT.

For hand carried, The DC power equip ment primary supply voltage was reduced to the end point as specified by the manufacturer. The output frequency was recorded for highest and lowest voltage.

RESULTS

The Low Channel (461.60 MHz)

Voltage (V)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)	Limit (%)
9.0	4023	0.000009	0.09	±2.5
10.0	3605	0.000008	0.08	±2.5
11.0	4560	0.000010	0.10	±2.5

The Middle Channel (464.00MHz)

Voltage (V)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)	Limit (%)
9.0	4065	0.000009	0.09	±2.5
10.0	4550	0.000010	0.10	±2.5
11.0	5152	0.000012	0.12	±2.5

The High Channel (466.80 MHz)

Voltage (V)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)	Limit (%)
9.0	3750	0.000008	0.08	±2.5
10.0	2963	0.000006	0.06	±2.5
11.0	4865	0.000010	0.10	±2.5

5.8 Transmitter Frequency Behavior

Provisions Applicable

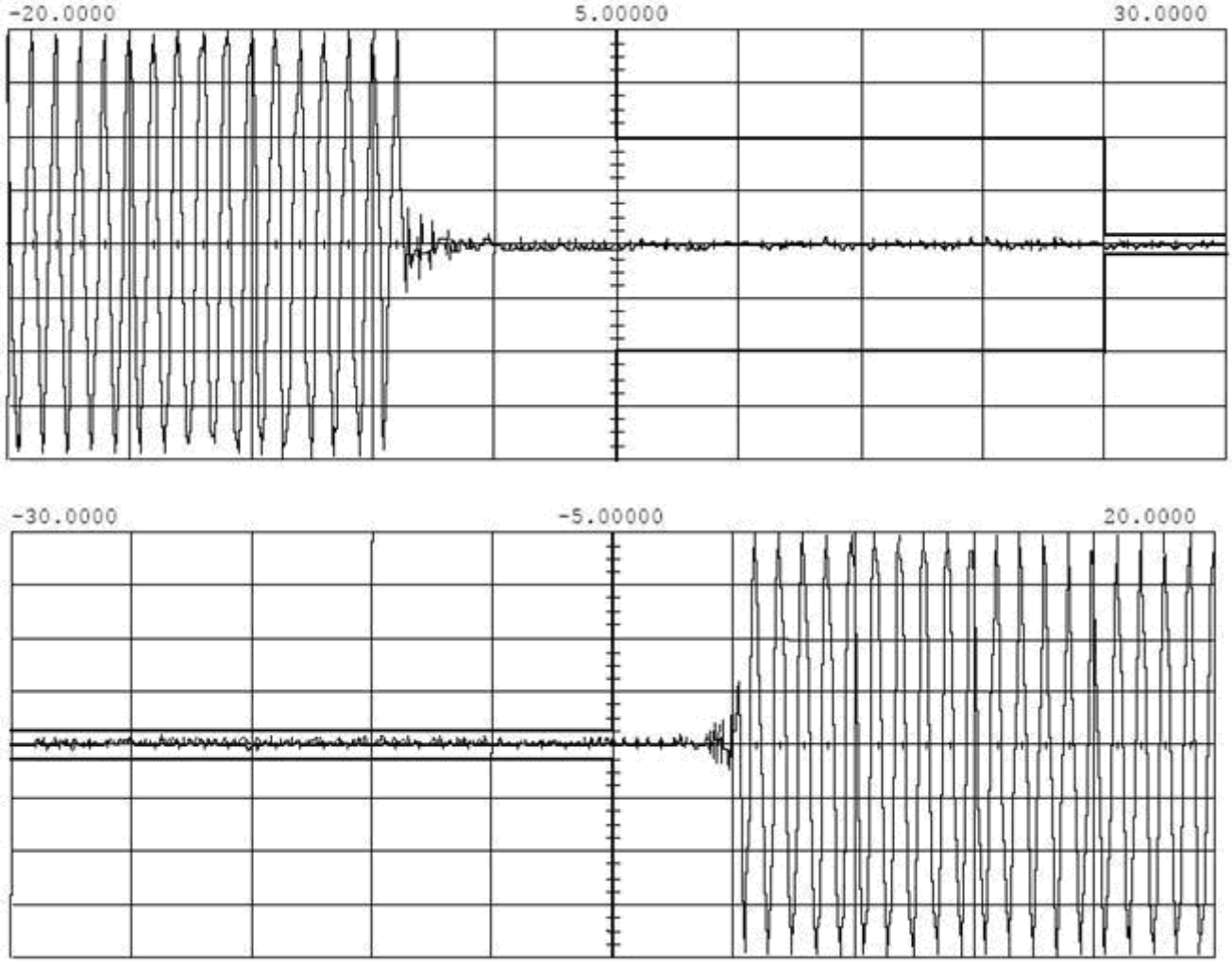
Section 90.214

TEST PROCEDURE

TIA/EIA-603 2.2.19

RESULTS

Please refer to the test plot.



No non-compliance noted

Conclusion: PASS

5.9 LINE CONDUCTED EMISSION TEST

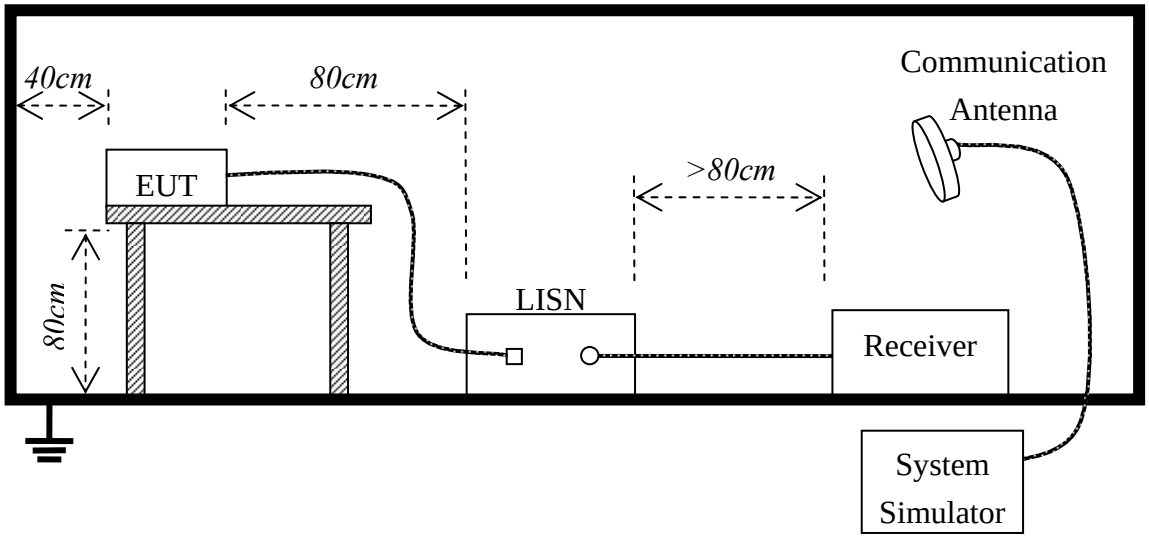
LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

***Note:** 1. the lower limit shall apply at the transition frequency.*

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

BLOCK DIAGRAM OF TEST SETUP



PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1) The equipment was set up as per t he test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per FCC Part 15 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2) Support equipment, if needed, was placed as per FCC Part 15.
3) All I/O cables were positioned to simulate typical actual usage as per FCC Part 15.
4) The EUT received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5) All support equipments received power from a second LISN supplying power of AC 120V/60Hz, if any.
6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spe ctrum Analyzer / Rece iver connected to the LISN pow ering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (N eutral Side). Two scans were taken: one with Lin e 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7) Analyzer / Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.
8) During the above scans, the emissions were maximized by cable manipulation.
9) The following test mode(s) were scanned during the preliminary test:

Preliminary Conducted Emission Test				
Frequency Range Investigated		150KHz TO 30 MHz		
Mode of operation	Date	Report No.	Data#	Worst Mode
TX Mode	2012-01-11	MOST120101F1	1_(L, N)	☒
RX Mode	2012-01-11	MOST120101F1	2_(L, N)	

Then, the EUT configuration and cable configuration of the above highest emission level were r ecorded for reference of final testing.

FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

EUT and support equipment was set up on the test bench as per step 9 of the preliminary test.

A scan was taken on both power line s, Line 1 an d Line 2, recording at lea st the six highest emissions. Emission frequency and amplitude were recorded into a co mputer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

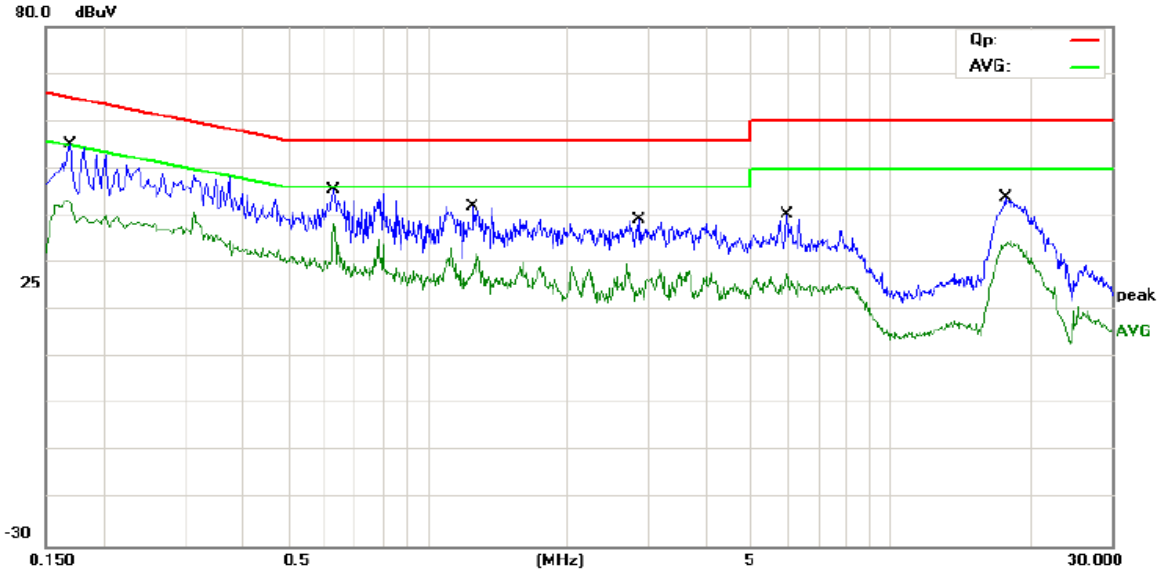
The test data of the worst case condition(s) was reported on the Summary Data page.

TEST RESULT OF LINE CONDUCTED EMISSION TEST

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

Conducted Emission Measurement

File :101007PA Data :#3 Date: 2012-01-11 Time: 7:13:12



Site site #1 Phase: L1 Temperature: 26
Limit: FCC Part15 B Class B QP Power: 1 Humidity: 60 %
EUT: PA SYSTEMP
M/N: 101007PA
Mode: TX
Note:

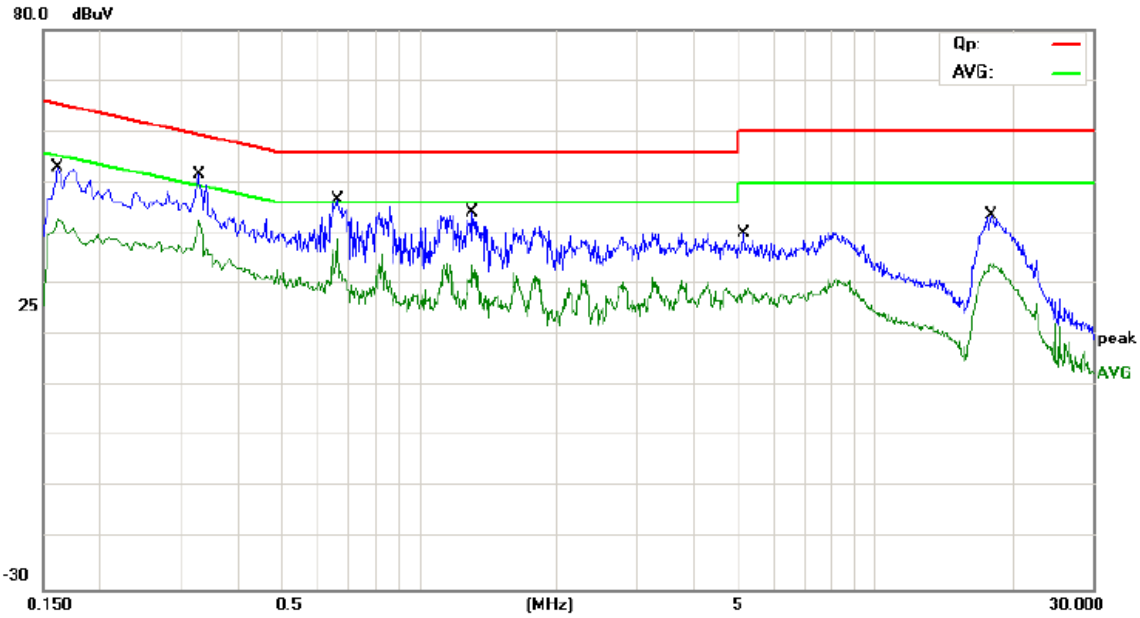
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1700	44.85	10.20	55.05	64.96	-9.91	QP	
2		0.6300	35.41	10.00	45.41	56.00	-10.59	QP	
3		1.2620	32.15	9.74	41.89	56.00	-14.11	QP	
4		2.8780	29.20	9.88	39.08	56.00	-16.92	QP	
5		5.9860	28.94	11.41	40.35	60.00	-19.65	QP	
6		17.7220	34.87	9.00	43.87	60.00	-16.13	QP	

*:Maximum data x:Over limit !:over margin

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

Conducted Emission Measurement

File :101007PA Data :#4 Date: 2012-01-11 Time: 7:14:36



Site site #1 Phase: N Temperature: 26
Limit: FCC Part15 B Class B QP Power: 1 Humidity: 60 %
EUT: PA SYSTEMP
M/N: 101007PA
Mode: TX
Note:

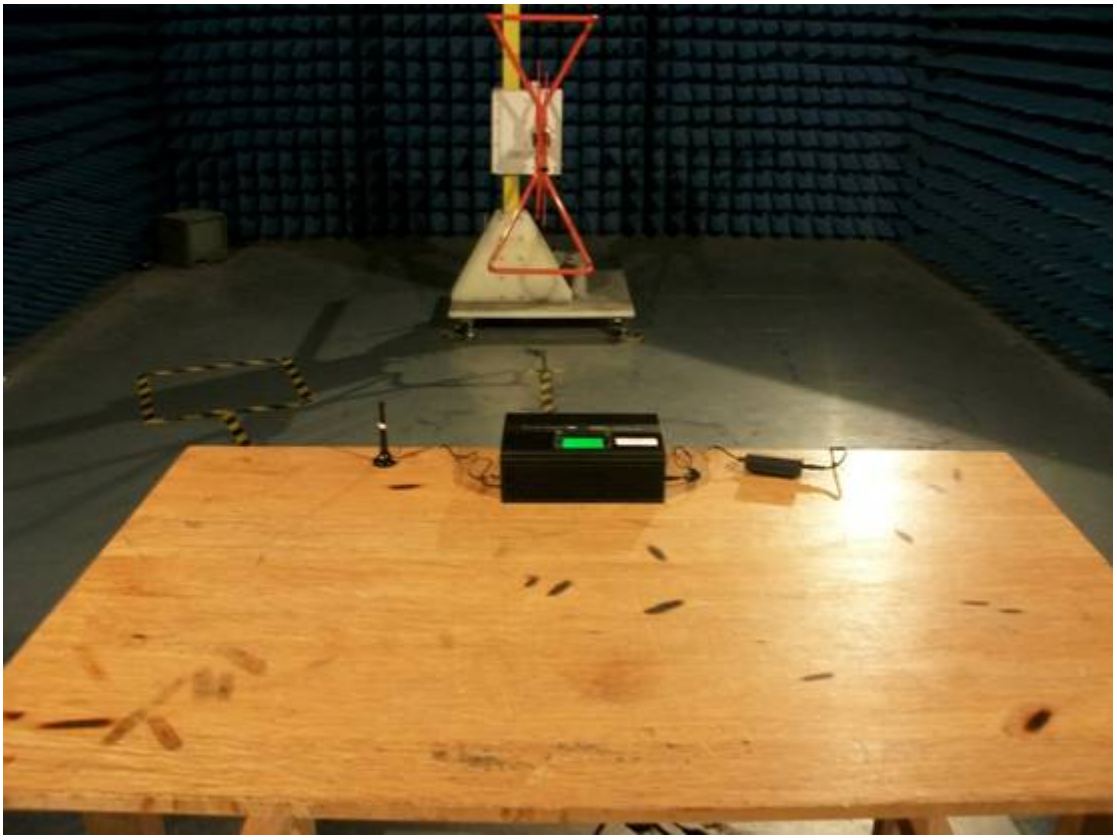
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1620	43.23	9.72	52.95	65.36	-12.41	QP	
2	*	0.3300	40.32	11.13	51.45	59.45	-8.00	QP	
3		0.6620	36.61	10.00	46.61	56.00	-9.39	QP	
4		1.3100	34.55	9.69	44.24	56.00	-11.76	QP	
5		5.1500	28.11	11.91	40.02	60.00	-19.98	QP	
6		17.9820	34.46	9.00	43.46	60.00	-16.54	QP	

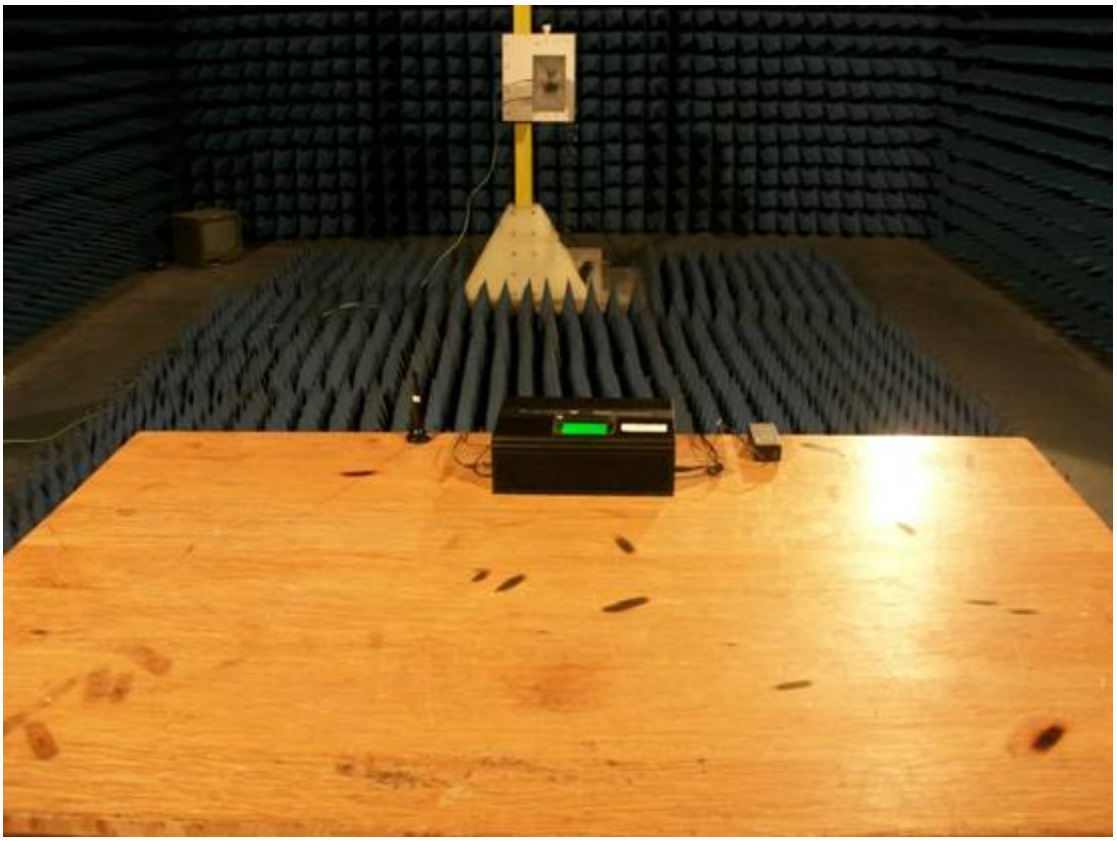
*:Maximum data x:Over limit !:over margin

Annex A

Photographs of the Test Setup

Radiated Emission Setup Photo





Conducted Emission Setup Photo

Annex B

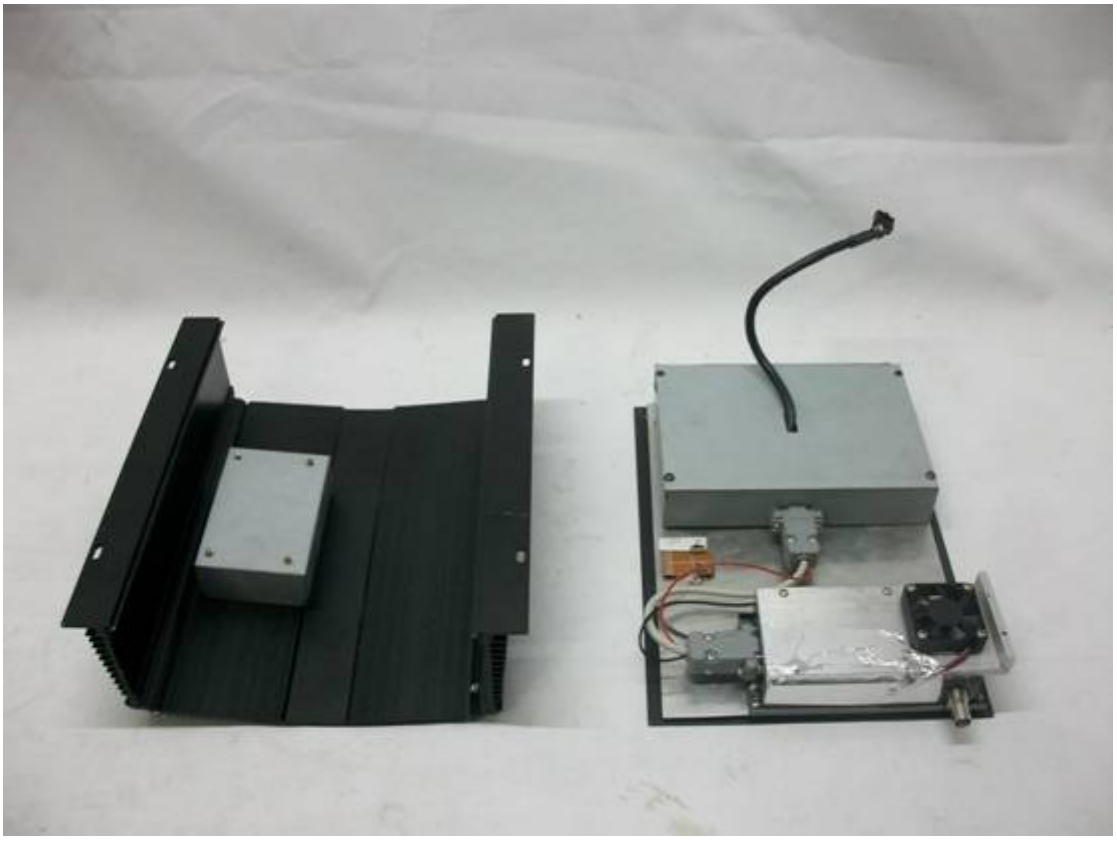
Photographs of the EUT

FRONT VIEW OF SAMPLE

BACK VIEW OF SAMPLE

INTERNAL PHOTO OF SAMPLE-1

INTERNAL PHOTO OF SAMPLE-2

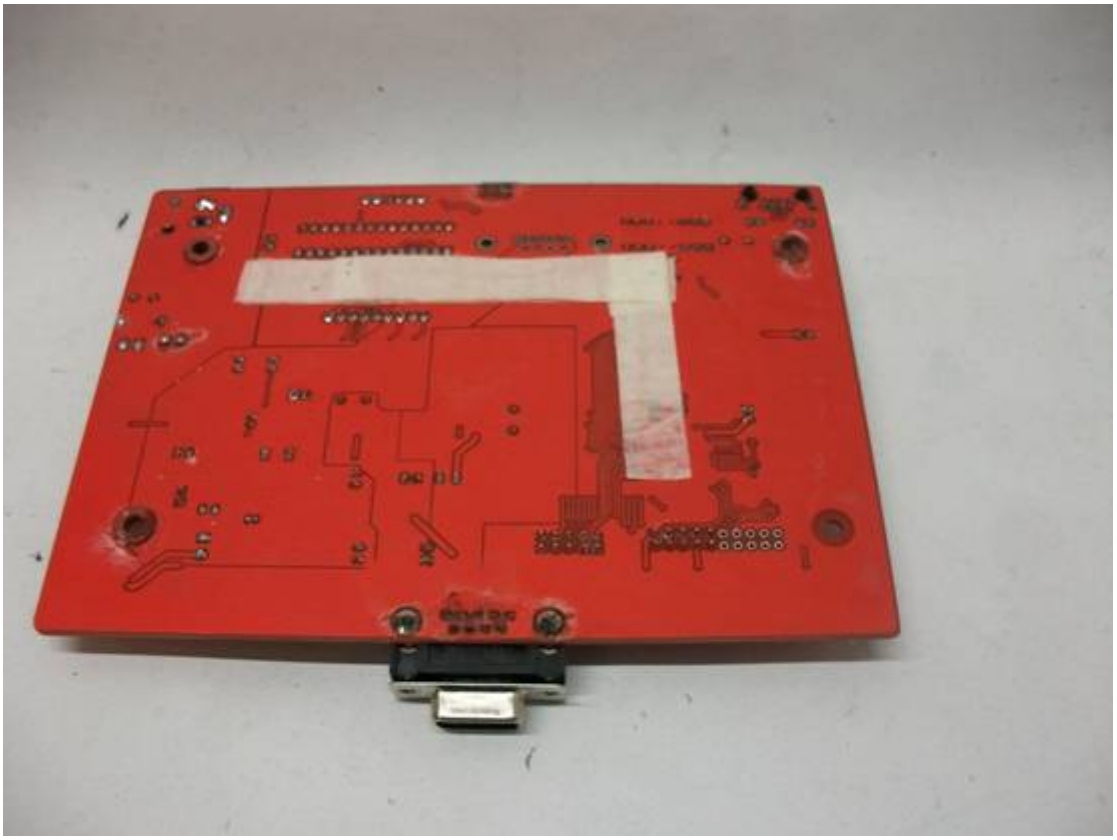


INTERNAL PHOTO OF SAMPLE-3

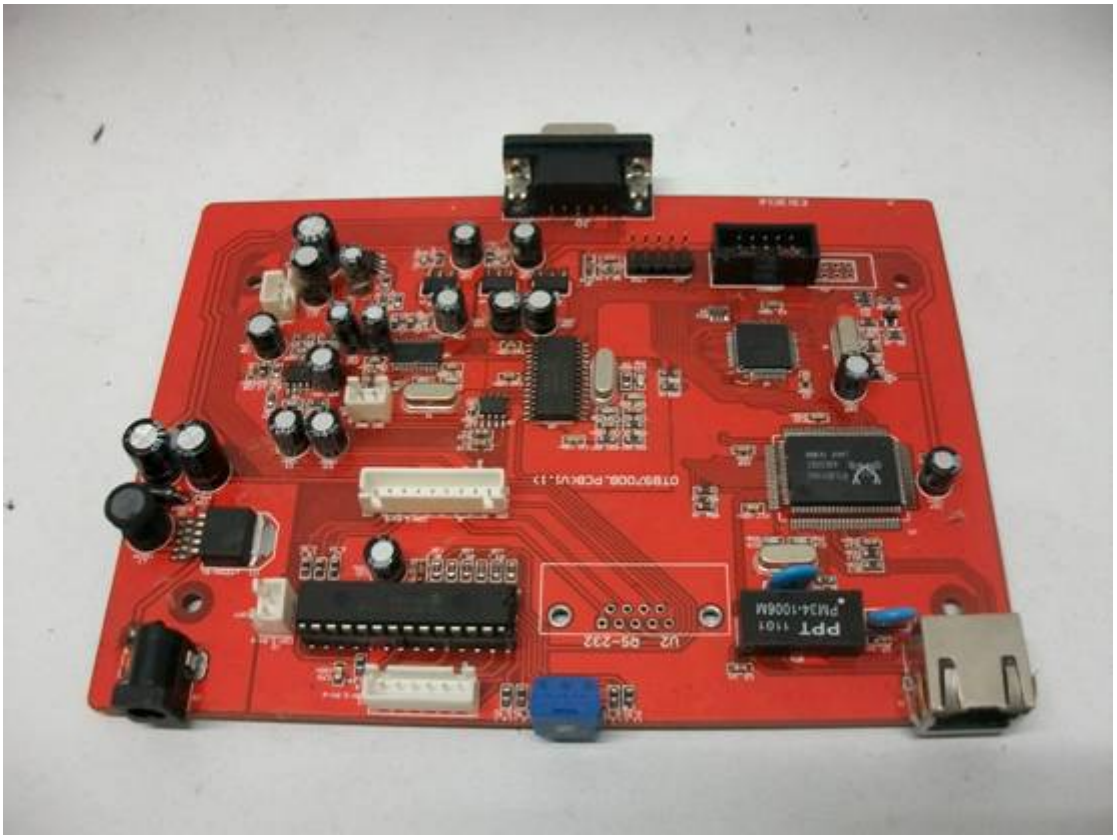
INTERNAL PHOTO OF SAMPLE-4

INTERNAL PHOTO OF SAMPLE-5

INTERNAL PHOTO OF SAMPLE-6

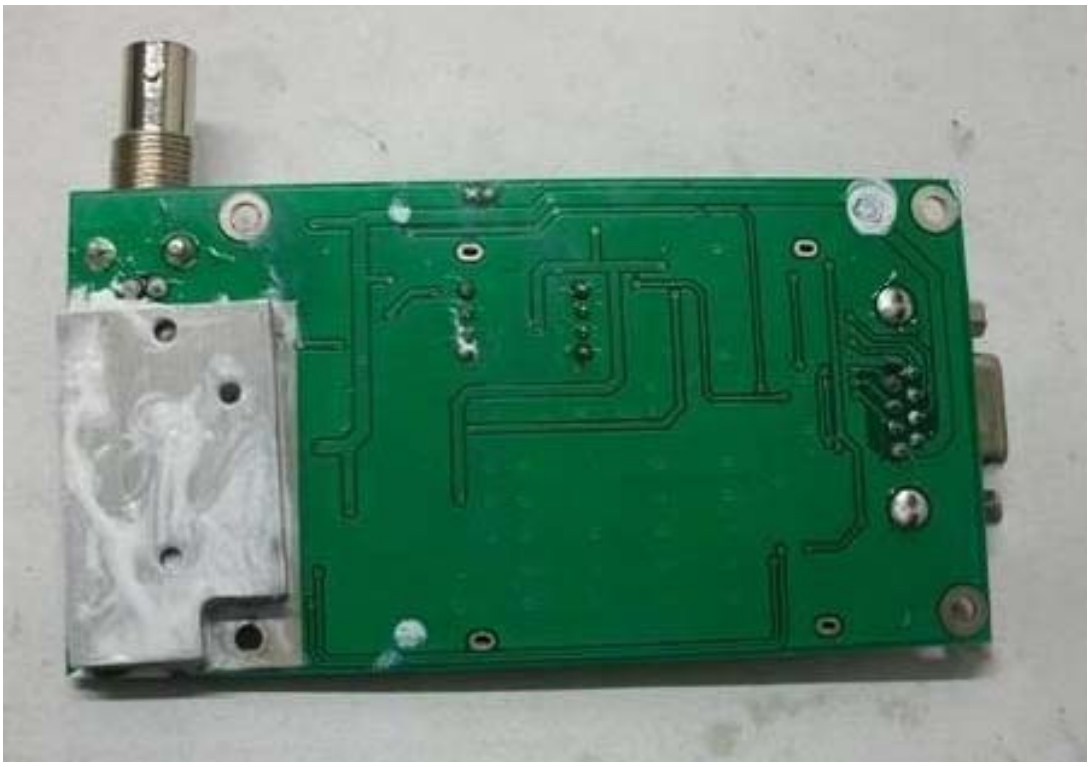


INTERNAL PHOTO OF SAMPLE-7



INTERNAL PHOTO OF SAMPLE-8

INTERNAL PHOTO OF SAMPLE-9



*** End of the Reports***