TAW~Global, LLC

FM TRANSMITTER

Main Model: WHOLE HOUSE FM TRANSMITTER 3.0
Serial Model: N/A

November 12, 2013

Report No.: 13070400-FCC-R1
(This report supersedes 13070400-FCC IC-R1)

Modifications made to the product : None

This Test Report is Issued Under the Authority of:		
Back Huang	Alex Liu	
Back Huang **Compliance Engineer**	**Alex Liu** **Technical Manager**	

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Test result presented in this test report is applicable to the representative sample only.

RF Test Report

FCC Part 15.239: 2012, ANSI C63.4: 2009, ANSI C63.10:2009

SIEMIC, INC.
Accessing global markets

Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management through out a project. Our extensive experience with China, Asia Pacific, North America, European, and international compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

SIEMIC (Shenzhen-China) Laboratories Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC , RF/Wireless , Telecom
Canada	EMC, RF/Wireless , Telecom
Taiwan	EMC, RF, Telecom , Safety
Hong Kong	RF/Wireless ,Telecom
Australia	EMC, RF, Telecom , Safety
Korea	EMI, EMS, RF , Telecom, Safety
Japan	EMI, RF/Wireless, Telecom
Singapore	EMC , RF , Telecom
Europe	EMC, RF, Telecom , Safety

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CONTENTS

1 EXECUTIVE SUMMARY & EUT INFORMATION

The purpose of this test programme was to demonstrate compliance of the TAW~Global, LLC, FM TRANSMITTER and model: WHOLE HOUSE FM TRANSMITTER 3.0 against the current Stipulated Standards. The FM TRANSMITTER has demonstrated compliance with the FCC Part 15.239: 2012, ANSI C63.4: 2009, ANSI C63.10:2009.

EUT Information

EUT Description	:	**FM TRANSMITTER**
Main Model	:	**WHOLE HOUSE FM TRANSMITTER 3.0**
Serial Model	:	**N/A**
Input Power	:	**DC 4.5 V Supply By Battery**
Classification Per Stipulated Test Standard	:	**FCC Part 15.239: 2012, ANSI C63.4: 2009, ANSI C63.10:2009**

2 TECHNICAL DETAILS

Purpose	**Compliance testing of FM TRANSMITTER with stipulated standard**
Applicant / Client	**TAW~Global, LLC 8135 Cox's Dr, Suite 211 Portage, MI 49002 USA**
Manufacturer	**Guangzhou Hanting International Group Canton rep.office Guangzhoushi Tianhequ HuangPu West Road NO.273 HuiLanGe 1502 GUANGZHOU 510620**
Laboratory performing the tests	**SIEMIC (Shenzhen-China) Laboratories Zone A, Floor 1, Building 2, Wan Ye Long Technology Park, South Side of Zhoushi Road, Bao'an District, Shenzhen, Guangdong, China Tel: +86-0755-2601 4629 / 2601 4953 Fax: +86-0755-2601 4953-810 Email: China@siemic.com.cn**
Test report reference number	**13070400-FCC-R1**
Date EUT received	**September 26, 2013**
Standard applied	**FCC Part 15.239: 2012, ANSI C63.4: 2009, ANSI C63.10:2009**
Dates of test (from – to)	**October 14, 2013**
No of Units :	**#1**
Equipment Category :	**Spread Spectrum System/Device**
Trade Name :	**WHOLE HOUSE FM TRANSMITTER**
RF Operating Frequency (ies)	**88.1-107.9 MHz**
Number of Channels	**99CH**
Modulation	**FM**
FCC ID	**XOAWHFM3**

3 MODIFICATION

NONE

4 TEST SUMMARY

The product was tested in accordance with the following specifications.
All testing has been performed according to below product classification:

Test Results Summary

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.239 (a)	20 dB Bandwidth	Compliance
§15.239 (b)	Field strength of the fundamental signal	Compliance
§15.239 (a)	Band Edge	Compliance
§15.207 (a)	AC Power Line Conducted Emissions	N/A
§15.239(c)	Radiated Spurious Emissions	Compliance

Note: The Micro USB Port is disabled. It doesn't have any function. Please refer to Declaration Letter.

5 MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

5.1 §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.

b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Connector Construction

Please refer to the External Photo. The connector between the host and antenna is a special type.

Result: Compliance.

5.2 §15.239 (a)- 20 dB Bandwidth

1. Conducted Measurement
   EUT was set for low, mid, high channel with modulated mode and highest RF output power.
   The spectrum analyzer was connected to the antenna terminal.
2. Environmental Conditions — Temperature 26°C; Relative Humidity 58%; Atmospheric Pressure 1018mbar
3. Conducted Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.
4. Test date : October 14, 2013
   Tested By : Back Huang

Requirement:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the unlicensed wireless device at either the fundamental frequency or the first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical. Once the reference level is established, the equipment is conditioned with typical modulating signals to produce the worst-case (i.e., the widest) bandwidth. Unless otherwise specified for an unlicensed wireless device, measure the bandwidth at the – 20 dB levels with respect to the reference level.

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

Procedures:

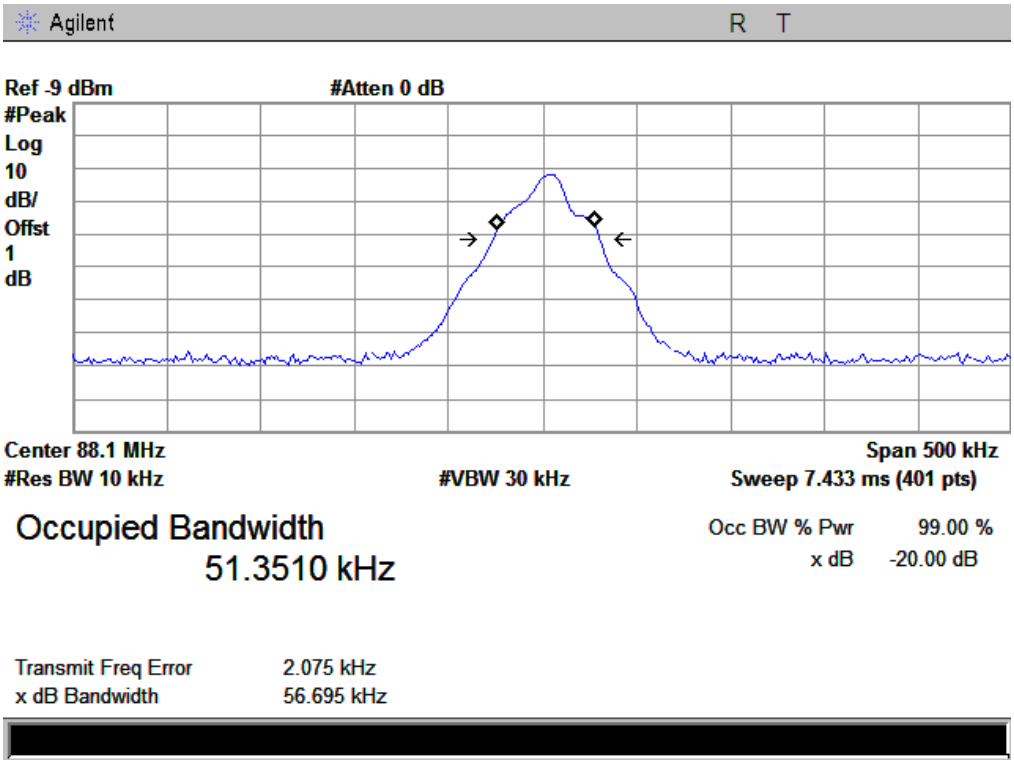
1. Set RBW = 10 kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.
8. The trace data points are recovered and directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

Test Result: Pass.

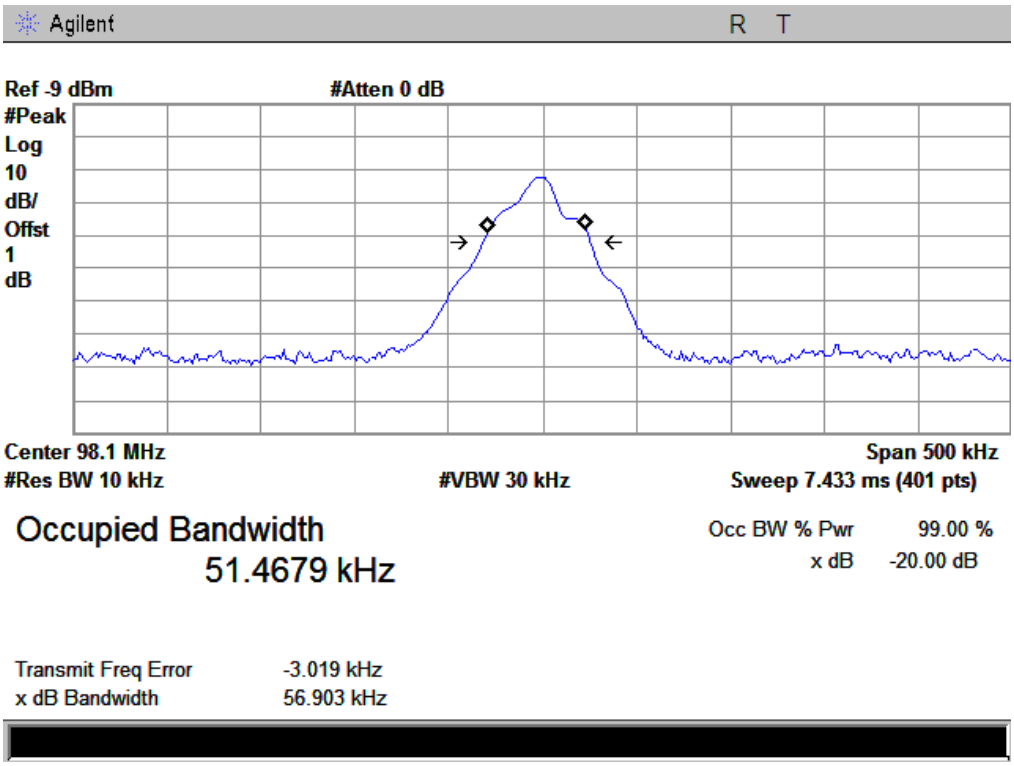
Please refer to the following tables and plots.

Channel	Channel Frequency (MHz)	20dB Bandwidth (KHz)	Limit (KHz)
Low	88.1	56.695	200
Middle	98.1	56.903	200
High	107.9	56.455	200

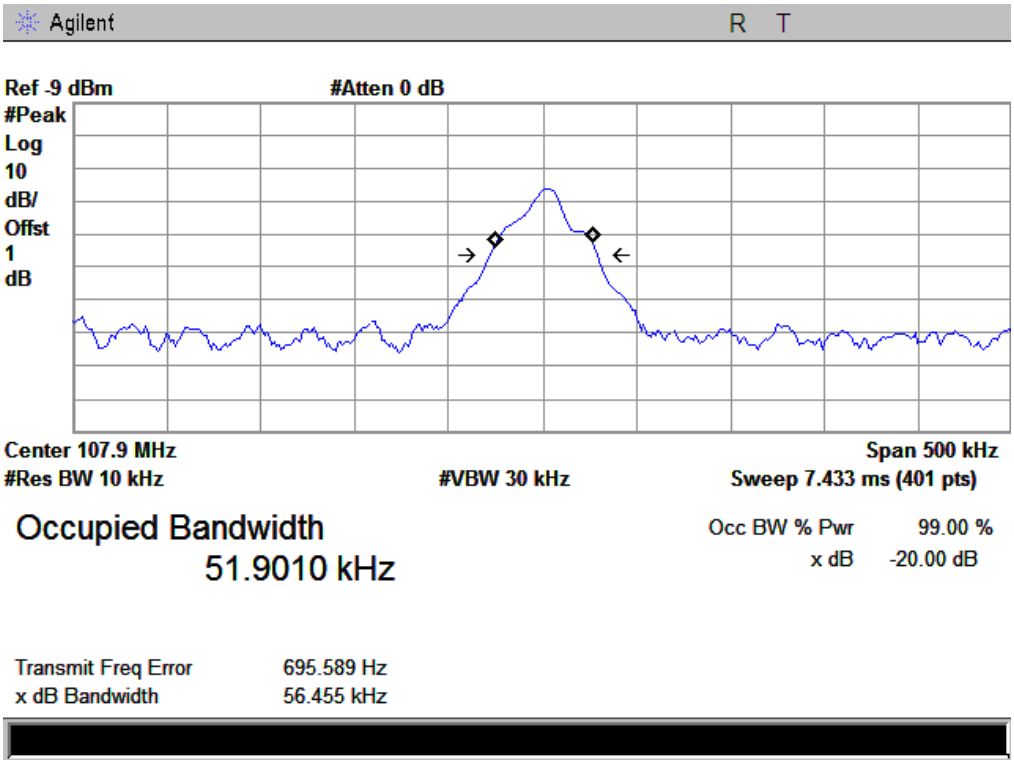
20dB BW - Low Channel



20dB BW - Middle Channel



20dB BW - High Channel



5.3 §15.239(b) - Field strength of the fundamental signal

1. Radiated Measurement
   EUT was set for low, mid, high channel with modulated mode and highest RF output power.
2. Radiated Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.
3. Environmental Conditions

Temperature	26°C
Relative Humidity	58%
Atmospheric Pressure	1018mbar

4. Test date : October 14, 2013
   Tested By : Back Huang

Requirement:

The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters.

Procedures:

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in § 15.35 for limiting peak emissions apply.

Test Result: Pass.

Please refer to the following tables and plots.

Fundamental Field Strength:

Frequency (MHz)	S.A. Reading (dBµV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
88.1	54.62	PK	V	7.7	0.68	22	41	68	-27
88.1	54.42	AV	V	7.7	0.68	22	40.8	48	-7.2
98.1	53.68	PK	V	9.8	0.68	22	42.16	68	-25.84
98.1	53.43	AV	V	9.8	0.68	22	41.91	48	-6.09
107.9	55.78	PK	V	12.2	0.68	22	46.66	68	-21.34
107.9	55.64	AV	V	12.2	0.68	22	46.52	48	-1.48
88.1	43.86	PK	H	7.7	0.68	22	30.24	68	-37.76
88.1	42.58	AV	H	7.7	0.68	22	28.96	48	-19.04
98.1	43.78	PK	H	9.8	0.68	22	32.26	68	-35.74
98.1	42.56	AV	H	9.8	0.68	22	31.04	48	-16.96
107.9	44.62	PK	H	12.2	0.68	22	35.5	68	-32.5
107.9	44.08	AV	H	12.2	0.68	22	34.96	48	-13.04

5.4 §15.239(a) - Band Edge

1. Radiated Measurement
   EUT was set for low, mid, high channel with modulated mode and highest RF output power.
2. Radiated Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.
3. Environmental Conditions

Temperature	26°C
Relative Humidity	58%
Atmospheric Pressure	1018mbar

4. Test date : October 14, 2013
   Tested By : Back Huang

Requirement:

The 200 kHz band shall lie wholly within the frequency range of 88.1-107.9 MHz.

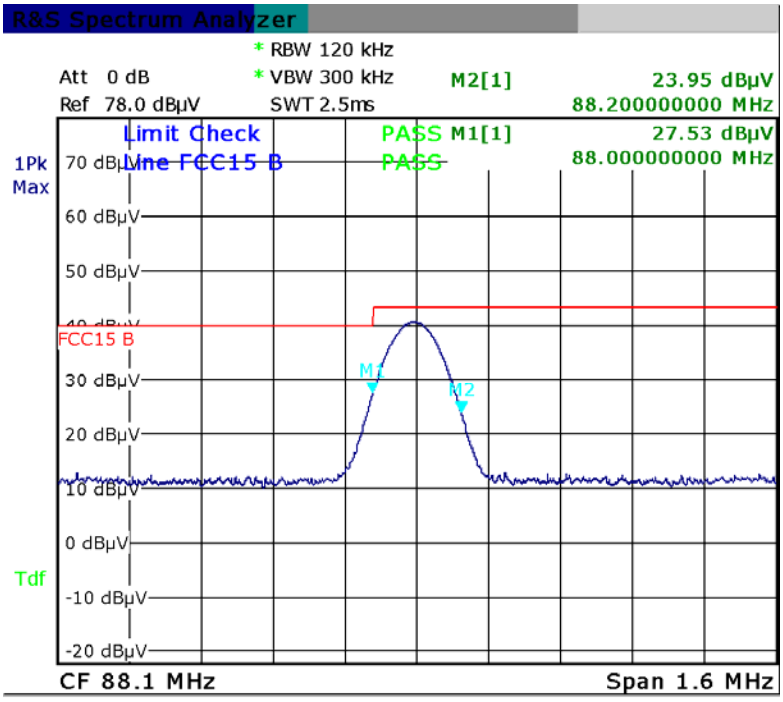
Procedures:

9. Set RBW = 120 kHz.
10. Set VBW = 300 kHz.
11. Detector = Peak.
12. Trace mode = max hold.
13. Sweep = auto couple.
14. Allow the trace to stabilize.
15. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that distance 100 KHZ from the carrier frequency.

Test Result: Pass.

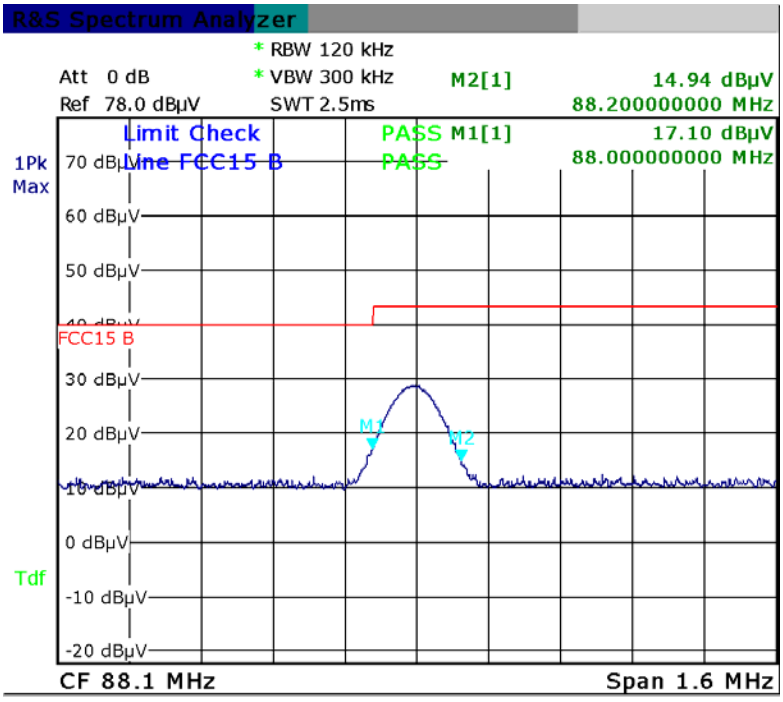
Please refer to the following plots.

Low Channel - Vertical Polarity



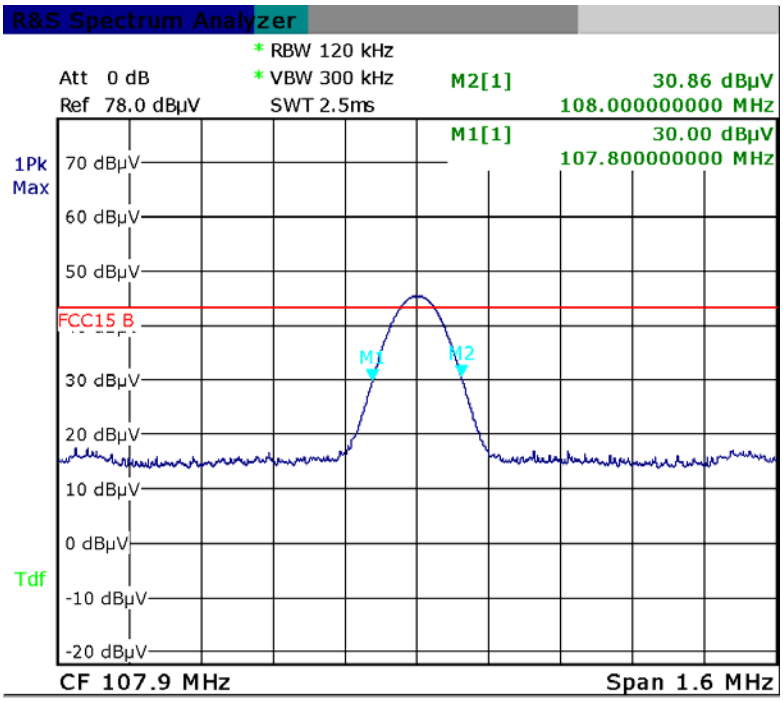
Date: 14.OCT.2013 15:40:55

Low Channel - Horizontal Polarity



Date: 14.OCT.2013 15:46:16

High Channel - Vertical Polarity



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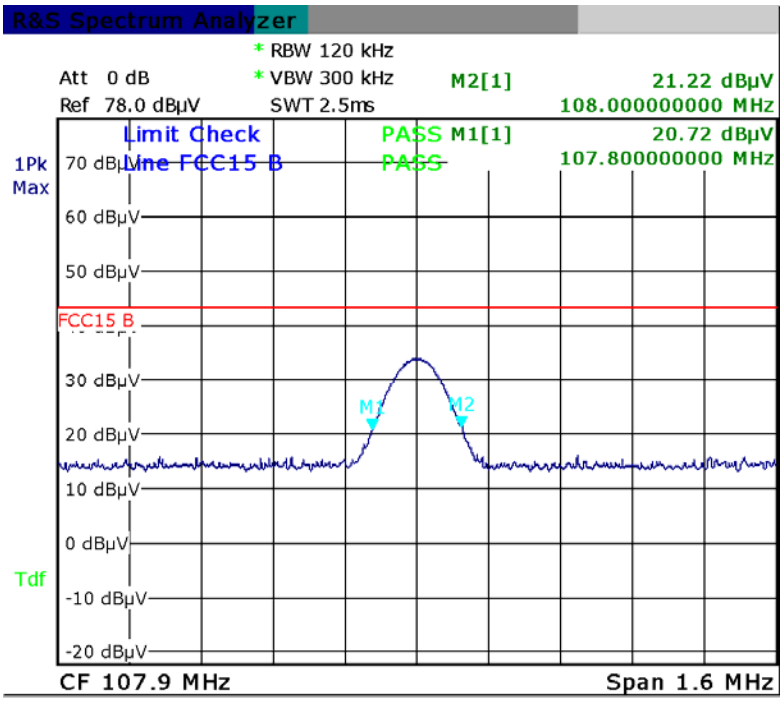
High Channel - Horizontal Polarity



Date: 14.OCT.2013 16:09:21

5.5 §15.207 (a) - AC Power Line Conducted Emissions

Requirement:

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

*Decreases with the logarithm of the frequency.

Procedures:

1. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR and Average detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. Conducted Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 9kHz – 30MHz (Average & Quasi-peak) is ±3.5dB.
4. Environmental Conditions — Temperature 26°C; Relative Humidity 58%; Atmospheric Pressure 1018mbar
5. Test date: N/A
   Tested By : N/A

Note: The EUT only supply by Battery power, so it does not need to test.

5.6 §15.239(c) - Radiated Spurious Emissions

1. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. Radiated Emissions Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 1GHz & 1GHz above (3m & 10m) is +/-6dB.
4. Environmental Conditions

Temperature	26°C
Relative Humidity	58%
Atmospheric Pressure	1018mbar

5. Test date : October 14, 2013
   Tested By : Back Huang

Requirement:

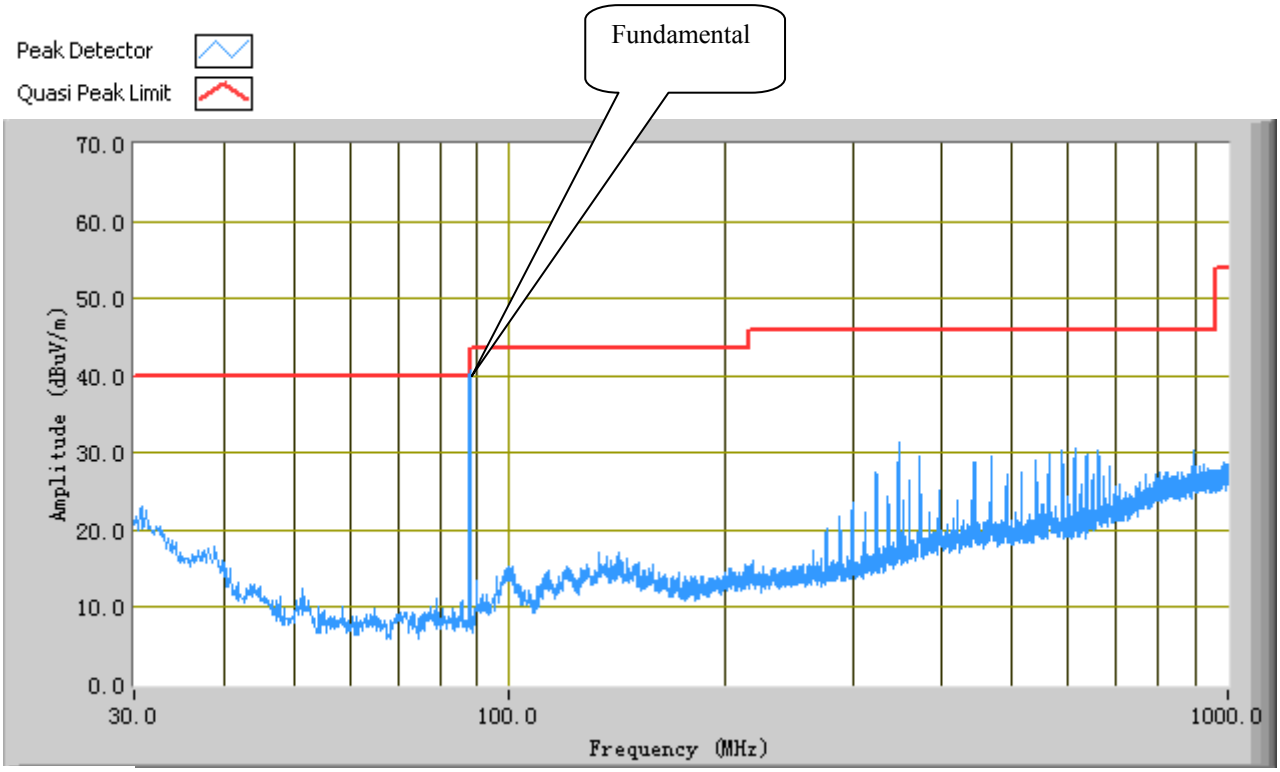
The field strength of any emissions radiated on any frequency outside of the specified 200 kHz band shall not exceed the general radiated emission limits in § 15.209.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

Test Result: Pass

Test Mode:	FM Transmitting (88.1 MHz)

Below 1GHz



Test Data

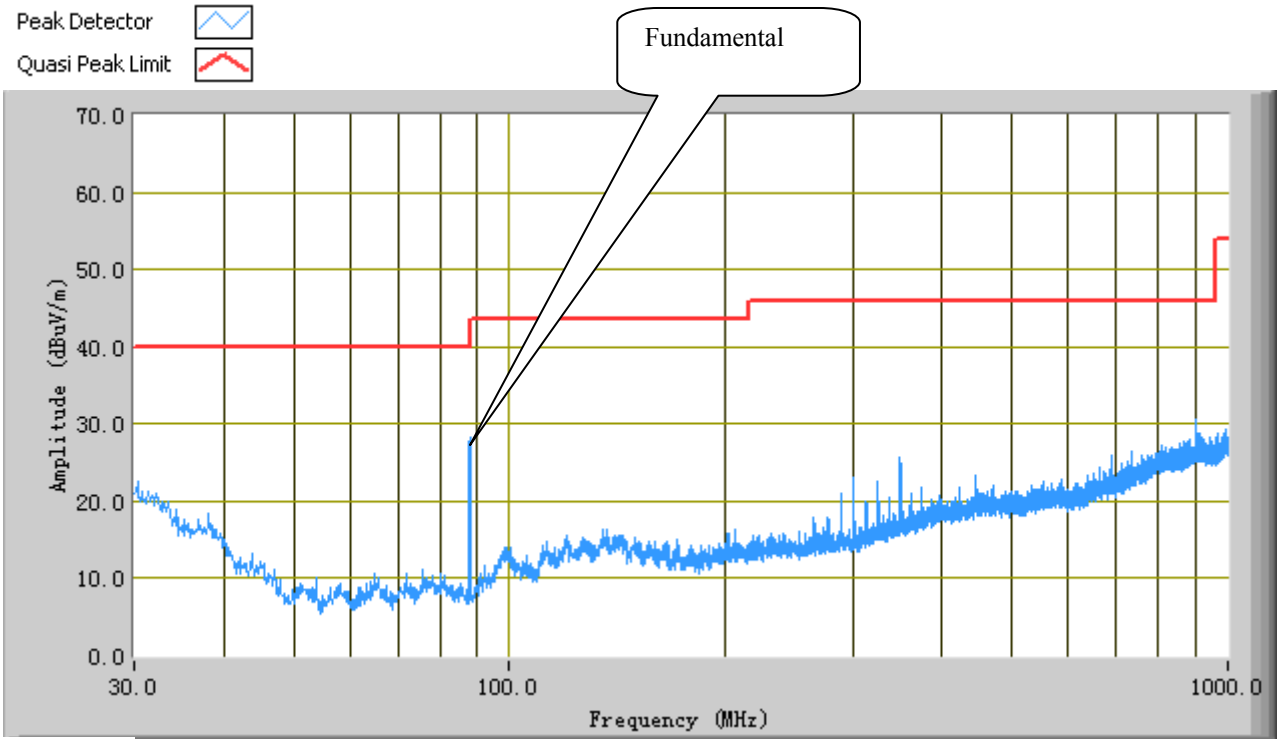
Vertical Polarity Plot @3m

Frequency (MHz)	Peak (dBuV/m)	Azimuth	Polarity(H/V)	Height (cm)	Factors (dB)	Limit (dBuV)	Margin (dB)
348.52	31.47	27.00	V	200.00	-4.90	46.00	-14.53
612.85	30.51	359.00	V	100.00	-0.99	46.00	-15.49
588.24	30.45	253.00	V	100.00	-1.30	46.00	-15.55
896.09	30.41	16.00	V	100.00	4.72	46.00	-15.59
659.89	30.37	1.00	V	100.00	-0.20	46.00	-15.63

Note: The QP is more than 20dB to the limit, so only PK detector was shown above.

Test Mode:	FM Transmitting (88.1 MHz)

Below 1GHz



Test Data

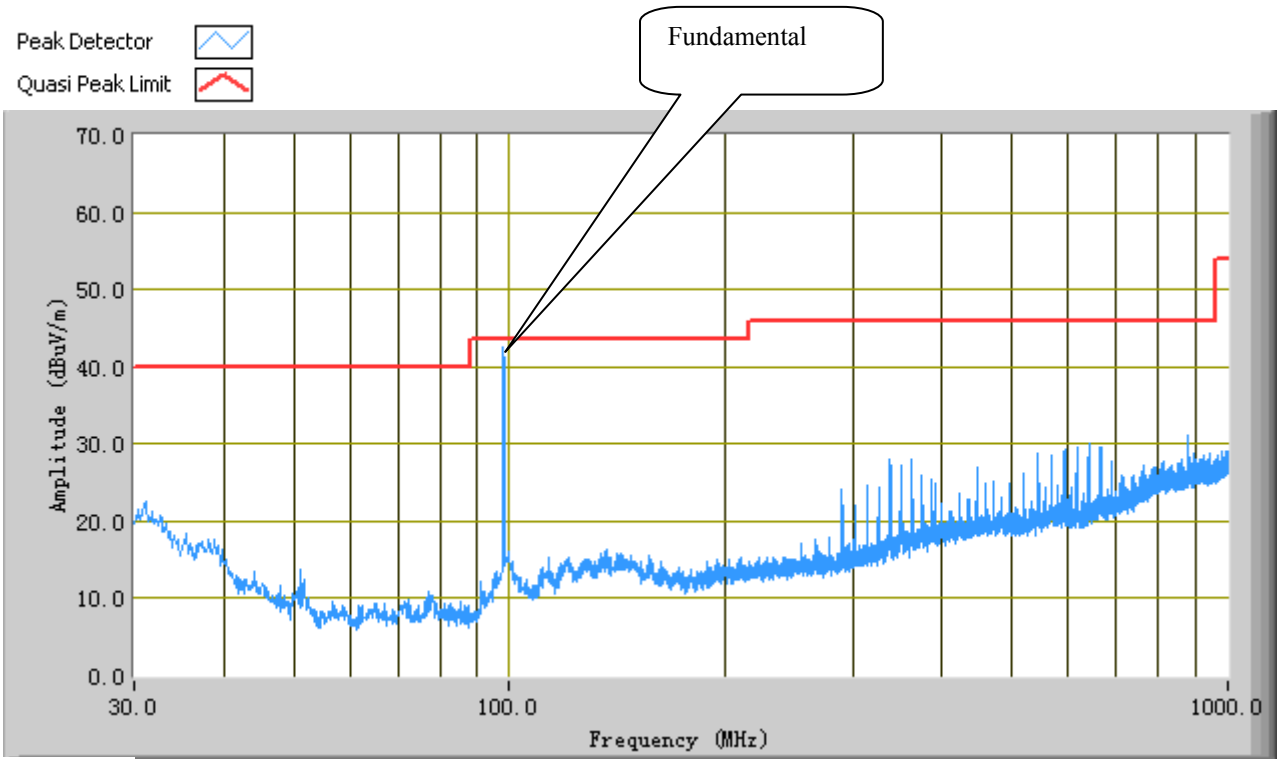
Horizontal Polarity Plot @3m

Frequency (MHz)	Peak (dBuV/m)	Azimuth	Polarity(H/V)	Height (cm)	Factors (dB)	Limit (dBuV)	Margin (dB)
902.39	30.50	16.00	H	100.00	4.81	46.00	-15.50
910.03	28.71	294.00	H	100.00	4.93	46.00	-17.29
916.34	28.68	353.00	H	200.00	5.03	46.00	-17.32
30.36	22.56	104.00	H	100.00	-1.89	40.00	-17.44
943.13	28.19	104.00	H	200.00	5.45	46.00	-17.81

Note: The QP is more than 20dB to the limit, so only PK detector was shown above.

Test Mode:	FM Transmitting (98.1 MHz)

Below 1GHz



Test Data

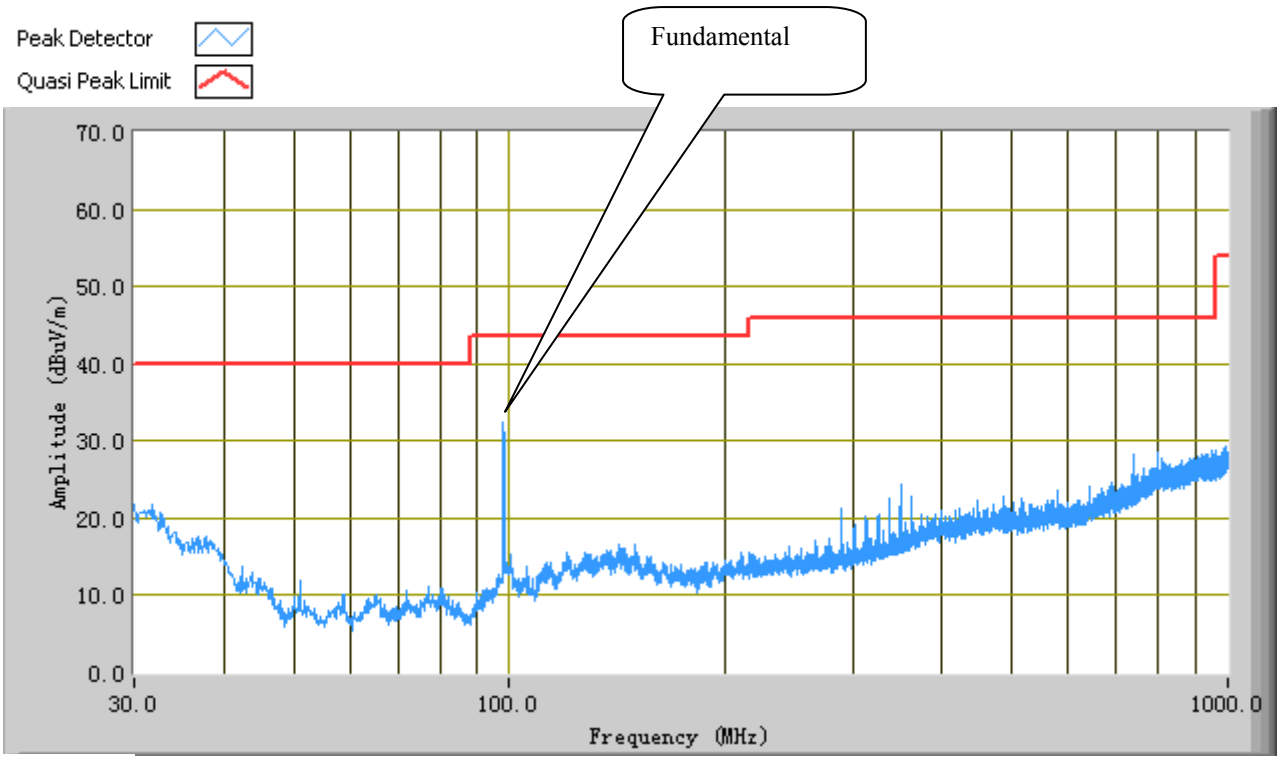
Vertical Polarity Plot @3m

Frequency (MHz)	Peak (dBuV/m)	Azimuth	Polarity(H/V)	Height (cm)	Factors (dB)	Limit (dBuV)	Margin (dB)
880.33	31.06	263.00	V	100.00	4.52	46.00	-14.94
640.86	30.20	160.00	V	100.00	-0.52	46.00	-15.80
641.46	29.82	300.00	V	100.00	-0.51	46.00	-16.18
665.23	29.68	360.00	V	100.00	-0.10	46.00	-16.32
616.49	29.65	5.00	V	100.00	-0.93	46.00	-16.35

Note: The QP is more than 20dB to the limit, so only PK detector was shown above.

Test Mode:	FM Transmitting (98.1 MHz)

Below 1GHz



Test Data

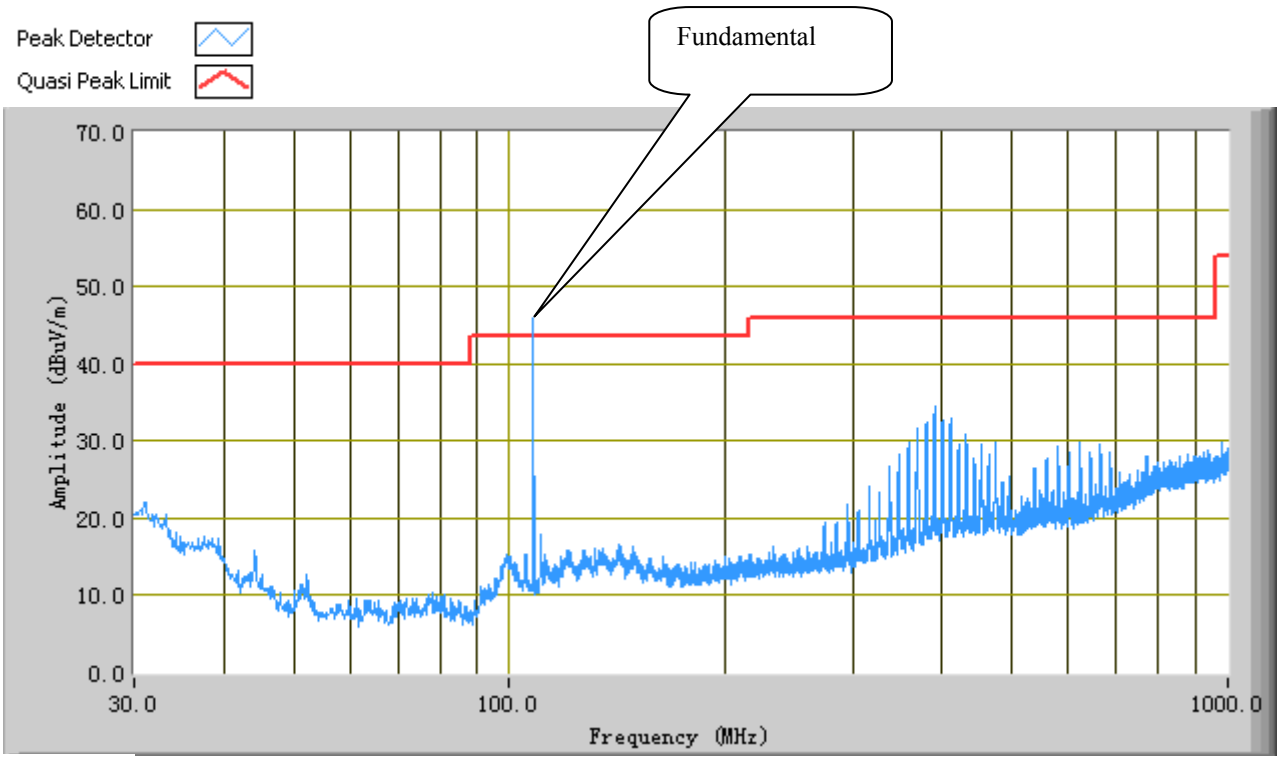
Horizontal Polarity Plot @3m

Frequency (MHz)	Peak (dBuV/m)	Azimuth	Polarity(H/V)	Height (cm)	Factors (dB)	Limit (dBuV)	Margin (dB)
951.01	28.80	135.00	H	200.00	5.57	46.00	-17.20
799.82	28.55	187.00	H	100.00	3.48	46.00	-17.45
957.80	28.37	55.00	H	200.00	5.68	46.00	-17.63
737.37	28.37	348.00	H	100.00	1.61	46.00	-17.63
921.31	28.36	130.00	H	100.00	5.10	46.00	-17.64

Note: The QP is more than 20dB to the limit, so only PK detector was shown above.

Test Mode:	FM Transmitting (107.9 MHz)

Below 1GHz



Test Data

Vertical Polarity Plot @3m

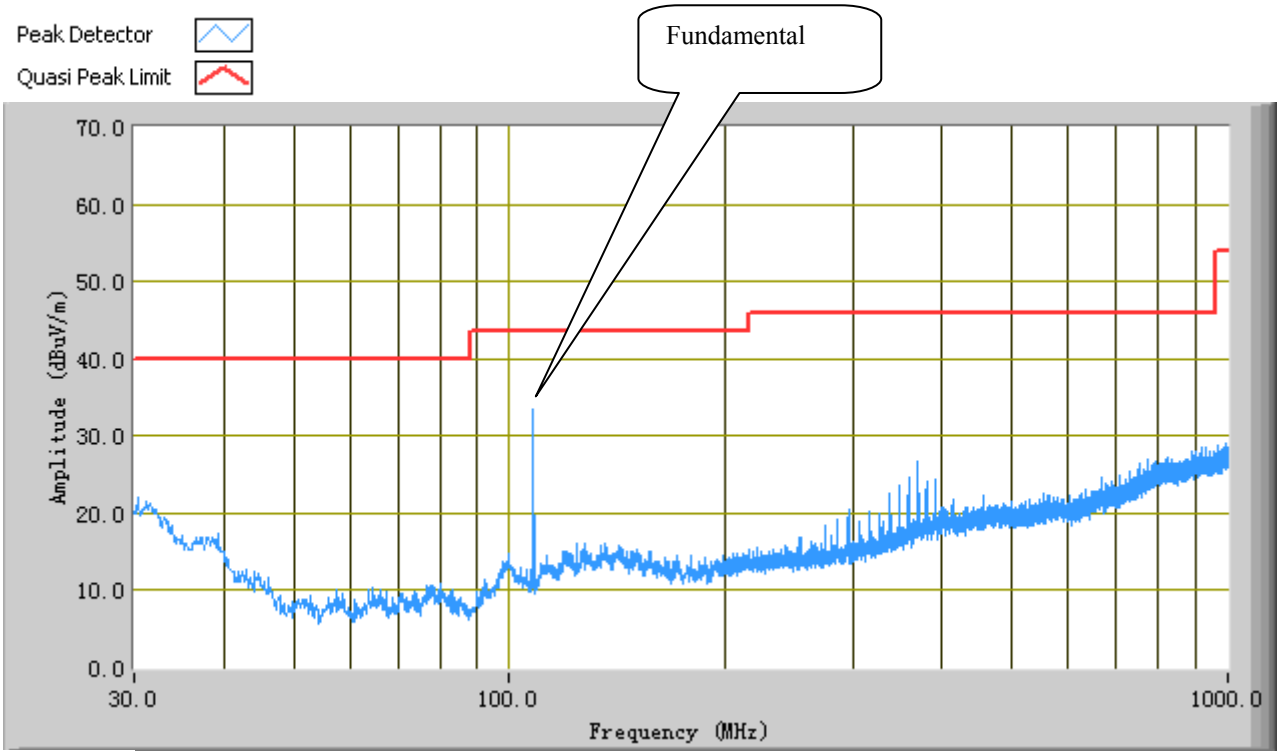
Frequency (MHz)	Peak (dBuV/m)	Azimuth	Polarity(H/V)	Height (cm)	Factors (dB)	Limit (dBuV)	Margin (dB)
390.48	34.36	360.00	V	100.00	-3.35	46.00	-11.64
411.33	32.91	79.00	V	100.00	-2.88	46.00	-13.09
400.66	32.57	360.00	V	100.00	-2.99	46.00	-13.43
380.41	32.33	291.00	V	100.00	-3.72	46.00	-13.67
369.62	31.58	24.00	V	100.00	-4.12	46.00	-14.42

Note 1:
For below 1GHz, the QP is more than 20dB to the limit, so only PK detector was shown above.

Note 2:
For above 1GHz, the PK value is lower than the average limits, so no data recorded.

Test Mode:	FM Transmitting (107.9 MHz)

Below 1GHz



Test Data

Horizontal Polarity Plot @3m

Frequency (MHz)	Peak (dBuV/m)	Azimuth	Polarity(H/V)	Height (cm)	Factors (dB)	Limit (dBuV)	Margin (dB)
929.55	28.58	43.00	H	200.00	5.23	46.00	-17.42
920.46	28.45	44.00	H	100.00	5.09	46.00	-17.55
904.09	28.09	21.00	H	100.00	4.83	46.00	-17.91
944.59	27.98	241.00	H	100.00	5.47	46.00	-18.02
891.48	27.97	181.00	H	100.00	4.66	46.00	-18.03

Note 1:
For below 1GHz, the QP is more than 20dB to the limit, so only PK detector was shown above.

Note 2:
For above 1GHz, the PK value is lower than the average limits, so no data recorded.

Annex A. TEST INSTRUMENT & METHOD

Annex A.i. TEST INSTRUMENTATION & GENERAL PROCEDURES

Instrument	Model	Serial #	Calibration Date	Calibration Due Date
RF conducted test				
Agilent ESA-E SERIES SPECTRUM ANALYZER	E4407B	CFG038	09/17/2013	09/16/2014
Radiated Emissions				
EMI test receiver	ESL6	100262	11/19/2012	11/18/2013
Positioning Controller	UC3000	MF78020828 2	11/19/2012	11/18/2013
OPT 010 AMPLIFIER(0.1-1300MHz)	8447E	2727A02430	11/19/2012	11/18/2013
Microwave Preamplifier(0.5～18GHz)	PAM-118	443008	11/08/2012	11/07/2013
Bilog Antenna (30MHz~6GHz)	JB6	A110712	01/27/2013	01/26/2014
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	071283	11/20/2012	11/19/2013

Annex A.ii. CONDUCTED EMISSIONS TEST DESCRIPTION

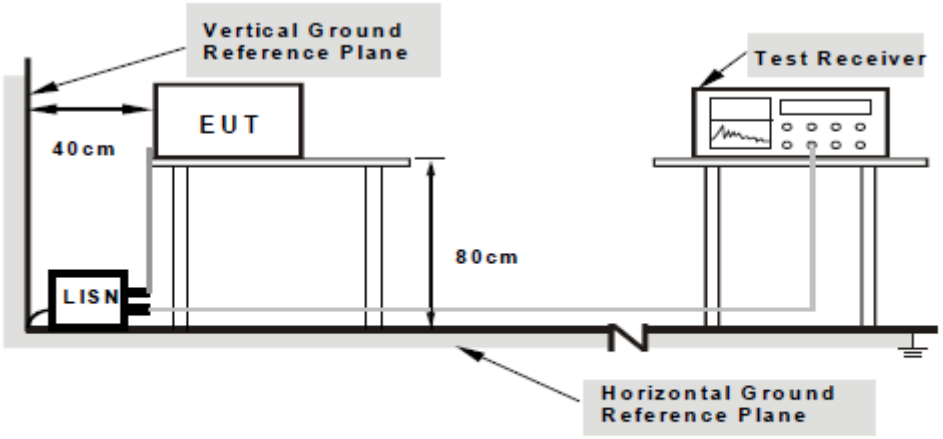
Test Set-up

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B.

2. The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains.

3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.

4. All other supporting equipments were powered separately from another main supply.



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration1.

Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.

2. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver.

3. High peaks, relative to the limit line, were then selected.

4. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 kHz. For FCC tests, only Quasi-peak measurements were made; while for CISPR/EN tests, both Quasi-peak and Average measurements were made.

5. Steps 2 to 4 were then repeated for the LIVE line (for AC mains) or DC line (for DC power).

Description of Conducted Emission Program

This EMC Measurement software run LabView automation software and offers a common user interface for electromagnetic interference (EMI) measurements. This software is a modern and powerful tool for controlling and monitoring EMI test receivers and EMC test systems. It guarantees reliable collection, evaluation, and documentation of measurement results. Basically, this program will run a pre-scan measurement before it proceeds with the final measurement. The pre-scan routine will run the common scan range from 150 kHz to 30 MHz; the program will first start a peak and average scan on selectable measurement time and step size. After the program complete the pre-scan, this program will perform the Quasi Peak and Average measurement, based on the pre-scan peak data reduction result.

Sample Calculation Example

At 20 MHz limit = 250 μV = 47.96 dBμV

Transducer factor of LISN, pulse limiter & cable loss at 20 MHz = 11.20 dB

Q-P reading obtained directly from EMI Receiver = 40.00 dBμV
(Calibrated for system losses)

Therefore, Q-P margin = 47.96 – 40.00 = 7.96 i.e. **7.96 dB below limit**

Annex A. iii RADIATED EMISSIONS TEST DESCRIPTION

EUT Characterisation

EUT characterisation, over the frequency range from 30MHz to 10th Harmonic , was done in order to minimise radiated emissions testing time while still maintaining high confidence in the test results.

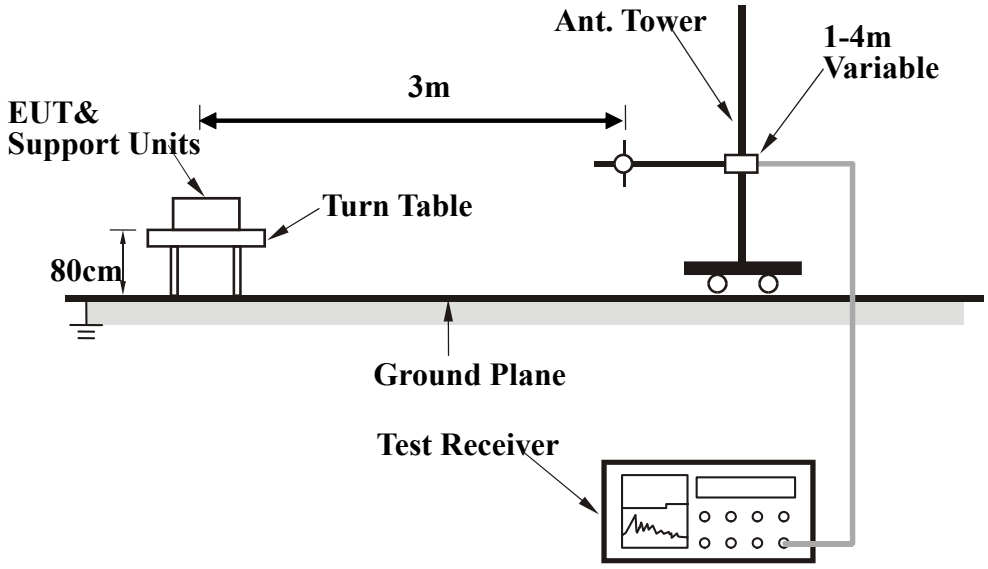
The EUT was placed in the chamber, at a height of about 0.8m on a turntable. Its radiated emissions frequency profile was observed, using a spectrum analyzer /receiver with the appropriate broadband antenna placed 3m away from the EUT. Radiated emissions from the EUT were maximised by rotating the turntable manually, changing the antenna polarisation and manipulating the EUT cables while observing the frequency profile on the spectrum analyzer / receiver. Frequency points at which maximum emissions occurred, clock frequencies and operating frequencies were then noted for the formal radiated emissions test at the Open Area Test Site (OATS).

Test Set-up

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table.

2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.

3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.



Test Method

The following procedure was performed to determine the maximum emission axis of EUT:
1. With the receiving antenna is H polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
2. With the receiving antenna is V polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
3. Compare the results derived from above two steps. So, the axis of maximum emission from EUT was determined and the configuration was used to perform the final measurement.

Final Radiated Emission Measurement
1. Setup the configuration according to figure 1. Turn on EUT and make sure that it is in normal function.

2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on a open test site. As the same purpose, for emission frequencies measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.

3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 100 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.

4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ◦ to 360 ◦ with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading.

5. Repeat step 4 until all frequencies need to be measured was complete.

6. Repeat step 5 with search antenna in vertical polarized orientations.

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	Peak	100 kHz	100 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Sample Calculation Example

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. For the limit is employed average value, therefore the peak value can be transferred to average value by subtracting the duty factor. The basic equation with a sample calculation is as follows:

Peak = Reading + Corrected Factor

where
Corr. Factor = Antenna Factor + Cable Factor - Amplifier Gain (if any)
And the average value is

Average = Peak Value + Duty Factor or
Set RBW = 1MHz, VBW = 10Hz.

Note :
If the measured frequencies are fall in the restricted frequency band, the limit employed must be quasi peak value when frequencies are below or equal to 1 GHz. And the measuring instrument is set to quasi peak detector function.

Annex B. EUT AND TEST SETUP PHOTOGRAPHS

Annex B.i. Photograph 1: EUT External Photo

Whole Package - Top View

Antenna View

EUT - Front View

EUT - Rear View

EUT - Top View

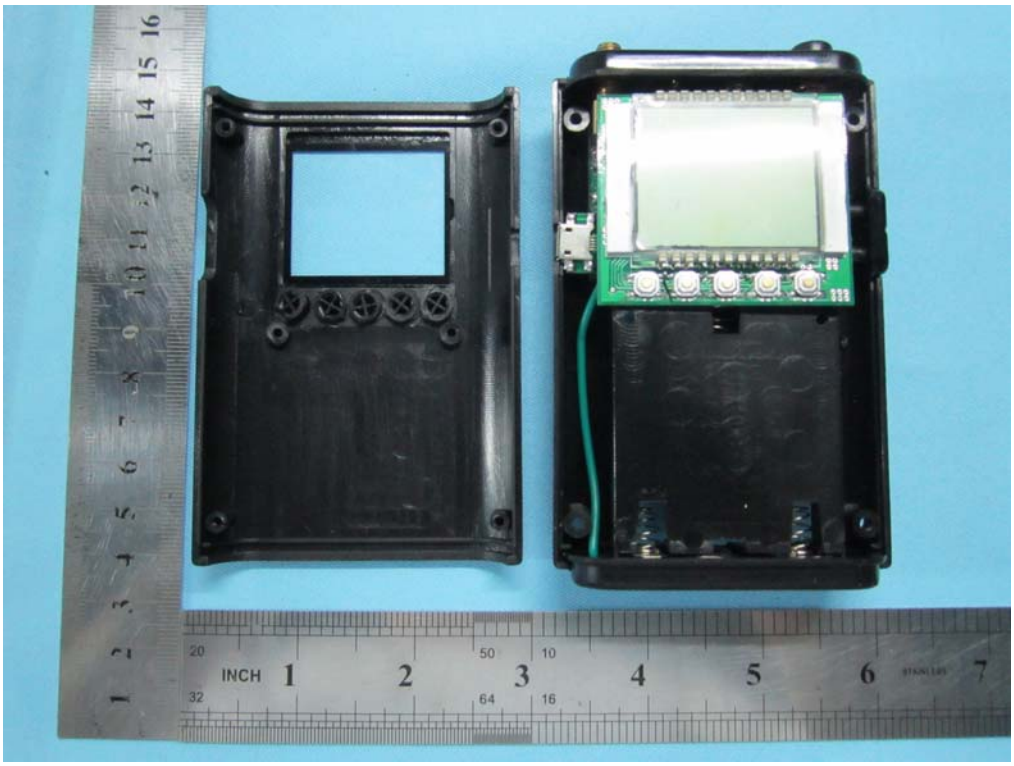
EUT - Bottom View

EUT - Left View

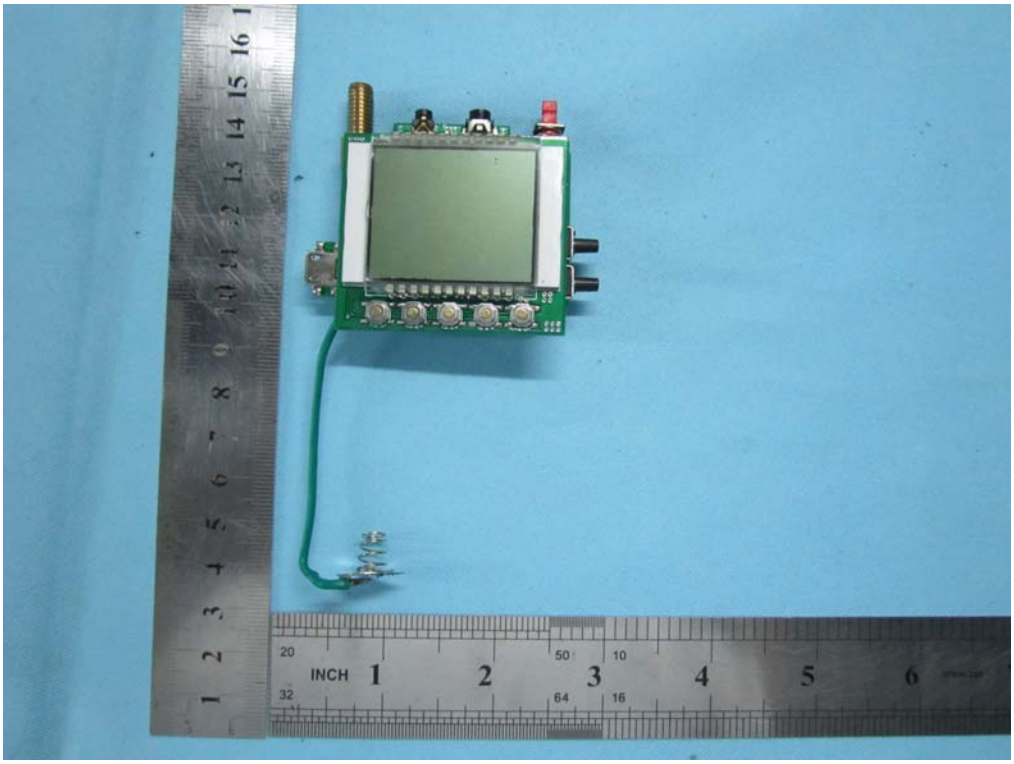
EUT - Right View

Annex B.ii. Photograph 2: EUT Internal Photo

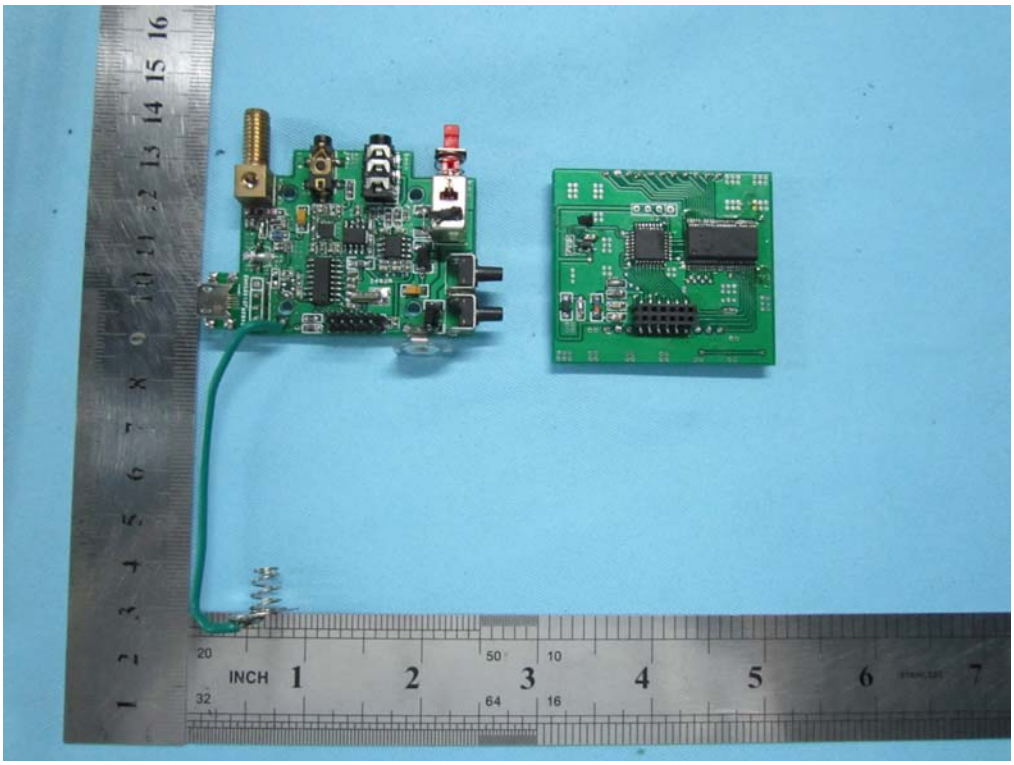
EUT Cover Off – Rear View



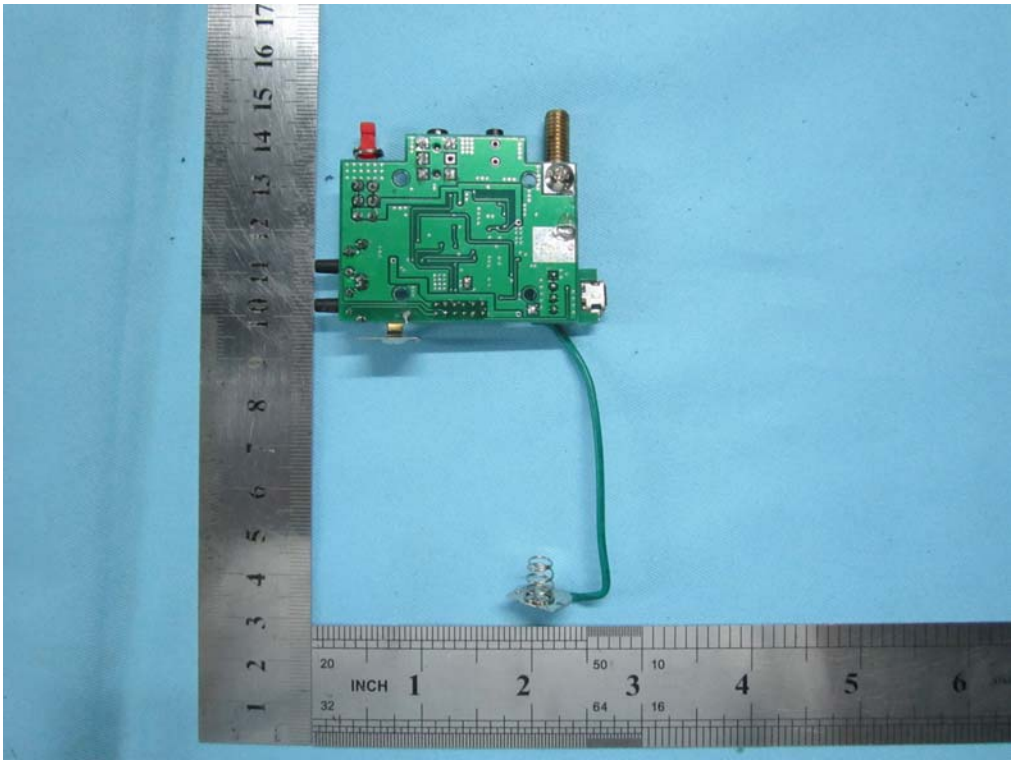
EUT Cover Off – Front View



Mainboard - Top View

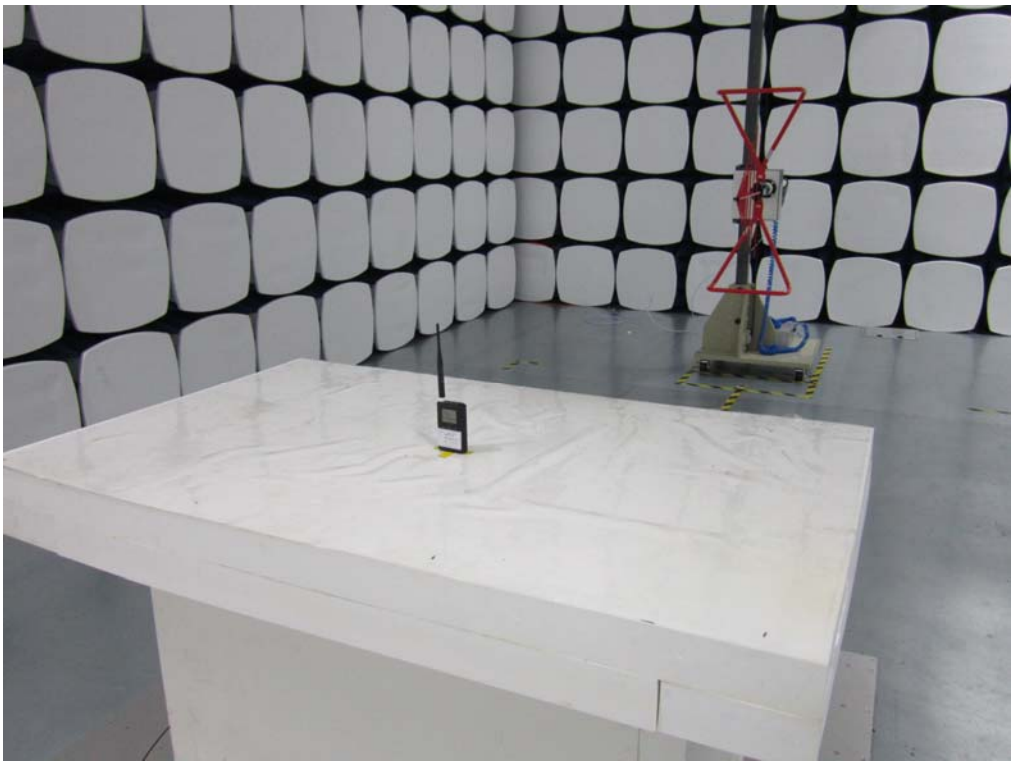


Mainboard Uncover - Top View

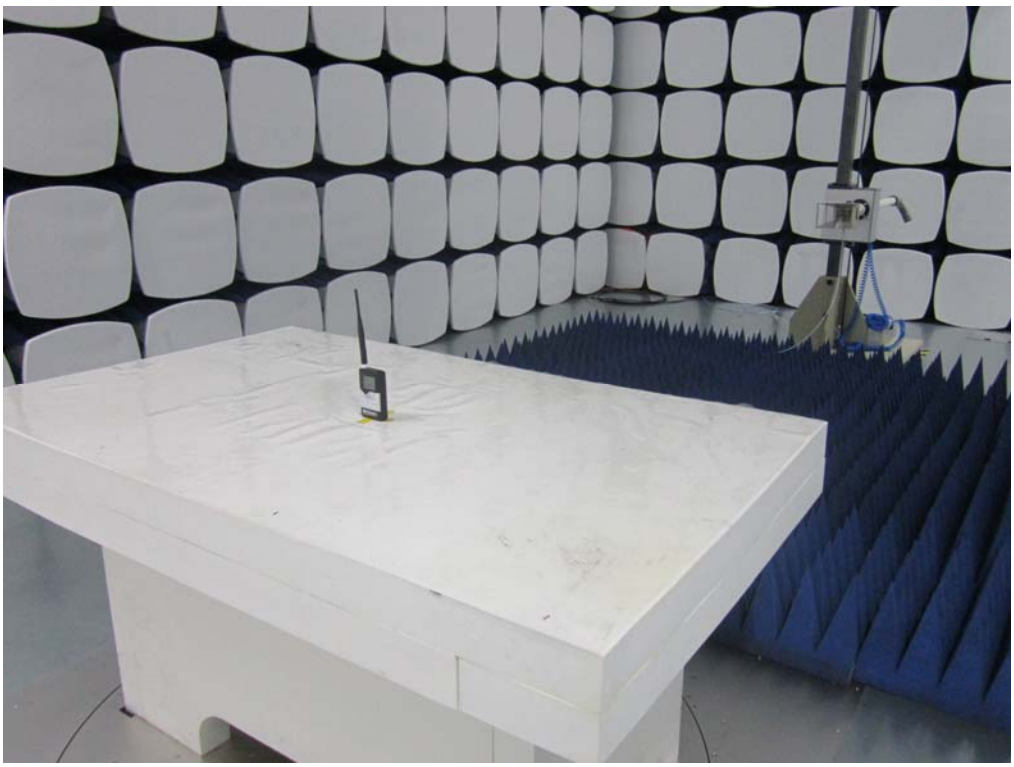


Mainborad - bottom View

Annex B.iii. Photograph 3: Test Setup Photo



Radiated Spurious Emissions Test Setup Below 1 GHz



Radiated Spurious Emissions Test Setup Above 1 GHz

Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

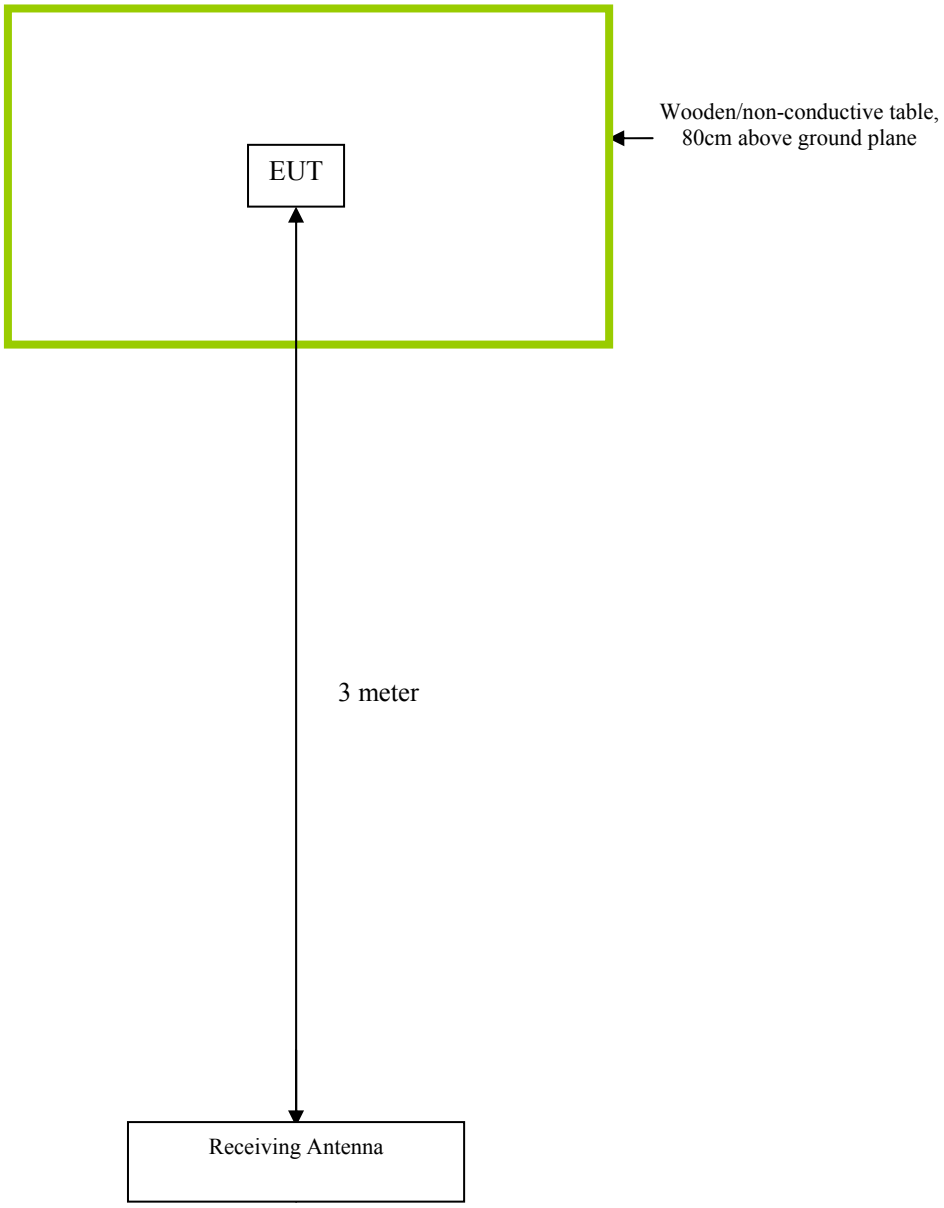
EUT TEST CONDITIONS

Annex C. i. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Equipment Description (Including Brand Name)	Model & Serial Number	Cable Description (List Length, Type & Purpose)
N/A	N/A	N/A

Block Configuration Diagram for Radiated Emissions



Annex C.ii. EUT OPERATING CONDITIONS

The following is the description of how the EUT is exercised during testing.

Test	Description Of Operation
Emissions Testing	The EUT was continuously transmitting in low,middel,high channel.

Annex D. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PART LIST

Please see attachment

Annex E. DECLARATION OF SIMILARITY

Declaration

Applicant : TAW~Global, LLC

About our company 's new product WHOLE HOUSE FM TRANSMITTER 3.0

There are two points need to add:

1.The Micro USB Port is disabled.It doesn't have any function.

2.We have 2 available pre-emphasis "EU" and "US"

Click the "CYCLE" botton a few time until the "EU" or " US" flash,then click the up or down botton on the right of the machine to choose the Pre-emphasis "EU" or " US".That is ok.

a. US will have a pre-emphasis of 75us (for United States) when you choose the US ,working frequency 88.1-107.9MHZ ,Step is 100khz
b. EU will have a pre-emphasis of 50us (for Europe and Australia)
When you choose the EU ,working frequency 88.1-107.9MHZ ,Step is 100khz.

Thomas Webb, CEO

2013-11-6