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CNASL1225

FCC TEST REPORT

47 CFR FCC Part 15.249

Report Reference No.....:	**TRE12030093**
FCC ID.....:	**N2ARSB-VSB212**
Compiled by (position+printed name+signature)..:	File administrators Eric Zhang
Supervised by (position+printed name+signature)..:	Test Engineer Tim Zhang
Approved by (position+printed name+signature)..:	Manager Wenliang Li
Date of issue.....:	Jun 15, 2012
Testing Laboratory Name .....:	**Shenzhen Huatongwei International Inspection Co., Ltd**
Address.....:	Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Applicant's name.....:	**AuraSound (Hong Kong) Limited**
Address.....:	Unit 06, 39/F, Metroplaza Tower II,223 Hing Fong Road, Kwai Fong, N.T. Hong Kong
Manufacturer's name .....:	**Wuhan AuraSound CO.,LTD**
Address.....:	Three layer G building, export processing zone, Zhuankou, wuhan, china
Test specification:	
Standard .....:	**47 CFR FCC Part 15 Subpart C & 15.249**
	ANSI C63.10: 2009
TRF Originator.....:	Shenzhen Huatongwei International Inspection CO., Ltd
Master TRF.....:	Dated 2006-06

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Equipment Under Test ..... :	**Sound bar**
Trade Mark .....:	/
Model/Type reference.....:	VSB212
Listed Models .....:	/
Result.....:	Complied

TEST REPORT

Test Report No. :	TRE12030093	Jun 15, 2012 Date of issue

Equipment under Test	:	**Sound bar**
Model /Type	:	VSB212
Listed Models	:	/
Applicant	**:**	**AuraSound (Hong Kong) Limited**
Address	:	Unit 06, 39/F, Metroplaza Tower II,223 Hing Fong Road, Kwai Fong, N.T. Hong Kong
Manufacturer	**:**	**Wuhan AuraSound CO.,LTD**
Address	:	Three layer G building, export processing zone, Zhuankou, wuhan, china

Test Result according to the standards on page 4:	**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.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

47 CFR FCC Rules Part 15.249: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0 - 24.25 GHz.

ANSI C63.10: 2009 – American National Standard for Teating Unlicensed Wireless Devices

2 . SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Apr 21, 2012
Testing commenced on	:	Apr 21, 2012
Testing concluded on	:	Jun 15, 2012

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage	:	●	120V / 60 Hz	○	115V / 60Hz
		○	12 V DC	○	24 V DC
		○	Other (specified in blank below)		

2.3. Adapter information:

● AC Adapter 1

MODEL:S065BQ2400270
INPUT:100-240V～50/60Hz 1.8A
OUTPUT: 24.0V DC 2.7A
Power Cable: 200cm
◇ Shielded ◆ Unshielded

● AC Adapter 2

MODEL:YJS05-2402500D
INPUT:100-240V～47/63Hz 1.5A
OUTPUT: 24.0V DC 2.5A
Power Cable: 200cm
◇ Shielded ◆ Unshielded

2.4. Short description of the Equipment under Test (EUT)

2.4 GHz (Transceiver), For more details, refer to the user's manual of the EUT.

Serial number: Prototype

2.5. EUT operation mode

The EUT has been tested under typical operating condition.

2.6. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: N2ARSB-VSB212** filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules.

2.7. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 22.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: Mar. 29, 2012. Valid time is until Feb. 28, 2015.

A2LA-Lab Cert. No. 2243.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until Sept. 30, 2013.

FCC-Registration No.: 662850

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 662850, Renewal date Jun. 01, 2012, valid time is until Jun. 01, 2015.

IC-Registration No.: 5377A

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Jan. 25, 2011, valid time is until Jan. 24, 2014.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

NEMKO-Aut. No.: ELA125

Shenzhen Huatongwei International Inspection Co., Ltd has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10, the authorization is valid through July 07, 2013

VCCI

The 3m Semi-anechoic chamber (12.2m×7.95m×6.7m) and Shielded Room (8m×4m×3m) of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2010. Valid time is until Dec. 23, 2013.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2009. Valid time is until Dec. 19, 2012.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2010. Valid time is until May 06, 2013.

DNV

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2013.

3.3. 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 according to ETSI TR 100 028-1 “Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 1” and methods according to ETSI TR 100 028-2 “Electromagnetic compatibilityand Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 2 “ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd 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.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	0.09~30MHz	3.85dB	(1)
Radiated Emission	30~1000MHz	4.22dB	(1)
Radiated Emission	1~18GHz	4.35dB	(1)
99% Bandwidth	/	0.25dB	(1)
Deactivation Time	/	0.5ms	(1)

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

3.4. Summary of standards and result

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207(a)	Conduction Emissions	Compliance
§15.109, §15.205(a), §15.209(a), 15.249(a), §15.249(c), §15.35	Radiated Emissions	Compliance
§15.249(d)	Out of Band Emissions	Compliance
§15.215(c)	20 dB Bandwidth	Compliance

NOTE: 1) The detailed test rusult please see section 4.
2) The test report merely corresponds to the test sample.
3) It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

3.5. Environmental conditions

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

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

3.6. Equipments Used during the Test

AC Power Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI TEST RECEIVER	Rohde & Schwarz	ESCS30	100038	2011/10/23
2	ARTIFICIAL MAINS	Rohde & Schwarz	ESH2-Z5	100028	2011/10/23
3	PULSE LIMITER	Rohde & Schwarz	ESHSZ2	100044	2011/10/23
4	EMI TEST SOFTWARE	Rohde & Schwarz	ES-K1 1.71	N/A	2011/10/23

Radiated Emissions / Band Edge Measurement					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA-BROADBAND ANTENNA	Rohde & Schwarz	HL562	100015	2011/10/23
2	EMI TEST RECEIVER	Rohde & Schwarz	ESI 26	100009	2011/10/23
3	RF TEST PANEL	Rohde & Schwarz	TS / RSP	335015/ 0017	2011/10/23
4	TURNTABLE	ETS	2088	2149	2011/10/23
5	ANTENNA MAST	ETS	2075	2346	2011/10/23
6	EMI TEST SOFTWARE	Rohde & Schwarz	ESK1	N/A	2011/10/23
7	HORN ANTENNA	Rohde & Schwarz	HF906	100039	2011/10/23
8	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100020	2011/10/23
9	Broad-Band Horn Antenna	SCHWARZBECK	BBHA9170	470	2011/10/23

20dB Bandwidth					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI TEST RECEIVER	Rohde & Schwarz	ESCI	100106	2011/10/23

4. TEST CONDITIONS AND RESULTS

4.1. ANTENNA REQUIREMENT

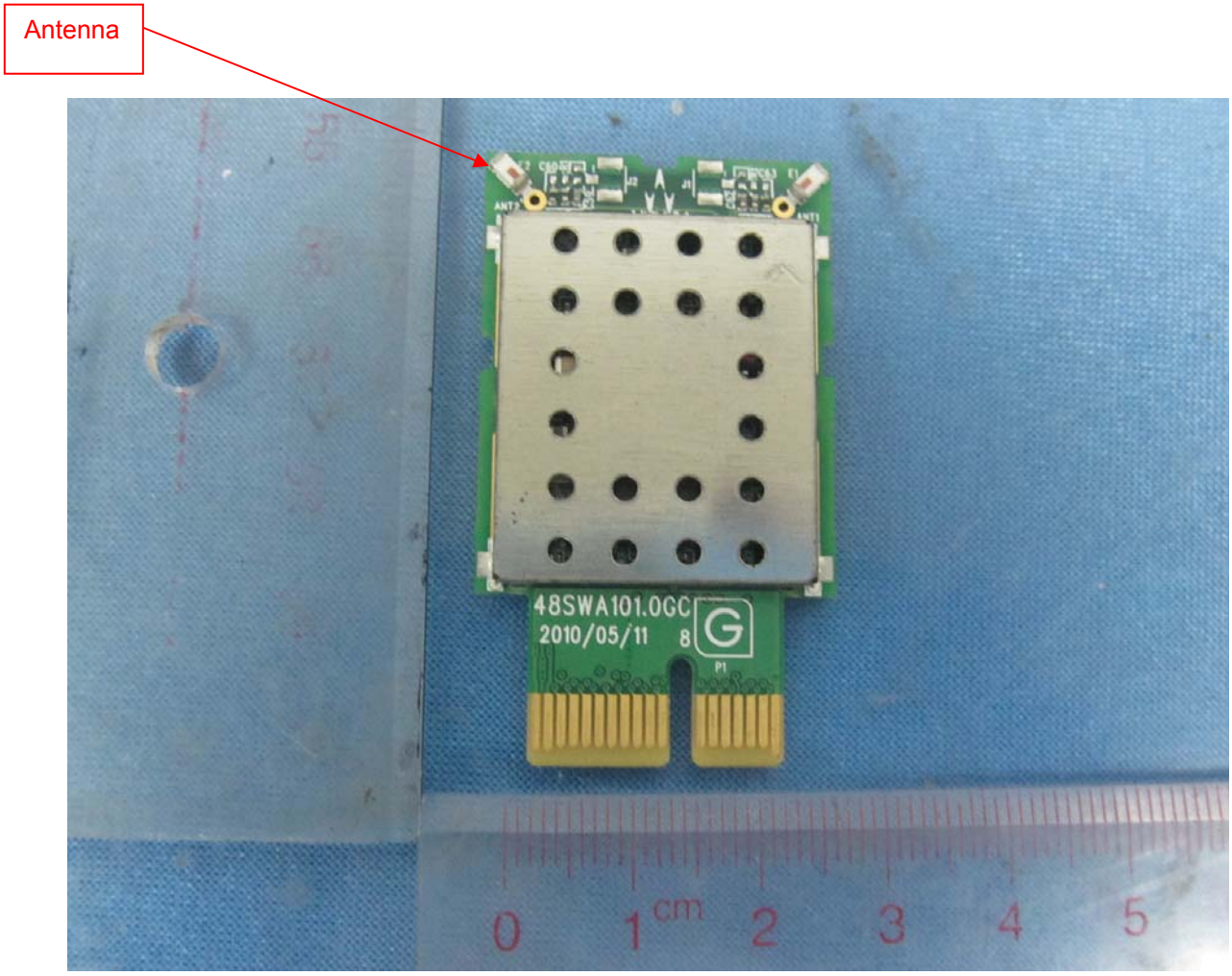
According to FCC Part 15C § 15.203,

a), An intentional radiator shall be de-signed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
b), The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

The EUT use of a Integral antenna，Please refer to the EUT Internal photos.

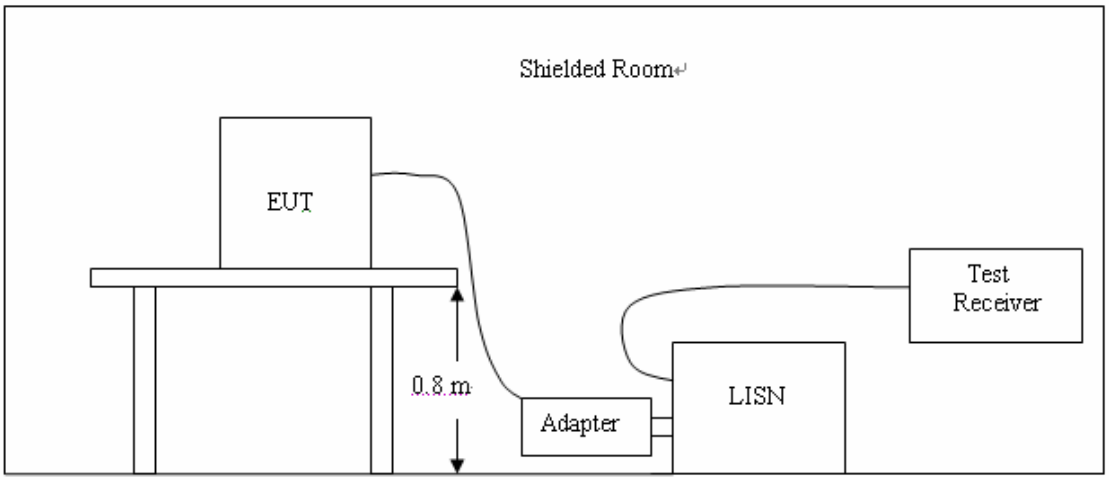
The EUT complied the antenna requirement.

Please refer to the EUT photos.



4.2. Conducted Emissions Test

TEST CONFIGURATION



TEST PROCEDURE

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a Weather station Transmitter; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2 Support equipment, if needed, was placed as per ANSI C63.10.
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4 All support equipments received AC power from a second LISN, if any.
5 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 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.
6 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
7 During the above scans, the emissions were maximized by cable manipulation.

CONDUCTED LIMIT

According to FCC Subpart 15 B § 15.207 AC Conducted Emission Limits is as following：

Frequency fange (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.1~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50
* Decreasing linearly with the logarithm of the frequency		

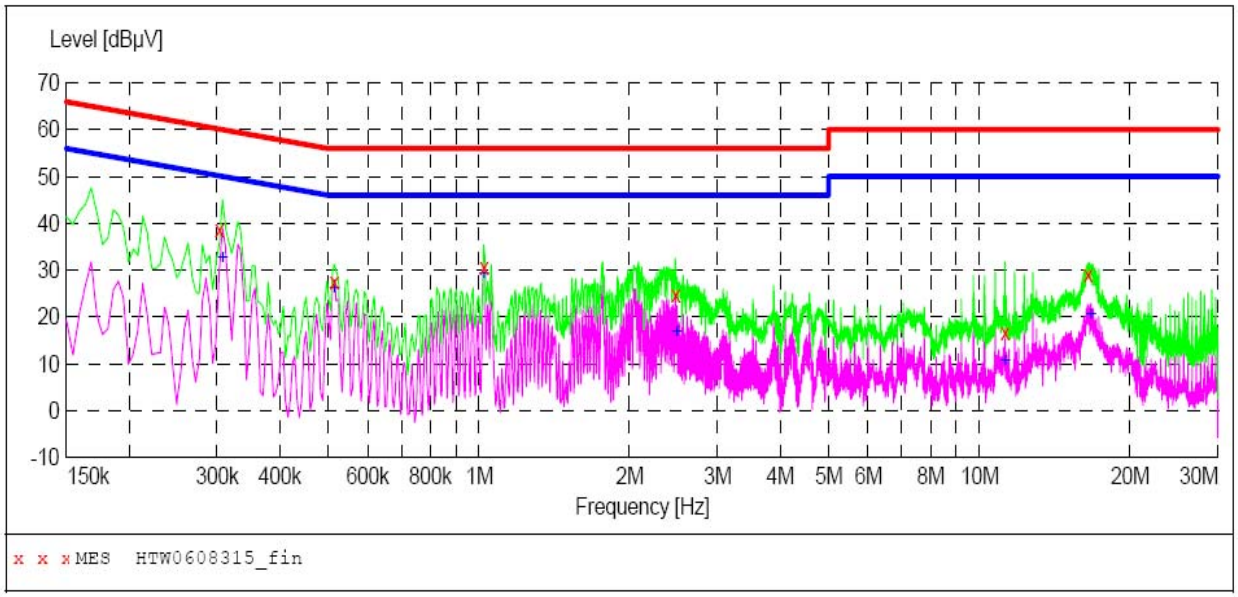
TEST RESULTS

Test mode :Transmitting

Adapter 1 test data

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0608315_fin"

6/8/2012 11:13AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.303000	38.70	10.1	60	21.5	QP	L1	GND
0.514500	27.40	10.1	56	28.6	QP	L1	GND
1.023000	30.70	10.2	56	25.3	QP	L1	GND
2.472000	24.90	10.2	56	31.1	QP	L1	GND
11.269500	16.70	10.4	60	43.3	QP	L1	GND
16.476000	29.00	10.4	60	31.0	QP	L1	GND

MEASUREMENT RESULT: "HTW0608315_fin2"

6/8/2012 11:13AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.307500	32.70	10.1	50	17.3	AV	L1	GND
0.514500	26.30	10.1	46	19.7	AV	L1	GND
1.023000	29.50	10.2	46	16.5	AV	L1	GND
2.485500	17.20	10.2	46	28.8	AV	L1	GND
11.265000	10.80	10.4	50	39.2	AV	L1	GND
16.710000	20.70	10.4	50	29.3	AV	L1	GND

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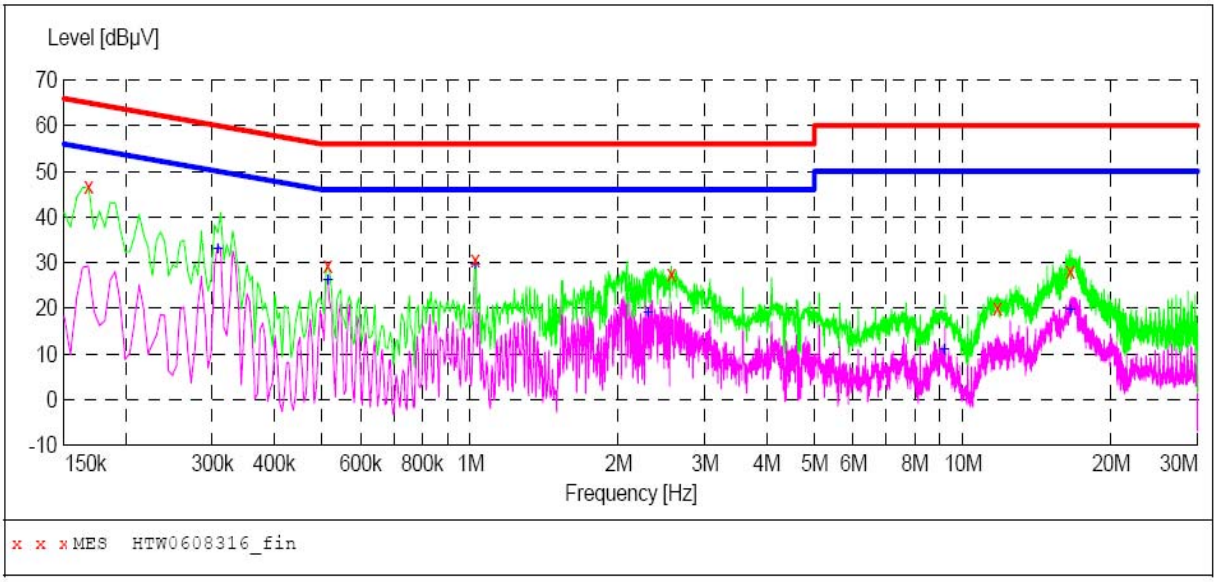
SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0608316_fin"

6/8/2012 11:16AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.168000	46.70	10.1	65	18.4	QP	N	GND
0.514500	29.50	10.1	56	26.5	QP	N	GND
1.023000	30.70	10.2	56	25.3	QP	N	GND
2.562000	27.60	10.2	56	28.4	QP	N	GND
11.755500	20.20	10.4	60	39.8	QP	N	GND
16.525500	28.20	10.4	60	31.8	QP	N	GND

MEASUREMENT RESULT: "HTW0608316_fin2"

6/8/2012 11:16AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.307500	33.10	10.1	50	16.9	AV	N	GND
0.514500	26.20	10.1	46	19.8	AV	N	GND
1.023000	29.70	10.2	46	16.3	AV	N	GND
2.296500	19.10	10.2	46	26.9	AV	N	GND
9.172500	11.10	10.4	50	38.9	AV	N	GND
16.525500	19.90	10.4	50	30.1	AV	N	GND

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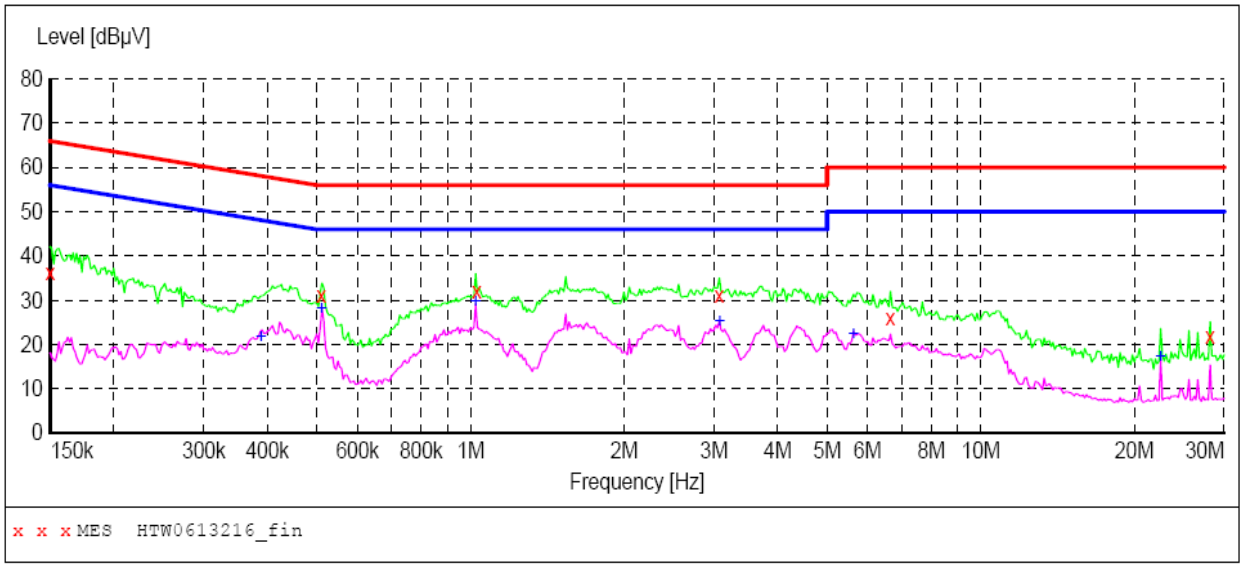
Adapter 2 test data

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0613216_fin"

6/13/2012 2:01PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	36.30	9.8	66	29.7	QP	L1	GND
0.510000	31.00	9.7	56	25.0	QP	L1	GND
1.027500	32.10	9.9	56	23.9	QP	L1	GND
3.070500	31.10	9.8	56	24.9	QP	L1	GND
6.652500	25.90	9.8	60	34.1	QP	L1	GND
28.162500	21.80	9.6	60	38.2	QP	L1	GND

MEASUREMENT RESULT: "HTW0613216_fin2"

6/13/2012 2:01PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.388500	21.90	9.7	48	26.2	AV	L1	GND
0.510000	28.10	9.7	46	17.9	AV	L1	GND
1.023000	29.90	9.9	46	16.1	AV	L1	GND
3.075000	25.20	9.8	46	20.8	AV	L1	GND
5.631000	22.60	9.8	50	27.4	AV	L1	GND
22.528500	17.40	9.7	50	32.6	AV	L1	GND

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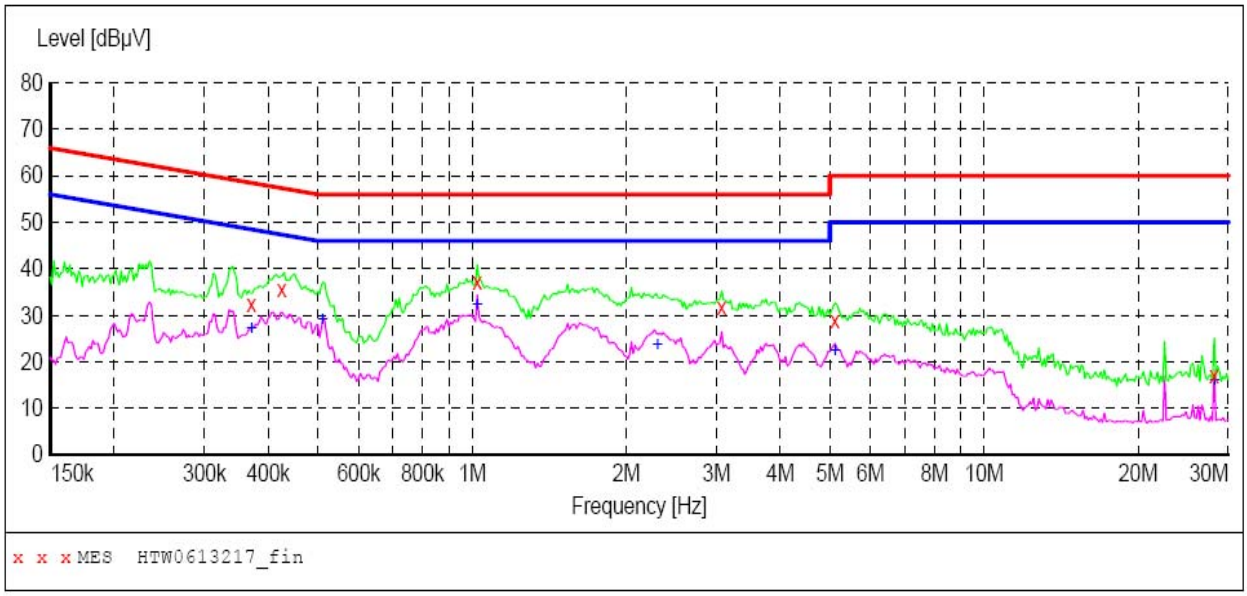
SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0613217_fin"

6/13/2012 2:07PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.370500	32.40	9.7	59	26.1	QP	N	GND
0.424500	35.70	9.7	57	21.7	QP	N	GND
1.023000	37.20	9.9	56	18.8	QP	N	GND
3.070500	31.70	9.8	56	24.3	QP	N	GND
5.118000	28.80	9.8	60	31.2	QP	N	GND
28.162500	17.00	9.6	60	43.0	QP	N	GND

MEASUREMENT RESULT: "HTW0613217_fin2"

6/13/2012 2:07PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.370500	27.30	9.7	49	21.2	AV	N	GND
0.510000	29.20	9.7	46	16.8	AV	N	GND
1.023000	32.30	9.9	46	13.7	AV	N	GND
2.301000	23.70	9.8	46	22.3	AV	N	GND
5.118000	22.40	9.8	50	27.6	AV	N	GND
28.162500	16.00	9.6	50	34.0	AV	N	GND

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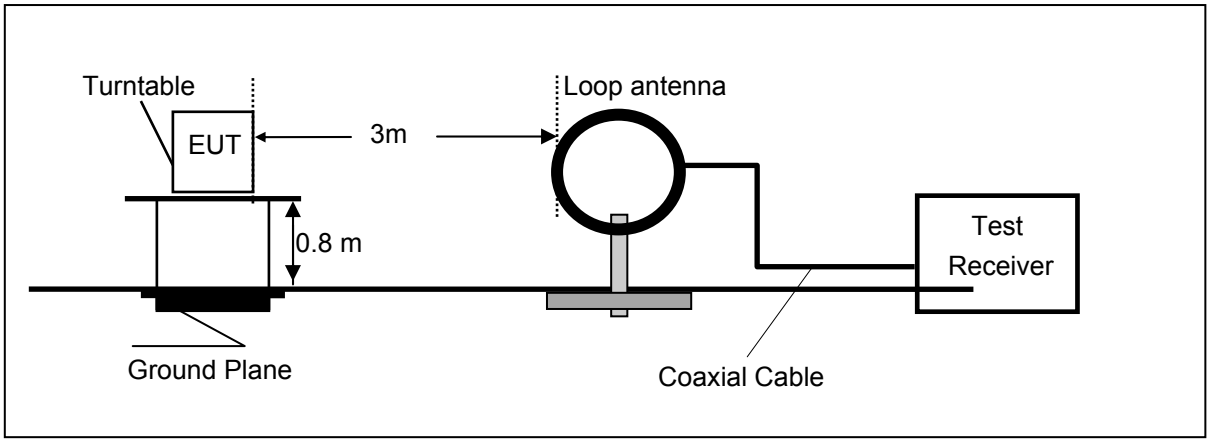
4.3. Radiated Emission Test

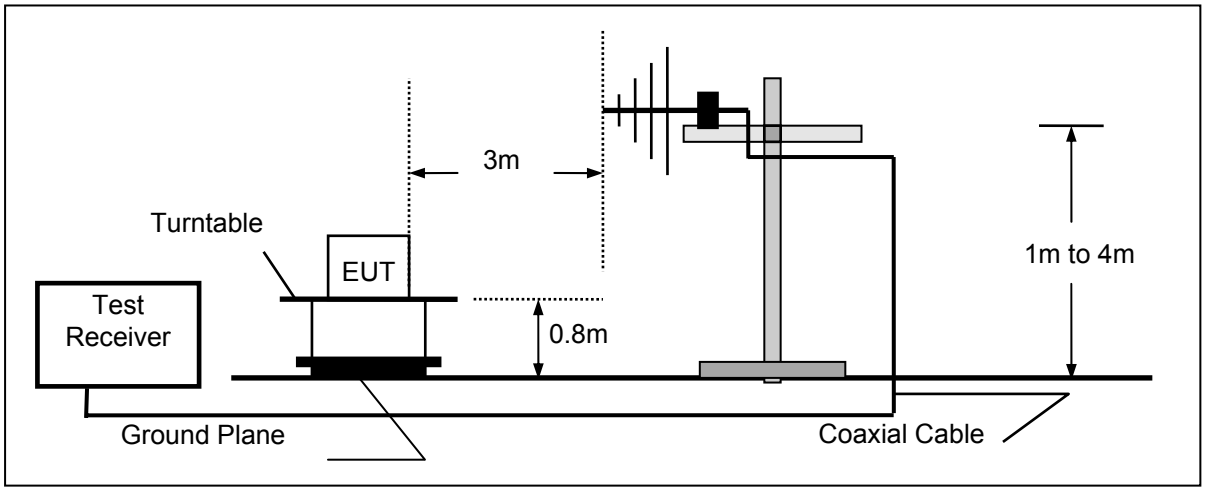
TEST CONFIGURATION

Radiated Emission Test Set-Up

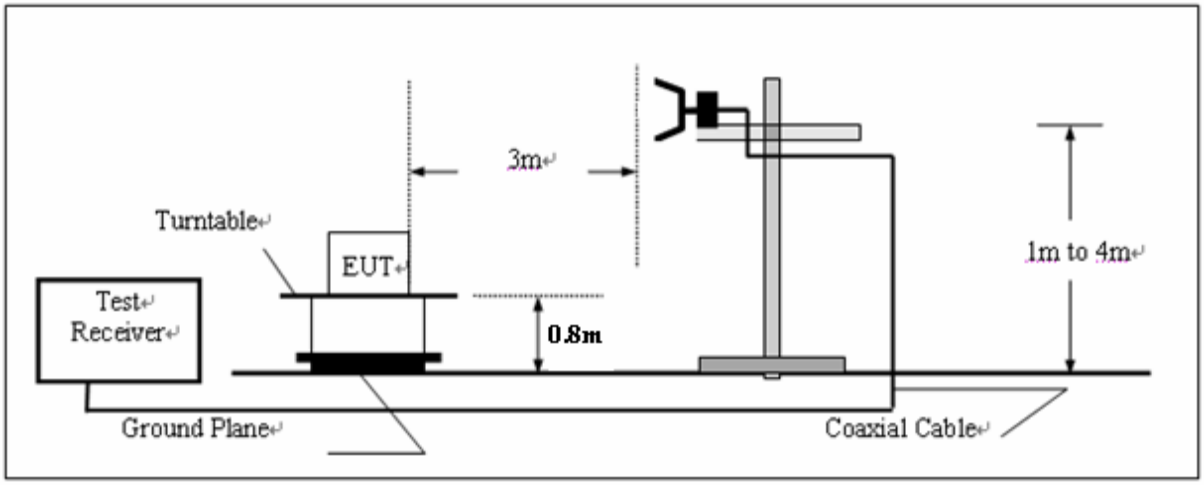
Frequency range 9KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. the fundamental frequency is 2.45GHz and the lowest crystal frequency is 32.768KHz, So the radiation emissions frequency range were tested from 9KHz to 25GHz.

RADIATION LIMIT

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

As per §15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per §15.249 (c), Field strength limits are specified at a distance of 3 meters.

TEST RESULTS

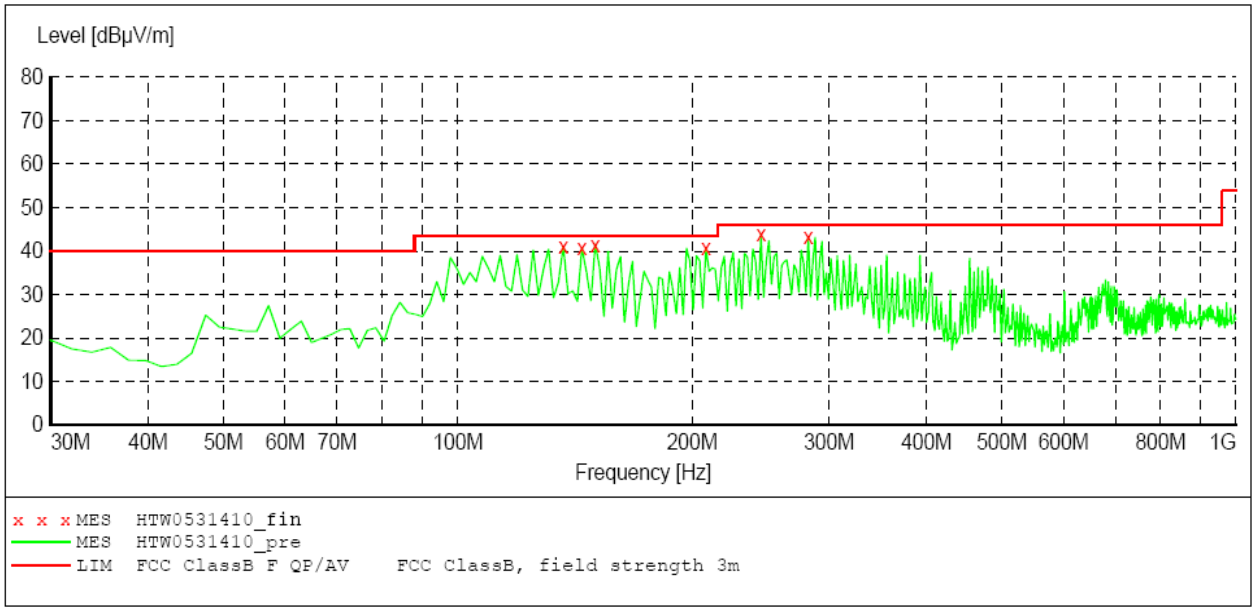
Radiated emission（below 30MHz）

Frequency (MHz)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Antenna Factor (dB/m)	Cable Loss (dB)	Amplifier Gain (dB)	Reading Amplitude (dBμV)	Polarization
2412 MHz									
24.58	30.24	49.54	8.89	QP	20.20	6.36	31.80	35.48	/
2438 MHz									
24.58	30.02	49.54	8.89	QP	20.20	6.36	31.80	35.26	/
2462 MHz									
24.58	31.57	49.54	8.89	QP	20.20	6.36	31.80	36.81	/

Radiated emission（below 1G）
Adapter 1 test data

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	500.0 ms	120 kHz	HL562 201106



MEASUREMENT RESULT: "HTW0531410_fin"

5/31/2012 12:11PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
136.700000	41.10	-21.1	43.5	2.4	QP	300.0	3.00	HORIZONTAL
144.460000	40.70	-22.2	43.5	2.8	QP	300.0	354.00	HORIZONTAL
150.280000	41.50	-22.6	43.5	2.0	QP	300.0	3.00	HORIZONTAL
208.480000	40.70	-21.0	43.5	2.8	QP	100.0	189.00	HORIZONTAL
245.340000	44.00	-18.7	46.0	2.0	QP	100.0	47.00	HORIZONTAL
282.200000	43.30	-17.9	46.0	2.7	QP	100.0	227.00	HORIZONTAL

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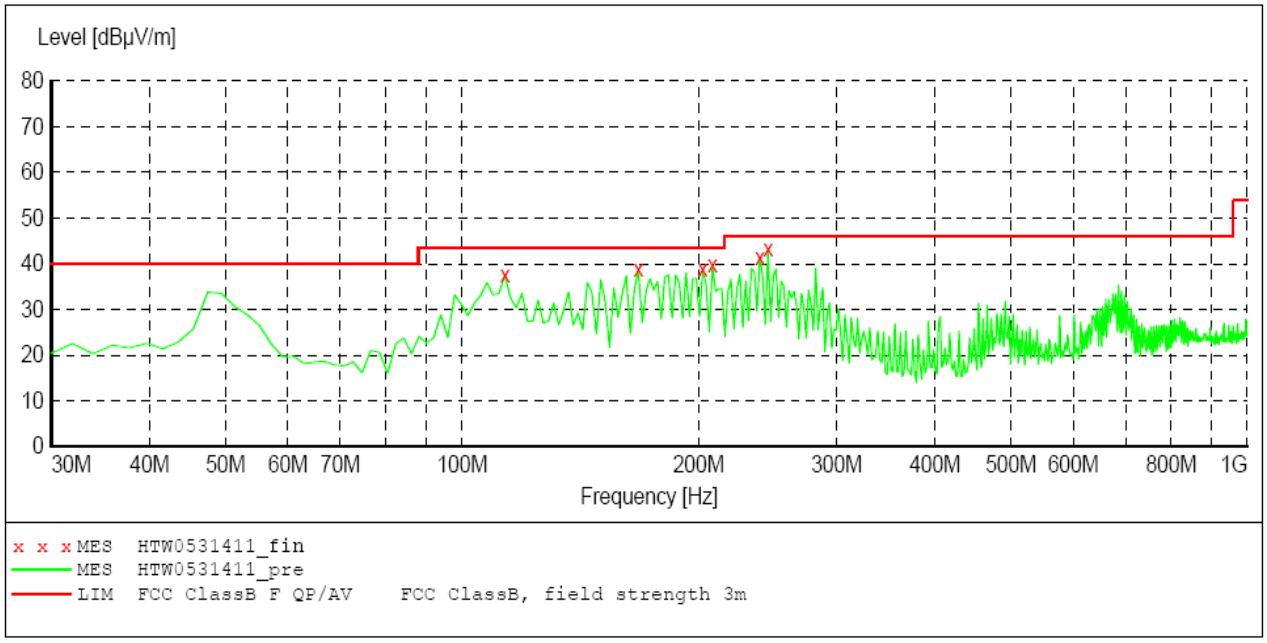
SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	500.0 ms	120 kHz	HL562 201106



MEASUREMENT RESULT: "HTW0531411_fin"

5/31/2012 12:13PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
113.420000	37.40	-19.6	43.5	6.1	QP	100.0	250.00	VERTICAL
167.740000	38.70	-23.4	43.5	4.8	QP	100.0	316.00	VERTICAL
202.660000	38.80	-21.3	43.5	4.7	QP	100.0	212.00	VERTICAL
208.480000	39.70	-21.0	43.5	3.8	QP	100.0	316.00	VERTICAL
239.520000	41.30	-18.9	46.0	4.7	QP	100.0	55.00	VERTICAL
245.340000	43.30	-18.7	46.0	2.7	QP	100.0	35.00	VERTICAL

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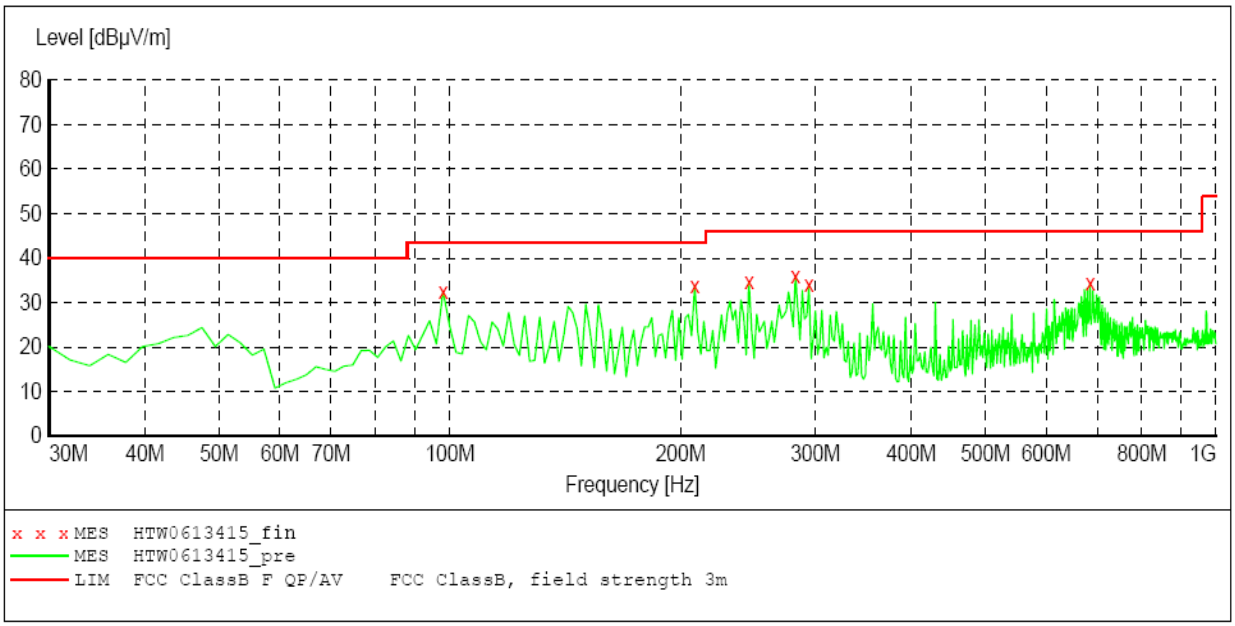
Adapter 2 test data

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 201106



MEASUREMENT RESULT: "HTW0613415_fin"

6/13/2012 3:36PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
98.036072	32.50	-19.9	43.5	11.0	QP	100.0	324.00	VERTICAL
208.837675	33.90	-21.0	43.5	9.6	QP	100.0	116.00	VERTICAL
245.771543	34.70	-18.7	46.0	11.3	QP	100.0	298.00	VERTICAL
282.705411	36.10	-17.9	46.0	9.9	QP	100.0	223.00	VERTICAL
294.368737	34.00	-17.4	46.0	12.0	QP	100.0	237.00	VERTICAL
685.090180	34.20	-9.7	46.0	11.8	QP	100.0	103.00	VERTICAL

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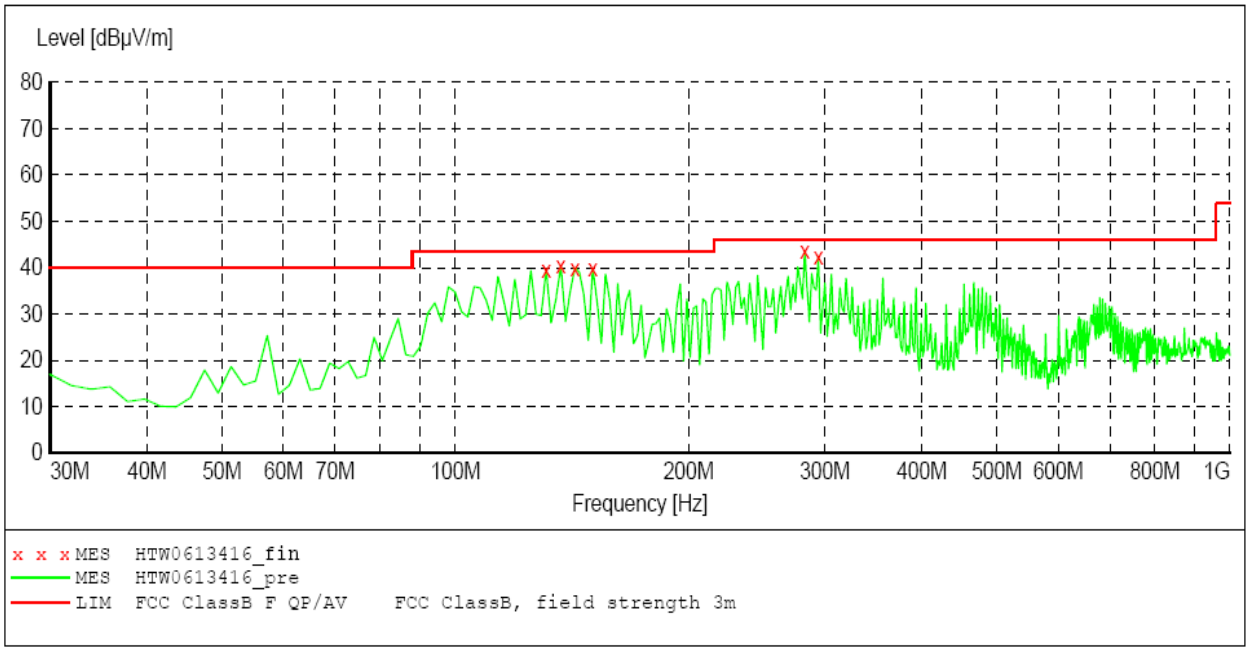
SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 201106



MEASUREMENT RESULT: "HTW0613416_fin"

6/13/2012 3:39PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
131.082164	39.50	-20.5	43.5	4.0	QP	300.0	3.00	HORIZONTAL
136.913828	40.40	-21.1	43.5	3.1	QP	300.0	14.00	HORIZONTAL
142.745491	39.90	-21.9	43.5	3.6	QP	300.0	28.00	HORIZONTAL
150.521042	39.90	-22.6	43.5	3.6	QP	300.0	10.00	HORIZONTAL
282.705411	43.70	-17.9	46.0	2.3	QP	100.0	74.00	HORIZONTAL
294.368737	42.40	-17.4	46.0	3.6	QP	100.0	335.00	HORIZONTAL

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Radiated emission（above 1G）

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M（2412MHz）												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2412.00	91.69	PK	114.00	22.31	1.00 H	360	94.89	28.3	4.90	-36.6	-3.40
1	*2412.00	68.98	AV	94.00	25.02	1.00 H	360	72.18	28.3	4.90	-36.6	-3.40
2	4824.00	48.98	PK	74.00	25.02	1.00 H	359	45.58	32.7	7.00	-36.5	3.20
2	4824.00	40.15	AV	54.00	13.85	1.00 H	359	36.75	32.7	7.00	-36.5	3.20
3	7236.00	51.17	PK	74.00	22.83	1.00 H	152	41.77	35.8	8.90	-35.3	9.40
3	7236.00	43.62	AV	54.00	10.38	1.00 H	152	34.22	35.8	8.90	-35.3	9.40
4	9648.00	51.02	PK	74.00	22.98	1.00 H	140	38.42	37.2	10.20	-34.8	12.60
4	9648.00	43.25	AV	54.00	10.75	1.00 H	140	30.65	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M（2412MHz）												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2412.00	97.70	PK	114.00	16.30	1.00 V	124	100.9	28.3	4.90	-36.6	-3.40
1	*2412.00	77.48	AV	94.00	16.52	1.00 V	124	80.68	28.3	4.90	-36.6	-3.40
2	4824.00	52.69	PK	74.00	21.31	1.00 V	339	49.29	32.7	7.00	-36.5	3.20
2	4824.00	43.26	AV	54.00	10.74	1.00 V	339	39.86	32.7	7.00	-36.5	3.20
3	7236.00	52.19	PK	74.00	21.81	1.00 V	340	42.79	35.8	8.90	-35.3	9.40
3	7236.00	41.52	AV	54.00	12.48	1.00 V	340	32.12	35.8	8.90	-35.3	9.40
4	9648.00	53.64	PK	74.00	20.36	1.00 V	20	41.04	37.2	10.20	-34.8	12.60
4	9648.00	43.57	AV	54.00	10.43	1.00 V	20	30.97	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M（2438MHz）												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2438.00	91.56	PK	114.00	22.44	1.00 H	153	94.7	28.3	5.10	-36.6	-3.20
1	*2438.00	67.46	AV	94.00	26.54	1.00 H	153	70.6	28.3	5.10	-36.6	-3.20
2	4876.00	46.12	PK	74.00	27.88	1.00 H	202	42.7	32.3	7.60	-36.5	3.40
2	4876.00	35.06	AV	54.00	18.94	1.00 H	202	31.6	32.3	7.60	-36.5	3.40
3	7314.00	51.36	PK	74.00	22.64	1.00 H	355	41.9	36.1	8.60	-35.3	9.40
3	7314.00	39.48	AV	54.00	14.52	1.00 H	355	30.0	36.1	8.60	-35.3	9.40
4	9752.00	53.63	PK	74.00	20.37	1.00 H	28	41.0	37.2	10.20	-34.8	12.60
4	9752.00	41.20	AV	54.00	12.8	1.00 H	28	28.6	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M（2438MHz）												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2438.00	96.47	PK	114.00	17.53	1.00 V	121	99.67	28.3	5.10	-36.6	-3.20
1	*2438.00	77.01	AV	94.00	16.99	1.00 V	121	80.21	28.3	5.10	-36.6	-3.20
2	4876.00	47.23	PK	74.00	26.77	1.00 V	97	43.83	32.3	7.60	-36.5	3.40
2	4876.00	35.13	AV	54.00	18.87	1.00 V	97	31.73	32.3	7.60	-36.5	3.40
3	7314.00	59.52	PK	74.00	14.48	1.00 V	288	50.12	36.1	8.60	-35.3	9.40
3	7314.00	39.78	AV	54.00	14.22	1.00 V	288	30.38	36.1	8.60	-35.3	9.40
4	9752.00	49.85	PK	74.00	24.15	1.00 V	89	37.25	37.2	10.20	-34.8	12.60
4	9752.00	38.55	AV	54.00	15.45	1.00 V	89	25.95	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M（2462MHz）												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2462.00	90.19	PK	114.00	23.81	1.00 H	154	93.49	28.6	4.70	-36.6	-3.30
1	*2462.00	66.96	AV	94.00	27.04	1.00 H	154	70.26	28.6	4.70	-36.6	-3.30
2	4924.00	49.24	PK	74.00	24.76	1.00 H	100	45.44	33.0	7.00	-36.2	3.80
2	4924.00	31.91	AV	54.00	22.09	1.00 H	100	28.11	33.0	7.00	-36.2	3.80
3	7386.00	55.79	PK	74.00	18.21	1.00 H	190	46.39	36.2	8.50	-35.3	9.40
3	7386.00	40.62	AV	54.00	13.38	1.00 H	190	31.22	36.2	8.50	-35.3	9.40
4	9848.00	50.56	PK	74.00	23.44	1.00 H	113	37.96	37.2	10.20	-34.8	12.60
4	9848.00	30.52	AV	54.00	23.48	1.00 H	113	17.92	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M（2462MHz）												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2462.00	96.20	PK	114.00	17.8	1.00 V	247	99.5	28.6	4.70	-36.6	-3.30
1	*2462.00	76.45	AV	94.00	17.55	1.00 V	247	79.75	28.6	4.70	-36.6	-3.30
2	4924.00	54.93	PK	74.00	19.07	1.00 V	90	51.13	33.0	7.00	-36.2	3.80
2	4924.00	45.83	AV	54.00	8.17	1.00 V	90	42.03	33.0	7.00	-36.2	3.80
3	7386.00	63.60	PK	74.00	10.4	1.00 V	29	54.2	36.2	8.50	-35.3	9.40
3	7386.00	40.57	AV	54.00	13.43	1.00 V	29	31.17	36.2	8.50	-35.3	9.40
4	9848.00	56.22	PK	74.00	17.78	1.00 V	222	43.62	37.2	10.20	-34.8	12.60
4	9848.00	33.57	AV	54.00	20.43	1.00 V	222	20.97	37.2	10.20	-34.8	12.60

REMARKS: 1. Emission level (dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) +Pre-amplifier Factor
3. The other emission levels were very low against the limit.
4. Margin value = Limit value- Emission level.
5. The limit value is defined as per 15.249
6. “* “: Fundamental frequency

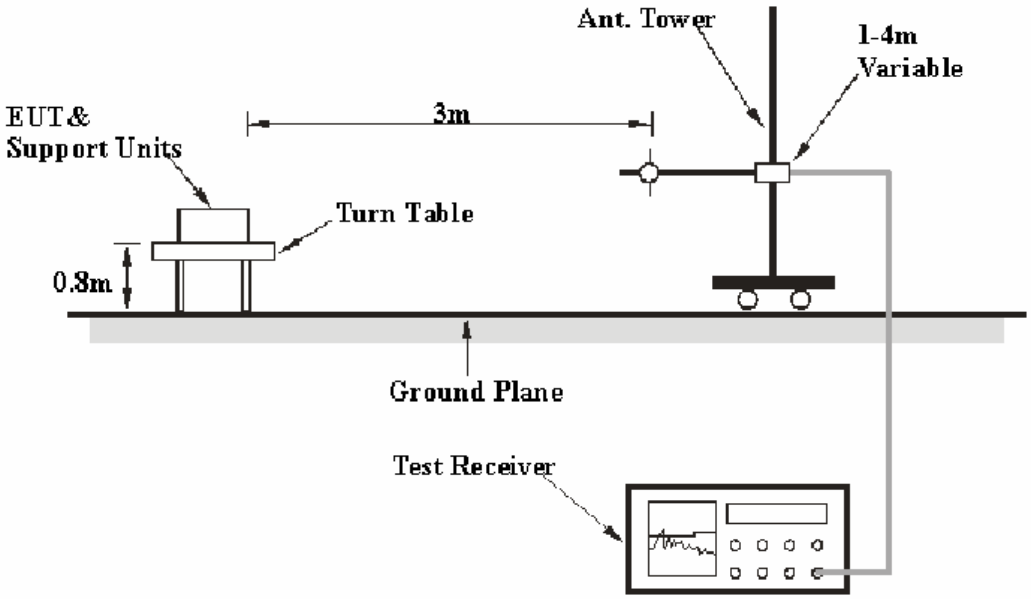
4.4. Out of band emissions

TEST PROCEDURE

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.4 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 1MHz and VBM to 3MHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.

The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 100 KHz and VBM to 300 KHz, to measure the conducted peak band edge.

EUT Setup



LIMIT

FCC PART 15.249(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

TEST RESULTS

Test Mode: Transmitting

Frequency (MHz)	Corrected Reading (dBμV/m)@3m	FCC Limit (dBμV/m) @3m	Margin (dB)	Detector	Polari-zation
Out of left side band					
2390.00	63.34	74	10.66	PK	Horizontal
2390.00	49.33	54	4.67	AV	Horizontal
2390.00	59.90	74	14.10	PK	Vertical
2390.00	47.97	54	6.03	AV	Vertical
Out of right side band					
2483.50	54.19	74	19.81	PK	Horizontal
2483.50	41.77	54	12.23	AV	Horizontal
2483.50	55.76	74	18.24	PK	Vertical
2483.50	43.77	54	10.23	AV	Vertical

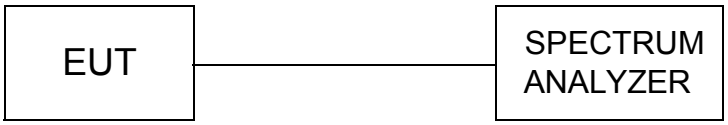
Note: 1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

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

3.The test data is the worst case data in the restrict band.

4.5. 20dB Bandwidth Measurement

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The spectrum analyzer center frequency is set to the transmitter frequency. The RBW is set to 100 KHz and VBW is set 300 KHz.

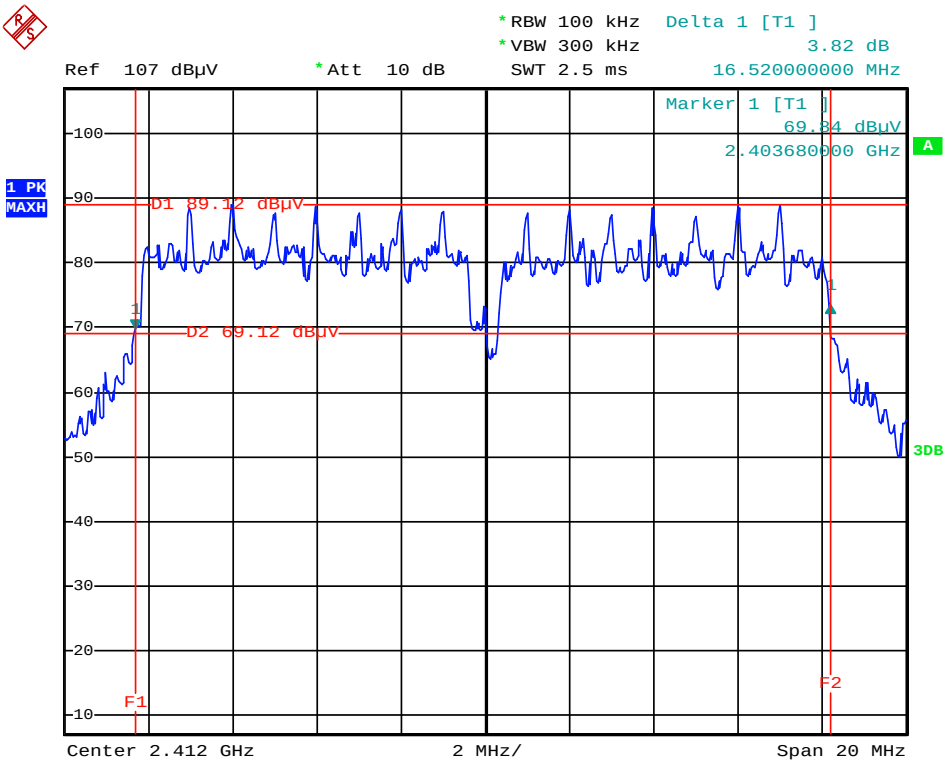
LIMIT

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

TEST RESULTS

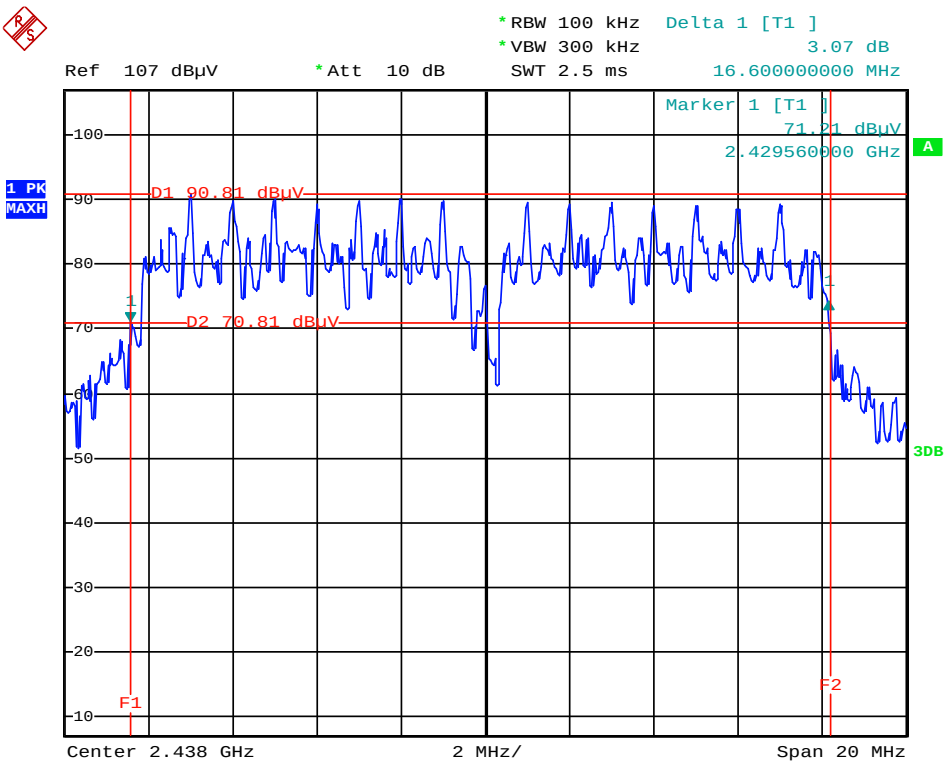
Operating Frequency	Limits(MHz)		Result
	Lower Frequency	Upper Frequency	
Bottom Channel	>2400	<2483.5	PASS
Middle Channel	>2400	<2483.5	PASS
Top Channel	>2400	<2483.5	PASS

Low Channel



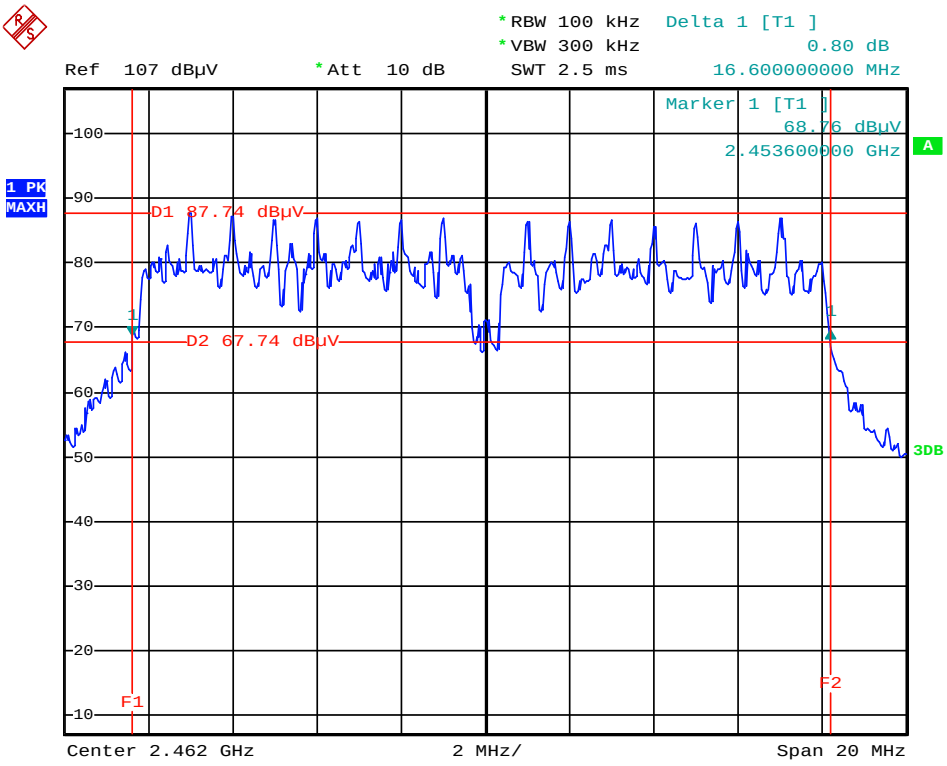
Date: 19.APR.2012 11:14:26

Mid Channel



Date: 19.APR.2012 11:16:47

High Channel



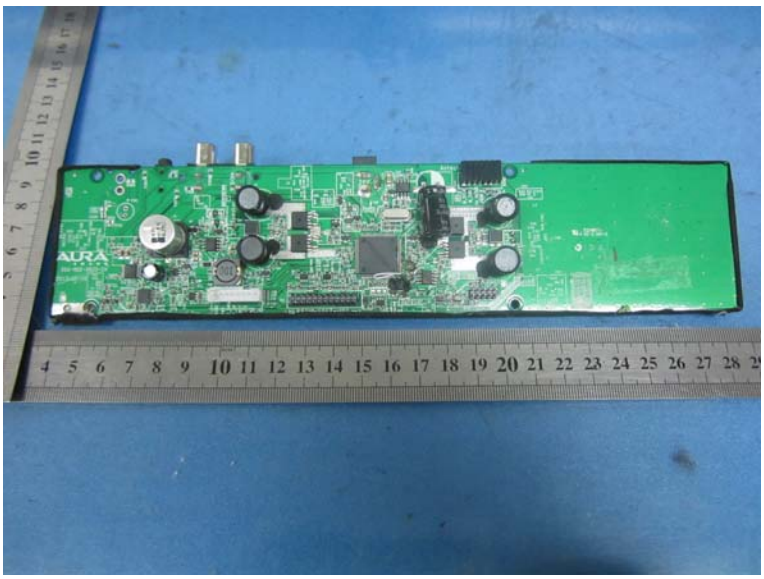
Date: 19.APR.2012 11:21:10

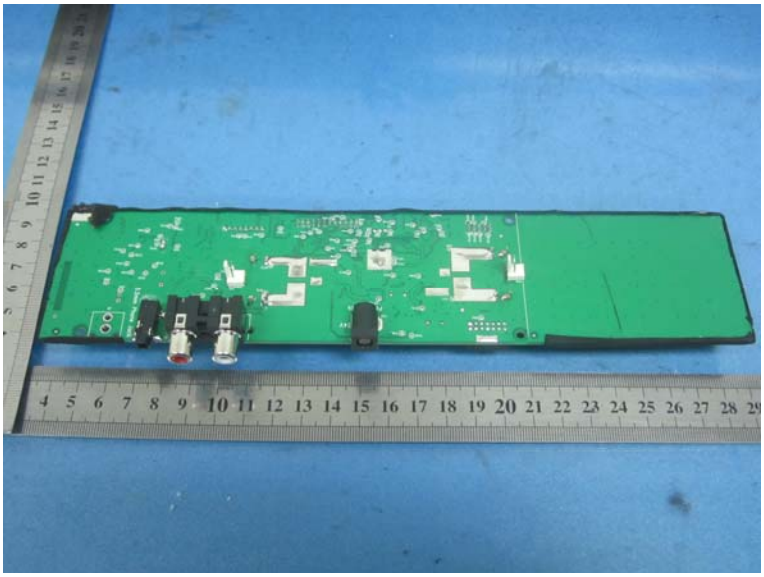
5. Test Setup Photos of the EUT

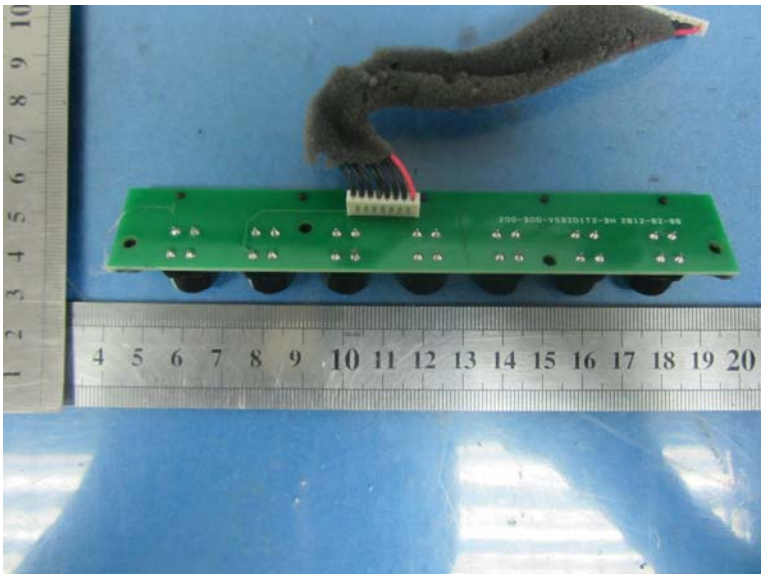
6. External and Internal Photos of the EUT

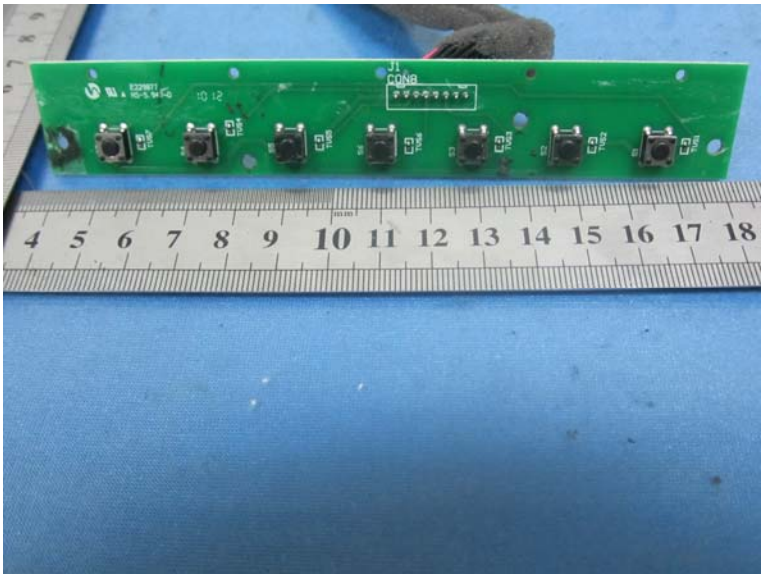
External Photos

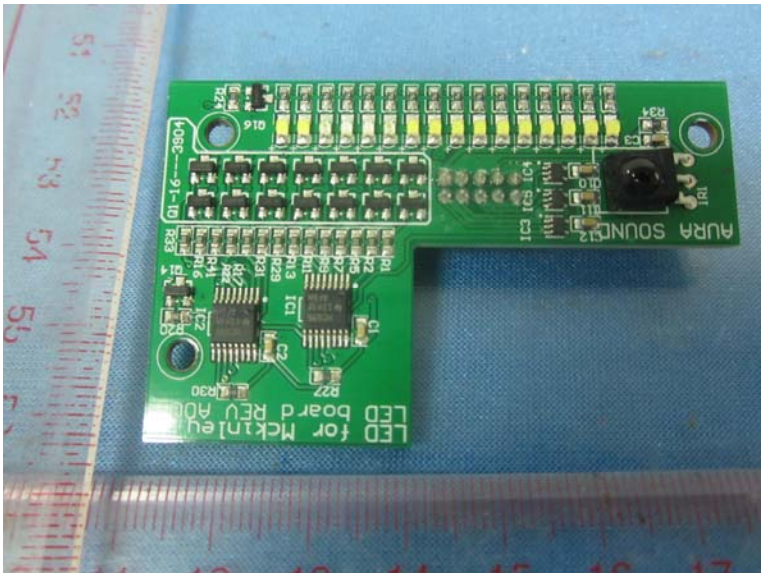
Internal Photos

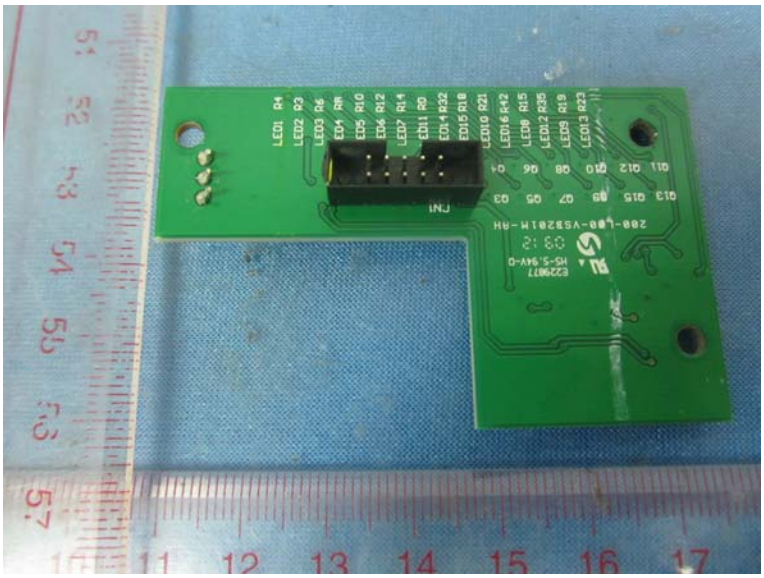


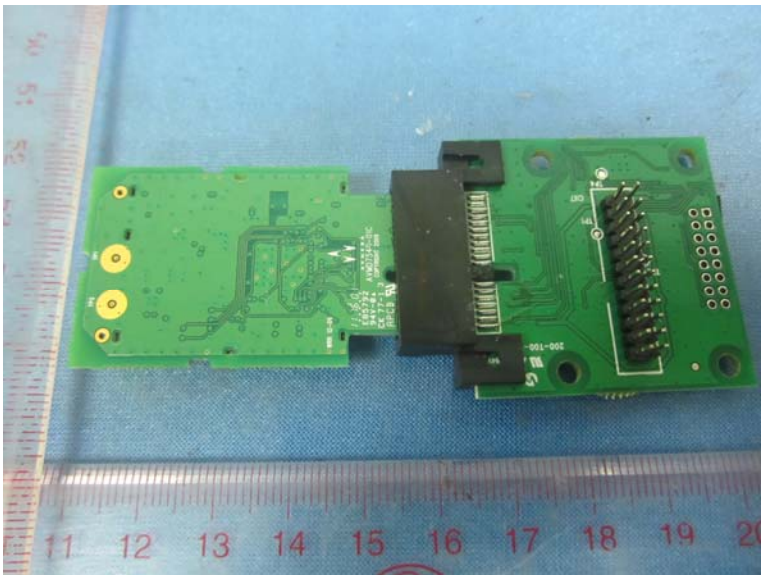


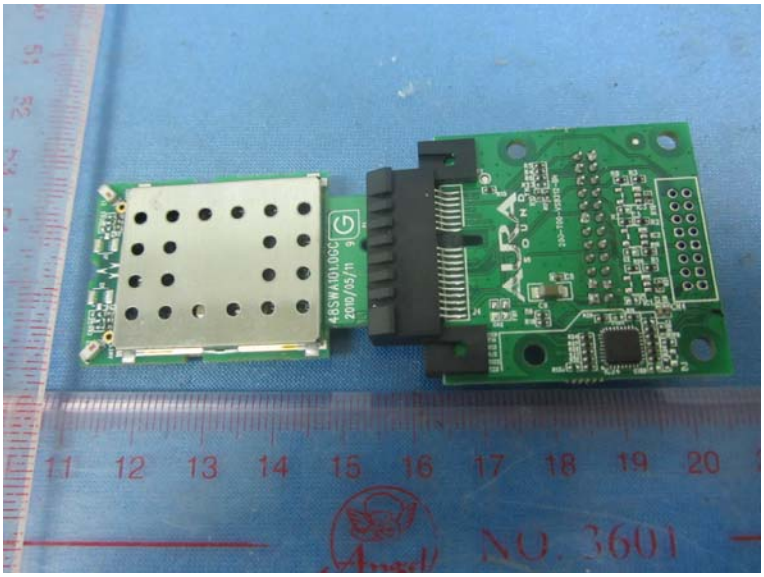


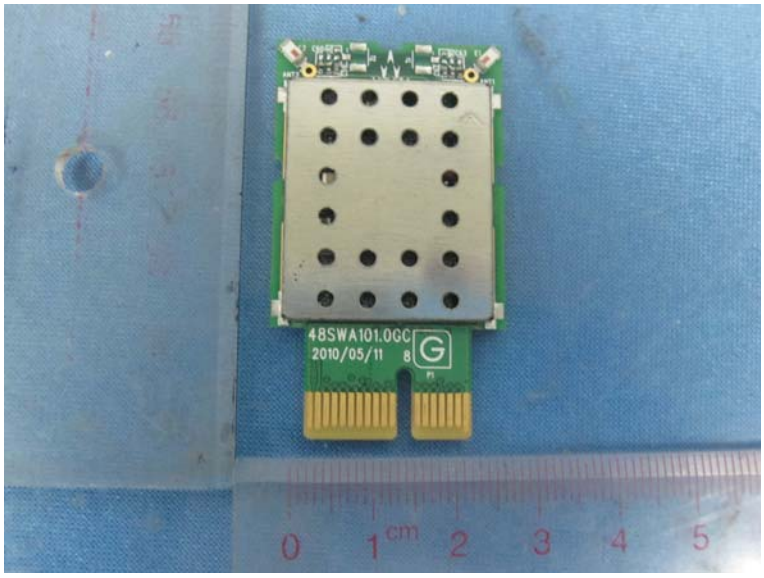


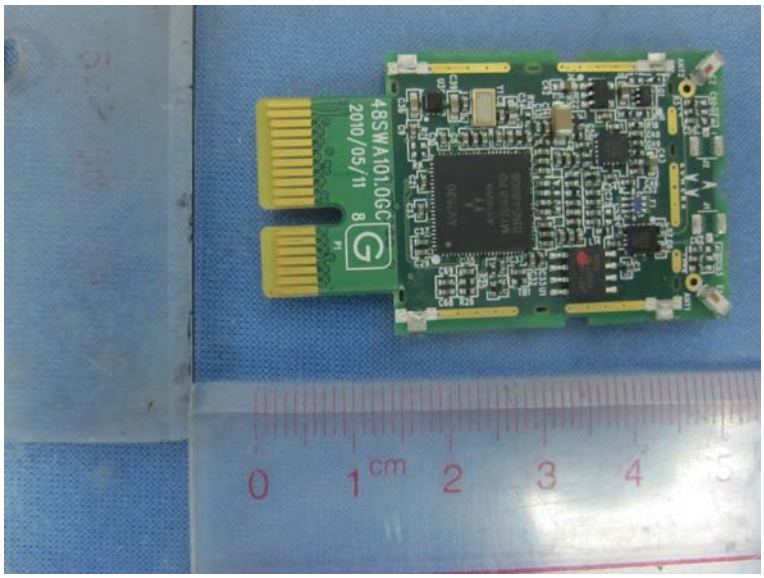

AURA SOUND
LED for Mckinley
LED board REV A0

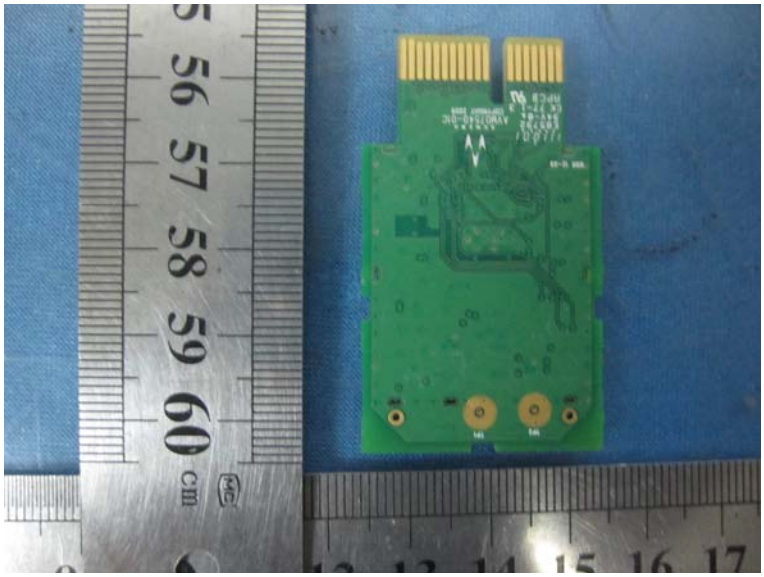





48SWA101.0GC
2010/05/11
AURA
11 12 13 14 15 16 17 18 19 20
NO. 3601


48SWA101.0GC
2010/05/11
0 1 cm 2 3 4 5


48SWA101.0GC
2010/05/11
0 1 cm 2 3 4 5



Adapter 1 photos

Adapter 2 photo

.....End of Report.....