SGS-CSTC Standards Technical Services（Shanghai） Co., Ltd.

588 West Jindu Road,Songjiang District,Shanghai,China

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ee.shanghai@sgs.com

FCC Part 15C TEST REPORT

Application No.:	SHEM1206000740RF
Applicant:	Hansong (Nanjing) Technology Ltd.
Equipment Under Test (EUT):	
NOTE: The following sample(s) submitted was/were identified on behalf of the client as	
EUT Name:	Wireless audio and amplifier system
Brand Name:	Sound Tube
Model No:	WLL-TX1
FCC ID:	XCO-HSWLLT
IC:	7756A-HSWLLT
Standards:	47 CFR FCC Part 15 Subpart C (Section 15.247):2011 RSS-210 Issue 8 (December 2010) RSS-Gen Issue 3 (December 2010)
Date of Receipt:	May. 27, 2012
Date of Test:	May. 28, 2012 to July 06, 2012
Date of Issue:	July. 31, 2012
Test Result :	**PASS ***

In the configuration tested, the EUT complied with the standards specified above.

E&E Section Head
SGS-CSTC(Shanghai) Co., Ltd.

E&E EMC Engineer
SGS-CSTC(Shanghai) Co., Ltd.

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Member of the SGS Group (Société Générale de Surveillance)

2 Test Summary

TEST ITEM	FCC REFERANCE	IC REFERANCE	Test Procedure	RESULT
Minimum 6dB Bandwidth	15.247(a)(2)	RSS-210 Issue 8 Annex 8	ANSI C63.10,2009 Clause 6.9	PASS
Maximum peak output power	15.247(b)	RSS-210 Issue 8 Annex 8	ANSI C63.10,2009 Clause 6.10.2	PASS
Power spectrum density	15.247(e)	RSS-210 Issue 8 Annex 8	ANSI C63.10,2009 Clause 6.11	PASS
Conducted Spurious Emission (30MHz to 25GHz)	Section 15.207 &15.247(d)	RSS-210 Issue 8 Annex 8.5	---	PASS
Radiated Spurious Emission (30MHz to 25GHz)	Section 15.209 &15.247(d)	RSS-210 Issue 8 Annex 8.5	ANSI C63.4,2003 Clause 6.12	PASS
Radiated Emission BandEdge	15.247(d)	---	ANSI C63.10,2009 Clause 6.9	PASS
Occupied bandwidth	---	RSS-Gen Issue 3 Clause 4.6.1	RSS-Gen Issue 3 Clause 4.6.1	Tested

The EUT contain two parts, one is transmitter (TX), other is receiver (RX).

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3 Contents

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4 General Information

4.1 Client Information

Applicant :	Hansong (Nanjing) Technology Ltd.
Applicant Address:	8th Kanping Road, Jiangning Economy and Technology Development Zone, Nanjing, 211106, China
Manufacturer:	Hansong (Nanjing) Technology Ltd.
Manufacturer Address:	8th Kanping Road, Jiangning Economy and Technology Development Zone, Nanjing, 211106, China

4.2 Details of E.U.T.

Technical Specifications:

EUT Name:	Wireless audio and amplifier system	
Brand Name:	Sound Tube	
Model No:	WLL-TX1	
Support Frequency Band:	2412-2464MHz / 3 Channels	
	Channel of Tranmitter	Frequency(MHz)
	Lowest	2412
	Middle	2438
	Highest	2464
Modulation Type:	QPSK	
Antenna Type:	Double PIFA antenna Remark: the two antennas is not working at the same time. The antennas define like below figure.	
Antenna Gain:	2.0dBi	

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Power Supply:

Rated Input:	TX: 5VDC 1.2A RX: 32VDC 3.75A		
Adapter:	Manufacturer:	TX: Click RX: N/A	
	Model No.:	TX: CPS008050120U RX: FY3203750	
	Rated Input:	TX: AC 100V-240V 50-60Hz RX: AC 100V-240V 50-60Hz	
	Rated Output:	TX: 5.0VDC 1.2A RX: 32VDC 3.75A	
	Cable length:	AC port:	TX:N/A(2 wires) RX:120cm(3 wires)
		DC port:	TX:150cm RX: 120cm

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4.3 Other Information Requested by the Customer

None.

4.4 Standards Applicable for Testing

The standard used were FCC PART 15 Subpart C: 2011, ANSI C63.10: 2009. RSS-210 Issue 8, RSS-Gen Issue 3.

4.5 Test Location

Tests were performed at:
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

4.6 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2014-07-26.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2015-02-22.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2014-09-20.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.

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5 Test Instruments

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2012-03-15	2013-03-14
2	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2012-03-15	2013-03-14
3	Horn Antenna	Rohde & Schwarz	HF906	100284	2012-03-15	2013-03-14
4	ANTENNA	SCHWARZBECK	VULB9168	9168-313	2012-03-15	2013-03-14
5	Ultra broadband antenna	Rohde & Schwarz	HL562	100227	2012-03-15	2013-03-14
4	Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 373	2012-03-15	2013-03-14
7	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co;Ltd	BY－2009P	--	2011-10-15	2012-10-14
8	CLAMP METER	FLUKE	316	86080010	2012-03-15	2013-03-14
9	Thermo-Hygrometer	ZHICHEN	ZC1-2	01050033	2012-01-16	2013-01-14
10	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT1800.0/ 2000.0-0.2/40-5SSK	11	2012-03-15	2013-03-14
11	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT800.0/8 80.0-0.2/40-5SSK	9	2012-03-15	2013-03-14
12	High pass Filter	FSCW	HP 12/2800-5AA2	19A45-02	2012-04-07	2013-04-06
13	Low nosie amplifier	TESEQ	LNA6900	70133	2012-04-07	2013-04-06
14	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2012-04-13	2013-04-12

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15	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2012-03-15	2013-03-14

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6 Test Procedure & Measurement Data

6.1 E.U.T. Operation

Input voltage: TX: 5VDC 1.2A
RX: 32VDC 3.75A

Operating Environment:

Temperature: 20.0 -25.0 °C

Humidity: 35-75 % RH

Atmospheric Pressure: 992 -1020 mbar

EUT Operation: The EUT has been tested under operating condition.

Test program was used to control the EUT for staying in continuous transmitting mode is programmed.

6.2 6dB Bandwidth

Test Requirement: FCC Part15 247(a)(2)

Test date: July. 28.2012

Standard Applicable: According to section 15.247(a)(2),and Systems using digital modulationg techniques may operate in the 902-928MHz,2400-2483.5MHz,and 5725-5850MHz bands.The minimum 6dB bandwidth shall be at least 500KHz.

Measurement Procedure:
1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW=300KHz, VBW =3* RBW, Span=30/ 50MHz, Sweep=auto
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat above procedures until all frequency measured were complete.

Measurement Result:

For Antenna A:

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	9.84	500	PASS
MID	2438	9.76	500	PASS
HIGH	2464	9.44	500	PASS

For Antenna B:

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	9.88	500	PASS
MID	2438	9.60	500	PASS
HIGH	2464	9.76	500	PASS

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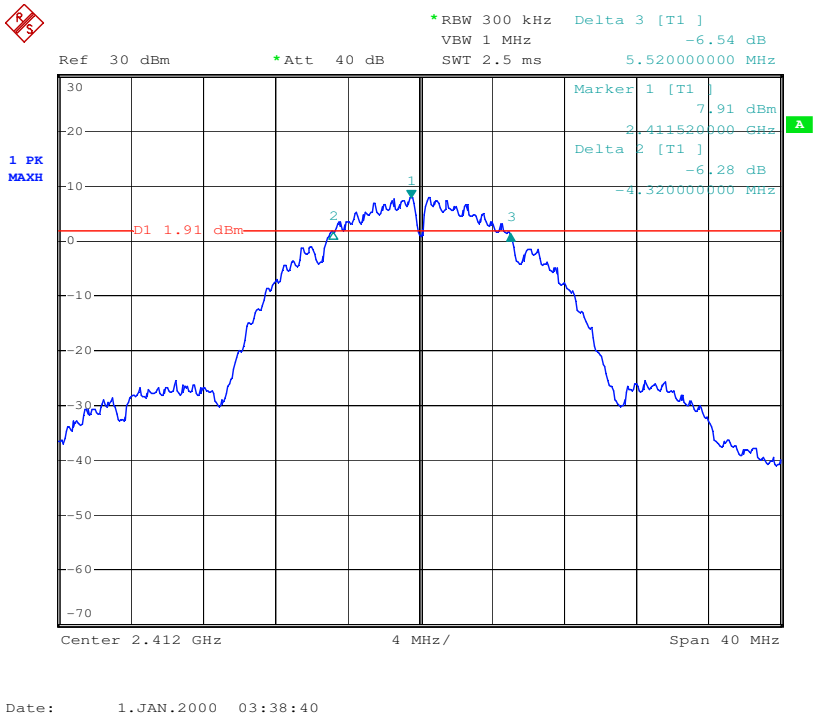
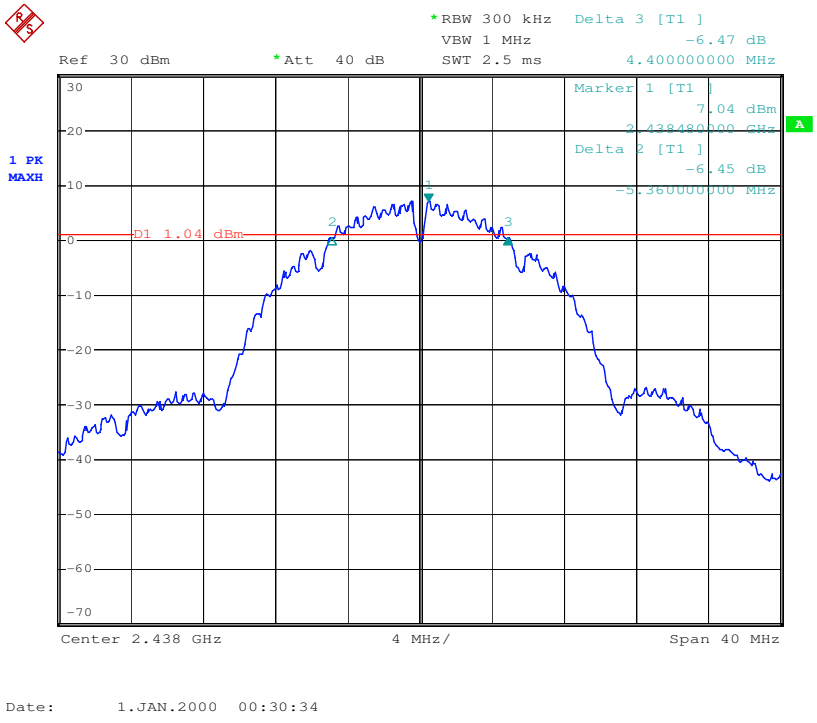
6dB Band Width Test Data CH 2412MHz: Antenna A



6dB Band Width Test Data CH 2438MHz: Antenna A



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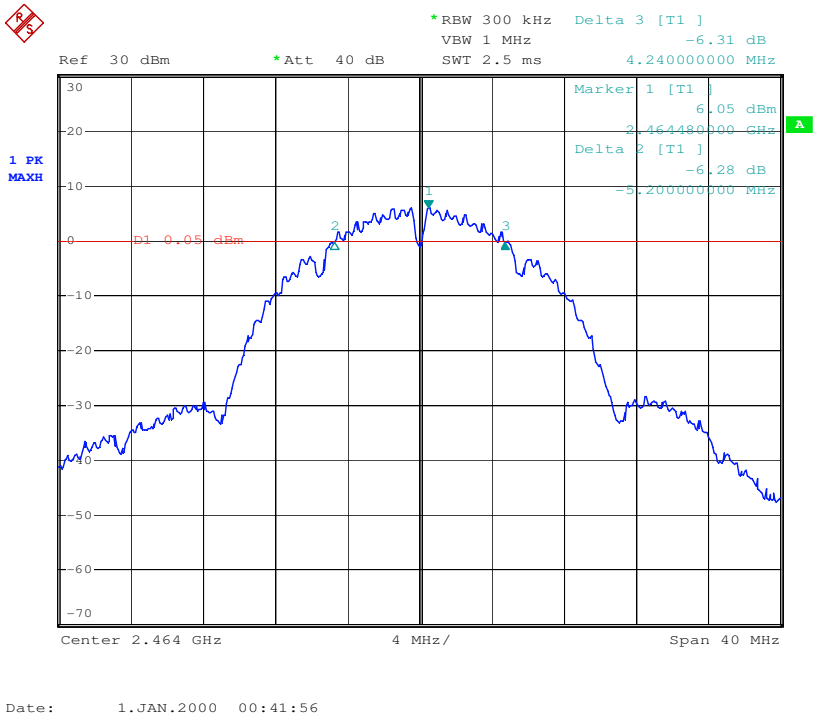
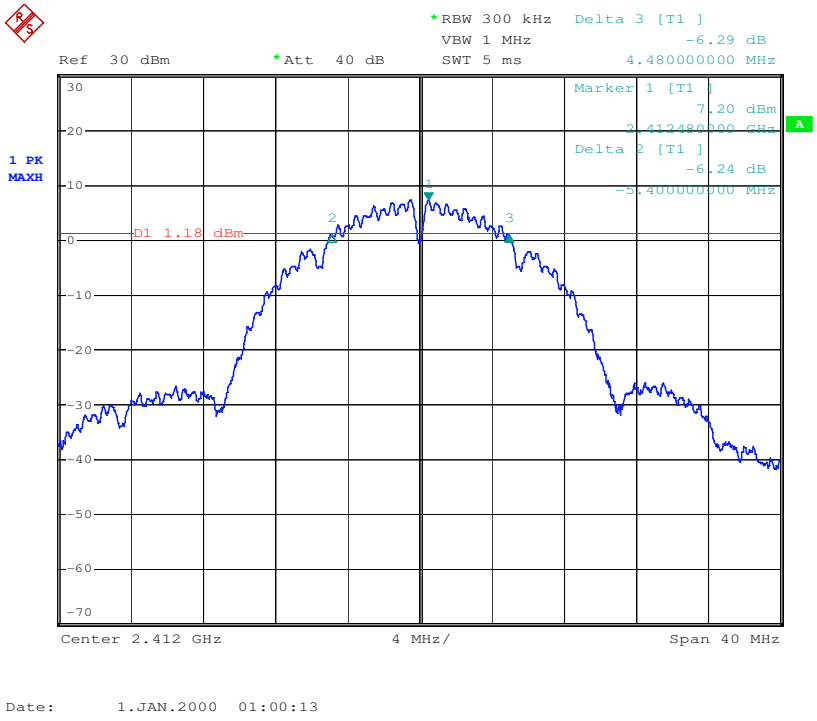
6dB Band Width Test Data CH 2464MHz: Antenna A



6dB Band Width Test Data CH 2412MHz: Antenna B



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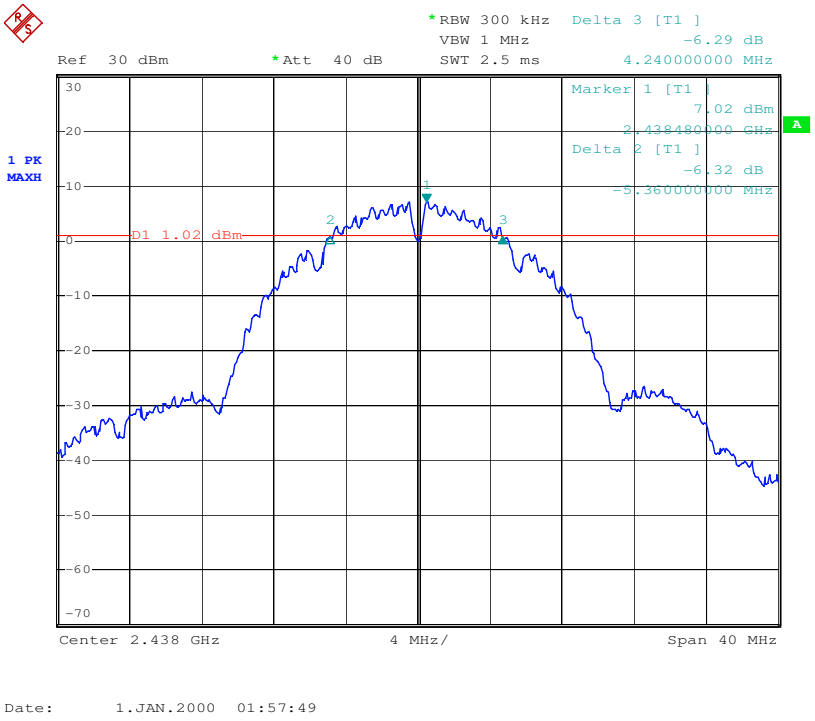
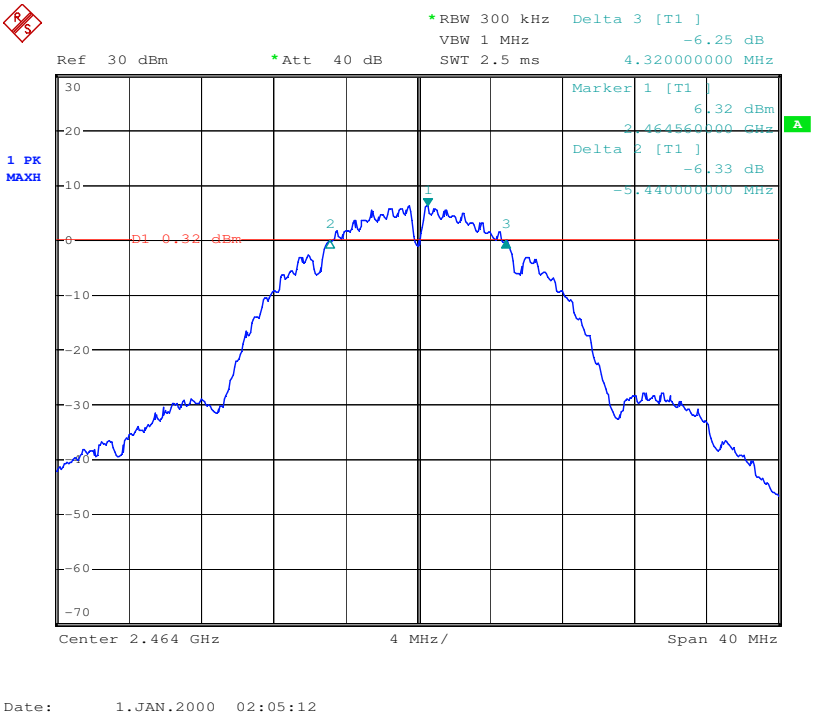
6dB Band Width Test Data CH 2438MHz: Antenna B



6dB Band Width Test Data CH 2464MHz: Antenna B



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6.3 Peak Output Power Measurement

Test Requirement: FCC Part 15 15.247(a)(2),(b)

Test date July. 28, 2012

Standard Applicable: According to section 15.247(a)(2),(b)
(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Measuremet Produre

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF calbe from the antenna port to the spectrum.
3. Set the occur band to the entire emission 26dB bandwitdth of the signal.
4. Record the max.channel power reading

   Repeat above procedures until all the frequency measured were complete.

Measurement Result:

For Antenna A:

CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Output Peak Power (mW)	Peak Power Limit (dBm)	Result
LOW	2412	19.79	0.5	20.29	106.91	30	PASS
MID	2438	18.75	0.5	19.25	84.14	30	PASS
HIGH	2464	18.14	0.5	18.64	73.11	30	PASS

For Antenna B:

CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Output Peak Power (mW)	Peak Power Limit (dBm)	Result
LOW	2412	19.17	0.5	19.67	92.68	30	PASS
MID	2438	18.93	0.5	19.43	87.70	30	PASS
HIGH	2464	18.27	0.5	18.77	75.34	30	PASS

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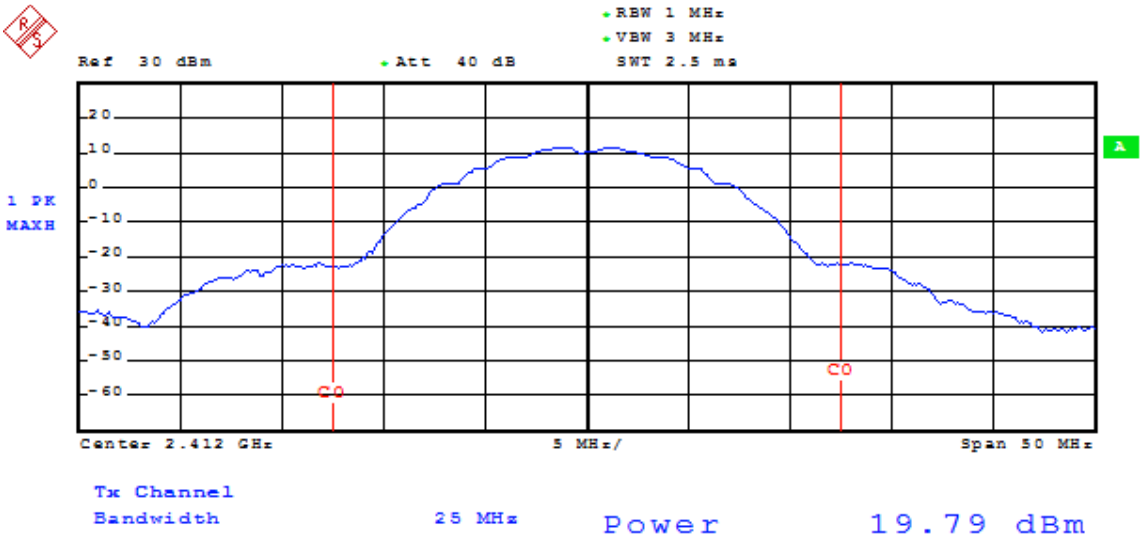
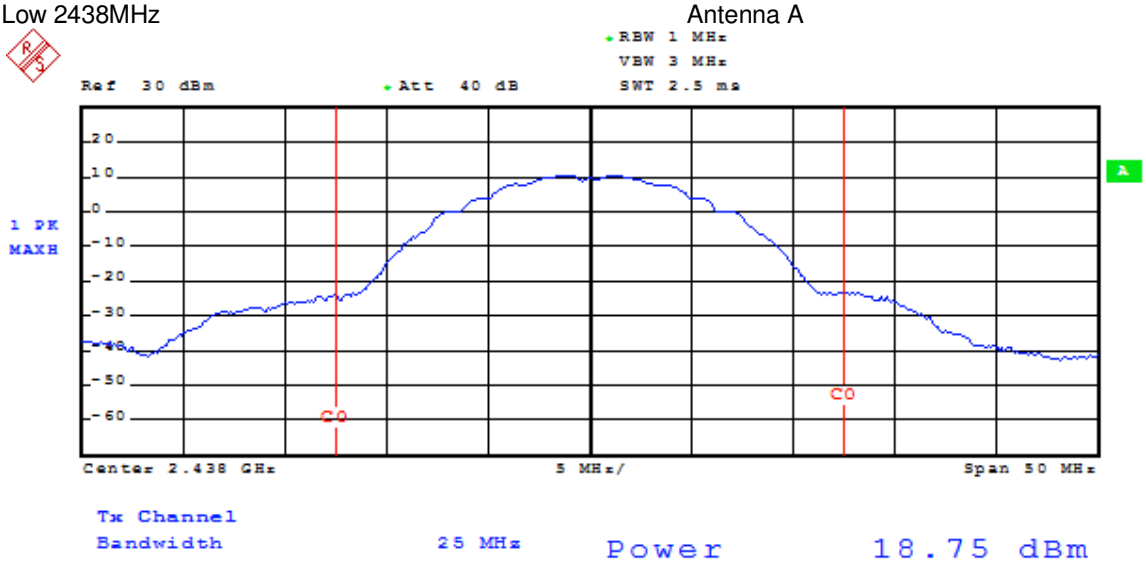
CH Low 2412MHz Antenna A



CH Low 2438MHz Antenna A



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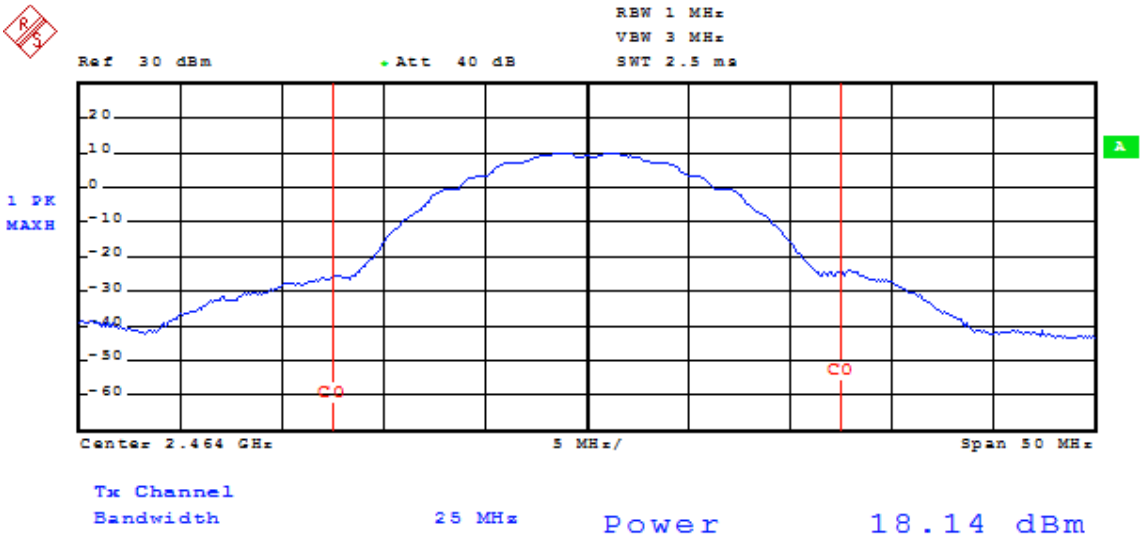
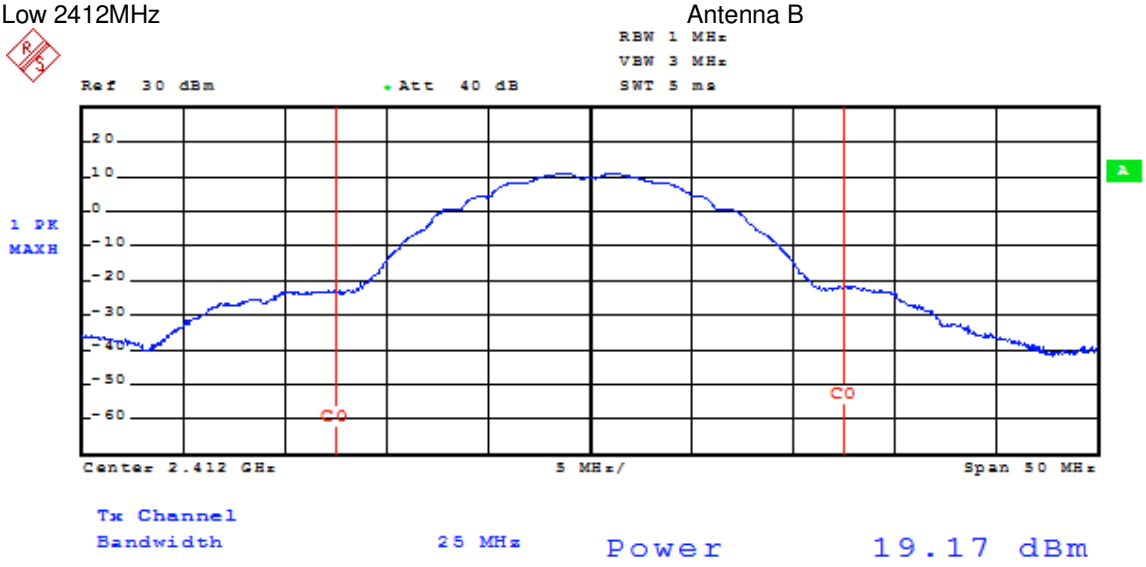
CH Low 2464MHz Antenna A



CH Low 2412MHz Antenna B



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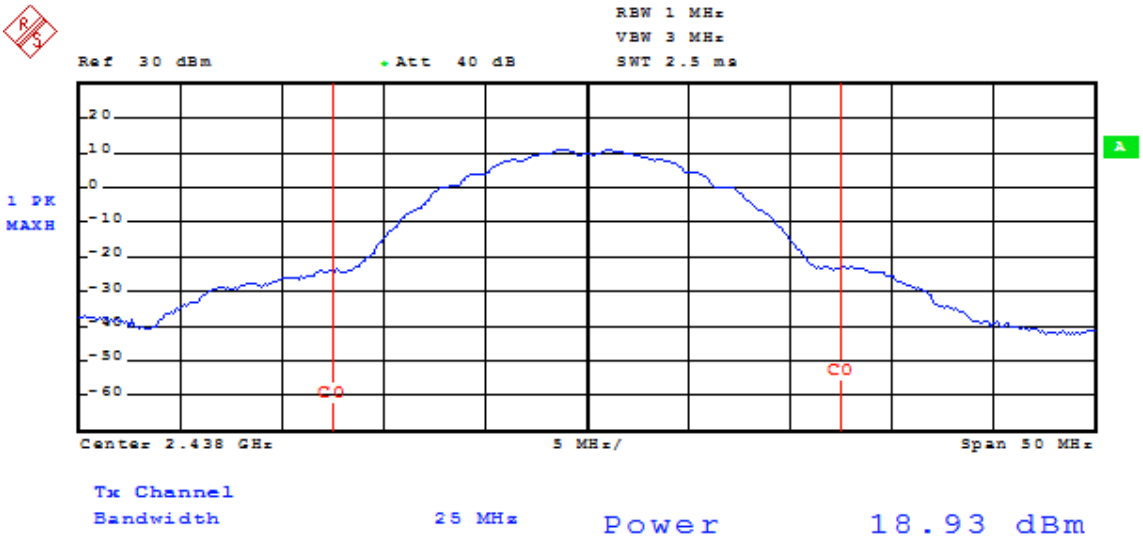
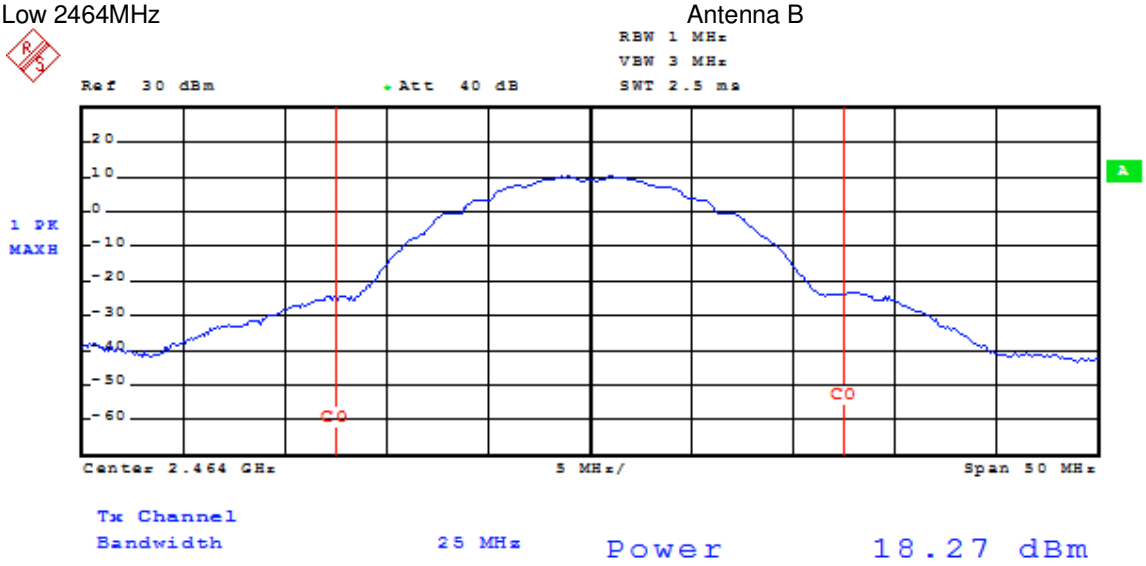
CH Low 2438MHz Antenna B



CH Low 2464MHz Antenna B



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6.4 Peak Power Spectral Density

Test Requirement: FCC Part15 247(e)

Test date: July. 30, 2012

Standard Applicable: According to section 15.247(e),For digitally modulated systems,the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dB in any 3KHz band during any time in terval of continuous transmission.This power spectral density shall be determined in accordance with the provisions of paragraph(b) of this section.The same method of determining the conducted output power shall be used to determine the powr spectral density.

Measurement Procedure: The EUT was tested according ANSI C63.10,2009 Clause 6.11 for compliance to FCC 47CFR 15.247 requiremnts.

Measurement Result:

For Antenna A

CH	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	RF Power Density (dBm)	Limit (dBm)	Result
LOW	2412.69	2.03	0.5	2.53	8	PASS
MID	2438.69	1.09	0.5	1.59	8	PASS
HIGH	2464.69	0.48	0.5	0.98	8	PASS

For Antenna B

CH	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	RF Power Density (dBm)	Limit (dBm)	Result
LOW	2412.69	1.51	0.5	2.01	8	PASS
MID	2438.69	1.13	0.5	1.63	8	PASS
HIGH	2464.69	0.30	0.5	0.80	8	PASS

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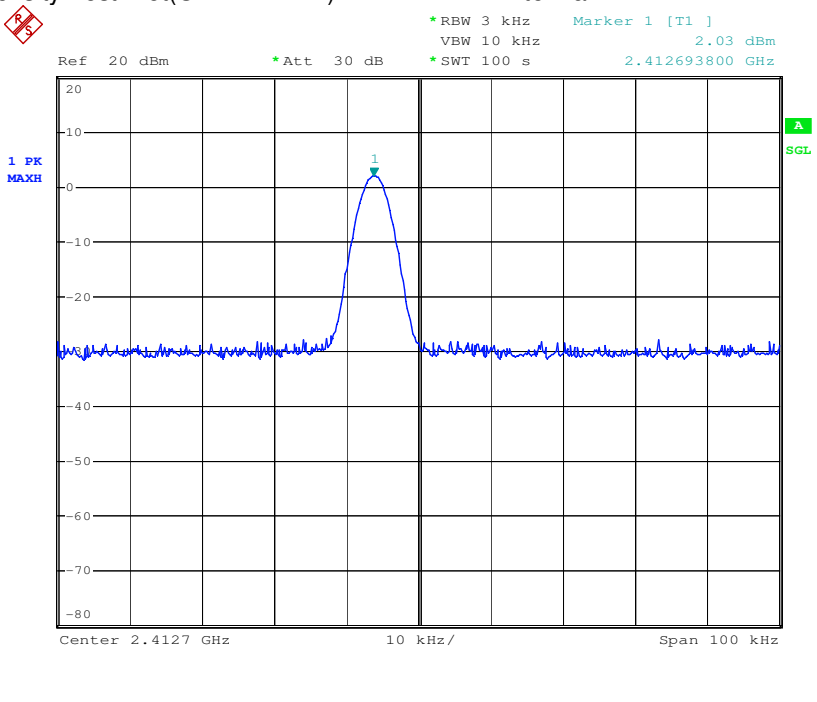
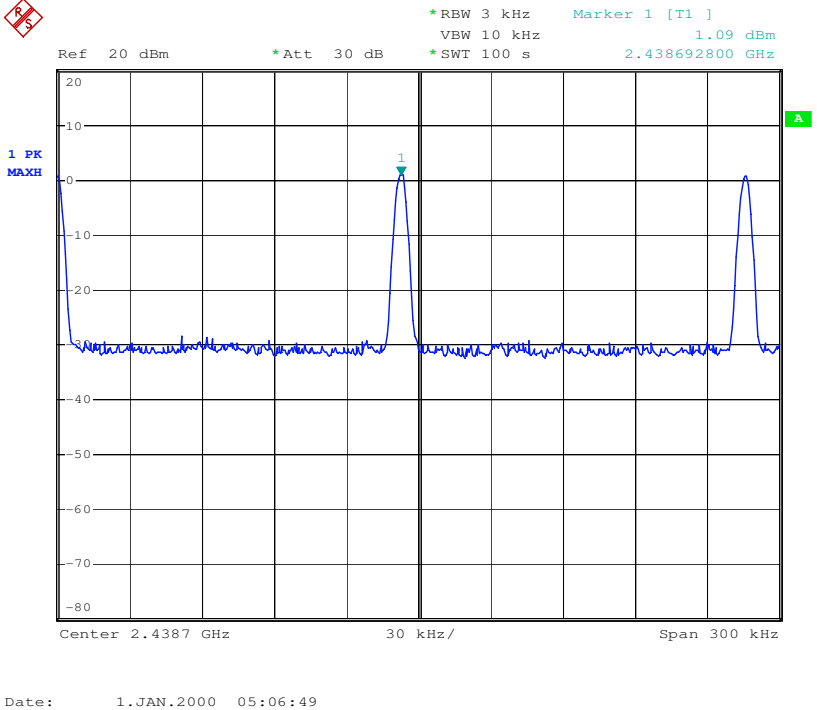
Power Spectral Density Test Plot(CH 2412MHz) Antenna A



Power Spectral Density Test Plot(CH 2438MHz) Antenna A



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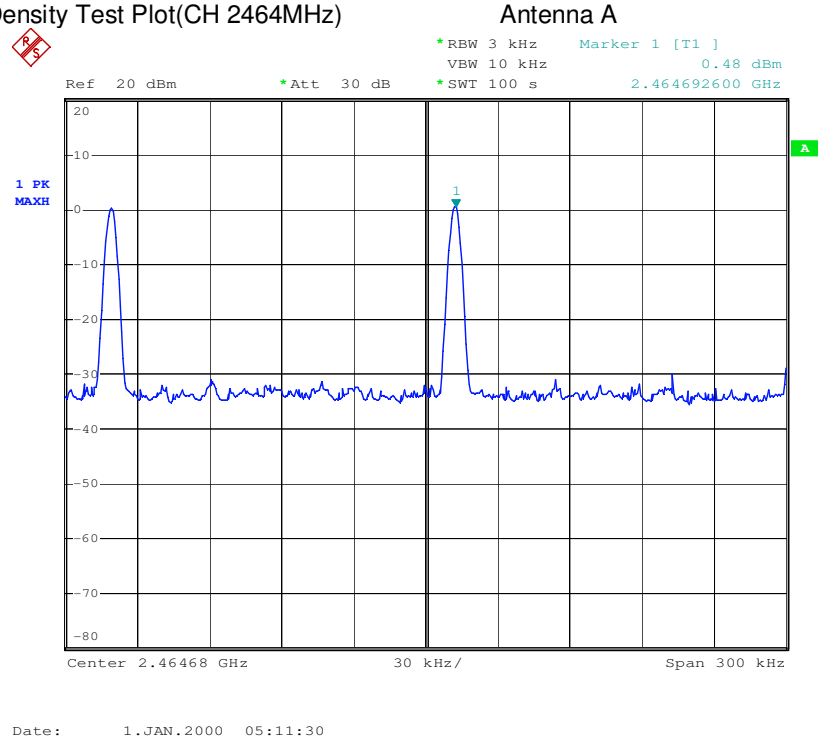
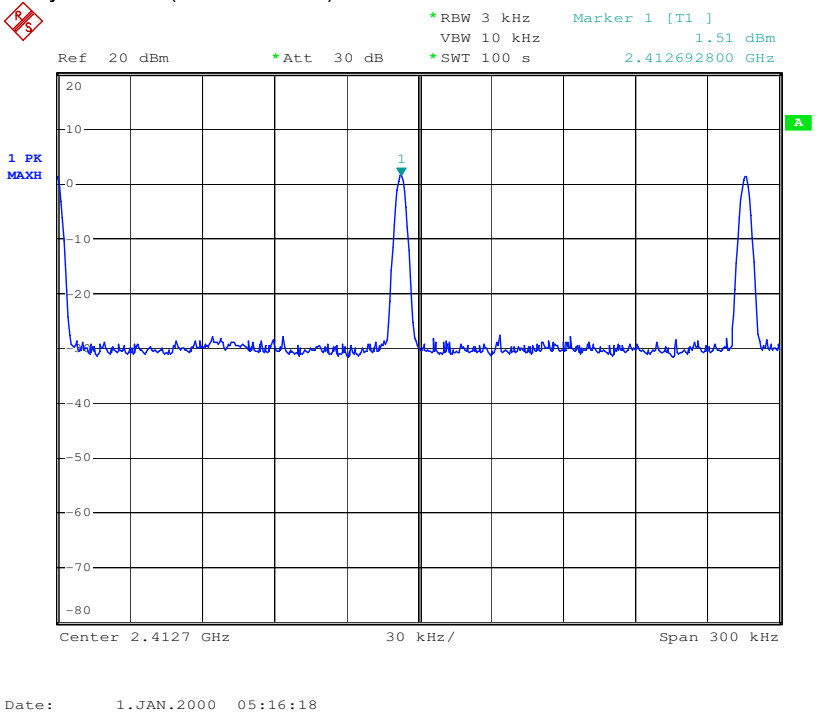
Power Spectral Density Test Plot(CH 2464MHz) Antenna A



Power Spectral Density Test Plot(CH 2412MHz) Antenna B



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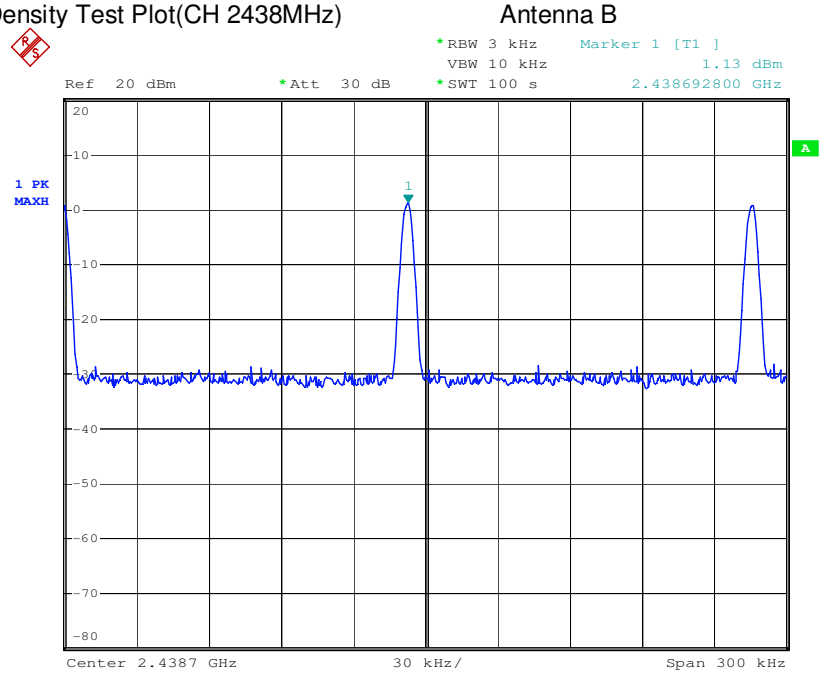
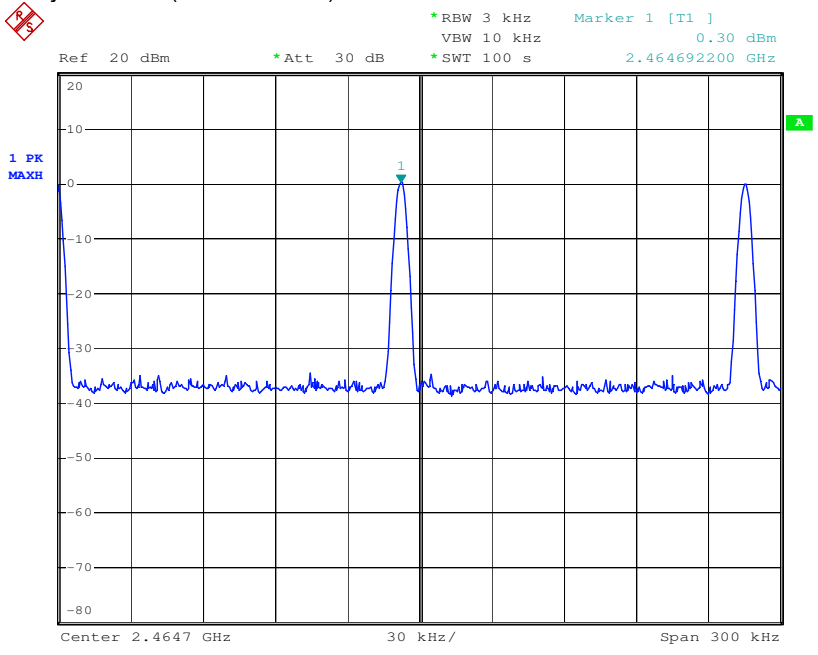
Power Spectral Density Test Plot(CH 2438MHz) Antenna B



Power Spectral Density Test Plot(CH 2464MHz) Antenna B



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6.5 Conducted Spurious Emission Test

Test Requirement: FCC Part15 247(c)

Test date: July. 28, 2012

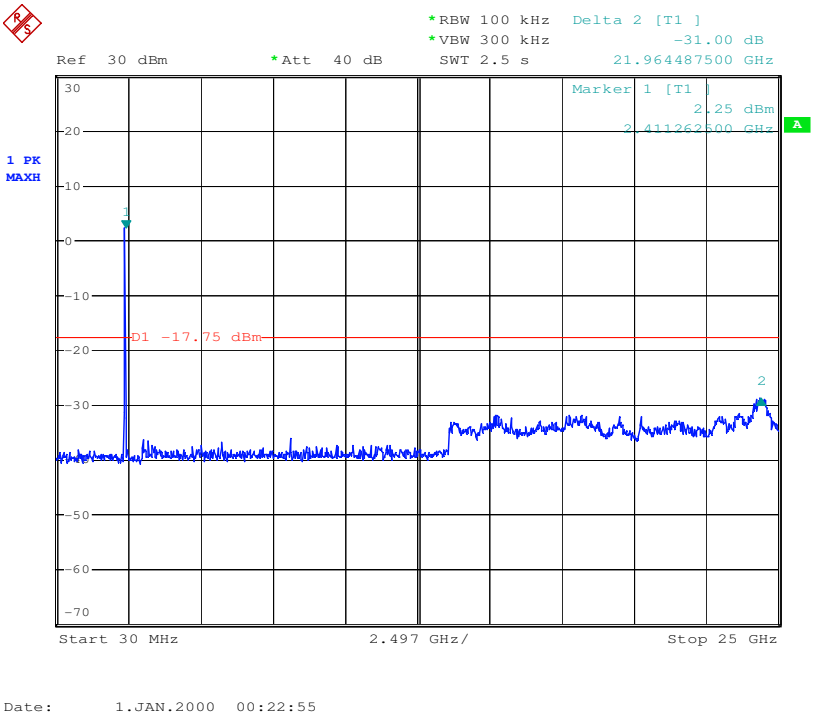
Standard Applicable: According to section 15.247(c),in any 100KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating,the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power,In addition,radiated emissions which fall in the restricted bands,as defined in section 15.205(a),must also comply with the radiated emission limits specified in 15.209(a).

Measurement Procedure:
1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW=100KHz VBW=300KHz, Sweep = auto
6. Repeat above procedures until all frequency measured were complete.

Measurement Result:

Conducted spurious Emission Measurement Result For Antenna A

CH Low 30MHz-25GHz



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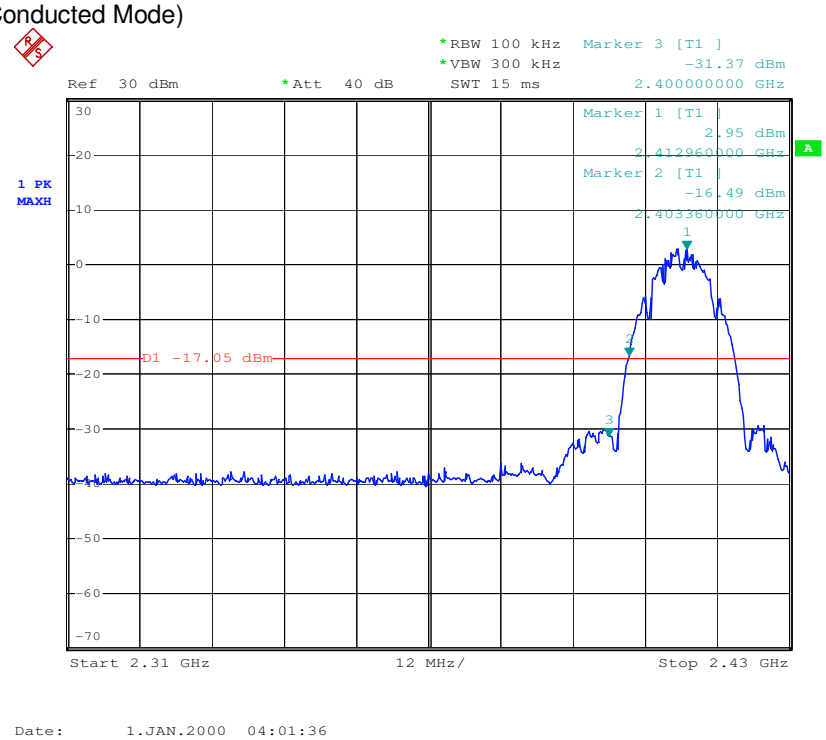
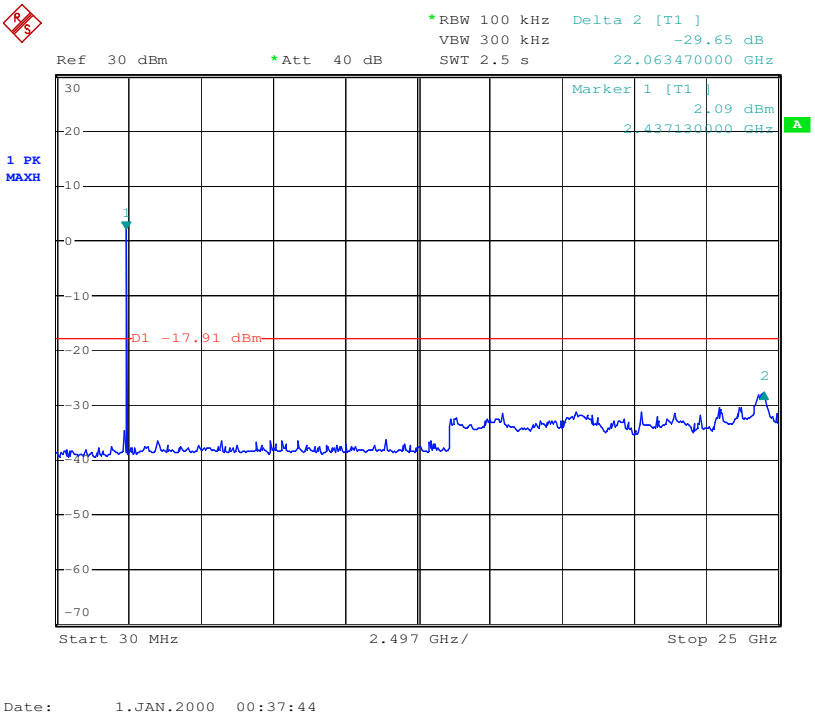
Band Edge (Conducted Mode)



Ch Mid 30MHz-25GHz



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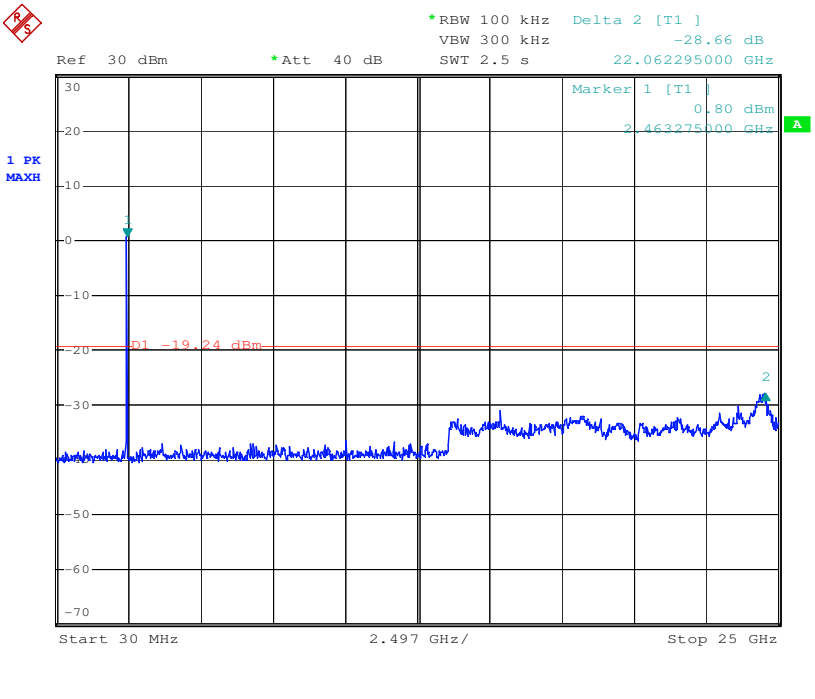
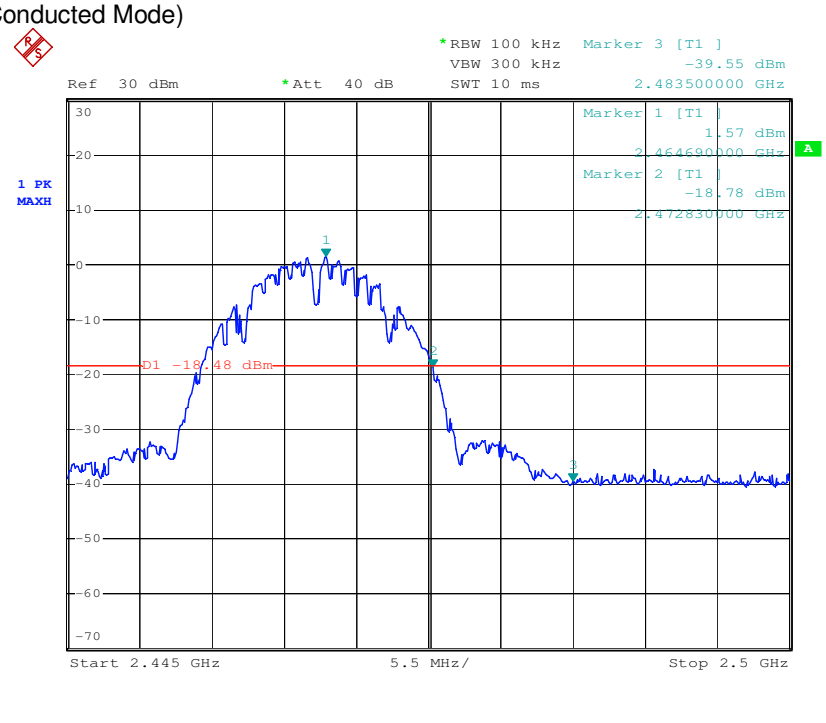
Ch High 30MHz-25GHz



Band Edge (Conducted Mode)



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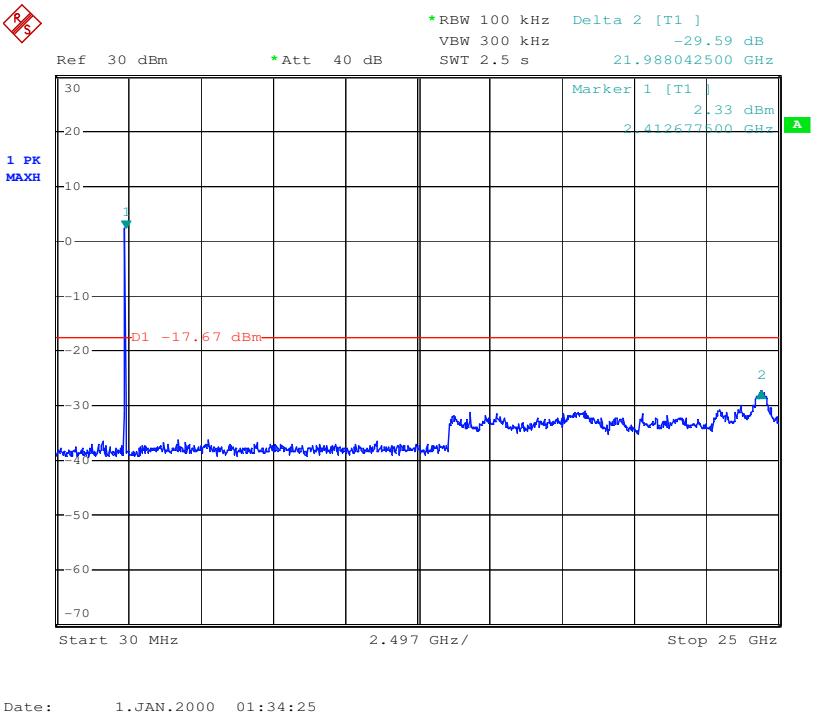
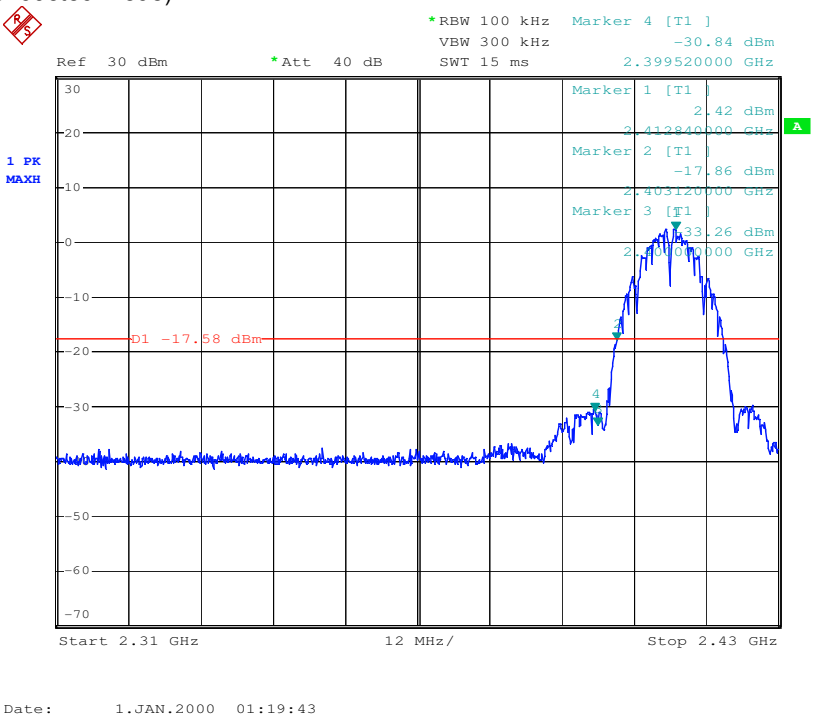
Conducted spurious Emission Measurement Result For Antenna B

CH Low 30MHz-25GHz



Band Edge (Conducted Mode)



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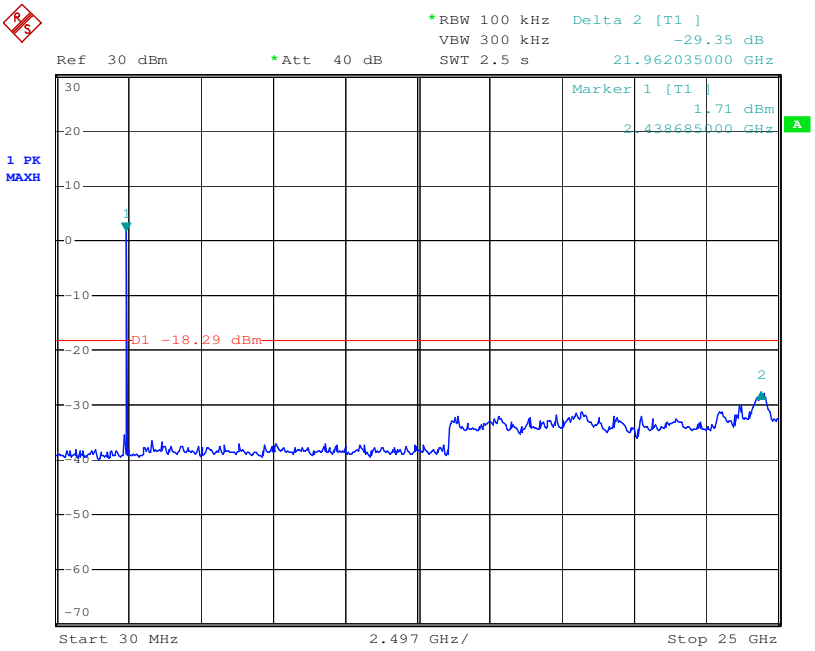
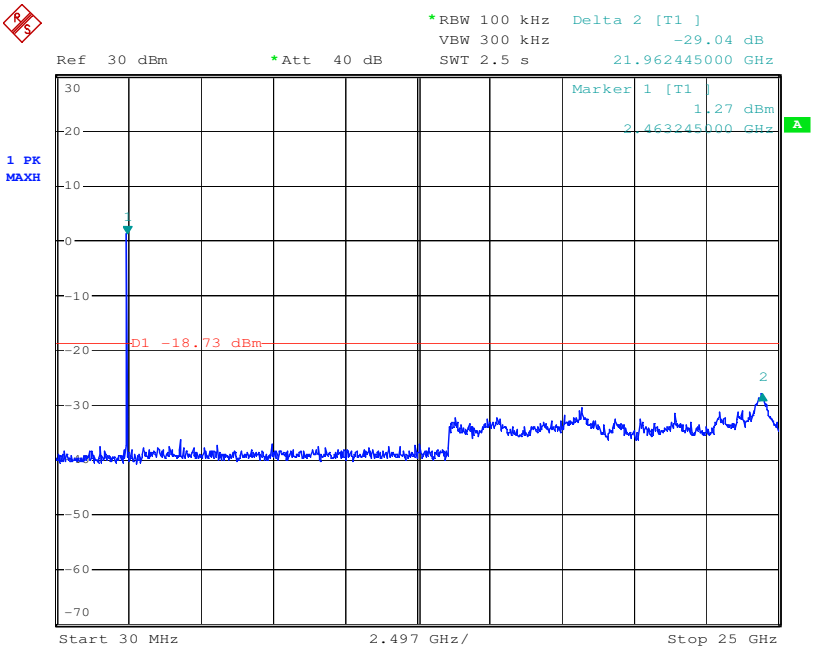
Ch Mid 30MHz-25GHz



Ch High 30MHz-25GHz



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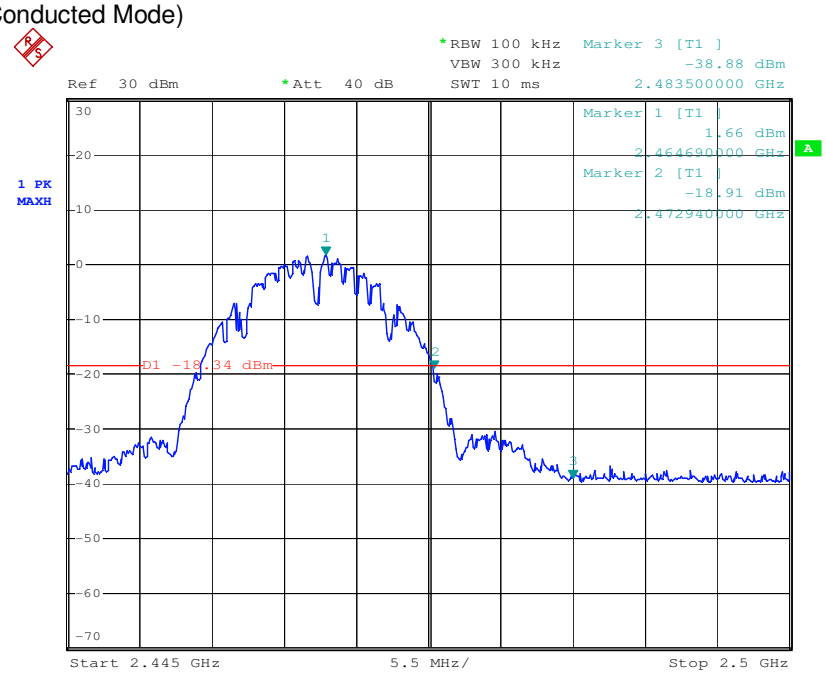
Band Edge (Conducted Mode)



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6.6 Spurious Radiated Emission Test

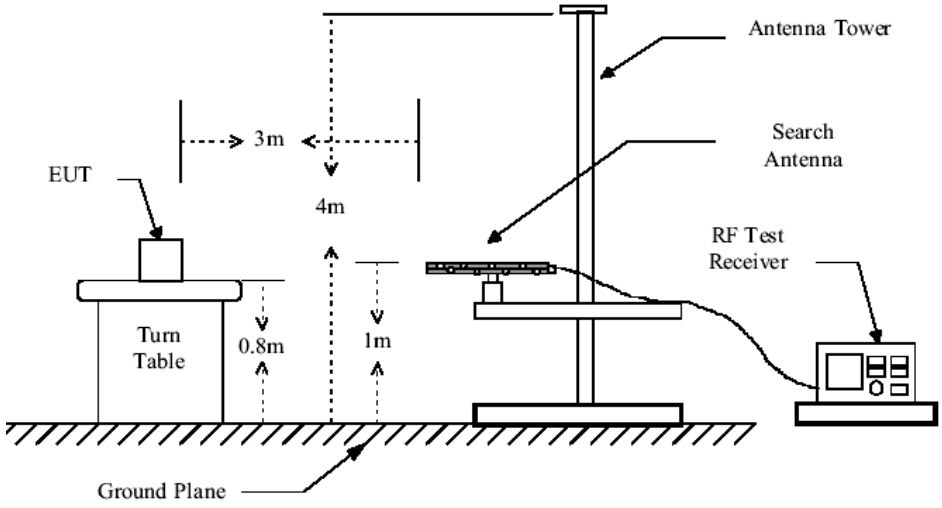
Test Requirement: FCC Part15 247(d) and FCC Part 15.209

Test date: June.13, 2012

Standard Applicable: According to section 15.247(c),all other emissions outside these bands shall not exceed the general radiated emission limits specified in section15.209(a).And according to section 15.33(a)(1),for an intentional radiator operates below 10GHz,the frequency range of measurements:to the tenth harmonic of the highest fundamental frequency or to 40GHz,which is lower.

Measurement Procedure:
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Pre-test the Horizontal, Vertical and other status towards to the test antenna with antenna A and antenna B. To find the worst status.
3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
Test instrumentation resolution bandwidth 120 kHz and Quasi-Peak detector applies (30 MHz - 1000 MHz). 1MHz resolution bandwidth and Peak detector apply (1000 MHz – 25GHz)
Above 1GHz
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. Repeat above procedures until all frequency measured were complete.

Radiated Test Set-up:
Radiated Emission Test Set-up,Frequency Below 1000MHz



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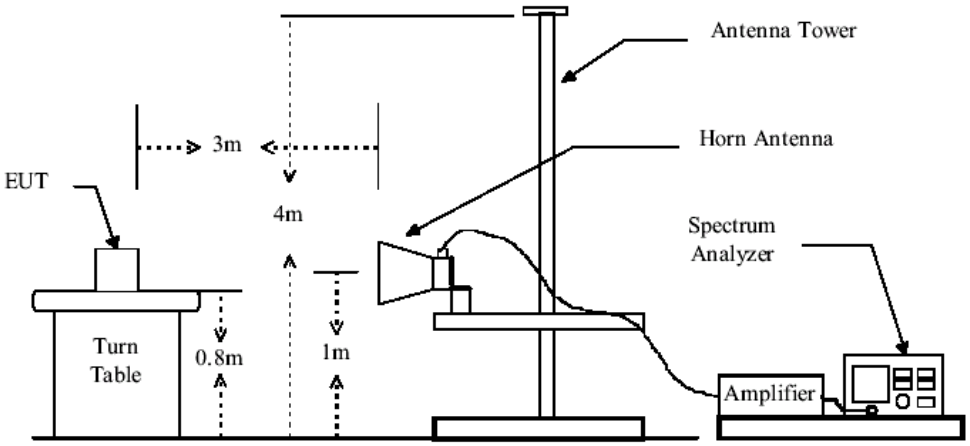
Radiated Emission Test Set-up Frequency Over 1GHz



Low nosie amplifier was used below 1GHz,High pass Filter was used above 1GHz.

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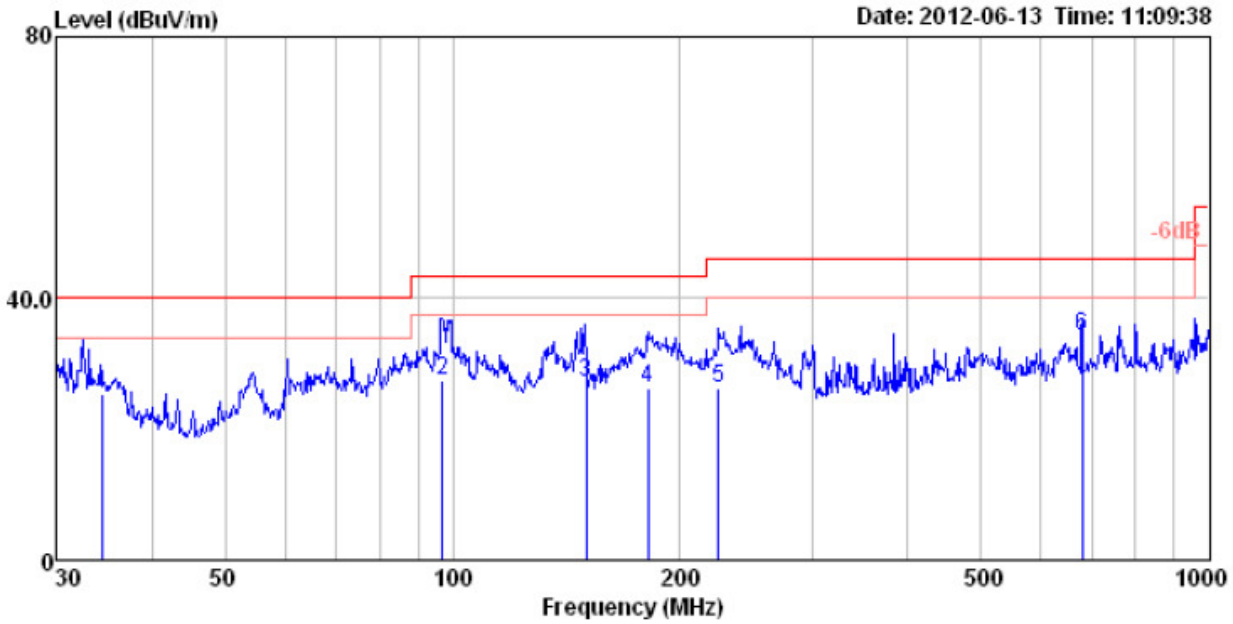
Tests results:

From the pre-test the worst status is the EUT Horizontal towards to the antenna with antenna A. Below is the worst test results.

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement Antenna:Horizontal



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	34.52	37.14	12.37	0.48	24.70	25.29	40.00	-14.71	QP
2	96.83	42.30	8.98	1.01	24.70	27.59	43.50	-15.91	QP
3	150.02	37.99	12.70	1.27	24.70	27.26	43.50	-16.24	QP
4	181.30	38.67	10.92	1.42	24.60	26.41	43.50	-17.09	QP
5	224.58	40.01	9.19	1.62	24.60	26.22	46.00	-19.78	QP
6 q	680.31	35.23	20.16	3.08	24.10	34.37	46.00	-11.63	QP

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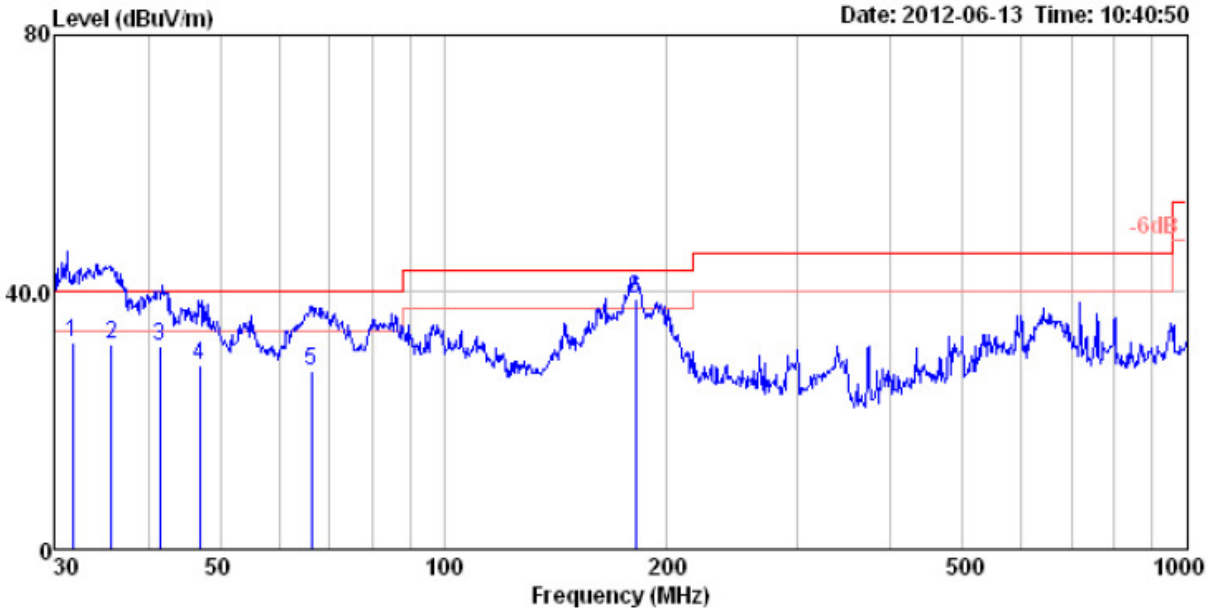
30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement Antenna:Vertical



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	31.68	44.10	12.20	0.44	24.70	32.04	40.00	-7.96	QP
2	35.68	43.60	12.52	0.50	24.70	31.92	40.00	-8.08	QP
3	41.45	42.35	13.24	0.57	24.70	31.46	40.00	-8.54	QP
4	46.87	39.67	12.99	0.62	24.70	28.58	40.00	-11.42	QP
5	66.30	40.38	11.32	0.77	24.70	27.77	40.00	-12.23	QP
6 q	181.30	51.29	10.92	1.42	24.60	39.03	43.50	-4.47	QP

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Operation Mode: TX Low Mid CH 2412MHz

1~25 GHz Harmonics & Spurious Emissions. **Peak Measurement:**

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	AV Limit (dBμV/m)	Antenna polarization
4824.0	31.0	1.2	0.5	43.4	57.48	46.78	54	Vertical
7236.0	35.5	1.7	0.6	43.1	46.38	41.08	54	Vertical
9648.0	37.7	2.1	0.9	43.3	48.85	46.25	54	Vertical
4824.0	31.0	1.2	0.5	43.4	55.22	44.52	54	Horizontal
7236.0	35.5	1.7	0.6	43.1	46.44	41.14	54	Horizontal
9648.0	37.7	2.1	0.9	43.3	44.43	41.83	54	Horizontal

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

Operation Mode: TX Mid CH 2438MHz

1~25 GHz Harmonics & Spurious Emissions. **Peak Measurement:**

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	AV Limit (dBμV/m)	Antenna polarization
4876.0	31.1	1.3	0.5	43.5	52.36	41.76	54	Vertical
7314.0	35.7	1.7	0.6	43.1	46.76	41.66	54	Vertical
9752.0	37.8	2.1	0.9	43.0	47.26	45.06	54	Vertical
4876.0	31.1	1.3	0.5	43.5	56.27	45.67	54	Horizontal
7314.0	35.7	1.7	0.6	43.1	46.73	41.63	54	Horizontal
9752.0	37.8	2.1	0.9	43.0	48.45	46.25	54	Horizontal

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

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Operation Mode:TX High CH 2464MHz

1~25 GHz Harmonics & Spurious Emissions. **Peak Measurement:**

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Filter (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	AV Limit (dBμV/m)	Antenna polarization
4928.0	31.4	1.4	0.5	43.9	53.06	42.46	54	Vertical
7392.0	35.8	1.7	0.6	43.1	46.57	41.57	54	Vertical
9856.0	38.0	2.2	0.9	42.8	46.22	44.52	54	Vertical
4928.0	31.4	1.4	0.5	43.9	56.92	46.32	54	Horizontal
7392.0	35.8	1.7	0.6	43.1	49.56	44.56	54	Horizontal
9856.0	38.0	2.2	0.9	42.8	46.78	45.08	54	Horizontal

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor +Fiter–Preamplifier Factor

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6.7 Radiated Emission Band Edge

Test Requirement: FCC Part15 247(c)

Test date: June.13.2012

Standard Applicable: According to section 15.247(c),in any 100KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating,the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power,In addition,radiated emissions which fall in the restricted bands,as defined in section 15.205(a),must also comply with the radiated emission limits specified in 15.209(a).

Measurement Distance: 3m (Semi-Anechoic Chamber)

Limit: 40.0 dBμV/m between 30MHz & 88MHz;

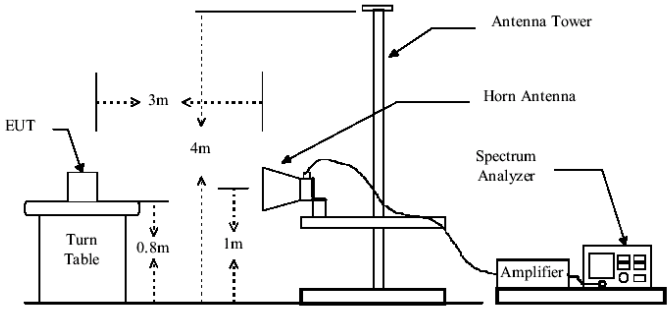
43.5 dBμV/m between 88MHz & 216MHz;

46.0 dBμV/m between 216MHz & 960MHz;

AV 54.0 dBμV/m PK 74.0dBμV/m above 960MHz.

Measurement Procedure: The EUT was setup according to ANSI 63.10,2009 for compliance to FCC 47 CFR 15.247 requirements.The EUT is placed on a turn table which is 0.8 m above ground.The turn table is rotated 360 degrees to determine to the position of the maximum emission level.The EUT was positioned such that the distance from antenna to the EUT was 3 menters.The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level
This is repeated for both horizontal and vertical polarization of the antenna.In order to find the maximum emission,all of the interface cables were manipulated according to ANSIC 63.10:2009 on radiated measurement.
Spectrum analyzer parameters setting as shown below:
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

Radiated Emission Test Set-up Frequency Over 1GHz



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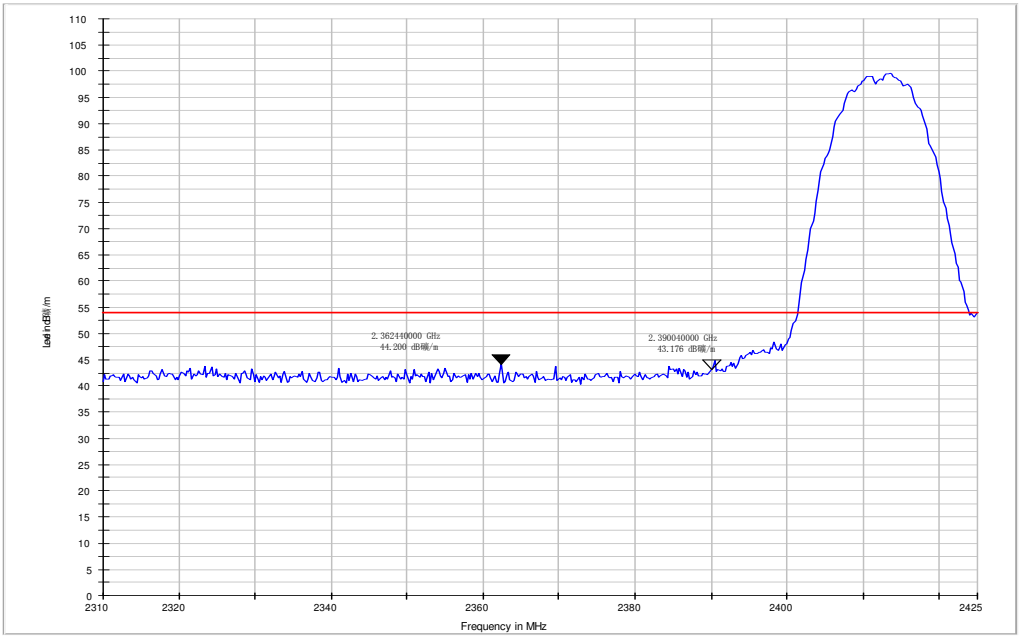
The field strength is calculated by adding the Antenna Factor,Preamplifier Factor&Cable Factor. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

Radiated Bandedge Measurement Result:

For antenna A CH Low 2412MHz Radiated Bandedge Horizontal, Peak Detector:



Frequency (MHz)	Peak Reading (dBuV)	Antenna Factor (dB/m)	PreAmp (dB)	Cable Loss (dB)	Peak Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.04	54.30	27.60	42.50	4.80	44.20	54	9.80

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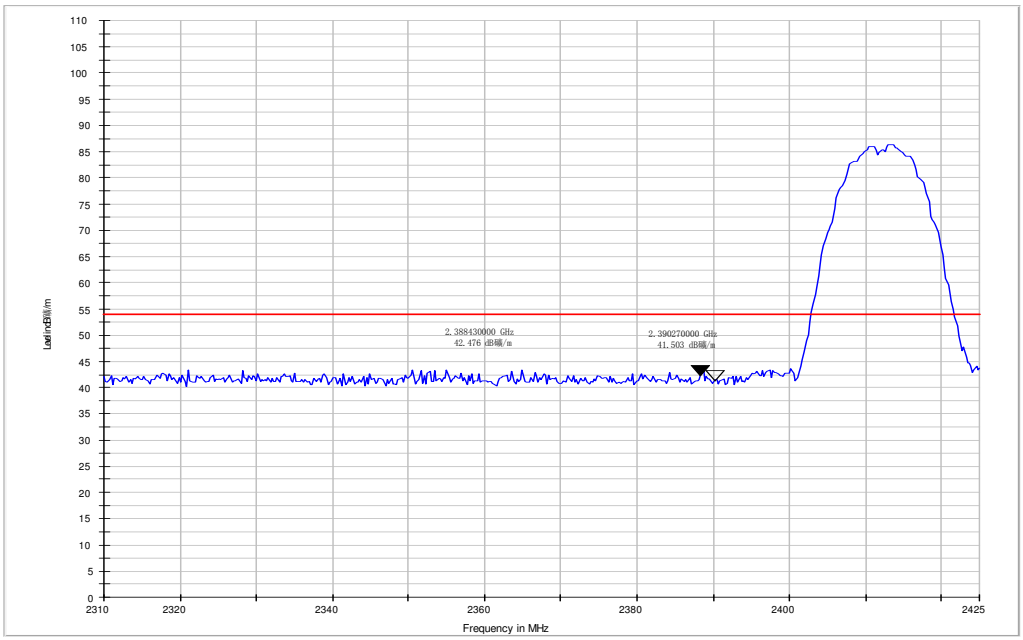
For antenna A CH Low 2412MHz Radiated Bandedge Vertical, Peak Detector:



Frequency (MHz)	Peak Reading (dBuV)	Antenna Factor (dB/m)	PreAmp (dB)	Cable Loss (dB)	Peak Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.27	52.58	27.60	42.50	4.80	42.48	54	11.52

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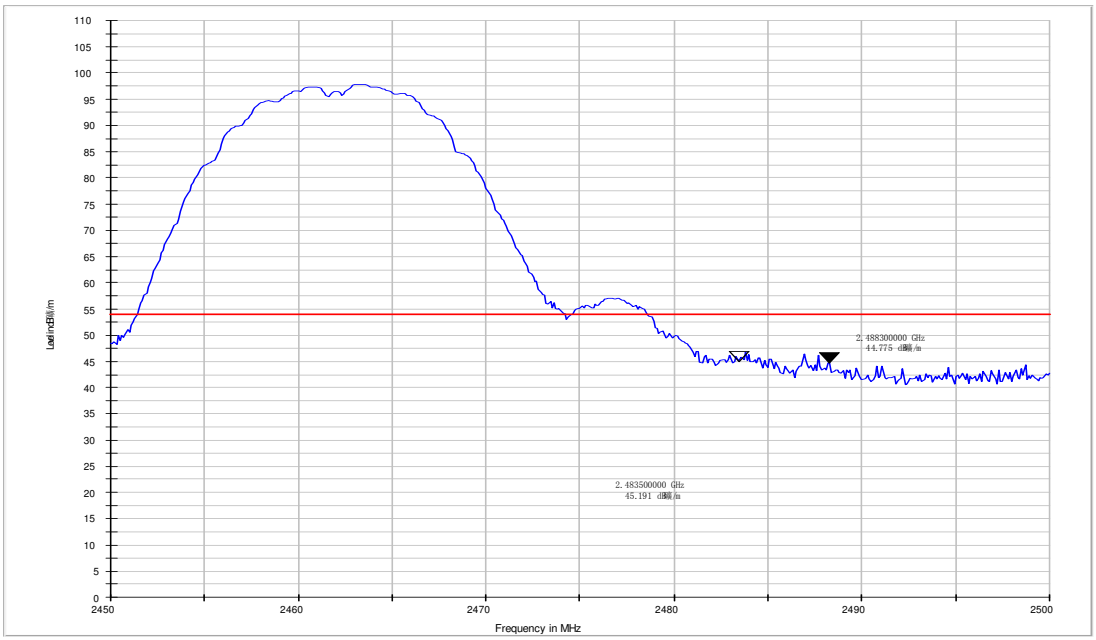
For antenna A CH Low 2464MHz Radiated Bandedge Horizontal, Peak Detector:



Frequency (MHz)	Peak Reading (dBuV)	Antenna Factor (dB/m)	PreAmp (dB)	Cable Loss (dB)	Peak Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.50	56.29	27.60	42.50	4.80	46.19	54	7.81

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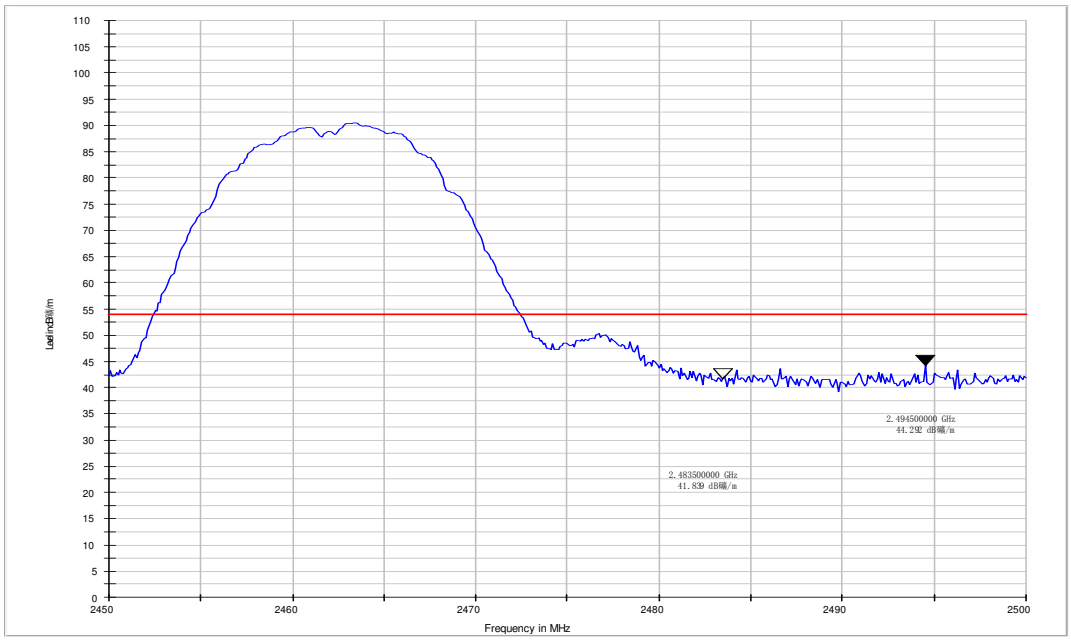
For antenna A CH Low 2464MHz Radiated Bandedge Vertical, Peak Detector:



Frequency (MHz)	Peak Reading (dBuV)	Antenna Factor (dB/m)	PreAmp (dB)	Cable Loss (dB)	Peak Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.50	56.34	27.60	42.50	4.80	44.29	54.00	7.76

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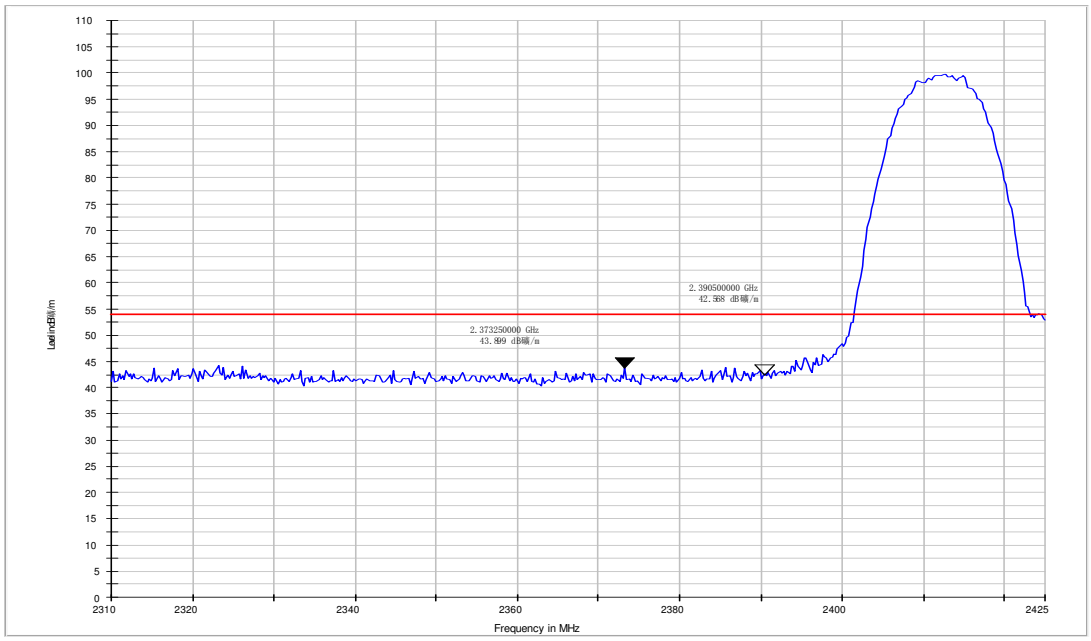
For antenna B CH Low 2412MHz Radiated Bandedge Horizontal, Peak Detector:



Frequency (MHz)	Peak Reading (dBuV)	Antenna Factor (dB/m)	PreAmp (dB)	Cable Loss (dB)	Peak Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.50	54.00	27.60	42.50	4.80	43.90	54	10.10

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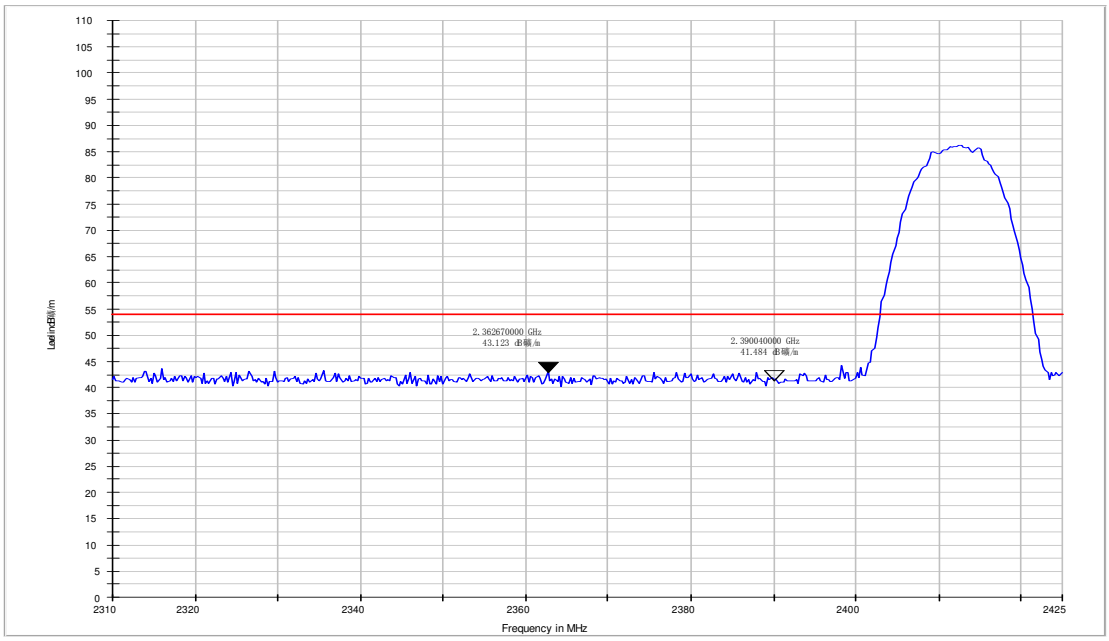
For antenna B CH Low 2412MHz Radiated Bandedge Vertical, Peak Detector:



Frequency (MHz)	Peak Reading (dBuV)	Antenna Factor (dB/m)	PreAmp (dB)	Cable Loss (dB)	Peak Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2390.09	53.22	27.6	42.5	4.8	43.12	54	10.88

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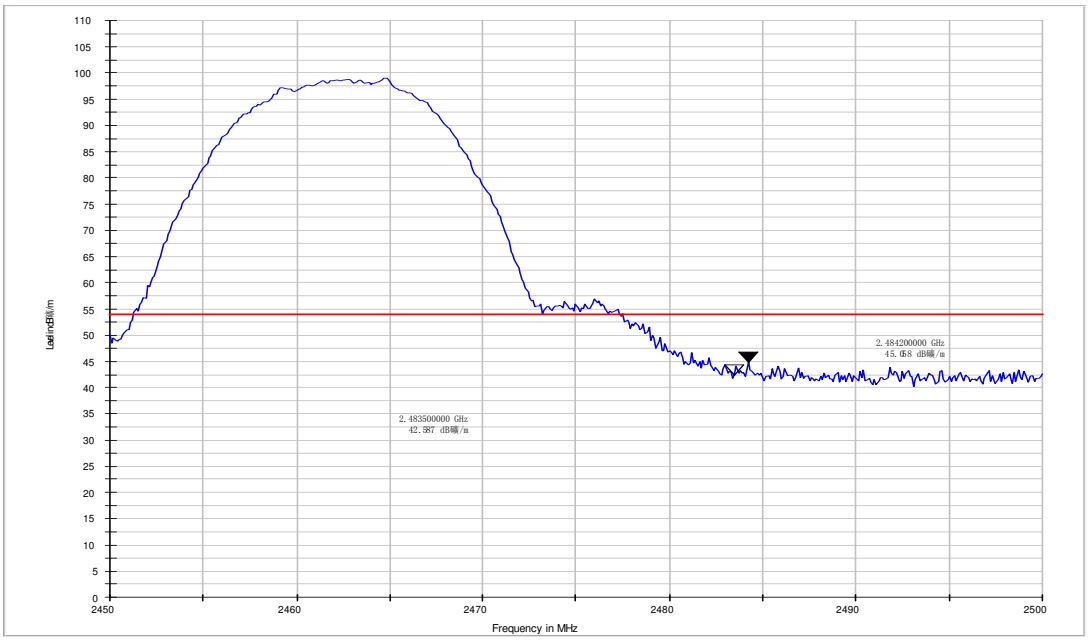
For antenna B CH Low 2464MHz Radiated Bandedge Horizontal, Peak Detector:



Frequency (MHz)	Peak Reading (dBuV)	Antenna Factor (dB/m)	PreAmp (dB)	Cable Loss (dB)	Peak Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2484.20	55.16	27.60	42.50	4.80	45.06	54	8.94

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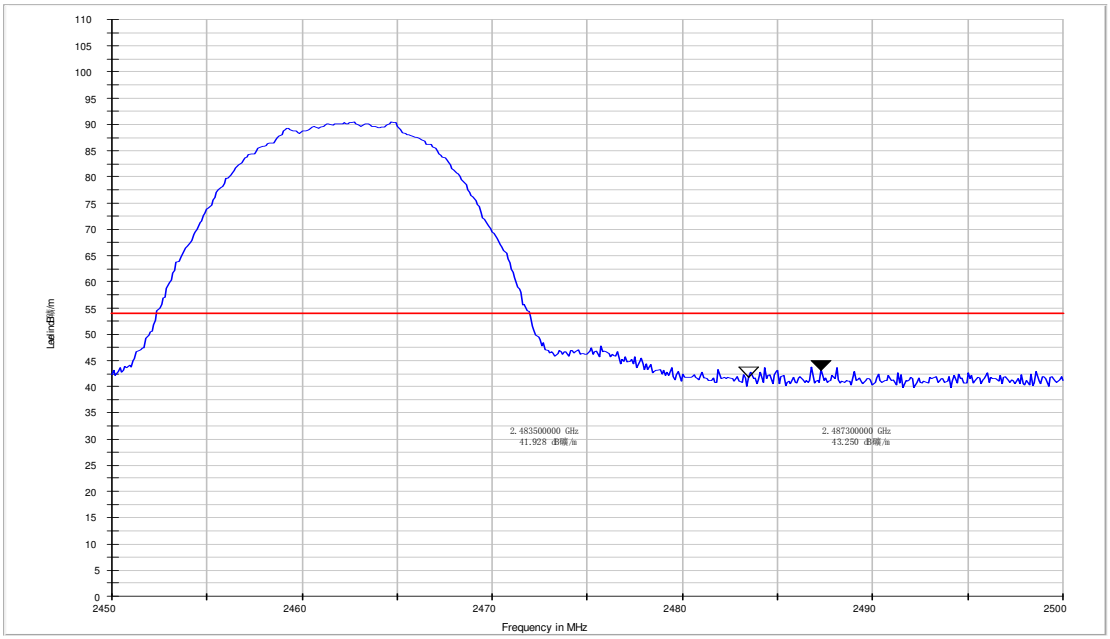
For antenna B CH Low 2464MHz Radiated Bandedge Vertical, Peak Detector:



Frequency (MHz)	Peak Reading (dBuV)	Antenna Factor (dB/m)	PreAmp (dB)	Cable Loss (dB)	Peak Level (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
2483.50	53.35	27.6	42.5	4.8	43.25	54	10.75

Remark: 1. The Peak Level less than the AV limit, so the AV level is no greater than the AV limit.

2. No any other emission which fall in restricted bands can be detected and be reported.

All frequencies within the “Restricted bands” have been evaluated to compliance. Section 15.205 Restricted bands of operation.

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6.8 Occupied Bandwidth Test

Test Requirement: RSS-Gen Issue 3 Clause 4.6.1

Test date: July. 31, 2012

Standard Applicable According to the section RSS-Gen Issue 3 Clause 4.6.1

EUT Setup The occupied bandwidth per RSS-Gen Issue 3 Clause 4.6.1 was measured using the Spectrum Analyzer with the resolutions set at 100kHz,the video bandwidth set at 1MHz.

Measurement Result:

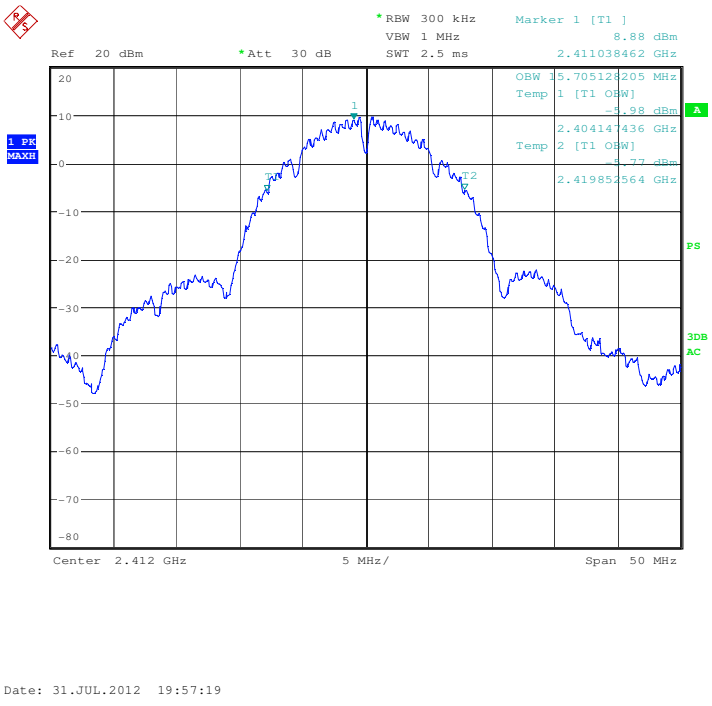
For Antenna A

Channel	Frequency (MHz)	Bandwidth (MHz)
LOW	2412	15.705
MID	2438	15.545
HIGH	2464	15.545

For Antenna B

Channel	Frequency (MHz)	Bandwidth (MHz)
LOW	2412	15.785
MID	2438	15.705
HIGH	2464	15.625

Channel 2412MHz For Antenna A



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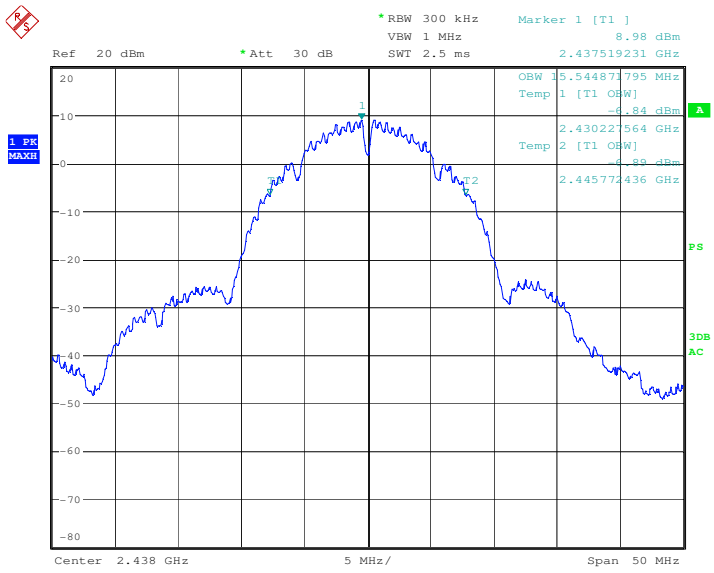
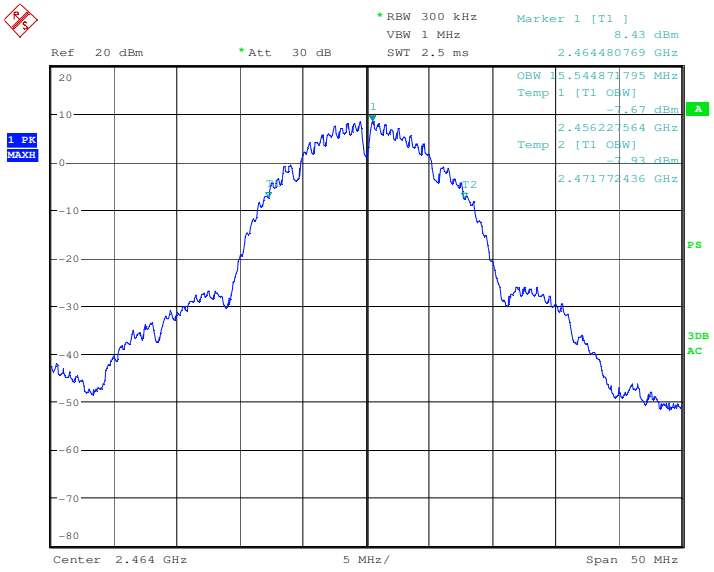
Channel 2438MHz For Antenna A



Date: 31.JUL.2012 19:58:48

Channel 2464MHz For Antenna A



Date: 31.JUL.2012 19:59:35

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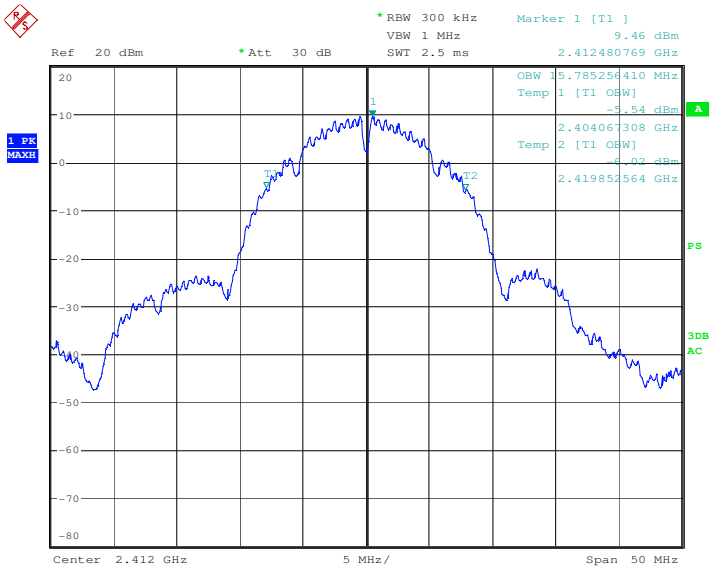
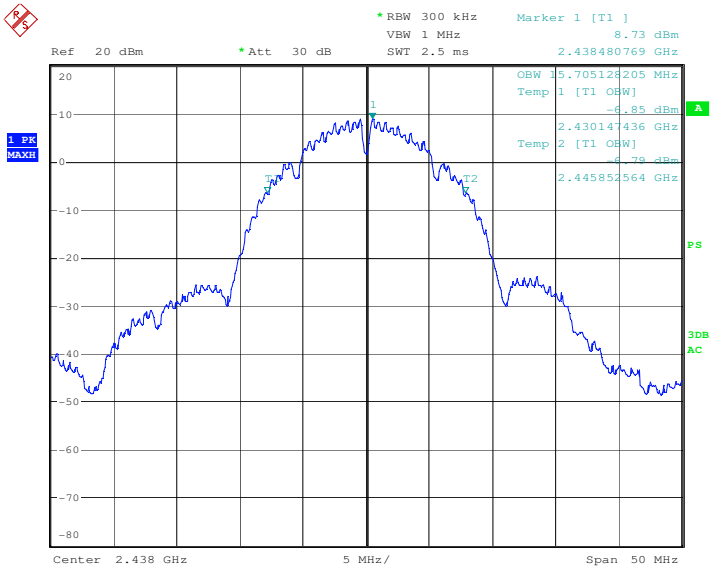
Channel 2412MHz For Antenna B



Date: 31.JUL.2012 20:00:50

Channel 2438MHz For Antenna B



Date: 31.JUL.2012 20:01:43

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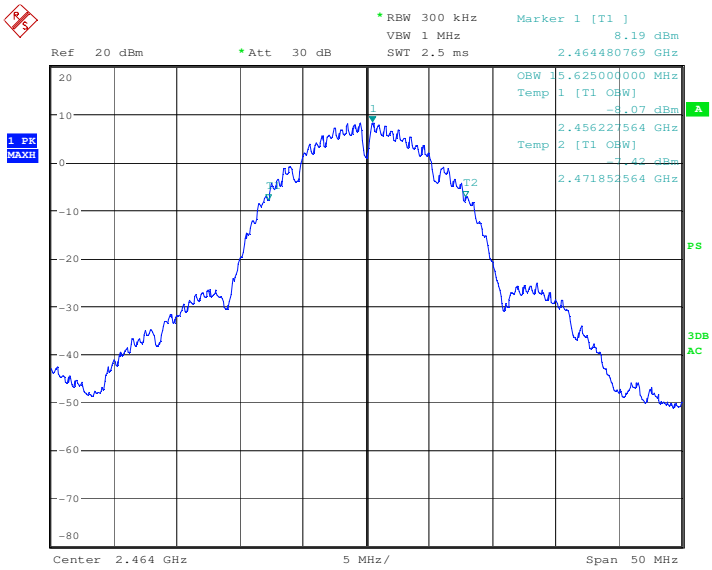
Channel 2464MHz For Antenna B



Date: 31.JUL.2012 20:02:50

End of Report

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