

# TEST REPORT

of

## FCC Part 15 Subpart C AND CANADA RSS-210

New Application;  Class I PC;  Class II PC

**Product :** Thin Client  
**Brand:** acer  
**Model:** Veriton N2010G  
**Model Difference:** N/A  
**FCC ID:** HLZFX1  
**IC:** 1754F-FX1  
**FCC Rule Part:** §15.247, Cat: DTS  
**IC Rule Part:** RSS-210 issue 8 :2010, Annex 8  
**Applicant:** Acer Incorporated  
**Address:** 8F, 88, Sec 1, Hsin Tai Wu Rd, Hsichih, New Taipei City 22181, Taiwan, R.O.C.

**Test Performed by:**  
**International Standards Laboratory**

<Lung-Tan LAB>

\*Site Registration No.

BSMI: SL2-IN-E-0013; MRA TW1036; TAF: 0997; IC: IC4067B-3;

\*Address:

No. 120, Lane 180, San Ho Tsuen, Hsin Ho Rd.

Lung-Tan Hsiang, Tao Yuan County 325, Taiwan

\*Tel : 886-3-407-1718; Fax: 886-3-407-1738

Report No.: **ISL-13LR036FC**

Issue Date : **2013/03/21**

Test results given in this report apply only to the specific sample(s) tested and are traceable to national or international standard through calibration of the equipment and evaluating measurement uncertainty herein.

This report MUST not be used to claim product endorsement by TAF, NVLAP or any agency of the Government.

This test report shall not be reproduced except in full, without the written approval of International Standards Laboratory.





## VERIFICATION OF COMPLIANCE

**Applicant:** Acer Incorporated  
**Product Description:** Thin Client  
**Brand Name:** acer  
**Model No.:** Veriton N2010G  
**Model Difference:** N/A  
**FCC ID:** HLZFX1  
**IC:** 1754F-FX1  
**FCC Rule Part:** §15.407  
**IC Rule Part** RSS-210 issue 8:2010, Annex 8  
**Date of test:** 2013/03/04 ~ 2013/03/21  
**Date of EUT Received:** 2013/03/04

### We hereby certify that:

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

<b>Test By:</b>	 _____ <i>Dion Chang / Engineer</i>	<b>Date:</b>	2013/03/21 _____
<b>Prepared By:</b>	 _____ <i>Gigi Yeh / Specialist</i>	<b>Date:</b>	2013/03/21 _____
<b>Approved By:</b>	 _____ <i>Vincent Su / Technical Manager</i>	<b>Date:</b>	2013/03/21 _____

## Version

Version No.	Date	Description
00	2013/03/21	Initial creation of document

## Table of Contents

<b>1</b>	<b>GENERAL INFORMATION</b> .....	<b>6</b>
1.1	Related Submittal(s) / Grant (s) .....	8
1.2	Test Methodology .....	8
1.3	Test Facility .....	8
1.4	Special Accessories .....	8
1.5	Equipment Modifications .....	8
<b>2</b>	<b>SYSTEM TEST CONFIGURATION</b> .....	<b>9</b>
2.1	EUT Configuration .....	9
2.2	EUT Exercise .....	9
2.3	Test Procedure .....	9
2.4	Configuration of Tested System .....	10
<b>3</b>	<b>SUMMARY OF TEST RESULTS</b> .....	<b>11</b>
<b>4</b>	<b>DESCRIPTION OF TEST MODES</b> .....	<b>11</b>
<b>5</b>	<b>CONDUCTED EMISSION TEST</b> .....	<b>12</b>
5.1	Standard Applicable: .....	12
5.2	Measurement Equipment Used: .....	12
5.3	EUT Setup: .....	13
5.4	Measurement Procedure: .....	13
5.5	Measurement Result: .....	13
<b>6</b>	<b>PEAK /AVERAGE UTPUT POWER MEASUREMENT</b> .....	<b>18</b>
6.1	Standard Applicable: .....	18
6.2	Measurement Equipment Used: .....	19
6.3	Test Set-up: .....	19
6.4	Measurement Procedure: .....	19
6.5	Measurement Result: .....	20
<b>7</b>	<b>6dB Bandwidth &amp; 99% Bandwidth</b> .....	<b>22</b>
7.1	Standard Applicable: .....	22
7.2	Measurement Equipment Used: .....	22
7.3	Test Set-up: .....	22
7.4	Measurement Procedure: .....	22
7.5	Measurement Result: .....	23
<b>8</b>	<b>100KHz BANDWIDTH OF BAND EDGES MEASUREMENT</b> .....	<b>35</b>
8.1	Standard Applicable: .....	35
8.2	Measurement Equipment Used: .....	35
8.3	Test SET-UP: .....	37
8.4	Measurement Procedure: .....	38
8.5	Field Strength Calculation: .....	38
8.6	Measurement Result: .....	38
<b>9</b>	<b>SPURIOUS RADIATED EMISSION TEST</b> .....	<b>49</b>
9.1	Standard Applicable .....	49
9.2	Measurement Equipment Used: .....	49
9.3	Test SET-UP: .....	49
9.4	Measurement Procedure: .....	50
9.5	Field Strength Calculation .....	50
9.6	Measurement Result: .....	50

<b>10</b>	<b>Peak Power Spectral Density</b> .....	<b>78</b>
10.1	Standard Applicable: .....	78
10.2	Measurement Equipment Used: .....	78
10.3	Test Set-up: .....	78
10.4	Measurement Procedure: .....	78
10.5	Measurement Result: .....	79
<b>11</b>	<b>ANTENNA REQUIREMENT</b> .....	<b>91</b>
11.1	Standard Applicable: .....	91
11.2	Antenna Connected Construction: .....	91
<b>12</b>	<b>Maximum Permissible Exposure (MPE)</b> .....	<b>92</b>
12.1	Standard Applicable .....	92
12.2	Maximum Permissible Exposure (MPE) Evaluation .....	93

## 1 GENERAL INFORMATION

General:

Product Name	Thin Client
Brand Name	acer
Model Name	Veriton N2010G
Model Difference	N/A
Power Supply	12Vdc from AC/DC adapter
	1. Adapter model: PA-1051-0, Supple: LITEON
	2. Adapter model: Au-799ln, Supple: Elementech International Co., Ltd.
Hardware Version:	N/A
Software Version:	N/A
Adhoc Mode	No
DFS Mode	Client(without radar detection)
TPC	No
Operation Environment	Indoor

WLAN: 1TX/1RX

Wi-Fi	Frequency Range (MHz)	Channels	Peak Rated Power	Modulation Technology
802.11b	2412 – 2462(DTS)	11	20.40dBm	DSSS
802.11g	2412 – 2462(DTS)	11	23.61dBm	DSSS/OFDM
802.11n	HT20 2412 – 2462(DTS)	11	23.02dBm	OFDM
802.11a	5180 – 5320(NII)	8	12.53dBm	OFDM
	5500 – 5700(NII)	8	12.16dBm	
	5745 – 5825(DTS)	5	17.46dBm	
802.11n	HT20 5180 – 5320(NII)	8	12.43dBm	OFDM
	HT20 5500 – 5700(NII)	8	12.05dBm	
	HT20 5745 – 5825(DTS)	5	17.53dBm	
Modulation type		CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM		
Transition Rate:		Upto 65Mbps		
Antenna Designation:		PIFA Antenna 2412 – 2462MHz: -2.07dBi 5180 – 5320MHz: -0.03dBi 5500 – 5700MHz: 0.25dBi 5745 – 5825MHz: 0.7dBi		

The EUT is compliance with IEEE 802.11 a/b/g/n Standard.

This report applies for frequency bands 2412-2464MHz and 5745-5825MHz.

**Remark:** The above DUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

### 1.1 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: HLZFX1** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. And **IC: 1754F-FX1** filing to comply with Industry Canada RSS-210 issue 8: 2010 Annex 8. The composite system (digital device) is compliance with Subpart B is authorized under a DoC procedure.

### 1.2 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). and RSS-Gen: 2010. Radiated testing was performed at an antenna to EUT distance 3 meters. Radiated testing was performed at an antenna to EUT distance 3 meters.

KDB Document:

558074 D01 DTS Meas Guidance v02

### 1.3 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of **International Standards Laboratory** <Lung-Tan LAB> No. 120, Lane 180, San Ho Tsuen, Hsin Ho Rd., Lung-Tan Hsiang, Tao Yuan County 325, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number is: TW1036, Canada Registration Number: 4067B-3.

### 1.4 Special Accessories

Not available for this EUT intended for grant.

### 1.5 Equipment Modifications

Not available for this EUT intended for grant.



## 2 SYSTEM TEST CONFIGURATION

### 2.1 EUT Configuration

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

### 2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

#### 2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” Is still within the 3dB illumination BW of the measurement antenna. According to the requirements in Section 8 and 13 and Subclause 8.3.1.2 of ANSI C63.4-2003.

## 2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

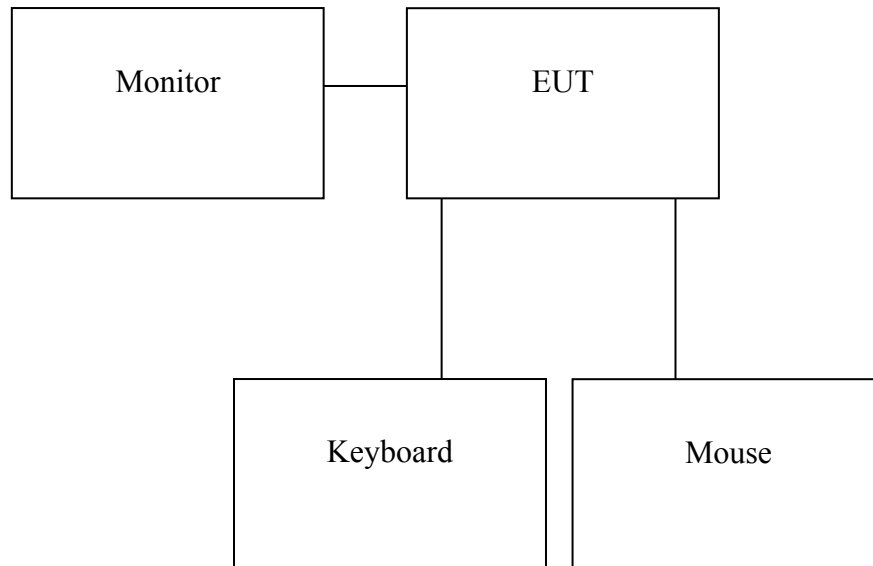


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1	Monitor	DELL	2408	N/A	Shielding	No- Shielding
2	Keyboard	DELL	SK-8115	N/A	Shielding	N/A
3	Mouse	DELL	MO56UC	N/A	Shielding	N/A
4	Test Software	LINUX	N/A	N/A	N/A	N/A

### 3 SUMMARY OF TEST RESULTS

FCC /IC Rules	Description Of Test	Result
§15.207(a)/ RSS-Gen §7.2.4	AC Power Line Conducted Emission	Compliant
§15.247(b) (3),(4)/ RSS-210 §A8.4(4)	Peak Output Power	Compliant
§15.247(a)(2) §A8.2(a) RSS-Gen §4.6.1	6dB Bandwidth & 99% Power Bandwidth	Compliant
§15.247(d)/ RSS-210 §A8.5	100 KHz Bandwidth Of Frequency Band Edges	Compliant
§15.247(d)/ RSS-210 §A8.5	Spurious Emission	Compliant
§15.247(e)/ RSS-210 §A8.2(b) & §A8.3(2)	Peak Power Density	Compliant
§15.203/ RSS-210 issue 8, §A8.4	Antenna Requirement	Compliant
MPE	Maximum Permissible Exposure	Compliant

### 4 DESCRIPTION OF TEST MODES

The EUT has been tested under engineering operating condition.

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

2.4GHz:

802.11 b mode: Channel low (2412MHz) 、 mid (2437MHz) and high (2462MHz) with 1Mbps lowest data rate are chosen for pre-test testing of radiated emissions.

802.11 g mode: Channel low (2412MHz) 、 mid (2437MHz) and high (2462MHz) with 6Mbps lowest data rate are chosen for pre-test testing of radiated emissions.

802.11 n HT20: Channel low (2412MHz) 、 mid (2437MHz) and high (2462MHz) with 6.5Mbps lowest data rate are chosen for pre-test testing of radiated emissions.

5745-5825MHz:

802.11a mode: Channel low (5745MHz) 、 mid (5785MHz) and high (5825MHz) with 6Mbps lowest data rate are chosen for pre-test testing of radiated emissions.

802.11 n HT20: Channel low (5745MHz) 、 mid (5785MHz) and high (5825MHz) with 6.5Mbps lowest data rate are chosen for pre-test testing of radiated emissions.

The worst case 802.11g 2412MHz-2462MHz was reported for Radiated Spurious Emission.

## 5 CONDUCTED EMISSION TEST

### 5.1 Standard Applicable:

According to §15.207, frequency range within 150KHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note

- 1.The lower limit shall apply at the transition frequencies
- 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 5.2 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Conduction 03					
EMI Receiver 11	ROHDE & SCHWARZ	ESCI	100568	07/16/2012	07/16/2013
ISNT2-02	FCC	FCC-TLISN-T2-02	20413	07/22/2012	07/22/2013
ISNT4-02	FCC	FCC-TLISN-T4-02	20575	07/22/2012	07/22/2013
ISNT8-04	FCC	FCC-TLISN-T8-09	101192	09/29/2012	09/29/2013
LISN 07	FCC Inc.	FCC-LISN-50-100- 4-02	07040	07/23/2012	07/23/2013
LISN 08	FCC	FCC-LISN50-25-2- 01	07039	07/23/2012	07/23/2013
Conduction 03 -1 Cable	WOKEN	CFD 300-NL	Conduction 03 -1	06/28/2012	06/28/2013

### **5.3 EUT Setup:**

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2003.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

### **5.4 Measurement Procedure:**

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

### **5.5 Measurement Result:**

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Note: Refer to next page for measurement data and plots.

## AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation Mode	Test Date:	2013/03/21
Adapter model:	Au-799In	Test By:	Dino

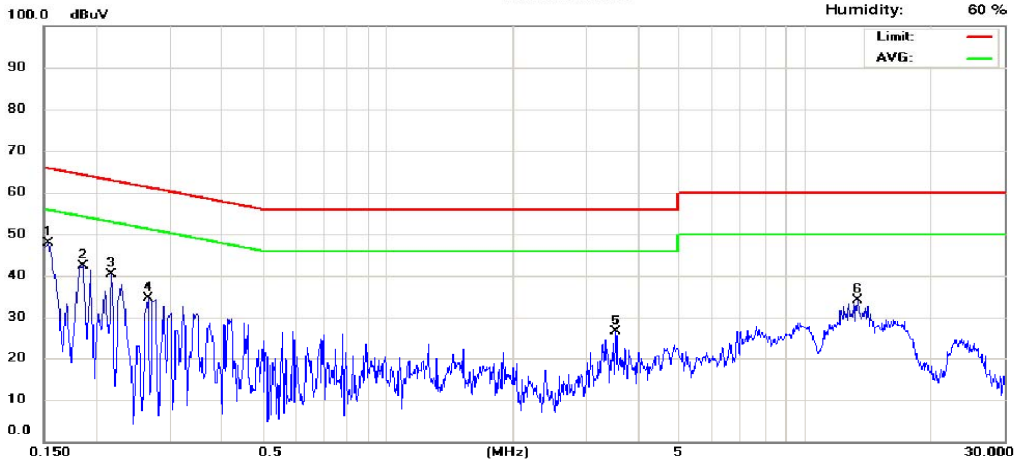


Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road, Lung-Tan Hsiang,  
Tao Yuan Conty, Taiwan R.O.C.  
Tel: 03-4071718

### Conducted Emission Measurement

Date: 2013/3/21

operator: Jeff Chou  
Temperature: 26 °C  
Humidity: 60 %



Site: Conduction 03

Phase: L1

Limit: CISPR22 Class B Conduction

No.	Frequency (MHz)	Correct Factor (dB)	QP Emission (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Emission (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)	Note
1	0.1540	0.15	46.36	65.78	-19.42	31.98	55.78	-23.80	
2	0.1860	0.14	40.81	64.21	-23.40	26.76	54.21	-27.45	
3	0.2180	0.14	31.02	62.89	-31.87	11.30	52.89	-41.59	
4	0.2660	0.14	32.60	61.24	-28.64	19.91	51.24	-31.33	
5	3.5140	0.22	16.80	56.00	-39.20	6.62	46.00	-39.38	
6	13.3740	0.37	29.45	60.00	-30.55	22.35	50.00	-27.65	

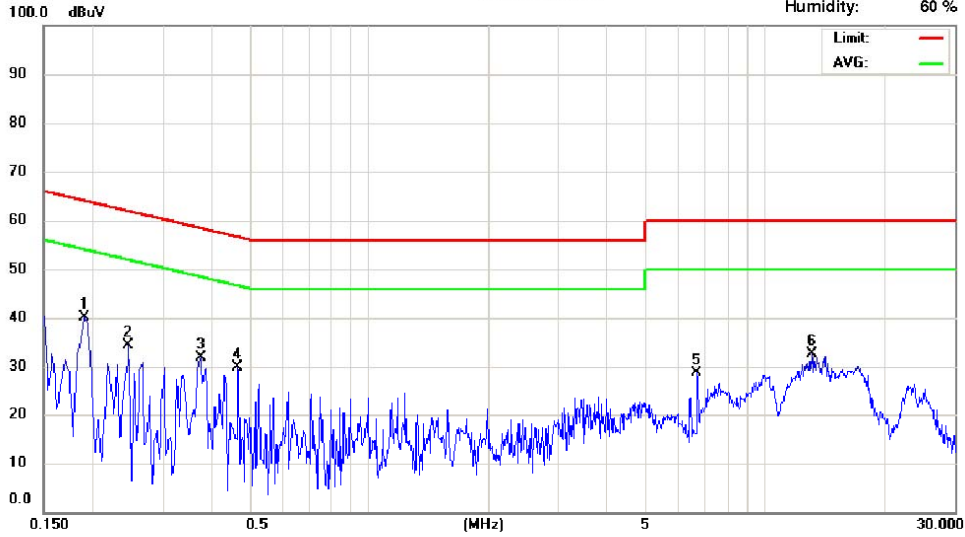


Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road, Lung-Tan Hsiang,  
Tao Yuan Conty, Taiwan R.O.C.  
Tel: 03-4071718

**Conducted Emission Measurement**

operator: Jeff Chou  
Temperature: 26 °C  
Humidity: 60 %

Date: 2013/3/21



Site: Conduction 03

Phase: *N*

Limit: CISPR22 Class B Conduction

No.	Frequency (MHz)	Correct Factor (dB)	QP Emission (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Emission (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)	Note
1	0.1900	0.07	38.89	64.04	-25.15	26.69	54.04	-27.35	
2	0.2460	0.07	24.64	61.89	-37.25	4.17	51.89	-47.72	
3	0.3740	0.06	25.76	58.41	-32.65	20.40	48.41	-28.01	
4	0.4660	0.07	19.35	56.58	-37.23	4.68	46.58	-41.90	
5	6.7140	0.17	16.66	60.00	-43.34	8.52	50.00	-41.48	
6	13.0580	0.25	29.45	60.00	-30.55	22.34	50.00	-27.66	

## AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation Mode	Test Date:	2013/03/11
Adapter model:	PA-1051-0	Test By:	Dino

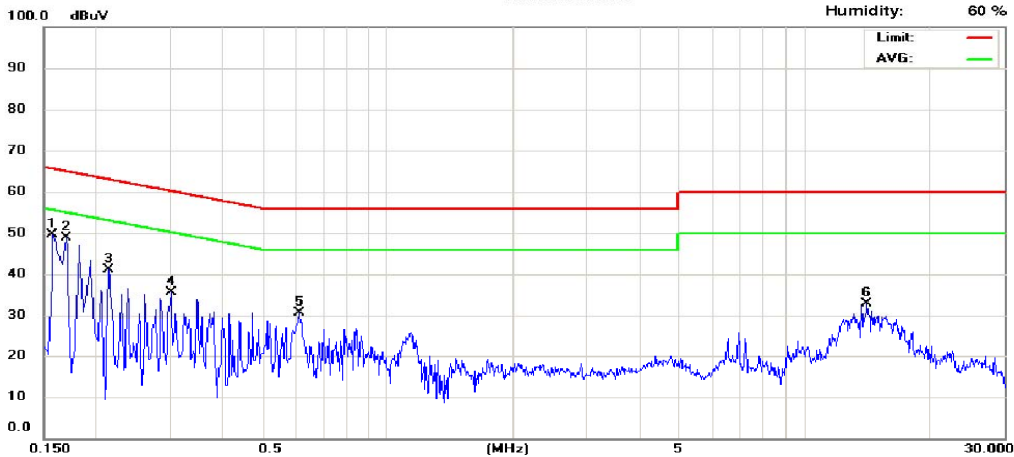


Address: No. 120, Lane 180, San Ho Tsuen, Hsin Ho Road, Lung-Tan Hsiang,  
Tao Yuan Conty, Taiwan R.O.C.  
Tel: 03-4071718

### Conducted Emission Measurement

Date: 2013/3/21

operator: Jeff Chou  
Temperature: 26 °C  
Humidity: 60 %



Site: Conduction 03

Phase: *L1*

Limit: CISPR22 Class B Conduction

No.	Frequency (MHz)	Correct Factor (dB)	QP Emission (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Emission (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)	Note
1	0.1580	0.15	48.40	65.57	-17.17	28.99	55.57	-26.58	
2	0.1700	0.15	46.92	64.96	-18.04	28.06	54.96	-26.90	
3	0.2140	0.14	40.43	63.05	-22.62	21.87	53.05	-31.18	
4	0.3020	0.13	29.88	60.19	-30.31	12.44	50.19	-37.75	
5	0.6140	0.15	27.76	56.00	-28.24	20.91	46.00	-25.09	
6	14.1340	0.39	29.63	60.00	-30.37	24.82	50.00	-25.18	





Address: No.120, Lane 180, San Ho Tsuen, Hsin Ho Road, Lung-Tan Hsiang,  
Tao Yuan Conty, Taiwan R.O.C.  
Tel: 03-4071718

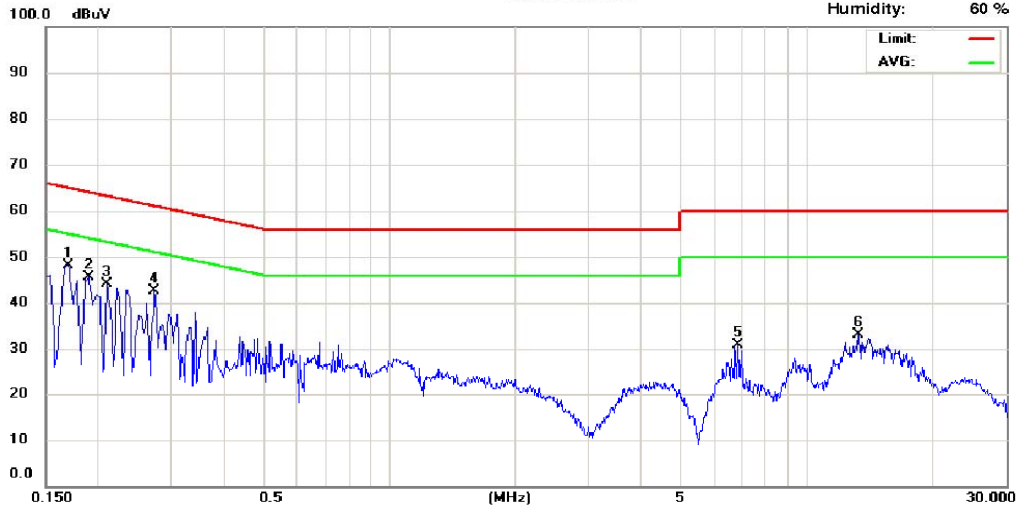
**Conducted Emission Measurement**

Date: 2013/3/21

operator: Jeff Chou

Temperature: 26 °C

Humidity: 60 %



Site: Conduction 03

Phase: N

Limit: CISPR22 Class B Conduction

No.	Frequency (MHz)	Correct Factor (dB)	QP Emission (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Emission (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)	Note
1	0.1700	0.08	46.27	64.96	-18.69	27.53	54.96	-27.43	
2	0.1900	0.07	41.53	64.04	-22.51	23.85	54.04	-30.19	
3	0.2100	0.07	40.00	63.21	-23.21	23.12	53.21	-30.09	
4	0.2740	0.07	33.80	61.00	-27.20	21.66	51.00	-29.34	
5	6.8700	0.17	21.36	60.00	-38.64	15.50	50.00	-34.50	
6	13.2820	0.25	31.26	60.00	-28.74	25.76	50.00	-24.24	

## 6 PEAK /AVERAGE UTPUT POWER MEASUREMENT

### 6.1 Standard Applicable:

According to §15.247(b)(3),(4)(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.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

(i) Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

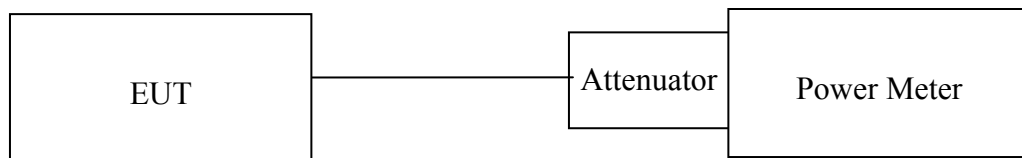
(ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

According to RSS-210 issue 8, §A8.4(4), For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4(5), the e.i.r.p. shall not exceed 4 W.

**6.2 Measurement Equipment Used:**

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter 05	Anritsu	ML2495A	1116010	04/17/2012	04/16/2013
Power Sensor 05	Anritsu	MA2411B	34NKF50	04/16/2012	04/15/2013
Temperature Chamber	KSON	THS-B4H100	2287	03/15/2013	03/14/2014
DC Power supply	ABM	51850	N/A	06/17/2012	06/16/2013
AC Power supply	EXTECH	CFC105W	NA	12/19/2012	12/18/2013
Splitter	MCLI	PS4-199	12465	07/18/2012	07/17/2013
Spectrum analyzer	Agilent	N9030A	MY51360021	03/11/2013	03/10/2014

**6.3 Test Set-up:**



**6.4 Measurement Procedure:**

Refer to section 8.1 and 8.2 of KDB Document: 558074 D01 DTS Meas Guidance v02

**6.5 Measurement Result:**

802.11b

Cable loss = 0		Output Power		Limit (dBm)
CH	Frequency (MHz)	Detector		
		PK (dBm)	AV (dBm)	
1	2412	20.05	17.84	30
6	2437	20.25	18.09	
11	2462	20.40	18.16	

802.11g

Cable loss = 0		Output Power		Limit (dBm)
CH	Frequency (MHz)	Detector		
		PK (dBm)	AV (dBm)	
1	2412	23.35	13.62	30
6	2437	23.52	13.50	
11	2462	23.61	13.67	

802.11N 20MHz (2.4G)

Cable loss = 0		Output Power		Limit (dBm)
CH	Frequency (MHz)	Detector		
		PK (dBm)	AV (dBm)	
1	2412	22.73	12.32	30
6	2437	23.02	12.31	
11	2462	22.84	12.52	

802.11a (5G)

Cable loss = 0		Output Power		Limit (dBm)
CH	Frequency (MHz)	Detector		
		PK (dBm)	AV (dBm)	
149	5745	17.46	11.83	30
157	5785	16.95	11.62	
165	5825	17.15	12.02	

802.11n 20MHz (5G)

Cable loss = 0		Output Power		Limit (dBm)
CH	Frequency (MHz)	Detector		
		PK (dBm)	AV (dBm)	
149	5745	17.53	11.76	30
157	5785	16.88	11.52	
165	5825	17.11	11.84	

## 7 6dB Bandwidth & 99% Bandwidth

### 7.1 Standard Applicable:

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

According to RSS 210 issue 8, §8.2(a) Systems employing digital modulation techniques (which includes direct sequence) can now be certified under RSS-210 provided they comply with the following requirements: The minimum -6 dB bandwidth shall be at least 500 kHz.

### 7.2 Measurement Equipment Used:

Refer to section 6.2 for details.

### 7.3 Test Set-up:

Refer to section 6.3 for details.

### 7.4 Measurement Procedure:

**Refer to section 7.0 6dB EBW Measurement Procedure of KDB Document: 558074 D01 DTS Meas Guidance v02**

1. Set resolution bandwidth (RBW) = 1-5 % of the emission bandwidth (EBW).  
(802.11b/g/n\_HT20MHz =200KHz),(802.11n\_HT40=400KHz)
2. Set the video bandwidth (VBW)  $\geq 3 \times$  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 6 dB relative to the maximum level measured in the fundamental emission. Compare the resultant bandwidth with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is 1-5 %.

## 7.5 Measurement Result:

### 2.4GHz

#### 802.11b

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	9.141	13.932	> 500	PASS
2437	9.143	13.952	> 500	PASS
2462	9.144	13.952	> 500	PASS

#### 802.11g

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	16.18	16.528	> 500	PASS
2437	16.19	16.526	> 500	PASS
2462	16.16	16.519	> 500	PASS

#### 802.11n\_20M

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	17.33	17.703	> 500	PASS
2437	17.34	17.722	> 500	PASS
2462	17.24	17.696	> 500	PASS

**5GHz**

802.11a

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Bandwidth (KHz)	Result
5745	16.21	16.652	> 500	PASS
5785	16.28	16.672	> 500	PASS
5825	16.3	16.736	> 500	PASS

802.11n 20MHz

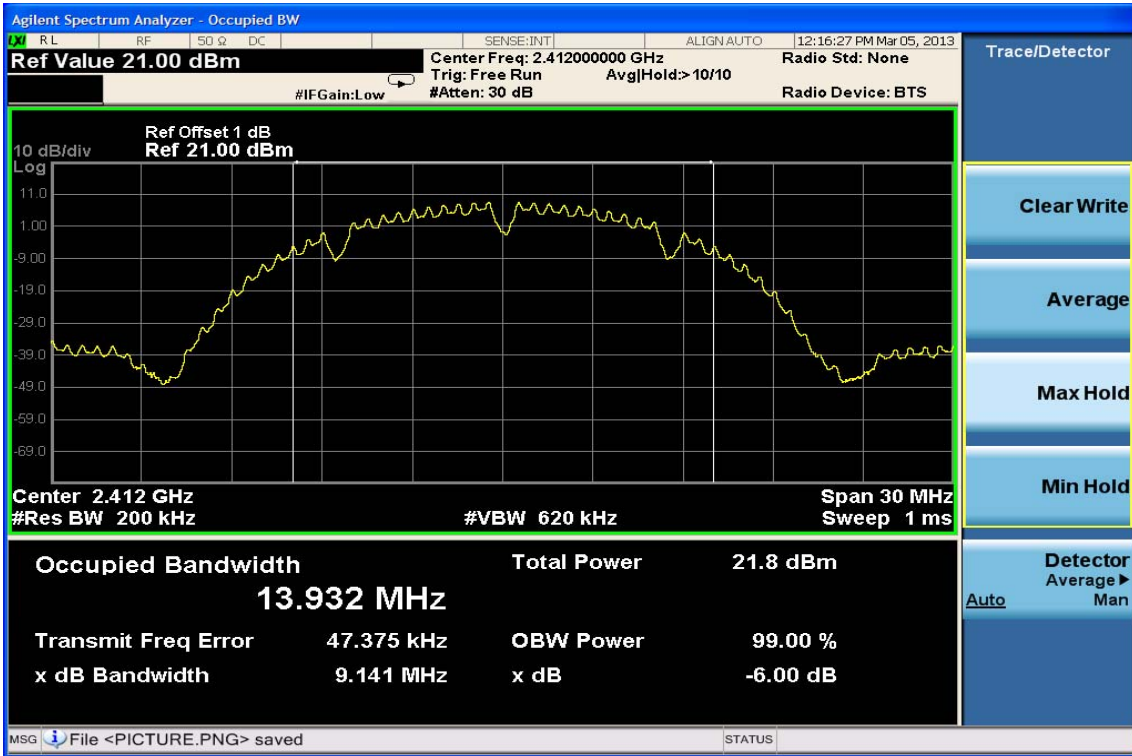
Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Bandwidth (KHz)	Result
5745	17.17	17.804	> 500	PASS
5785	17.17	17.775	> 500	PASS
5825	17.22	17.976	> 500	PASS

Note: Refer to next page for plots.



### 802.11b

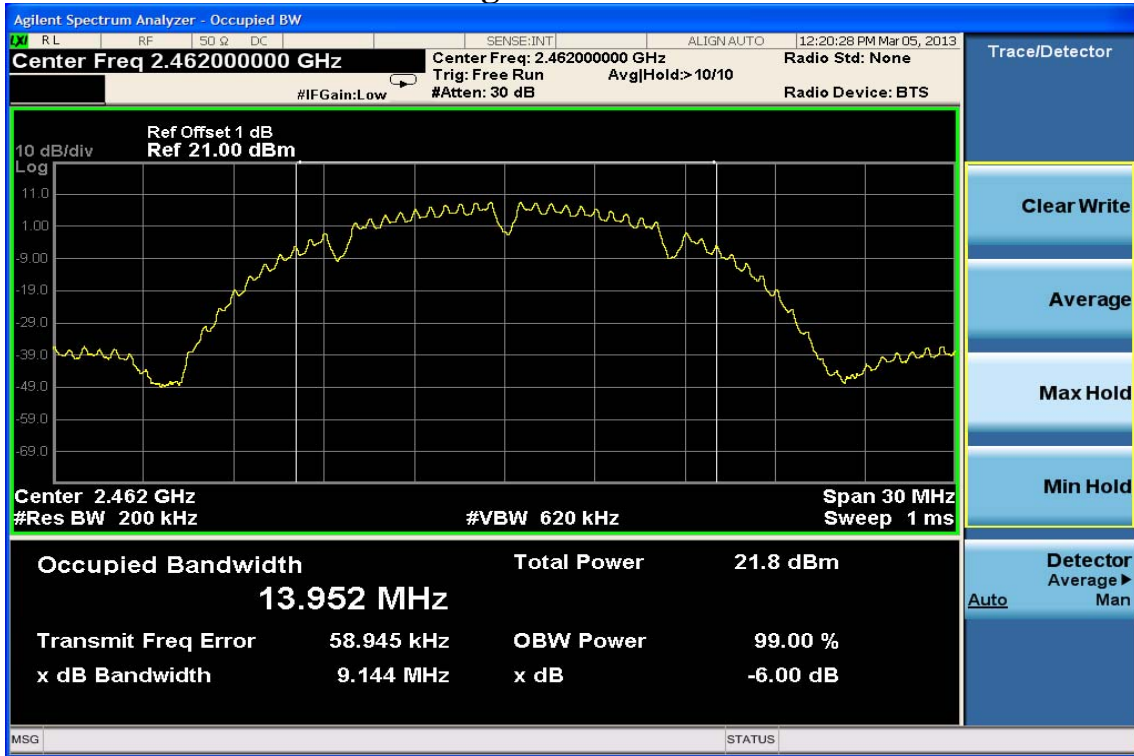
### 6dB Band Width Test Data CH-Low



### 6dB Band Width Test Data CH-Mid

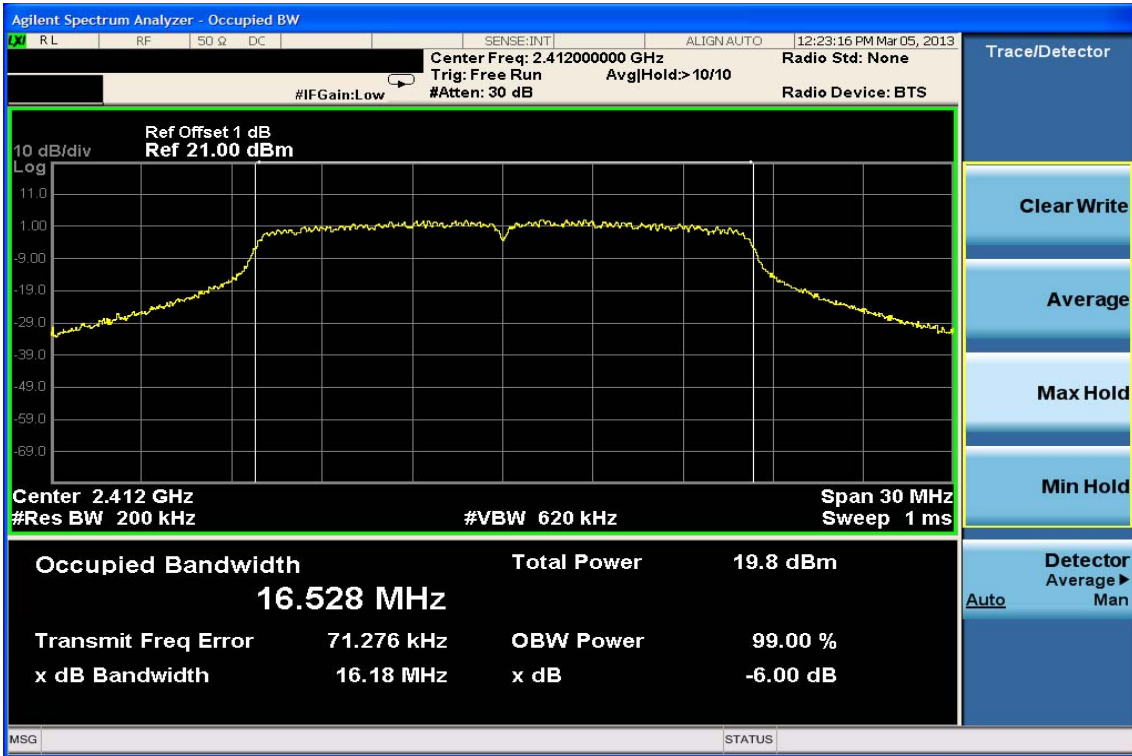


### 6dB Band Width Test Data CH-High

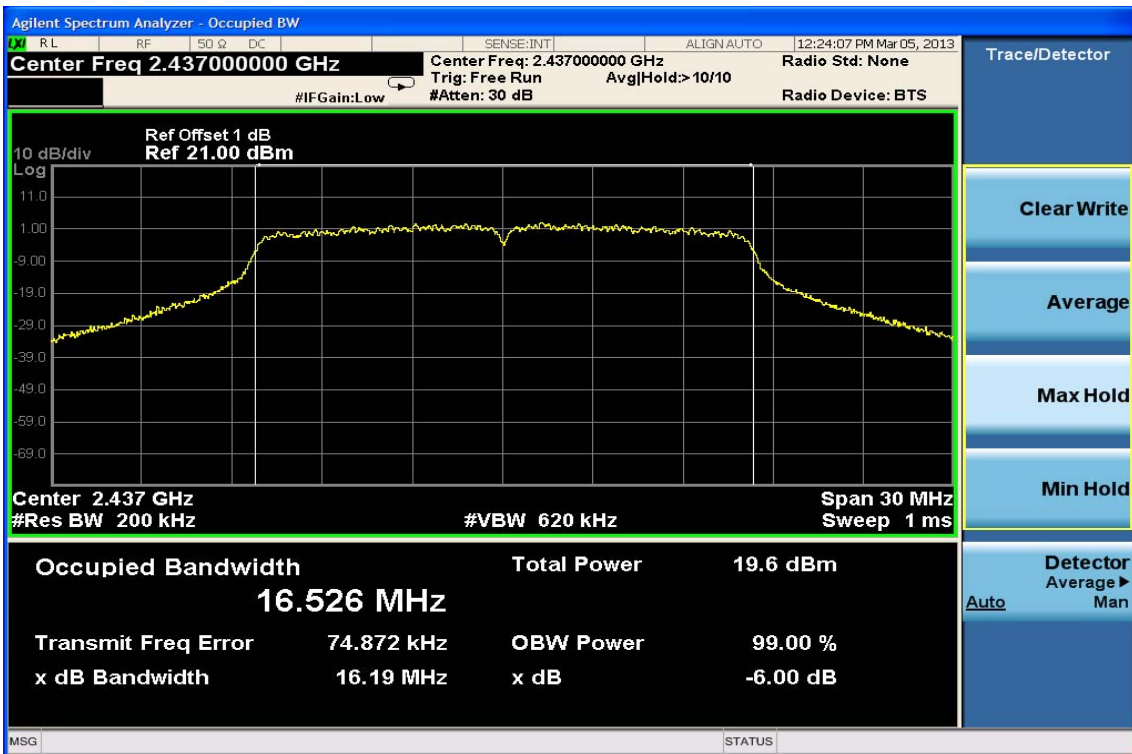


### 802.11g

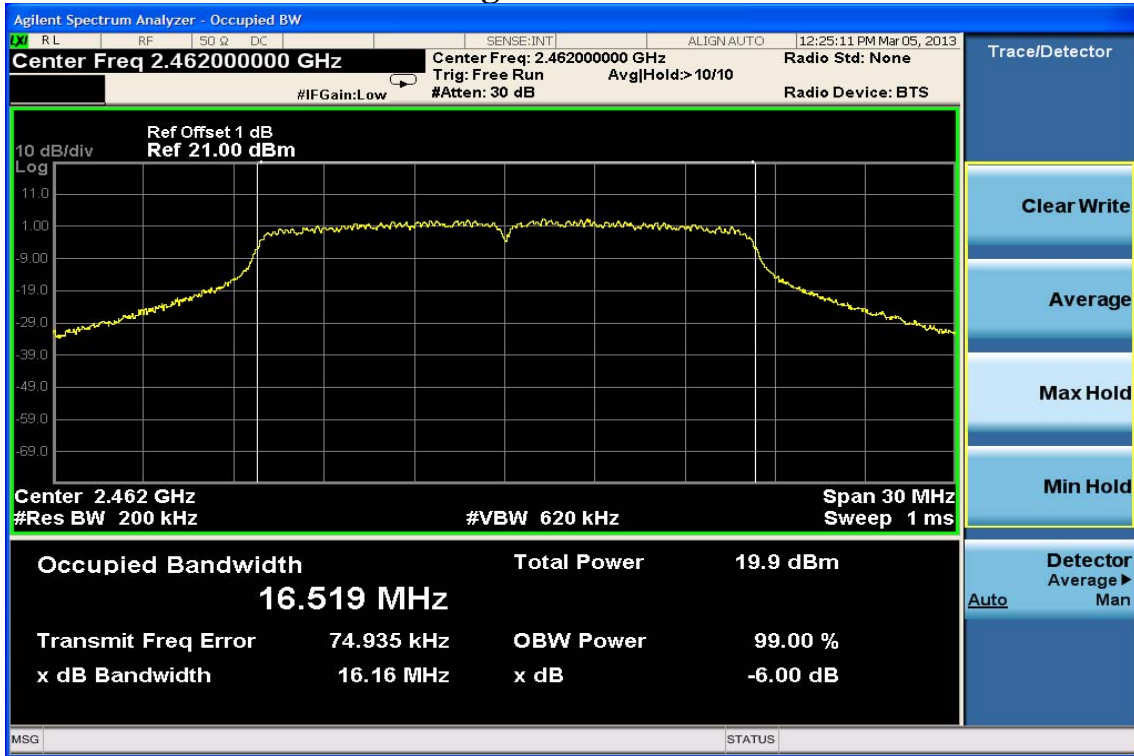
### 6dB Band Width Test Data CH-Low



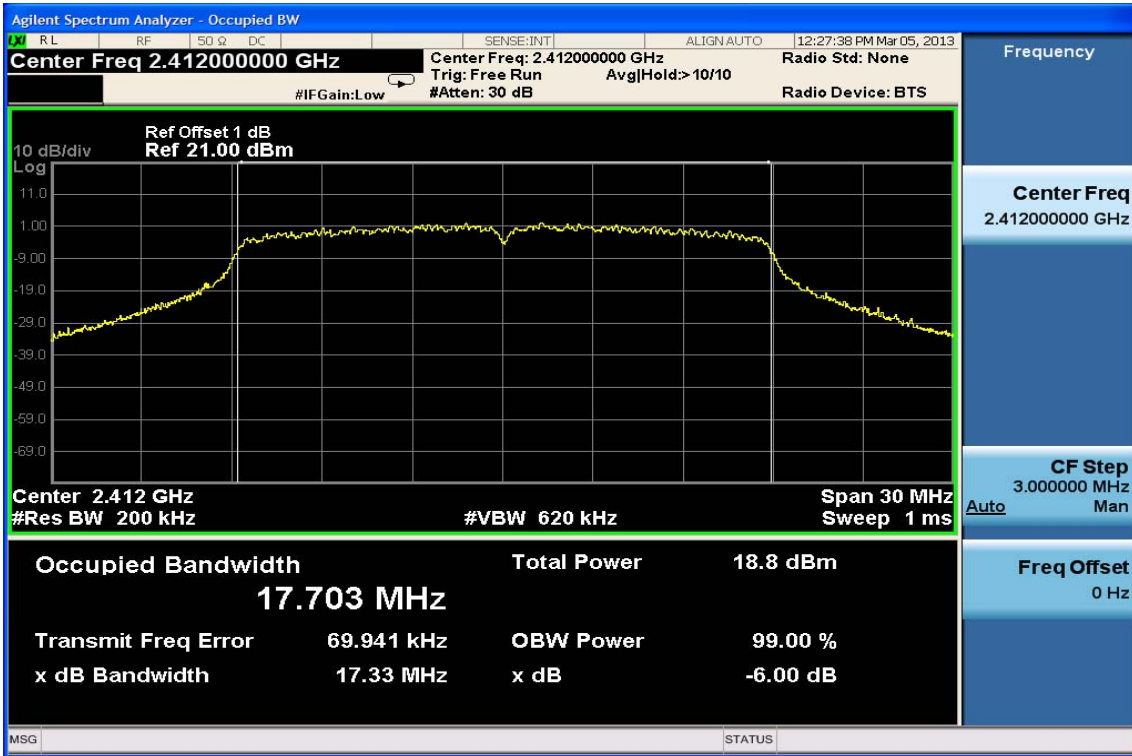
### 6dB Band Width Test Data CH-Mid



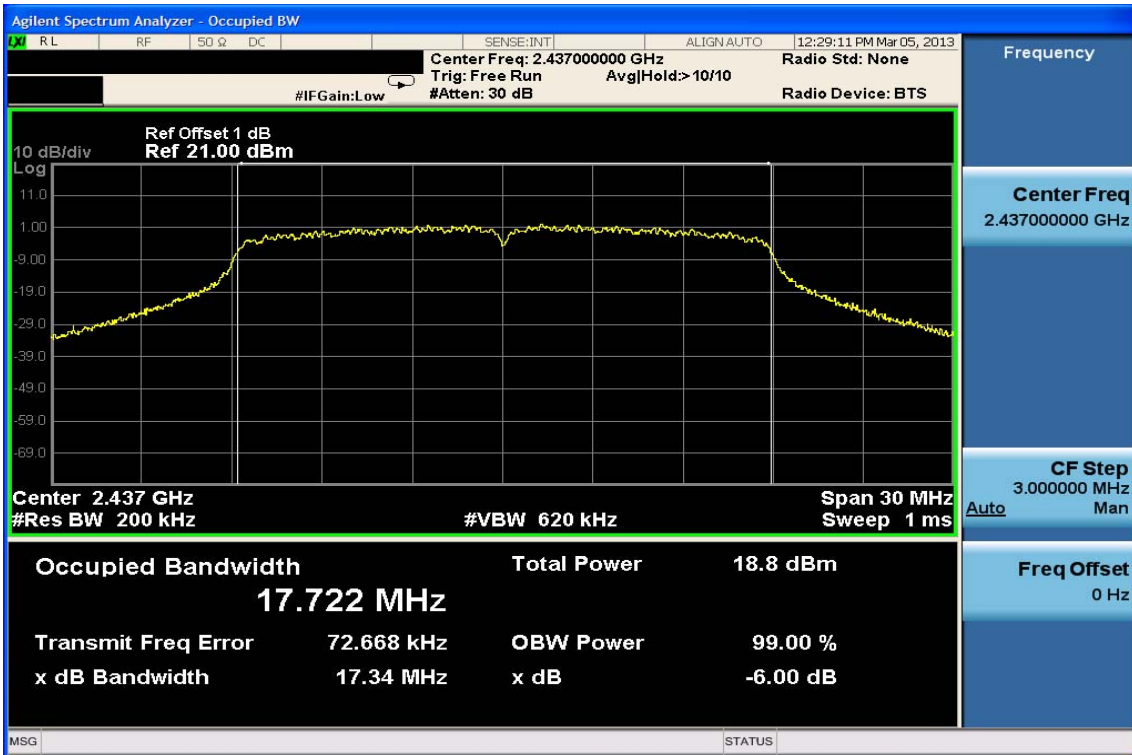
### 6dB Band Width Test Data CH-High



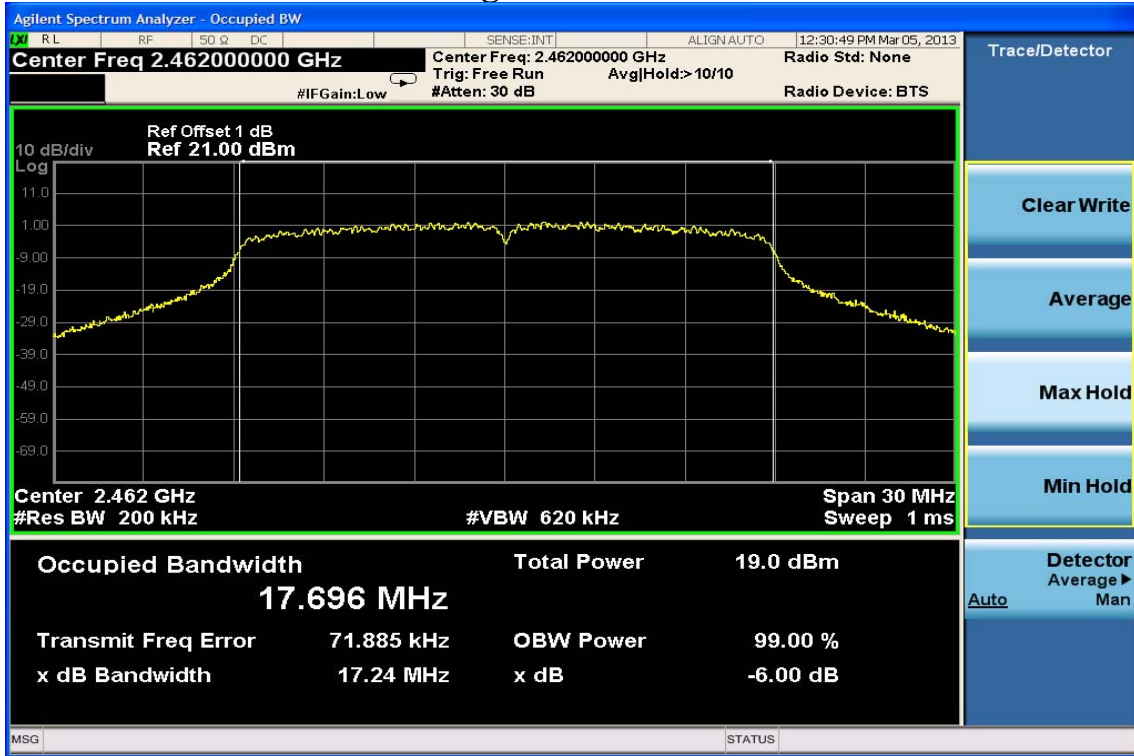
### 802.11n\_20M for 2.4GHz 6dB Band Width Test Data CH-Low



### 6dB Band Width Test Data CH-Mid

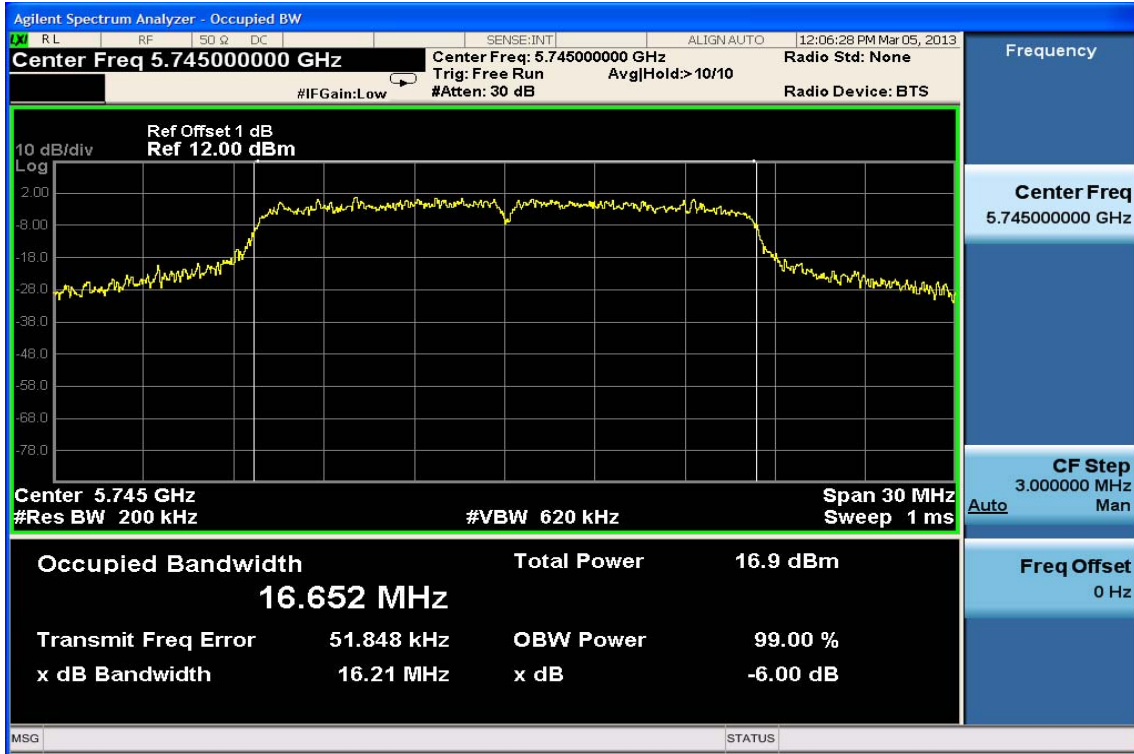


### 6dB Band Width Test Data CH-High

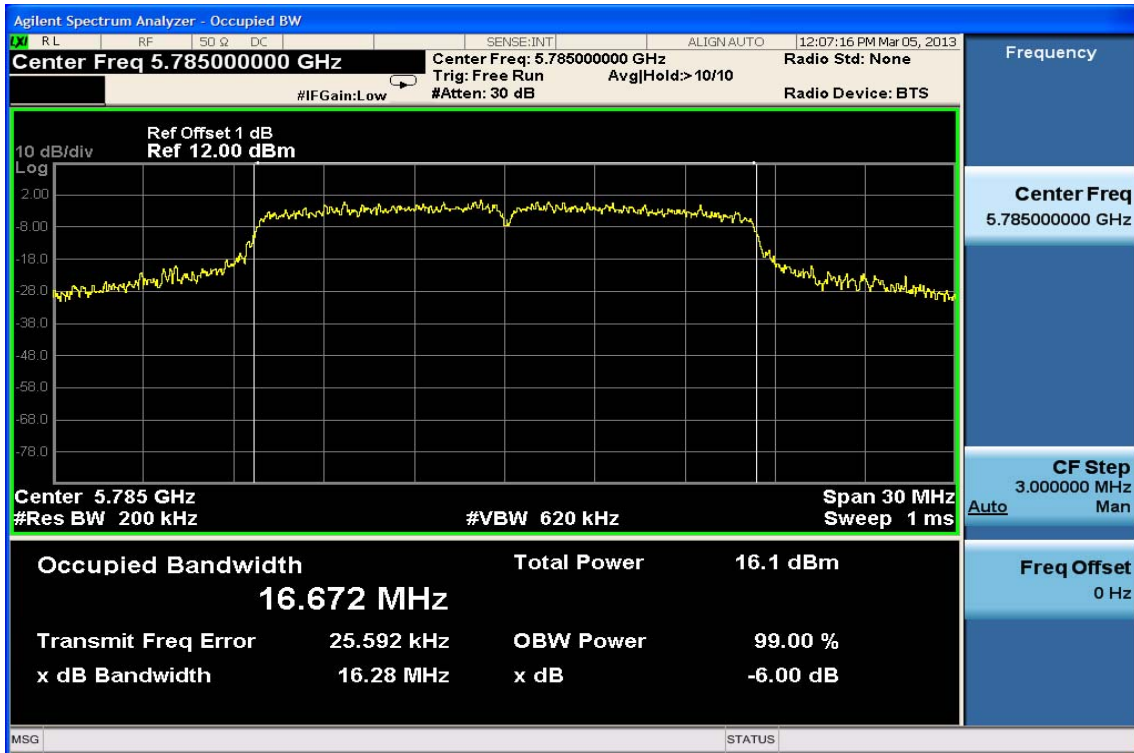


### 802.11a

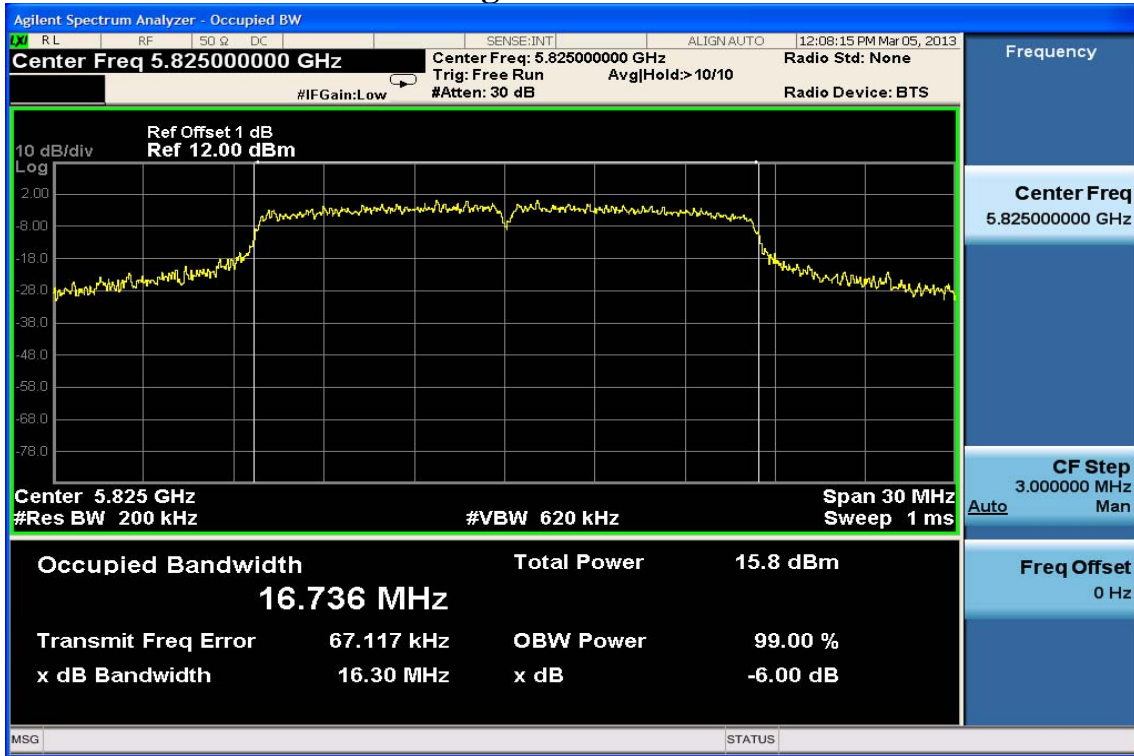
### 6dB Band Width Test Data CH-Low



### 6dB Band Width Test Data CH-Mid

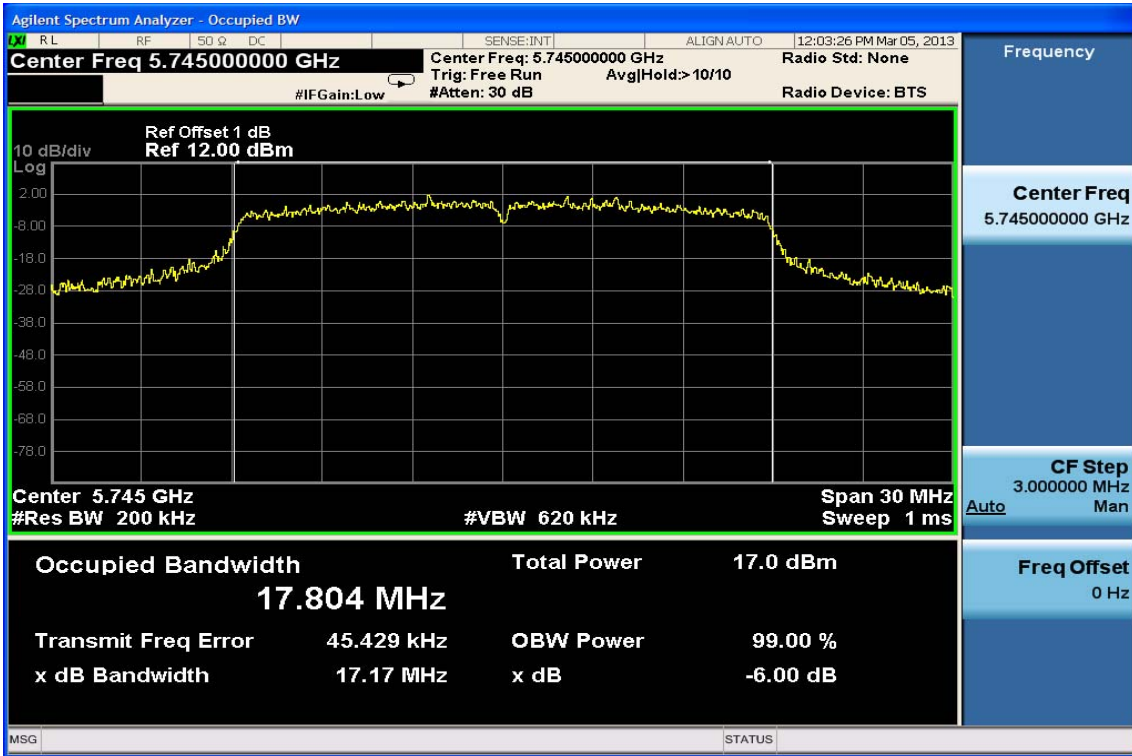


### 6dB Band Width Test Data CH-High

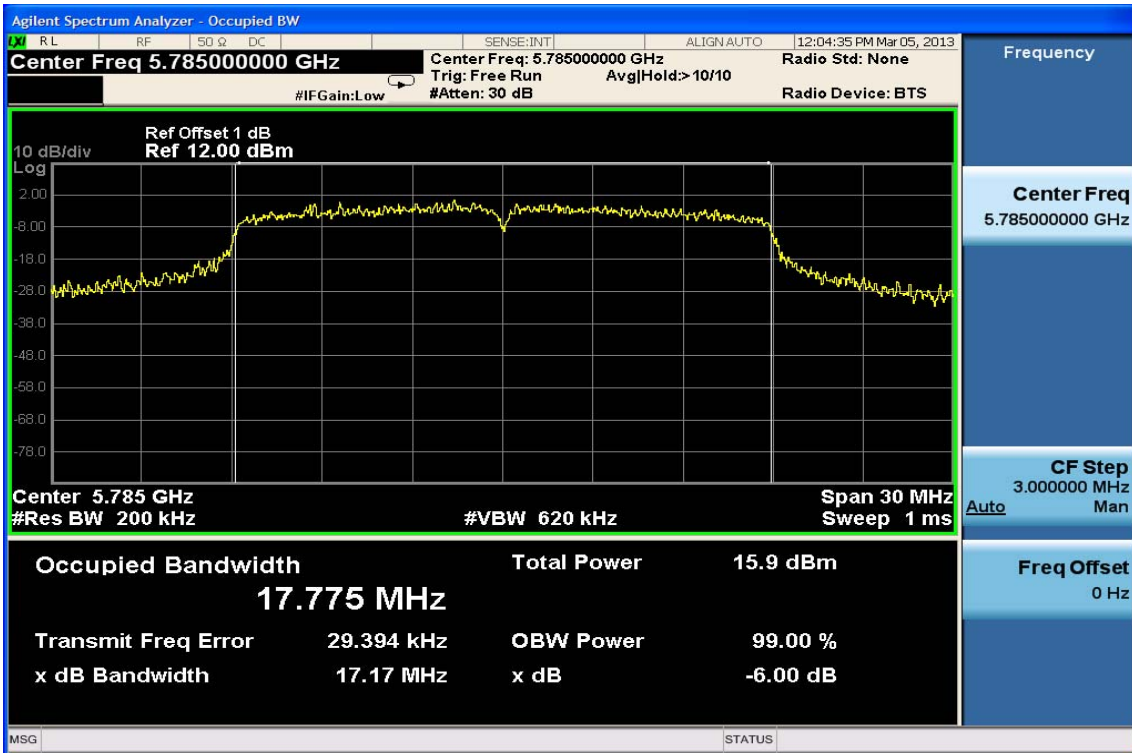




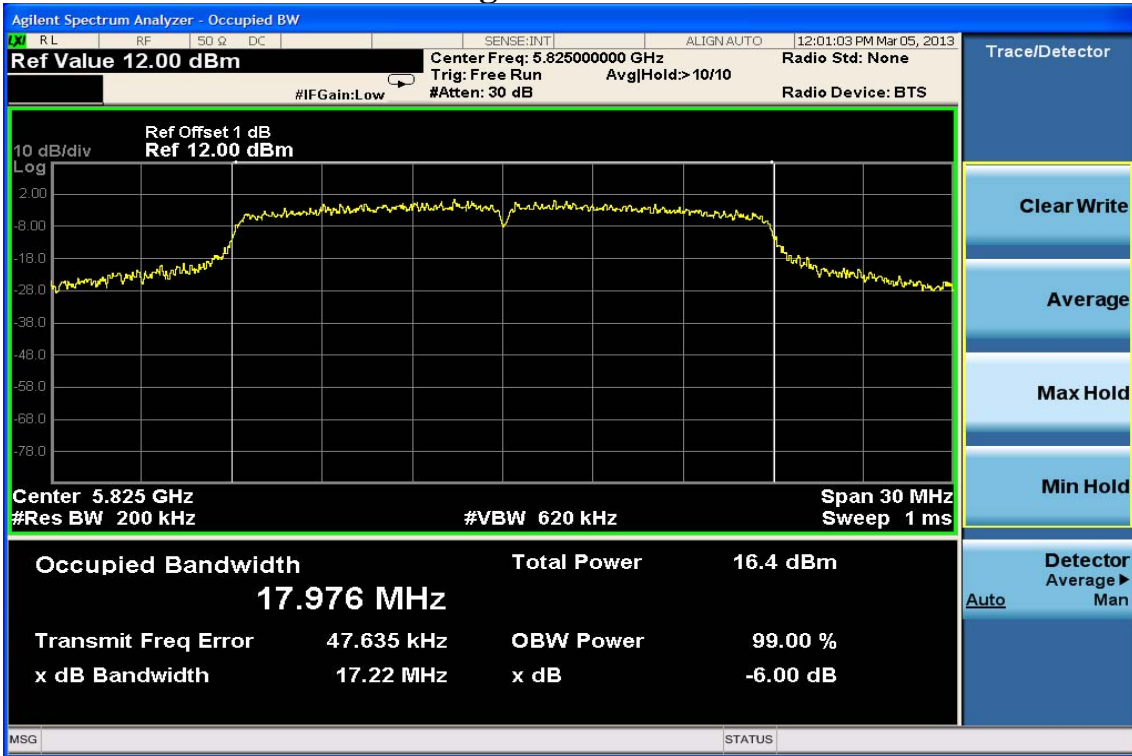
### 802.11n\_20M for 5GHz 6dB Band Width Test Data CH-Low



### 6dB Band Width Test Data CH-Mid



### 6dB Band Width Test Data CH-High



## **8 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT**

### **8.1 Standard Applicable:**

According to §15.247(c), in any 100 KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is 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 §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

According to RSS-210 issue 8, §A8.5, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

### **8.2 Measurement Equipment Used:**

#### **8.2.1 Conducted Emission at antenna port:**

Refer to section 6.2 for details.

**8.2.2 Radiated emission:**

<b>Chamber 14(966)</b>					
<b>EQUIPMENT TYPE</b>	<b>MFR</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>LAST CAL.</b>	<b>CAL DUE.</b>
Spectrum Analyzer 21(26.5GHz)	Agilent	N9010A	MY49060537	07/17/2012	07/16/2013
Spectrum Analyzer 20(6.5GHz)	Agilent	E4443A	MY48250315	05/24/2012	05/23/2013
Spectrum Analyzer 22(43GHz)	R&S	FSU43	100143	04/25/2012	04/24/2013
Dipole antenna	SCHWARZBECK	VHAP,30-300	919	11/16/2011	11/15/2013
Dipole antenna	SCHWARZBECK	UHAP,300-1000	1195	10/25/2011	10/24/2013
Loop Antenna9K-30M	A.H.SYSTEM	SAS-564	294	02/27/2013	02/26/2014
Bilog Antenna30-1G	Schaffner	CBL 6111B	2756	01/13/2013	01/12/2014
Horn antenna1-18G	COM-POWER	AH118	2011071401	03/01/2013	02/29/2014
Horn antenna1-18G(06)	EMCO	3117	0006665	10/15/2012	10/14/2013
Horn antenna26-40G(05)	Com-power	AH-640	100A	01/09/2013	01/08/2015
Horn antenna18-26G(04)	Com-power	AH-826	081001	05/04/2011	05/03/2013
Preamplifier9-1000M	HP	8447D	NA	02/10/2013	02/09/2014
Preamplifier1-18G	MITEQ	AFS44-001018 00-25-10P-44	1329256	07/23/2012	07/22/2013
Preamplifier1-26G	EM	EM01M26G	NA	02/26/2013	02/25/2014
Preamplifier26-40G	MITEQ	JS-26004000-2 7-5A	818471	05/21/2011	05/20/2013
Cable1-18G	HUBER SUHNER	Sucoflex 106	NA	09/07/2012	09/06/2013
Cable UP to 1G	HUBER SUHNER	RG 214/U	NA	10/08/2012	10/07/2013
SUCOFLEX 1GHz~40GHz cable	HUBER SUHNER	Sucoflex 102	27963/2&3742 1/2	09/21/2011	09/20/2013
Signal Generator	R&S	SMU200A	102330	02/19/2013	02/18/2014
Signal Generator	Anritsu	MG3692A	20311	09/18/2012	09/17/2013
2.4G Filter	Micro-Tronics	Brm50702	76	12/27/2012	12/26/2013
5G Filter	Micro-Tronics	Brm50716	005	12/27/2012	12/26/2013

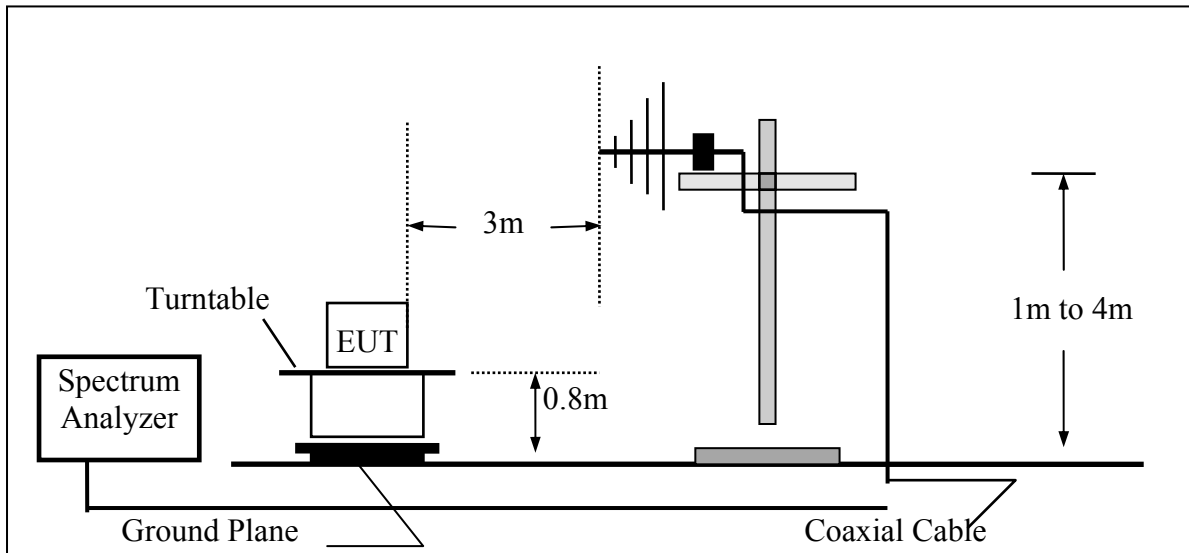
### 8.3 Test SET-UP:

#### 8.3.1 Conducted Emission at antenna port:

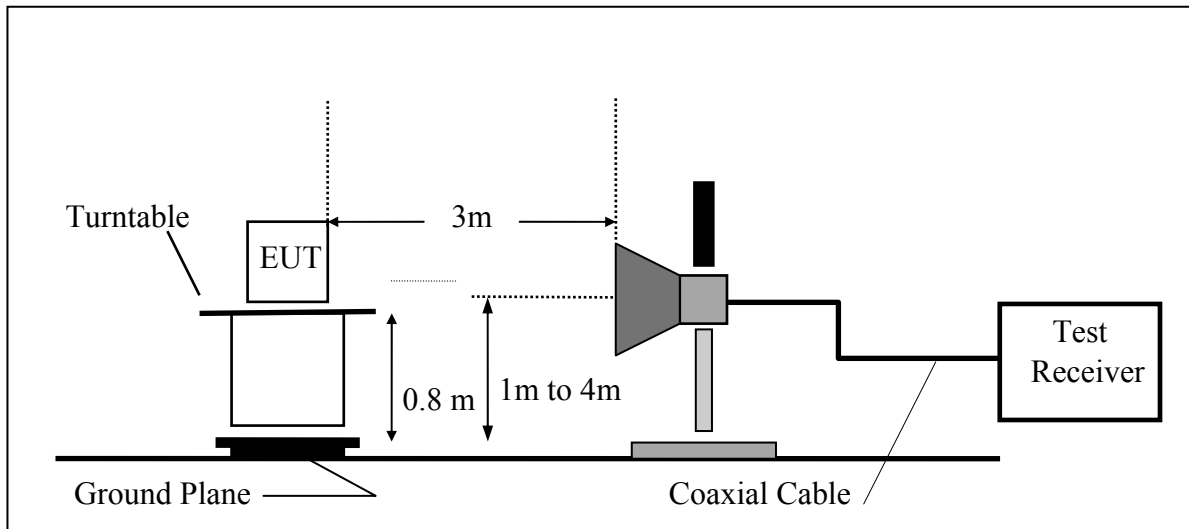
Refer to section 6.3 for details.

#### 8.3.2 Radiated emission:

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



#### 8.4 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, VBW=100KHz, Span=25MHz, Sweep = auto
5. Mark Peak, 2.390GHz and 2.4835GHz and record the max. level.
6. Repeat above procedures until all frequency measured were complete.

#### Refer to section 10.2.5 Band-Edge Measurements of KDB Document: 558074 D01 DTS Meas Guidance v02

The measurement of unwanted emissions at the edge of the authorized frequency bands can be complicated by the leakage of RF energy from the fundamental emission into the RBW pass band. Thus, for measurements at the band edges, a narrower resolution bandwidth (no less than 10 kHz) can be used within the first 1 MHz beyond the fundamental emission, provided that that measured energy is subsequently integrated over the appropriate reference bandwidth (i.e., 100 kHz or 1 MHz). This integration can be performed using the band power function of the spectrum analyzer or by summing the spectral levels (in linear power units) over the appropriate reference bandwidth.

#### 8.5 Field Strength Calculation:

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

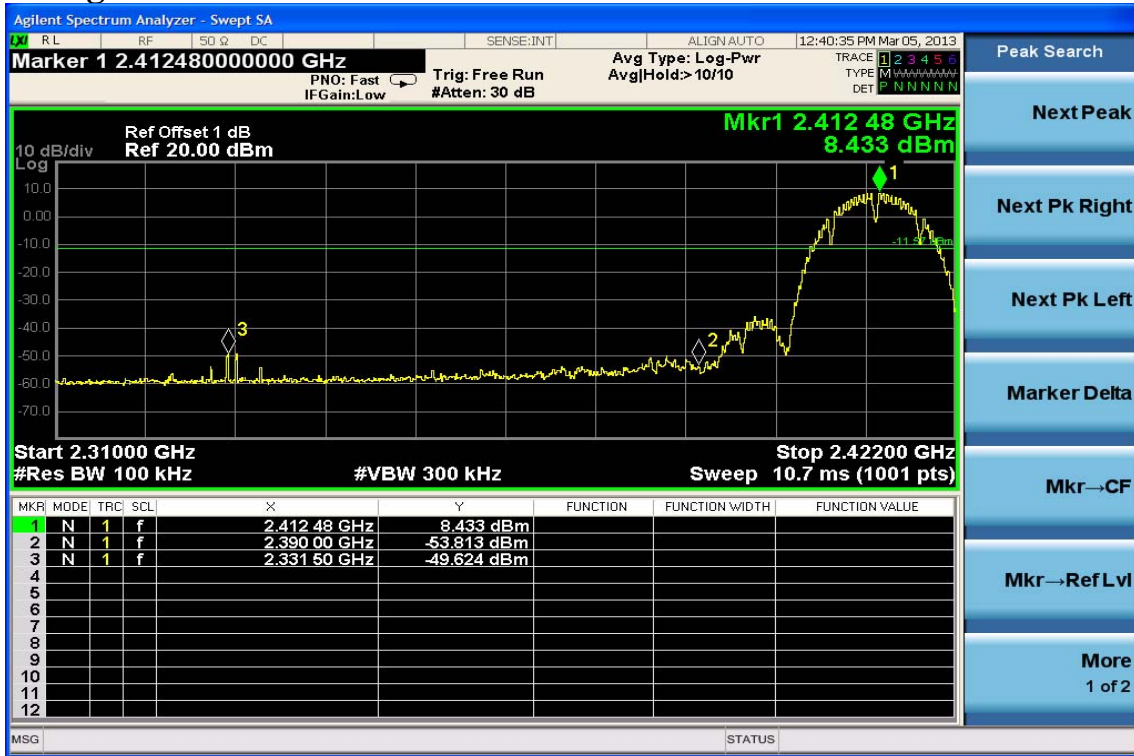
Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

#### 8.6 Measurement Result:

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

### 802.11b

### Band Edges Test Data CH-Low



### Band Edges Test Data CH-High



**Radiated Emission: 802.11b mode**

Operation Mode TX CH Low  
Fundamental Frequency 2412 MHz  
Temperature 25 °C

Test Date 2013/03/11  
Test By Dino  
Humidity 60 %

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	2386.72	61.91	-11.26	50.65	74.00	-23.35	Peak	VERTICAL
2	2390.00	59.71	-11.25	48.46	74.00	-25.54	Peak	VERTICAL
1	2371.71	61.31	-11.30	50.01	74.00	-23.99	Peak	HORIZONTAL
2	2390.00	59.62	-11.25	48.37	74.00	-25.63	Peak	HORIZONTAL

Operation Mode TX CH High  
Fundamental Frequency 2462 MHz  
Temperature 25 °C

Test Date 2013/03/11  
Test By Dino  
Humidity 60 %

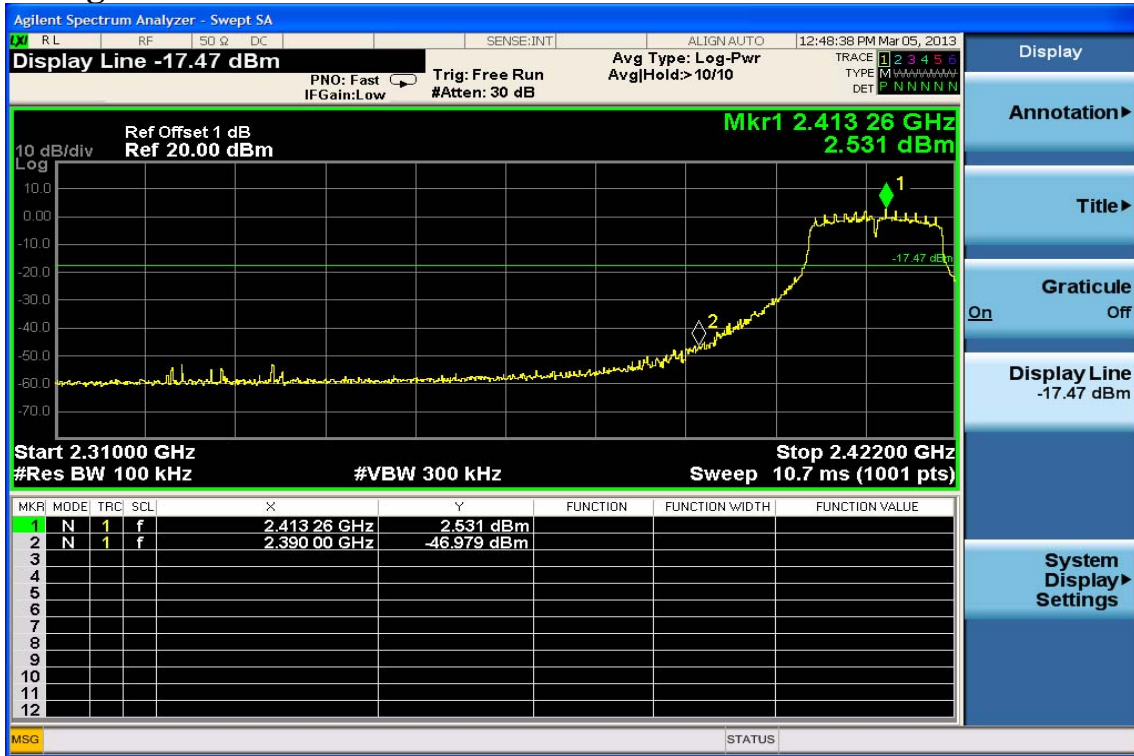
No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	2483.50	60.64	-11.01	49.63	74.00	-24.37	Peak	VERTICAL
2	2487.71	59.33	-11.00	48.33	54.00	-5.67	Average	VERTICAL
3	2487.71	65.75	-11.00	54.75	74.00	-19.25	Peak	VERTICAL
1	2483.50	59.23	-11.01	48.22	74.00	-25.78	Peak	HORIZONTAL
2	2487.09	62.40	-11.00	51.40	74.00	-22.60	Peak	HORIZONTAL

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 Measurement of data within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 Spectrum Peak mode IF bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 5 Spectrum AV mode if bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



### 802.11g Band Edges Test Data CH-Low



### Band Edges Test Data CH-High



**Radiated Emission: 802.11g mode**

Operation Mode TX CH Low  
 Fundamental Frequency 2412 MHz  
 Temperature 25 °C

Test Date 2013/03/11  
 Test By Dino  
 Humidity 60 %

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	2390.00	56.74	-11.25	45.49	54.00	-8.51	Average	VERTICAL
2	2390.00	75.08	-11.25	63.83	74.00	-10.17	Peak	VERTICAL
1	2390.00	51.80	-11.25	40.55	54.00	-13.45	Average	HORIZONTAL
2	2390.00	68.08	-11.25	56.83	74.00	-17.17	Peak	HORIZONTAL

Operation Mode TX CH High  
 Fundamental Frequency 2462 MHz  
 Temperature 25 °C

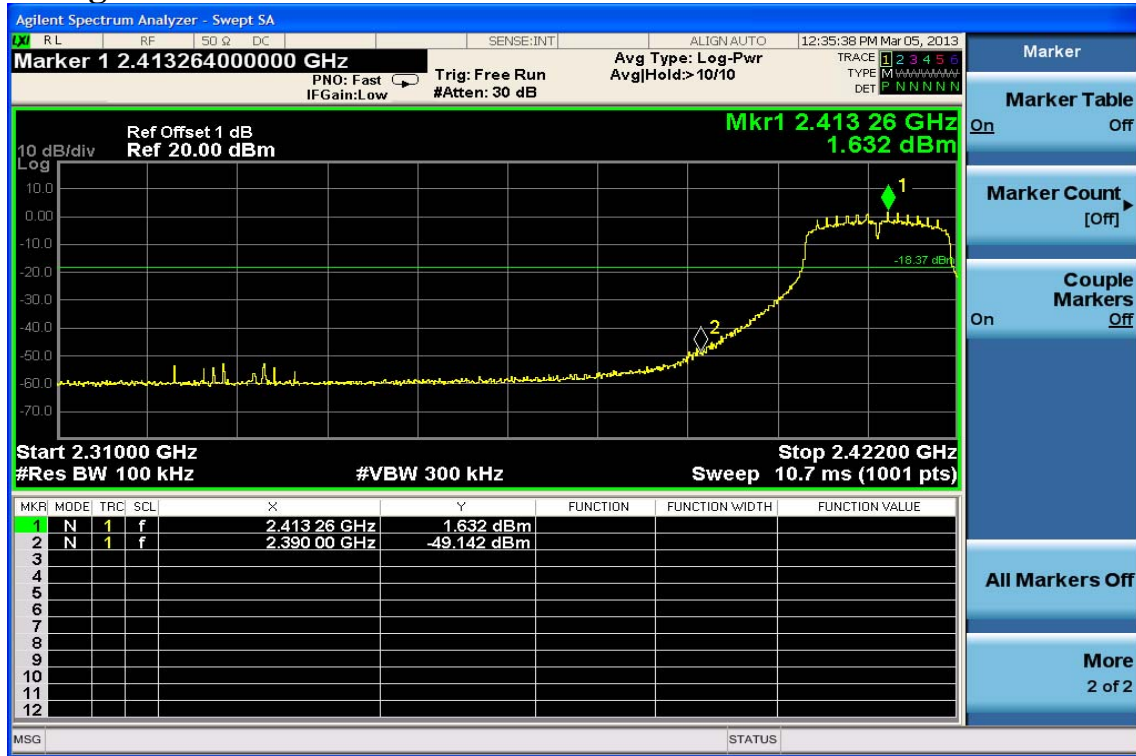
Test Date 2013/03/11  
 Test By Dino  
 Humidity 60 %

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	2483.50	63.00	-11.01	51.99	54.00	-2.01	Average	VERTICAL
2	2483.50	81.21	-11.01	70.20	74.00	-3.80	Peak	VERTICAL
1	2483.50	58.95	-11.01	47.94	54.00	-6.06	Average	HORIZONTAL
2	2483.50	73.41	-11.01	62.40	74.00	-11.60	Peak	HORIZONTAL

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 Measurement of data within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 Spectrum Peak mode IF bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 5 Spectrum AV mode if bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

## 802.11n\_20M for 2.4GHz Conducted Band Edges Test Data CH-Low



## Band Edges Test Data CH-High



**Radiated Emission: 802.11 n\_20M mode**

Operation Mode TX CH Low  
 Fundamental Frequency 2412 MHz  
 Temperature 25 °C

Test Date 2013/03/11  
 Test By Dino  
 Humidity 60 %

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	2390.00	55.49	-11.25	44.24	54.00	-9.76	Average	VERTICAL
2	2390.00	71.29	-11.25	60.04	74.00	-13.96	Peak	VERTICAL
1	2389.41	62.86	-11.25	51.61	74.00	-22.39	Peak	HORIZONTAL
2	2390.00	62.37	-11.25	51.12	74.00	-22.88	Peak	HORIZONTAL

Operation Mode TX CH High  
 Fundamental Frequency 2462 MHz  
 Temperature 25 °C

Test Date 2013/03/11  
 Test By Dino  
 Humidity 60 %

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	2483.50	61.26	-11.01	50.25	54.00	-3.75	Average	VERTICAL
2	2483.50	77.07	-11.01	66.06	74.00	-7.94	Peak	VERTICAL
1	2483.50	56.22	-11.01	45.21	54.00	-8.79	Average	HORIZONTAL
2	2483.50	72.23	-11.01	61.22	74.00	-12.78	Peak	HORIZONTAL

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 Measurement of data within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 Spectrum Peak mode IF bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 5 Spectrum AV mode if bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

### 802.11a

### Band Edges Test Data CH-Low



### Band Edges Test Data CH-High



**Radiated Emission: 802.11a mode**

Operation Mode TX CH Low  
Fundamental Frequency 5745 MHz  
Temperature 25 °C

Test Date 2013/03/11  
Test By Dino  
Humidity 60 %

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	5724.31	47.99	0.23	48.22	74.00	-25.78	Peak	VERTICAL
2	5725.00	46.40	0.23	46.63	74.00	-27.37	Peak	VERTICAL
1	5709.12	46.98	0.19	47.17	74.00	-26.83	Peak	HORIZONTAL
2	5725.00	45.23	0.23	45.46	74.00	-28.54	Peak	HORIZONTAL

Operation Mode TX CH High  
Fundamental Frequency 5825 MHz  
Temperature 25 °C

Test Date 2013/03/11  
Test By Dino  
Humidity 60 %

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	5850.00	44.05	0.56	44.61	74.00	-29.39	Peak	VERTICAL
2	5893.29	45.94	0.67	46.61	74.00	-27.39	Peak	VERTICAL
1	5850.00	43.37	0.56	43.93	74.00	-30.07	Peak	HORIZONTAL
2	5889.12	45.84	0.66	46.50	74.00	-27.50	Peak	HORIZONTAL

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 Measurement of data within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 Spectrum Peak mode IF bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 5 Spectrum AV mode if bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

### 802.11n\_20M for 5GHz, Conducted Band Edges Test Data CH-Low



### Band Edges Test Data CH-High



**Radiated Emission: 802.11 n\_20M mode**

Operation Mode TX CH Low  
 Fundamental Frequency 5745 MHz  
 Temperature 25 °C

Test Date 2013/03/11  
 Test By Dino  
 Humidity 60 %

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	5693.78	46.18	0.15	46.33	74.00	-27.67	Peak	VERTICAL
2	5725.00	44.50	0.23	44.73	74.00	-29.27	Peak	VERTICAL
1	5683.55	46.60	0.13	46.73	74.00	-27.27	Peak	HORIZONTAL
2	5725.00	43.65	0.23	43.88	74.00	-30.12	Peak	HORIZONTAL

Operation Mode TX CH High  
 Fundamental Frequency 5825 MHz  
 Temperature 25 °C

Test Date 2013/03/11  
 Test By Dino  
 Humidity 60 %

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark	Pol V/H
1	5850.00	44.30	0.56	44.86	74.00	-29.14	Peak	VERTICAL
2	5861.58	45.85	0.58	46.43	74.00	-27.57	Peak	VERTICAL
1	5850.00	43.71	0.56	44.27	74.00	-29.73	Peak	HORIZONTAL
2	5873.65	45.80	0.62	46.42	74.00	-27.58	Peak	HORIZONTAL

Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 Measurement of data within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 Spectrum Peak mode IF bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 5 Spectrum AV mode if bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



## **9 SPURIOUS RADIATED EMISSION TEST**

### **9.1 Standard Applicable**

According to §15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §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, whichever is lower.

According to RSS-210 issue 8, §A8.5, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3

### **9.2 Measurement Equipment Used:**

#### **9.2.1 Conducted Emission at antenna port:**

Refer to section 6.2 for details.

#### **9.2.2 Radiated emission:**

Refer to section 7.2 for details.

### **9.3 Test SET-UP:**

#### **9.3.1 Conducted Emission at antenna port:**

Refer to section 6.3 for details.

#### **9.3.2 Radiated emission:**

Refer to section 7.3 for details.

#### 9.4 Measurement Procedure:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
4. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.
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.

Refer to section 10 Maximum Unwanted Emissions level of KDB Document: 558074 D01 DTS Meas Guidance v02

#### 9.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

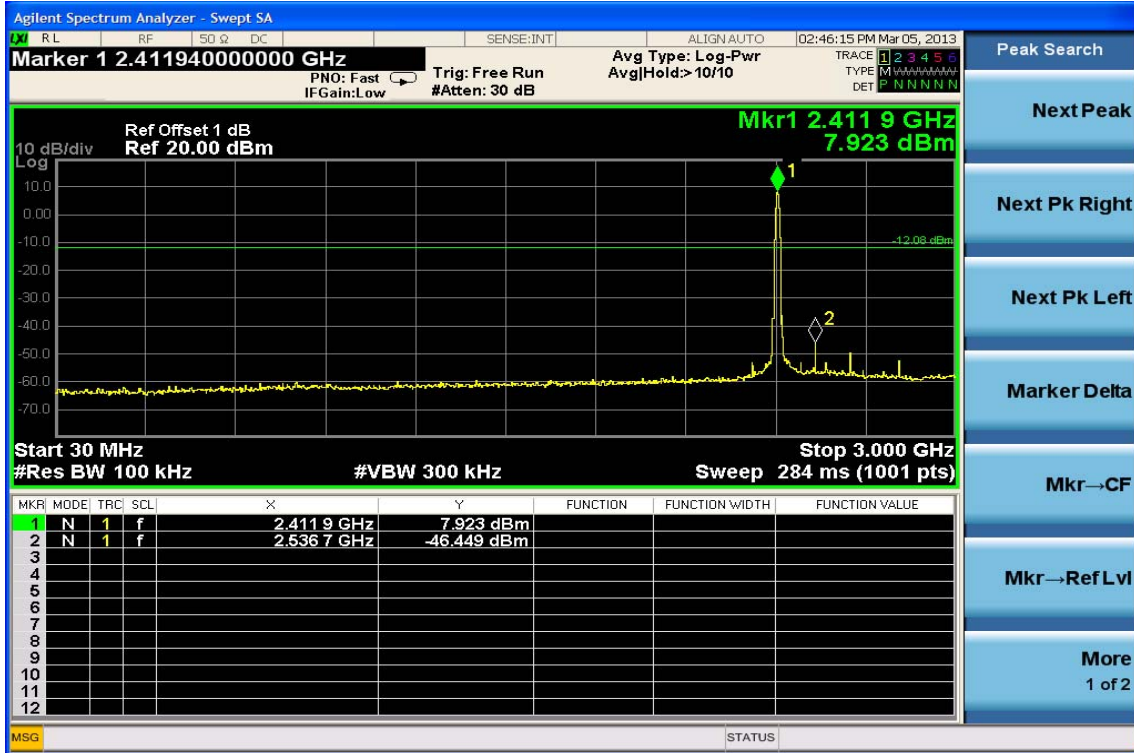
Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

#### 9.6 Measurement Result:

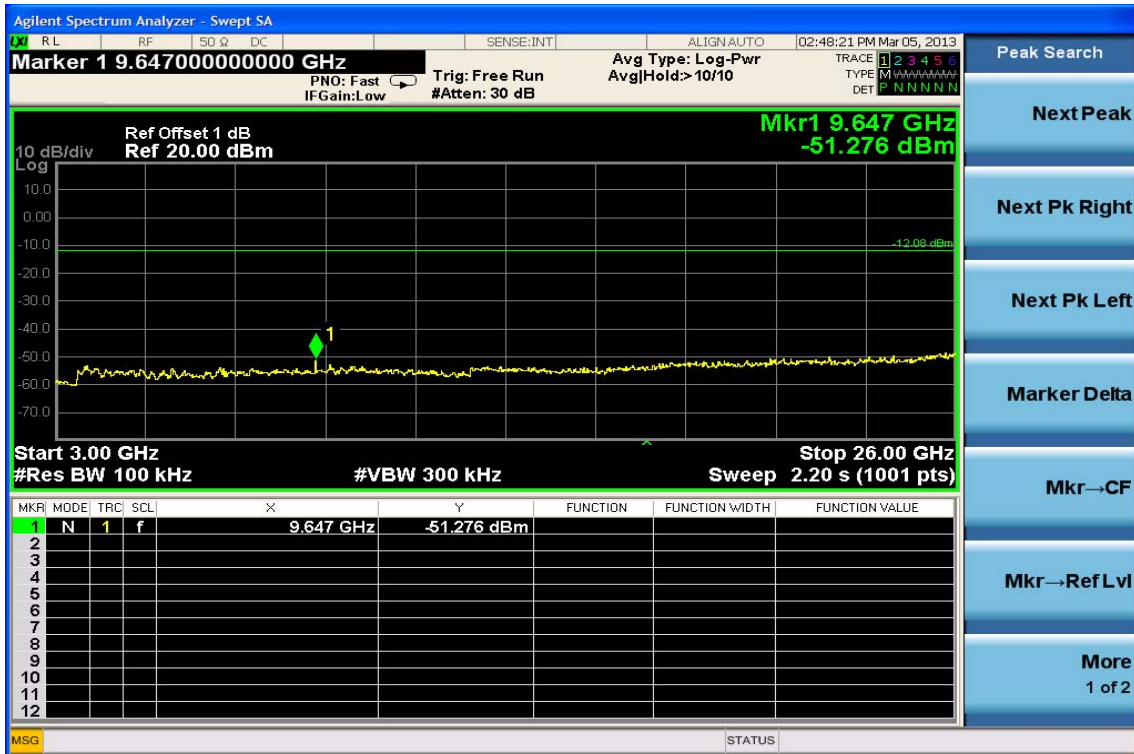
Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

# Conducted Spurious Emission Measurement Result 802.11b

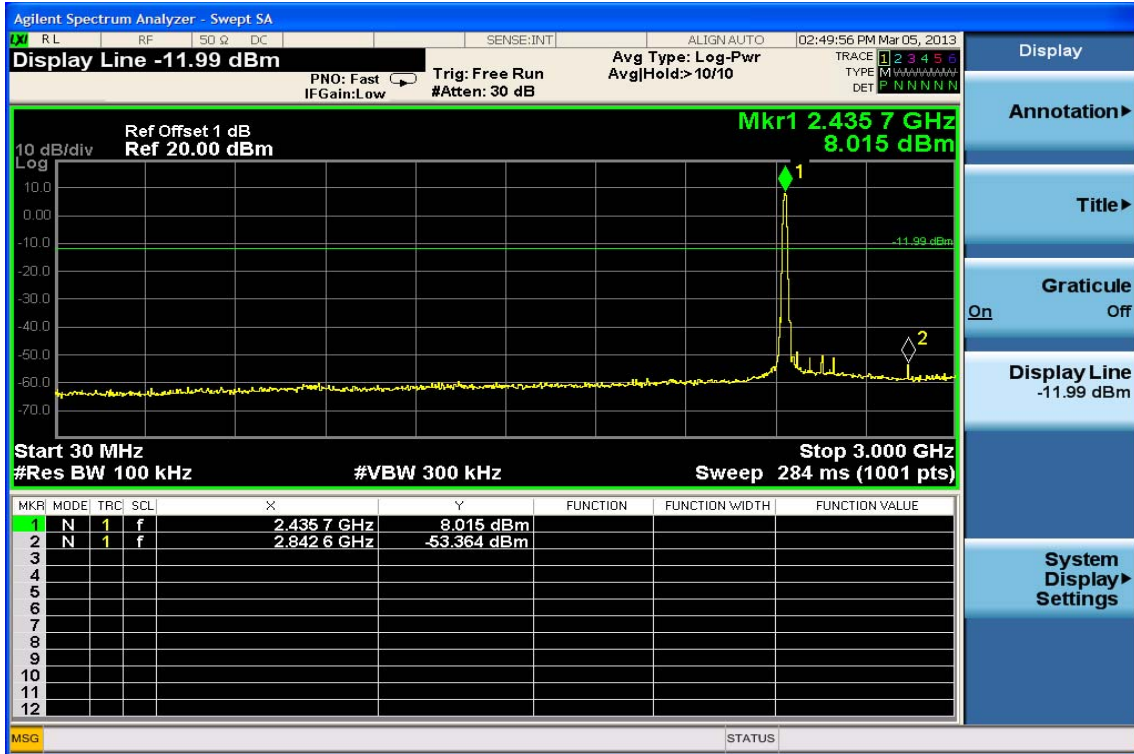
## Ch Low 30MHz – 3GHz



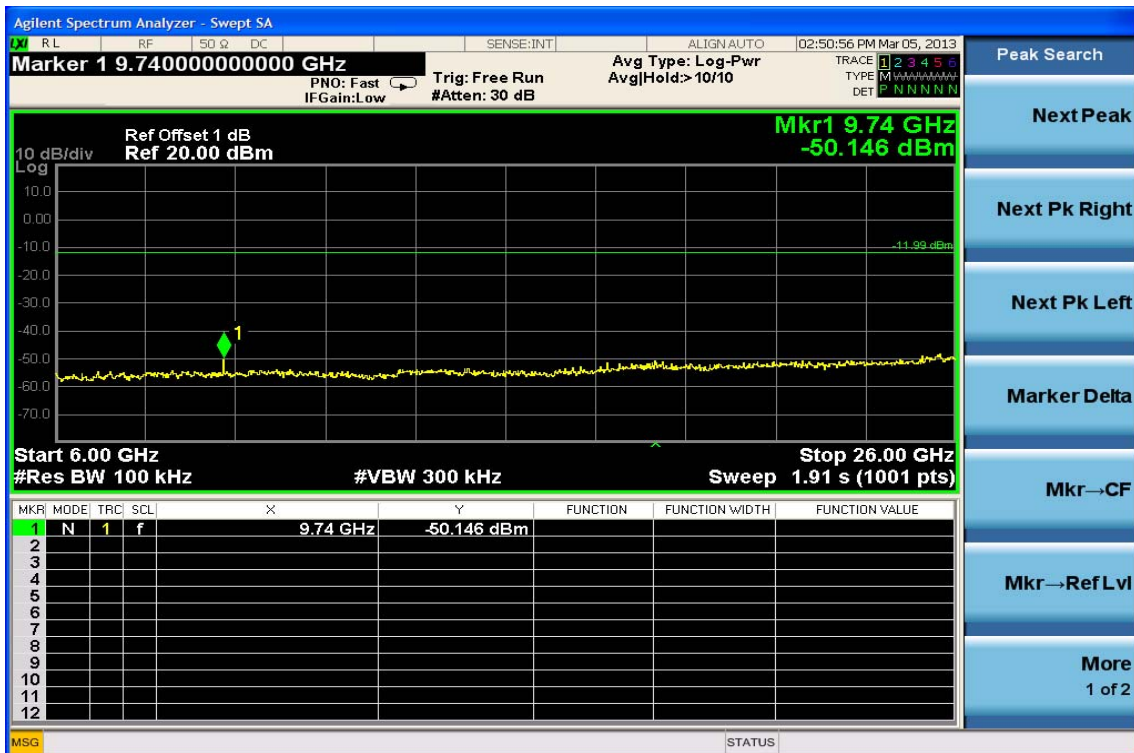
## Ch Low 3GHz – 26.5GHz



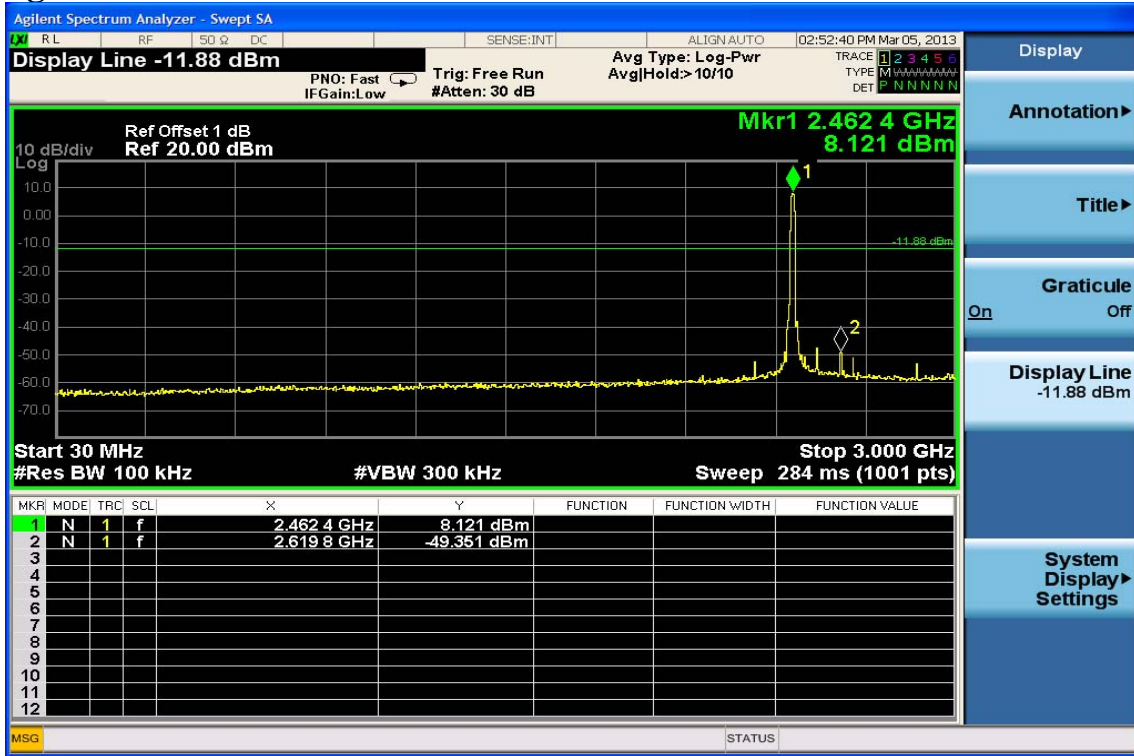
### Ch Mid 30MHz – 3GHz



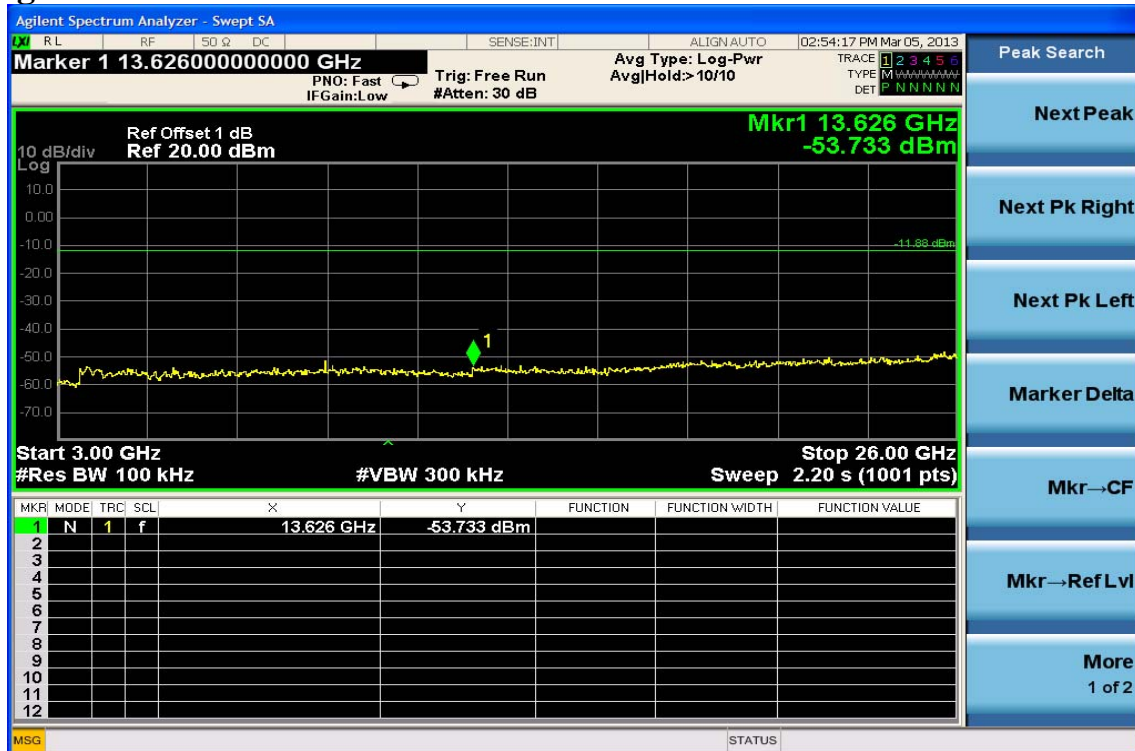
### Ch Mid 3GHz – 26.5GHz



### Ch High 30MHz – 3GHz



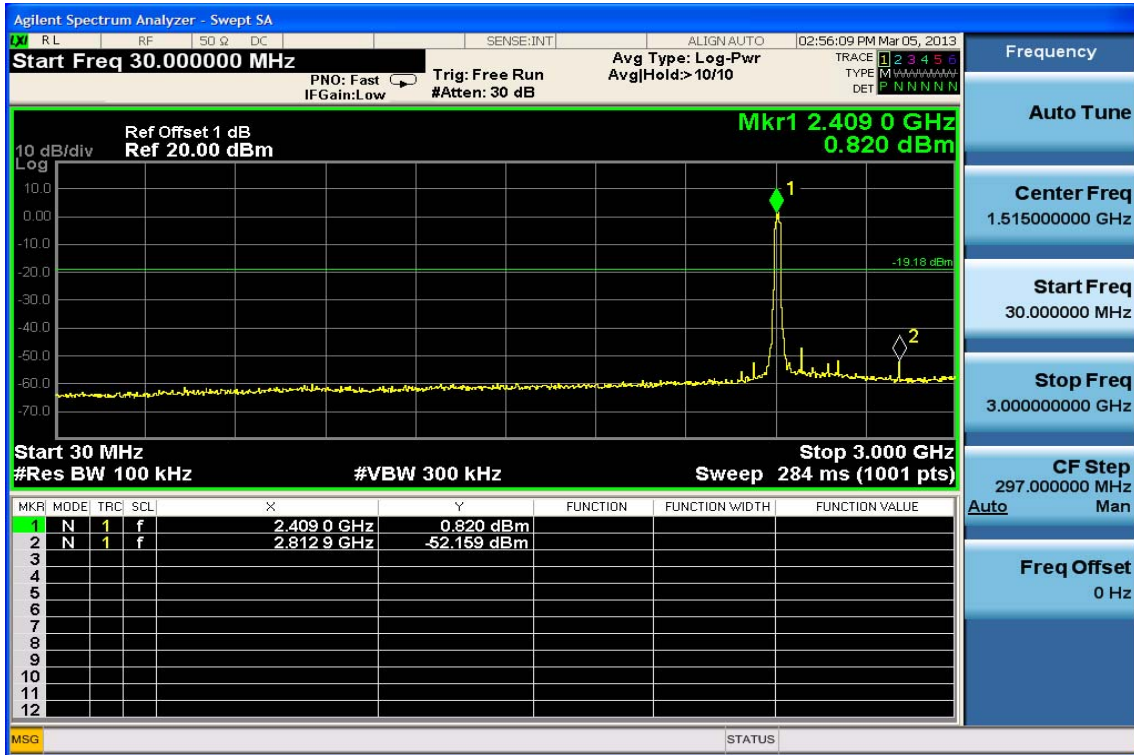
### Ch High 3GHz – 26.5GHz



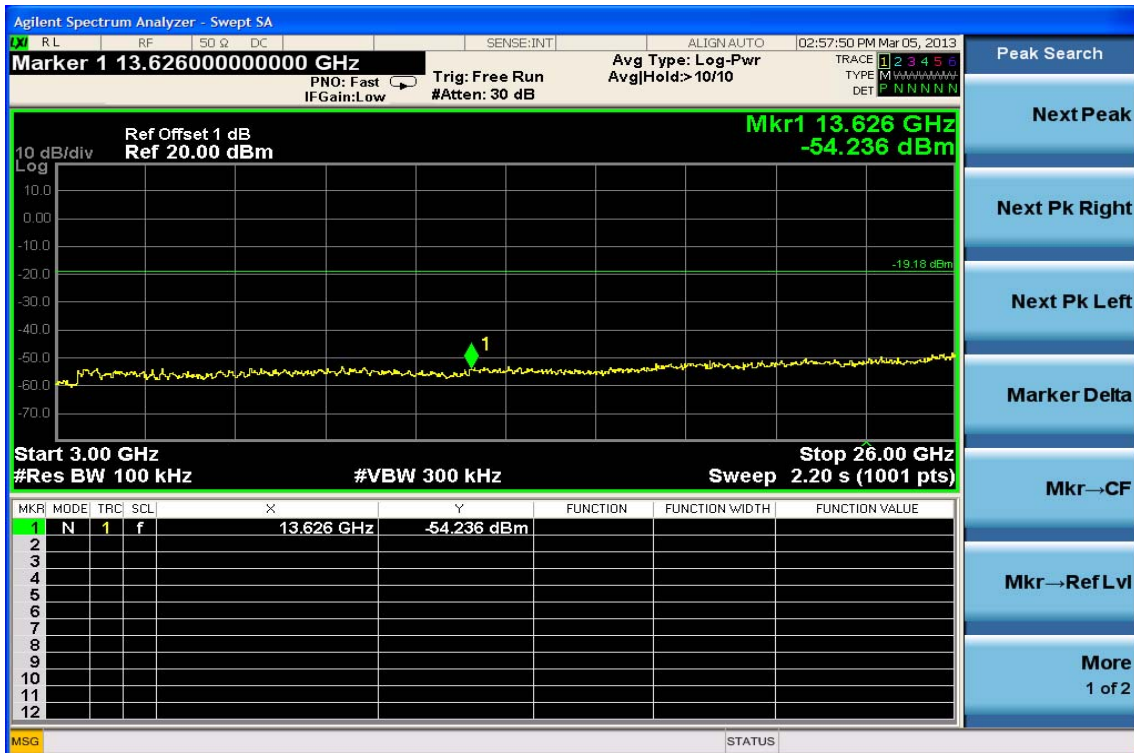
# Conducted Spurious Emission Measurement Result

802.11g

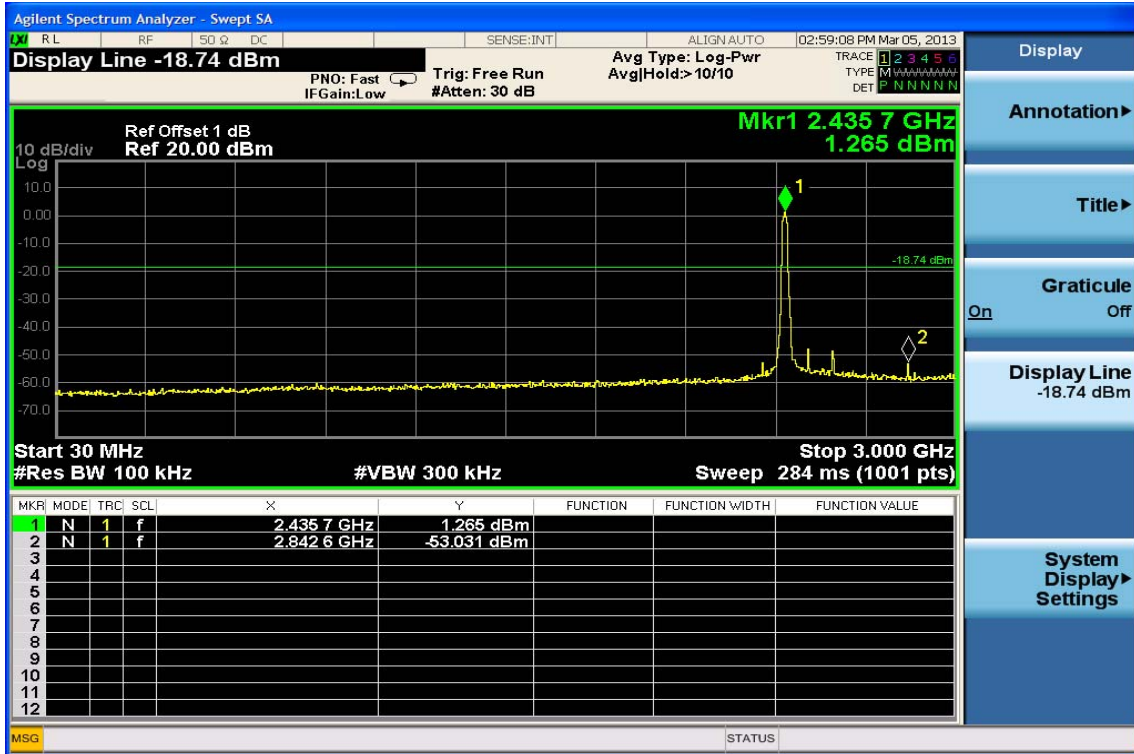
Ch Low 30MHz – 3GHz



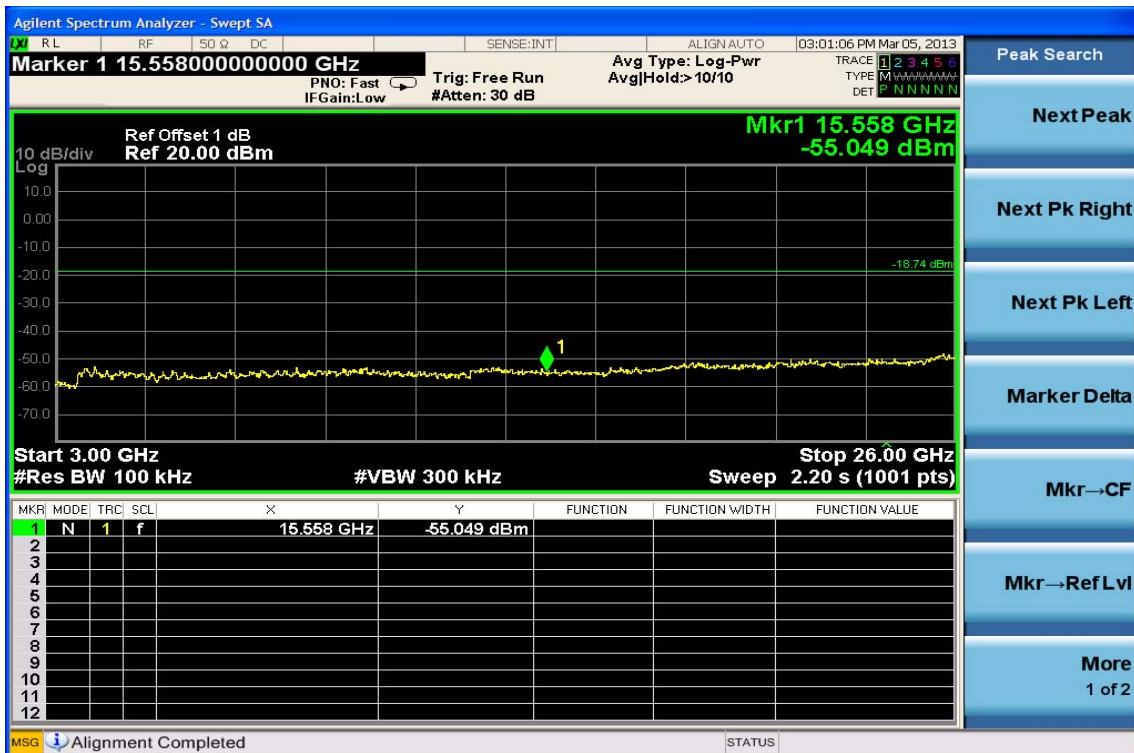
Ch Low 3GHz – 26.5GHz



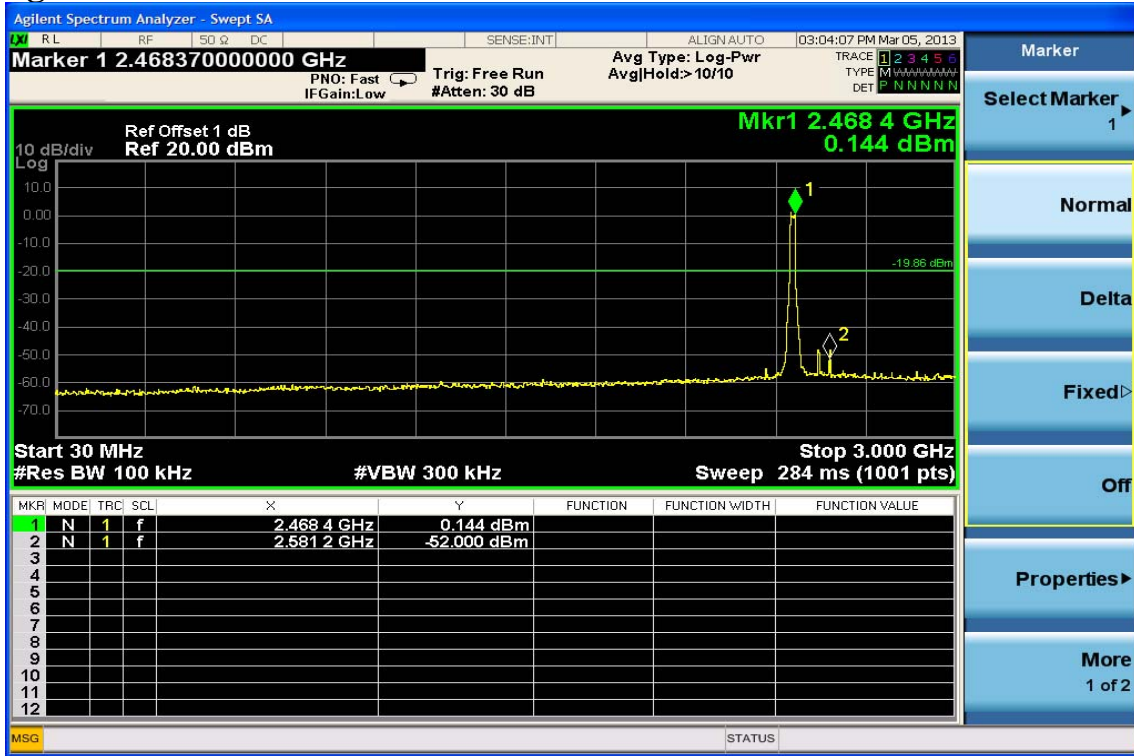
### Ch Mid 30MHz – 3GHz



### Ch Mid 3GHz – 26.5GHz



### Ch High 30MHz – 3GHz



### Ch High 3GHz – 26.5GHz

