

APPLICATION FOR CERTIFICATION

On Behalf of

INVENTEC BESTA CO., LTD.

HP Prime Wireless Antenna

Model No. : G0S03-60001

FCC ID : U6OG0S03

IC: 9982A-G0S03

Brand : hp

Prepared for : INVENTEC BESTA CO., LTD.
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TEST REPORT CERTIFICATION

Applicant : INVENTEC BESTA CO., LTD.
Manufacturer : INVENTEC BESTA CO., LTD.
EUT Description : HP Prime Wireless Antenna
FCC ID : U6OG0S03
IC : 9982A-G0S03
(A) Model No. : G0S03-60001
(B) Serial No. : N/A
(C) Brand : hp
(D) Power Supply : DC 5V
(E) Power Supply : AC 120V/60Hz (Powered by Notebook PC)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C, Oct. 2013
Industry Canada Rules and Regulations RSS-Gen (Issue 3), December 2010 and
RSS-210 (Issue 8), December 2010
(Canada RSS-210 §Annex 8)
And ANSI C63.4:2003

(FCC 47 CFR Part 15C, §15.205 and §15.207 and §15.209 and §15.247)

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C and Canada RSS-Gen, RSS-210 limits.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the requirements of FCC and Industry Canada RSS-Gen, RSS-210 standards.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test: Dec. 02 ~ 06, 2013

Date of Report: Dec. 09, 2013

Producer: 
(Tina Huang/Administrator)

Signatory: 
(Leon Liu/Deputy General Manager)

1. DESCRIPTION OF REVISION HISTORY

Edition No.	Date of Rev.	Revision Summary	Report No.
0	Dec. 09, 2013	Original Report	EM-F1020899

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product	HP Prime Wireless Antenna
Model Number	G0S03-60001
Serial Number	N/A
Brand Name	hp
Applicant	INVENTEC BESTA CO., LTD. 10FL., No.36, Lane 513, Rui Guang Road, Nei Hu Dist., Taipei 114, Taiwan
Manufacturer	INVENTEC BESTA CO., LTD. 10FL., No.36, Lane 513, Rui Guang Road, Nei Hu Dist., Taipei 114, Taiwan
Fundamental Range	2402MHz ~ 2480MHz
Frequency Channel	79 channels
Radio Technology	GFSK
Data Transfer Rate	2Mbps
USB Cable	Shielded, Undetachable, 2.0m, Bonded two ferrite cores
Date of Receipt of Sample	Nov. 15, 2013
Date of Test	Dec. 02 ~ 06, 2013

2.2. Tested Supporting System Details

2.2.1. NOTEBOOK PC

Model Number	:	ZL5
Serial Number	:	N/A
Manufacturer	:	acer
AC Adapter	:	LITEON, M/N PA-1650-02
		DC Cord: Non-Shielded, Undetachable, 1.8m
AC Power Cord	:	Non-Shielded, Detachable, 1.8m

2.3. Description of Test Facility

Name of Firm	:	AUDIX Technology Corporation EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan, R.O.C.
Test Site (C8/Semi-AC)	:	No. 8 Shielded Room & Semi-Anechoic Chamber No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan, R.O.C. May 14, 2009 Renewal on Federal Communication Commission Registration Number: 90993
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724

2.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conduction Test	150kHz~30MHz	$\pm 1.73\text{dB}$
Radiation Test (Distance: 3m)	30MHz~300MHz	$\pm 2.91\text{dB}$
	300MHz~1000MHz	$\pm 2.74\text{dB}$
	Above 1GHz	$\pm 5.02\text{dB}$

Remark : Uncertainty = $k u_c(y)$

Test Item	Uncertainty
6dB Bandwidth	$\pm 0.05\text{kHz}$
Maximum peak output power	$\pm 0.33\text{dBm}$
Band edges	$\pm 0.13\text{dB}$
Power spectral density	$\pm 0.13\text{dB}$
Emission Limitations	$\pm 0.13\text{dB}$

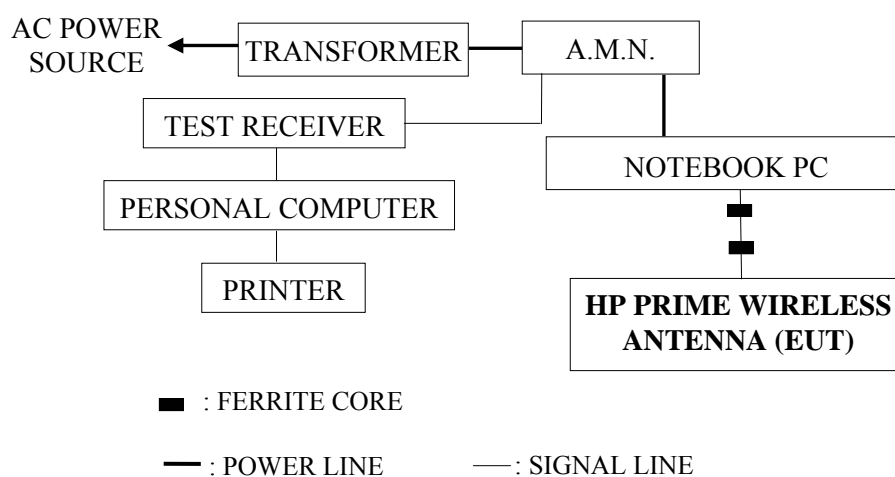
3. CONDUCTED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the conducted emission measurement :
(No. 8 Shielded Room)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCS30	100265	Aug. 22, 13'	Aug. 21, 14'
2.	A.M.N.	R&S	ESH2-Z5	100366	Mar. 19, 13'	Mar. 18, 14'

3.2. Block Diagram of Test Setup



3.3. Powerline Conducted Emission Limit §15.207, Class B,

RSS-Gen §7.2.2/Table 2]

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB μ V	56 ~ 46 dB μ V
500kHz ~ 5MHz	56 dB μ V	46 dB μ V
5MHz ~ 30MHz	60 dB μ V	50 dB μ V

Remark 1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2.: The lower limit applies at the band edges.

3.4. Operating Condition of EUT

- 3.4.1. Setup the EUT and simulator as shown on 3.2.
- 3.4.2. Turn on the power of all equipment.
- 3.4.3. The Notebook PC was running test software “RF Test” to set EUT (HP Prime Wireless Antenna) on transmitting and receiving during all testing.

3.5. Test Procedure

The EUT (link Notebook PC) was placed on the table which was above the ground by 80cm and Notebook PC’s adapter’s power cord connected to the AC mains through an Artificial Mains Network (A.M.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions simulators of the interface cables should be manipulated according to ANSI C63.4-2003, RSS-Gen and RSS-210 regulation during conducted measurement.

The bandwidth of the R&S Test Receiver ESCS 30 was set at 9kHz.

The frequency range from 150kHz to 30MHz was checked.

All the final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

3.6. Conducted Emission Measurement Results

PASSED.

(All the emissions not reported below are too low against the prescribed limits.)

EUT was performed during this section testing and all the test results are attached in next pages.

EUT : HP Prime Wireless Antenna

M/N : G0S03-60001

Test Date : Dec. 06, 2013

Temperature : 22

Humidity : 60%

Reference Test Data : Neutral # 2; Line # 1

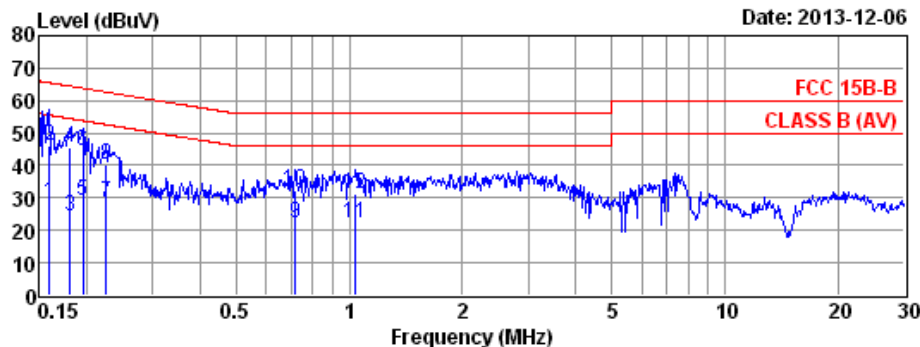


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Data: 2

File: D:\test data\REPORT\2013\1M1311XXX\1M1311177-C-D.EM6 (6)

Date: 2013-12-06



Site no. : No.8 Shielded Room Data no. : 2
Dis. / Ant. : ESH2-Z5 366 Ant. pol. : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : 22°C / 60% ESCS (265) Engineer : Jack_Wu
EUT : G0S03-60001
Power Rating : 120Vac/60Hz
Test Mode : Operating

	Freq. (MHz)	AMN. Factor (dB)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.159	0.21	0.03	28.31	28.55	55.52	26.97	Average
2	0.159	0.21	0.03	46.00	46.24	65.52	19.28	QP
3	0.181	0.21	0.03	24.28	24.52	54.46	29.94	Average
4	0.181	0.21	0.03	45.11	45.35	64.46	19.11	QP
5	0.195	0.21	0.03	28.83	29.07	53.80	24.73	Average
6	0.195	0.21	0.03	44.42	44.66	63.80	19.14	QP
7	0.226	0.21	0.03	28.43	28.67	52.61	23.94	Average
8	0.226	0.21	0.03	39.78	40.02	62.61	22.59	QP
9	0.720	0.23	0.04	21.72	21.99	46.00	24.01	Average
10	0.720	0.23	0.04	32.01	32.28	56.00	23.72	QP
11	1.037	0.24	0.05	21.87	22.16	46.00	23.84	Average
12	1.037	0.24	0.05	30.81	31.10	56.00	24.90	QP

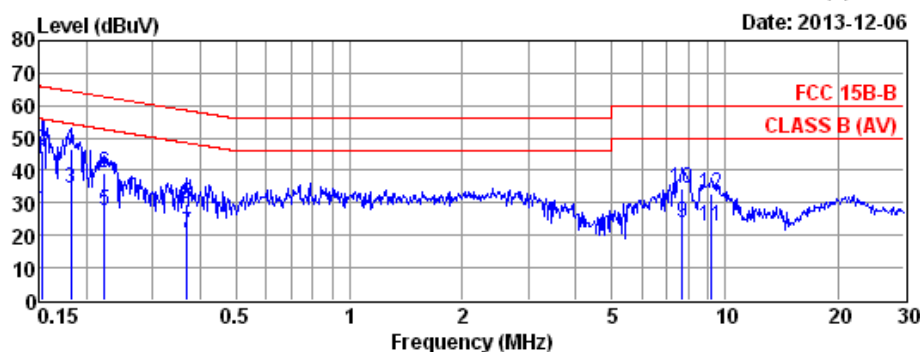
Remarks: 1. Emission Level= AMN Factor + Cable Loss + Reading.

2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Data: 1 File: D:\test data\REPORT\2013\1M1311XXX\1M1311177-C-D.EM6 (6)



Site no. : No.8 Shielded Room Data no. : 1
Dis. / Ant. : ESH2-Z5 366 Ant. pol. : LINE
Limit : FCC 15B-B
Env. / Ins. : 22°C / 60% ESCS (265) Engineer : Jack_Wu
EUT : G0S03-60001
Power Rating : 120Vac/60Hz
Test Mode : Operating

	Freq. (MHz)	AMN. Factor (dB)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.152	0.11	0.03	27.16	27.30	55.87	28.57	Average
2	0.152	0.11	0.03	45.74	45.88	65.87	19.99	QP
3	0.182	0.11	0.03	34.36	34.50	54.42	19.92	Average
4	0.182	0.11	0.03	46.23	46.37	64.42	18.05	QP
5	0.223	0.11	0.03	27.29	27.43	52.70	25.27	Average
6	0.223	0.11	0.03	39.20	39.34	62.70	23.36	QP
7	0.369	0.12	0.03	20.38	20.53	48.52	27.99	Average
8	0.369	0.12	0.03	29.69	29.84	58.52	28.68	QP
9	7.687	0.23	0.17	23.32	23.72	50.00	26.28	Average
10	7.687	0.23	0.17	33.87	34.27	60.00	25.73	QP
11	9.204	0.24	0.18	22.42	22.84	50.00	27.16	Average
12	9.204	0.24	0.18	32.63	33.05	60.00	26.95	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Reading.
2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

4. RADIATED EMISSION MEASUREMENT

4.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

4.1.1. For Frequency Range 30MHz~1000MHz (at Semi-Anechoic Chamber)

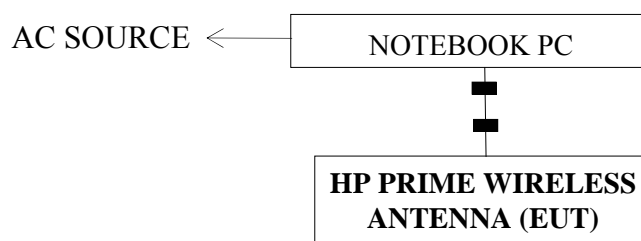
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Jul. 30, 13'	Jul. 29, 14'
2.	Test Receiver	R & S	ESCS30	100338	Jul. 01, 13'	Jun. 30, 14'
3.	Amplifier	HP	8447D	2944A06305	Feb. 19, 13'	Feb. 18, 14'
4.	Bilog Antenna	TESEQ	CBL6112D	33821	Mar. 08, 13'	Mar. 08, 14'

4.1.2. For Frequency Above 1GHz (at Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Jul. 30, 13'	Jul. 29, 14'
2.	Amplifier	HP	8449B	3008A00529	Jan. 31, 13'	Jan. 30, 14'
3.	Horn Antenna	EMCO	3115	9609-4927	Jun. 17, 13'	Jun. 16, 14'
4.	Horn Antenna	EMCO	3116	2653	Oct. 11, 13'	Oct. 10, 14'
5.	2.4GHz Notch Filter	K&L	7NSL10-2441.5E130.5-00	1	Jun. 13, 13'	Jun. 12, 14'
6.	3G High Pass Filter	Microwave Circuits	H3G018G1	484796	Jun. 13, 13'	Jun. 12, 14'

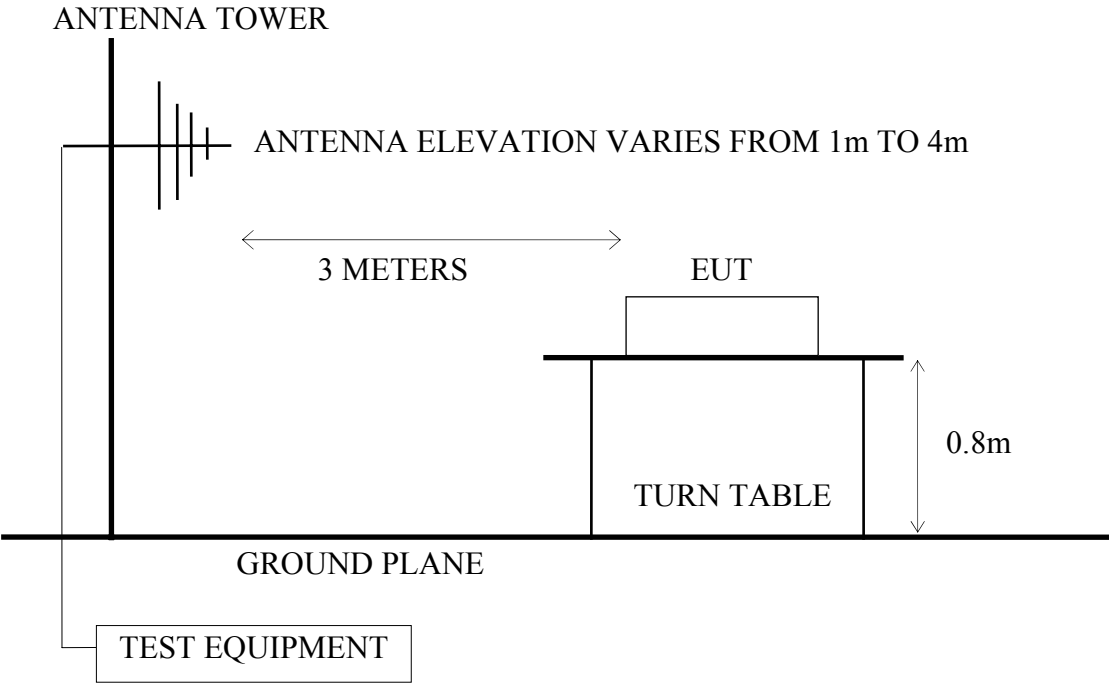
4.2. Test Setup

4.2.1. Block Diagram of connection between EUT and simulators

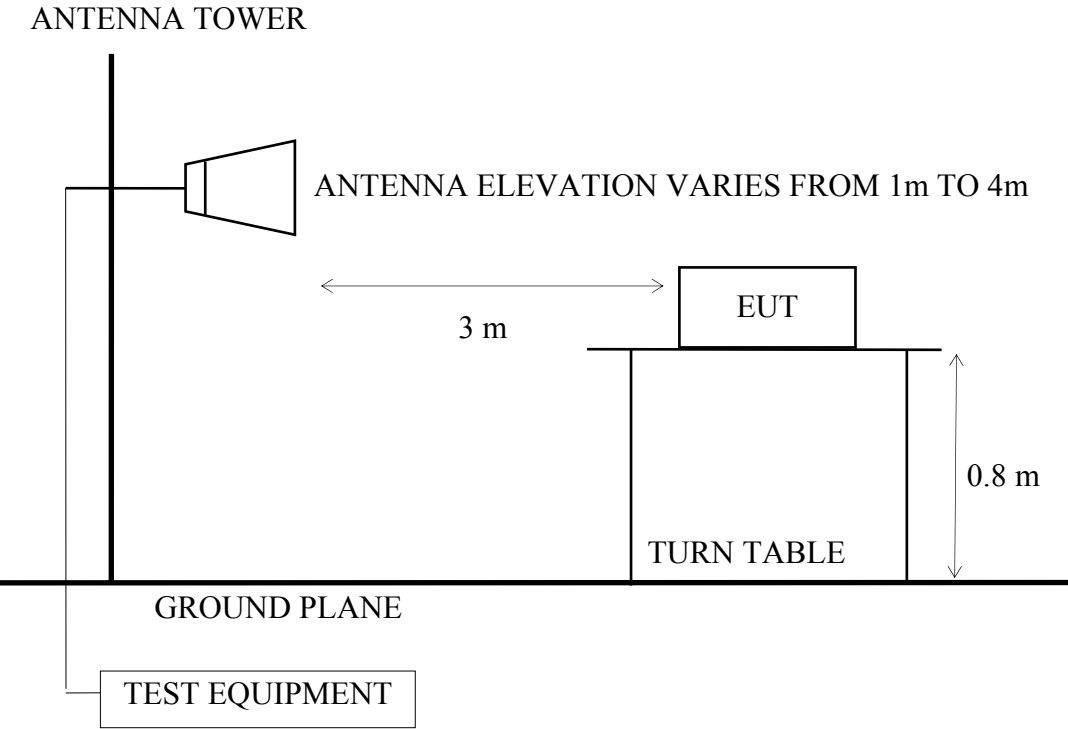


■ : FERRITE CORE

4.2.2. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



4.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



4.3. Radiated Emission Limits (§15.209, RSS-210 §2.7/Table 2)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Above 1000	3	74.0 $\text{dB}\mu\text{V/m}$ (Peak) 54.0 $\text{dB}\mu\text{V/m}$ (Average)	

Remark : (1) Emission level ($\text{dB}\mu\text{V/m}$) = $20 \log$ Emission level ($\mu\text{V/m}$)

(2) The tighter limit applies at the edge between two frequency bands.

(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

(4) The limits in this table are based on CFR 47 Part 15.205(a)(b) and Part 15.209 (a).

(5) The over 1GHz limit, FCC limit is used based on CFR 47 Part 15.35(b) and Part 15.205(b) & Part 15.209(e) and Part 15.207(c).

4.4. Operating Condition of EUT

4.4.1. Set up the EUT (HP Prime Wireless Antenna) via Notebook PC and simulator as shown on 4.2.

4.4.2. To turn on the power of all equipments.

4.4.3. The EUT was set the Notebook PC using test program “RF Test”.

4.4.4. The EUT set to continuously transmit signals at 2402MHz, 2440MHz and 2480MHz during all test time.

4.5. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated bilog antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2003, RSS-Gen and RSS-210 regulation.

The bandwidth of the R&S Test Receiver was set at 120kHz. (For 30MHz to 1000MHz)

The resolution bandwidth and video bandwidth of test spectrum analyzer is 1MHz for peak detection (PK) at frequency above 1GHz.

The resolution bandwidth of test spectrum analyzer is 1MHz and the video bandwidth is 10Hz for average detection (AV) at frequency above 1GHz.

The frequency range from 30MHz to 25GHz (Up to 10th harmonics from fundamental frequency) was checked. 30MHz to 1000MHz was measured with Quasi-Peak detector. Pursuant to ANSI 4.2.2, peak detector is an alternate option for frequency from 30MHz to 1000MHz.

Above 1GHz was measured with peak and average detector. For frequency from 1GHz to 25GHz, we checked it in 1 meter distance and with a shorter cable 2 meter instead of original's. There is no signal exist.

Pursuant to ANSI C63.4 8.3.1.2, when peak value complies with the average limit, we didn't perform measurement in average detector.

4.6. Test Results

PASSED.

(All emissions not reported for there is no emission be found.)

EUT : HP Prime Wireless Antenna

M/N : G0S03-60001

Test Date : Dec. 02, 2013 Temperature : 23 Humidity : 52%

For Frequency Range 30MHz~1000MHz:

The EUT with following test modes were performed during this section testing and all the test results are listed in section 4.6.1.

Mode	Frequency	Test Mode	Reference Test Data	
			Horizontal	Vertical
1.	2402MHz	Transmit	# 2	# 1
2.	2440MHz		# 2	# 1
3.	2480MHz		# 2	# 1

* Above all final readings were measured with Peak detector.

For Frequency above 1GHz:

The emissions (up to 25GHz) not reported for there is no emission be found.

For Restricted Bands:

The EUT was tested in restricted bands and all the test results are listed in section 4.6.2. (The restricted bands defined in part 15.205(a))

Mode	Frequency	Test Mode	Reference Test Data	
			Horizontal	Vertical
1.	2402MHz	Transmit	# 3, # 4	# 1, # 2
2.	2480MHz		# 7, # 8	# 5, # 6

4.6.1. For 30-1000MHz Frequency Range Measurement Results

Frequency: 2402MHz

Site no. : Audix NO.1 Chamber
 Dis. / Ant. : 3m CBL8112D 33821
 Limit : FCC PART-15C
 Env. / Ins. : 23°C/52% N9030A(140)
 EUT : G0S03-80001
 Power Rating : 120Vac/60Hz
 Test Mode : TX 2402

Data no. : 2
 Ant. pol. : HORIZONTAL
 Engineer : jianlun_hung

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	207.51	10.49	3.12	11.39	25.00	43.50	18.50	Peak
2	276.38	13.50	3.70	13.43	30.63	46.00	15.37	Peak
3	689.60	19.50	6.50	6.53	32.53	46.00	13.47	Peak
4	800.18	20.60	6.90	11.98	39.48	46.00	6.52	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : Audix NO.1 Chamber
 Dis. / Ant. : 3m CBL8112D 33821
 Limit : FCC PART-15C
 Env. / Ins. : 23°C/52% N9030A(140)
 EUT : G0S03-80001
 Power Rating : 120Vac/60Hz
 Test Mode : TX 2402

Data no. : 1
 Ant. pol. : VERTICAL
 Engineer : jianlun_hung

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	39.70	14.10	1.20	16.36	31.66	40.00	8.34	Peak
2	243.40	12.43	3.40	12.55	28.38	46.00	17.62	Peak
3	800.18	20.60	6.90	10.57	38.07	46.00	7.93	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 2440MHz

Site no. : Audix NO.1 Chamber
 Dis. / Ant. : 3m CBL6112D 33821
 Limit : FCC PART-15C
 Env. / Ins. : 23°C/52% N9030A(140)
 EUT : GOS03-80001
 Power Rating : 120Vac/60Hz
 Test Mode : TX 2440

Data no. : 2
 Ant. pol. : HORIZONTAL
 Engineer : jianlun_hung

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	233.70	11.56	3.38	9.70	24.64	46.00	21.36	Peak
2	276.38	13.50	3.70	16.05	33.25	46.00	12.75	Peak
3	758.47	20.27	6.80	7.48	34.55	46.00	11.45	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : Audix NO.1 Chamber
 Dis. / Ant. : 3m CBL6112D 33821
 Limit : FCC PART-15C
 Env. / Ins. : 23°C/52% N9030A(140)
 EUT : GOS03-80001
 Power Rating : 120Vac/60Hz
 Test Mode : TX 2440

Data no. : 1
 Ant. pol. : VERTICAL
 Engineer : jianlun_hung

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	54.25	8.38	1.50	18.22	28.10	40.00	11.90	Peak
2	277.35	13.50	3.80	9.80	27.10	46.00	18.90	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 2480MHz

Site no. : Audix NO.1 Chamber
 Dis. / Ant. : 3m CBL6112D 33821
 Limit : FCC PART-15C
 Env. / Ins. : 23°C/52% N9030A(140)
 EUT : GOS03-80001
 Power Rating : 120Vac/60Hz
 Test Mode : TX 2480

Data no. : 2
 Ant. pol. : HORIZONTAL
 Engineer : jianlun_hung

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	101.78	11.48	2.10	8.18	21.76	48.50	21.74	Peak
2	207.51	10.49	3.12	12.09	25.70	48.50	17.80	Peak
3	277.35	13.50	3.80	9.23	26.53	48.00	19.47	Peak
4	800.18	20.60	6.90	12.10	39.60	48.00	6.40	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : Audix NO.1 Chamber
 Dis. / Ant. : 3m CBL6112D 33821
 Limit : FCC PART-15C
 Env. / Ins. : 23°C/52% N9030A(140)
 EUT : GOS03-80001
 Power Rating : 120Vac/60Hz
 Test Mode : TX 2480

Data no. : 1
 Ant. pol. : VERTICAL
 Engineer : jianlun_hung

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	277.35	13.50	3.80	7.37	24.67	48.00	21.33	Peak
2	415.09	16.68	5.10	8.01	29.79	48.00	18.21	Peak
3	800.18	20.60	6.90	7.93	35.43	48.00	10.57	Peak

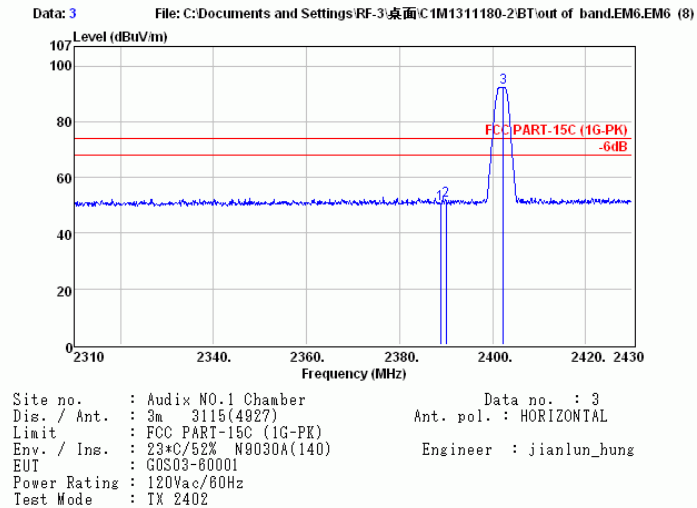
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

4.6.2. Restricted Bands Measurement Results

Date of Test : Dec. 02, 2013 Temperature : 23

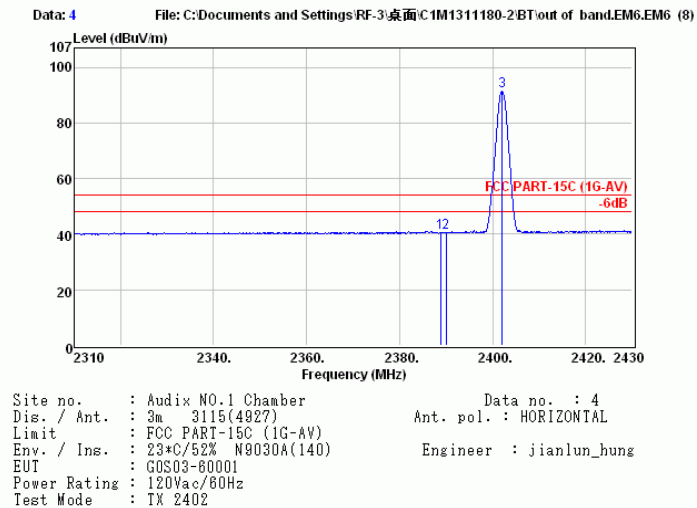
EUT : HP Prime Wireless Antenna Humidity : 52%

Test Mode : Frequency: 2402MHz



Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1 2388.84	28.47	6.34	15.89	50.69	74.00	23.31	Peak
2 2390.04	28.47	6.34	16.87	51.68	74.00	22.32	Peak
3 2402.28	28.47	6.36	57.39	92.22	74.00	-18.22	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



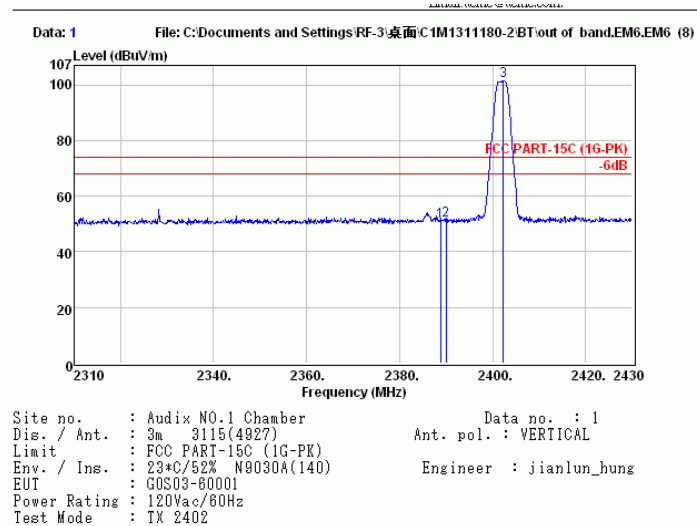
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1 2388.84	28.47	6.34	5.73	40.54	54.00	13.46	Average
2 2390.04	28.47	6.34	5.87	40.48	54.00	13.52	Average
3 2402.04	28.47	6.36	56.58	91.41	54.00	-37.41	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test : Dec. 02, 2013 Temperature : 23

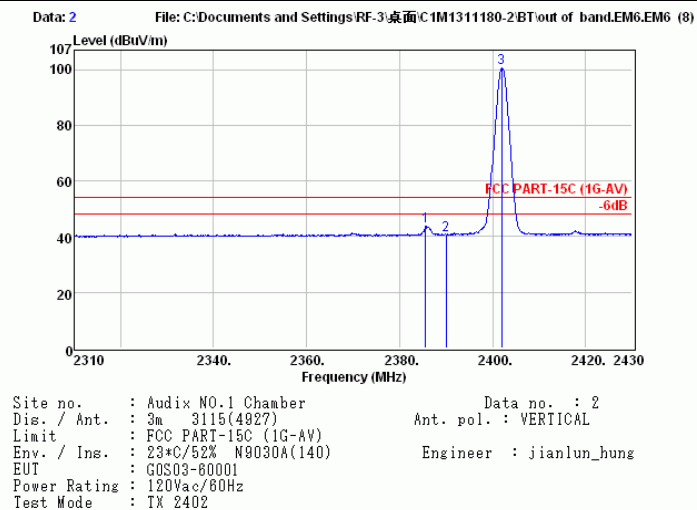
EUT : HP Prime Wireless Antenna Humidity : 52%

Test Mode : Frequency: 2402MHz



	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2388.84	28.47	6.34	16.30	51.11	74.00	22.89	Peak
2	2390.04	28.47	6.34	16.48	51.29	74.00	22.71	Peak
3	2402.28	28.47	6.36	66.46	101.23	74.00	-27.29	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



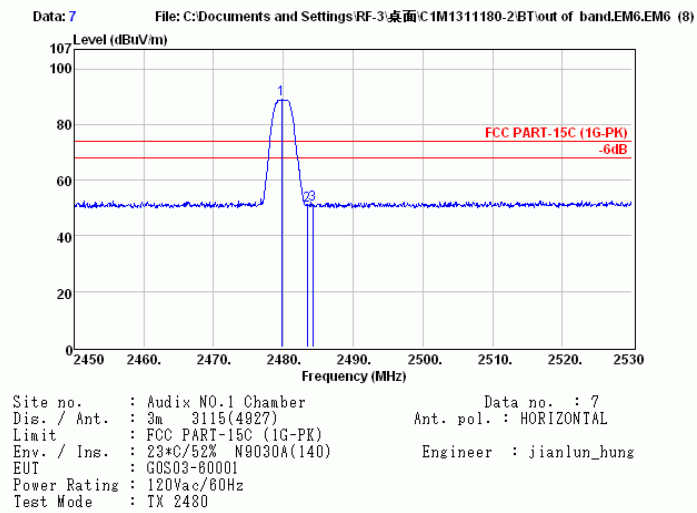
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2385.60	28.47	6.33	8.80	43.60	54.00	10.40	Average
2	2390.04	28.47	6.34	5.86	40.67	54.00	13.33	Average
3	2401.92	28.47	6.36	65.64	100.47	54.00	-46.47	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test : Dec. 02, 2013 Temperature : 23

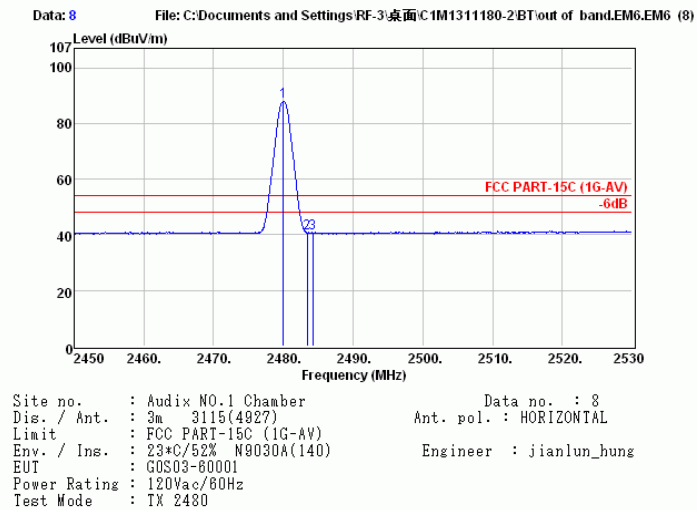
EUT : HP Prime Wireless Antenna Humidity : 52%

Test Mode : Frequency: 2480MHz



Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1 2479.78	28.88	6.44	58.80	98.90	74.00	-14.90	Peak
2 2489.44	28.88	6.45	15.75	60.88	74.00	23.14	Peak
3 2494.24	28.88	6.45	16.29	51.40	74.00	22.60	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



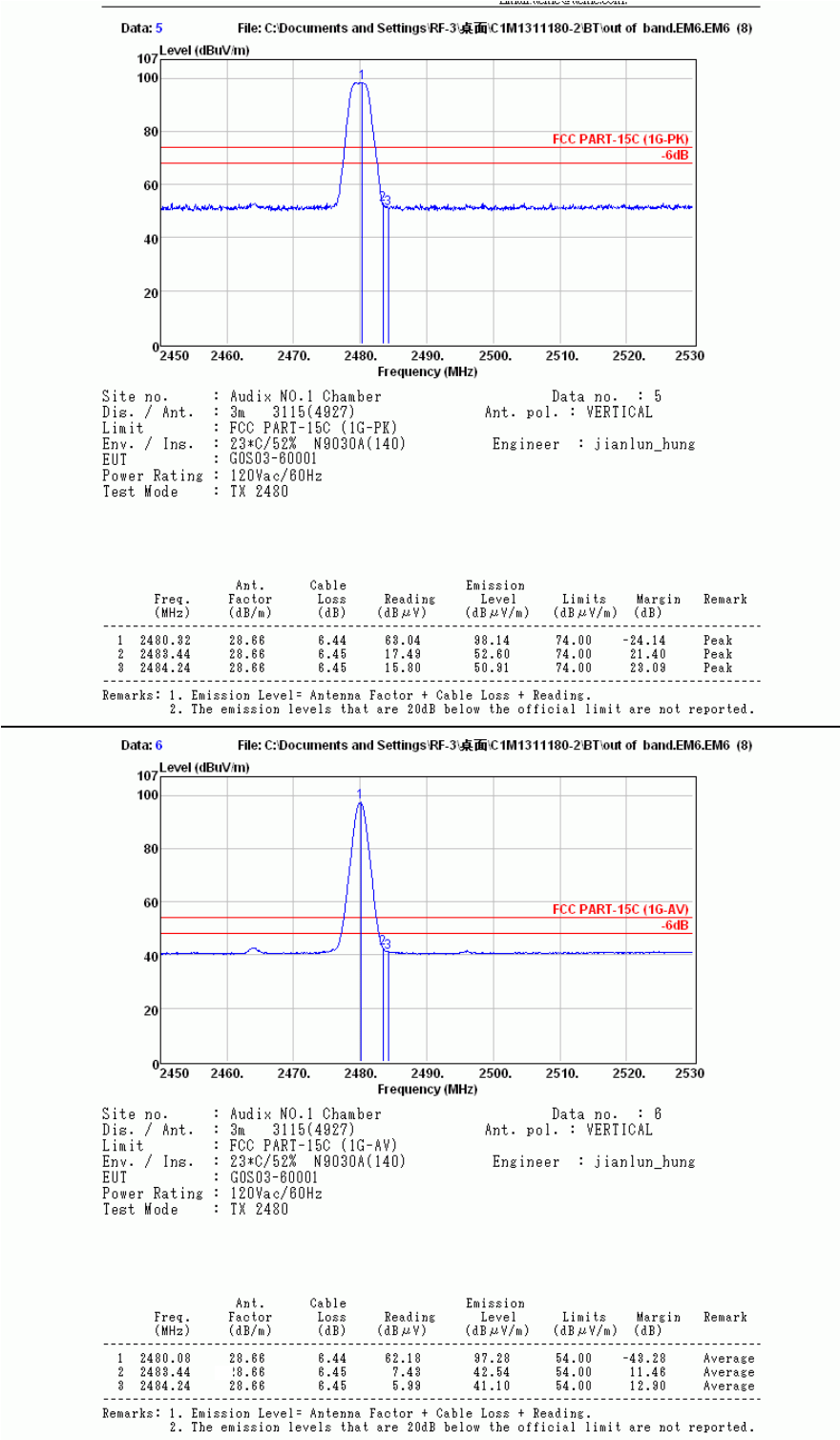
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1 2480.00	28.88	6.44	52.98	88.08	54.00	-34.08	Average
2 2489.44	28.88	6.45	5.58	40.69	54.00	13.31	Average
3 2494.24	28.88	6.45	5.58	40.69	54.00	13.31	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test : Dec. 02, 2013 Temperature : 23

EUT : HP Prime Wireless Antenna Humidity : 52%

Test Mode : Frequency: 2480MHz



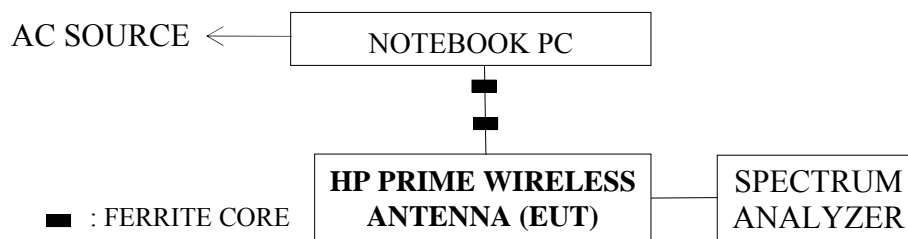
5. 6dB BANDWIDTH MEASUREMENT

5.1. Test Equipment

The following test equipment was used during the Emission Bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Jul. 30, 13'	Jul. 29, 14'

5.2. Block Diagram of Test Setup



5.3. Specification Limits [§15.247(a)(2), RSS-210 §A8.2 (a)]

The minimum 6dB bandwidth shall be at least 500kHz.

5.4. Operating Condition of EUT

Test program RF Test is used for enabling the EUT transmitting continuing.

5.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer using 100kHz RBW and ≥ 300 kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

The measurement guideline was according to KDB 558074 D01v03 8.1 option 13.

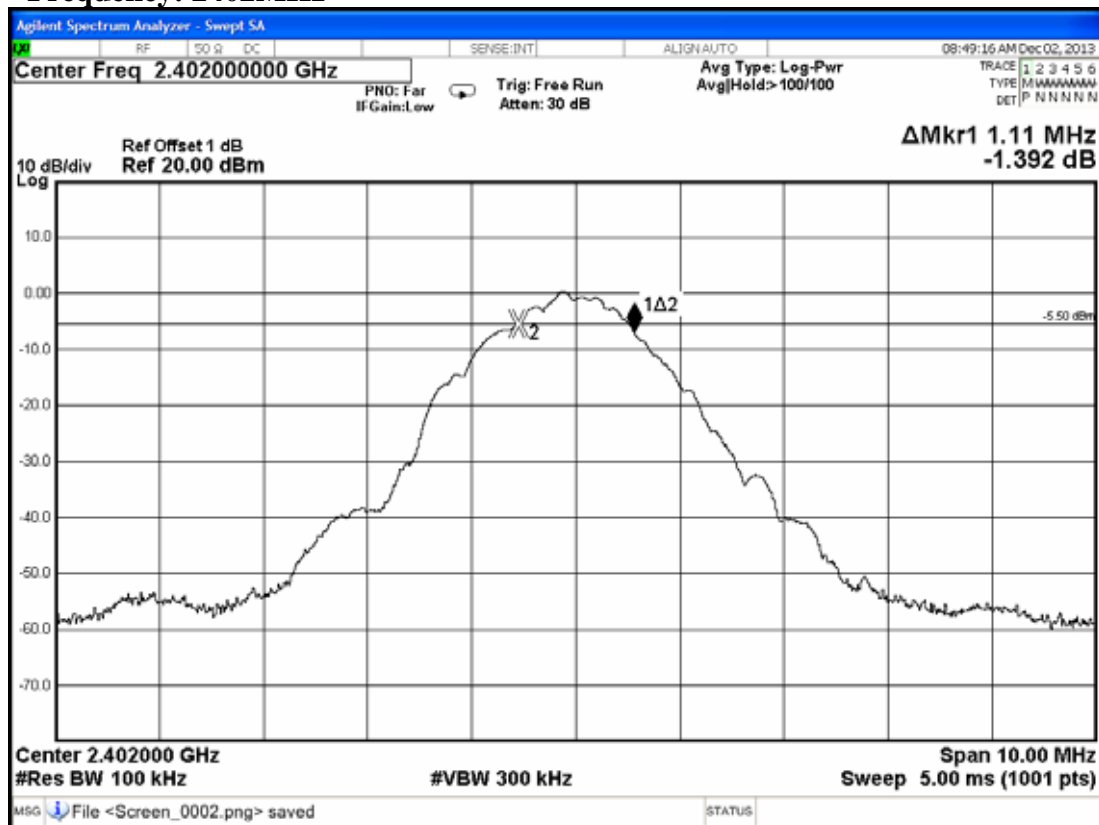
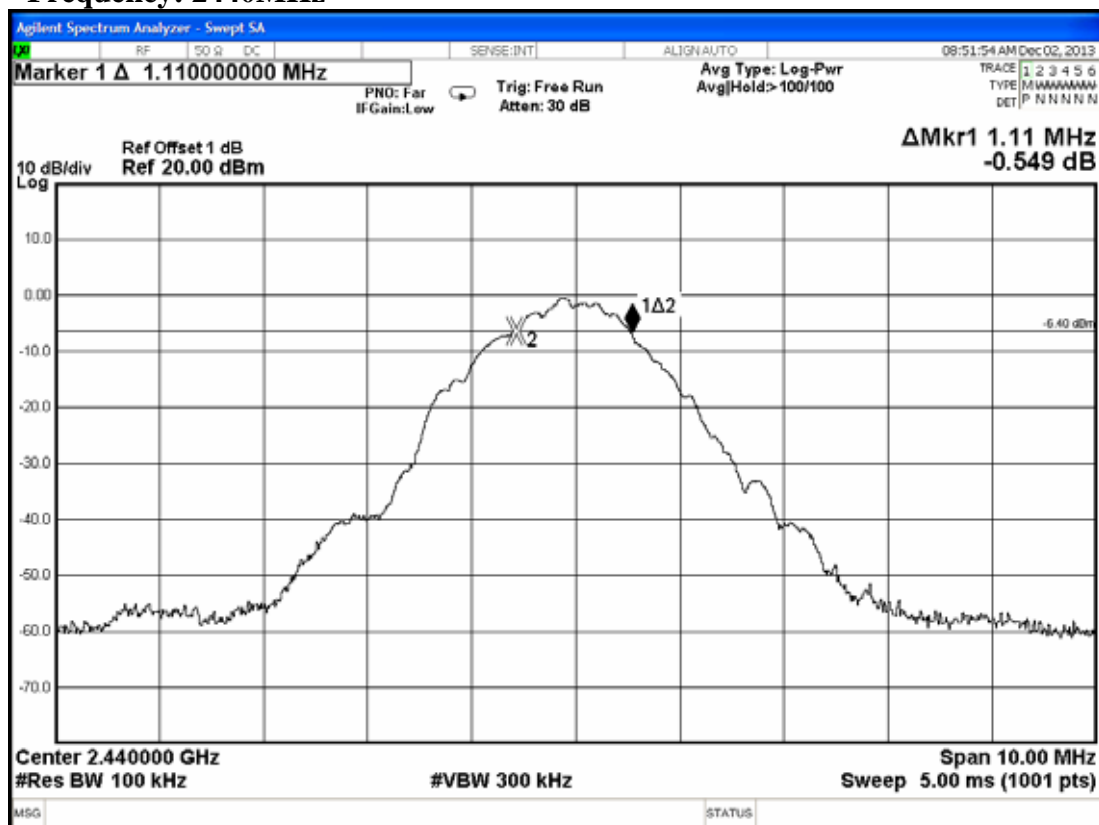
5.6. Test Results

PASSED. All the test results are attached in next pages.

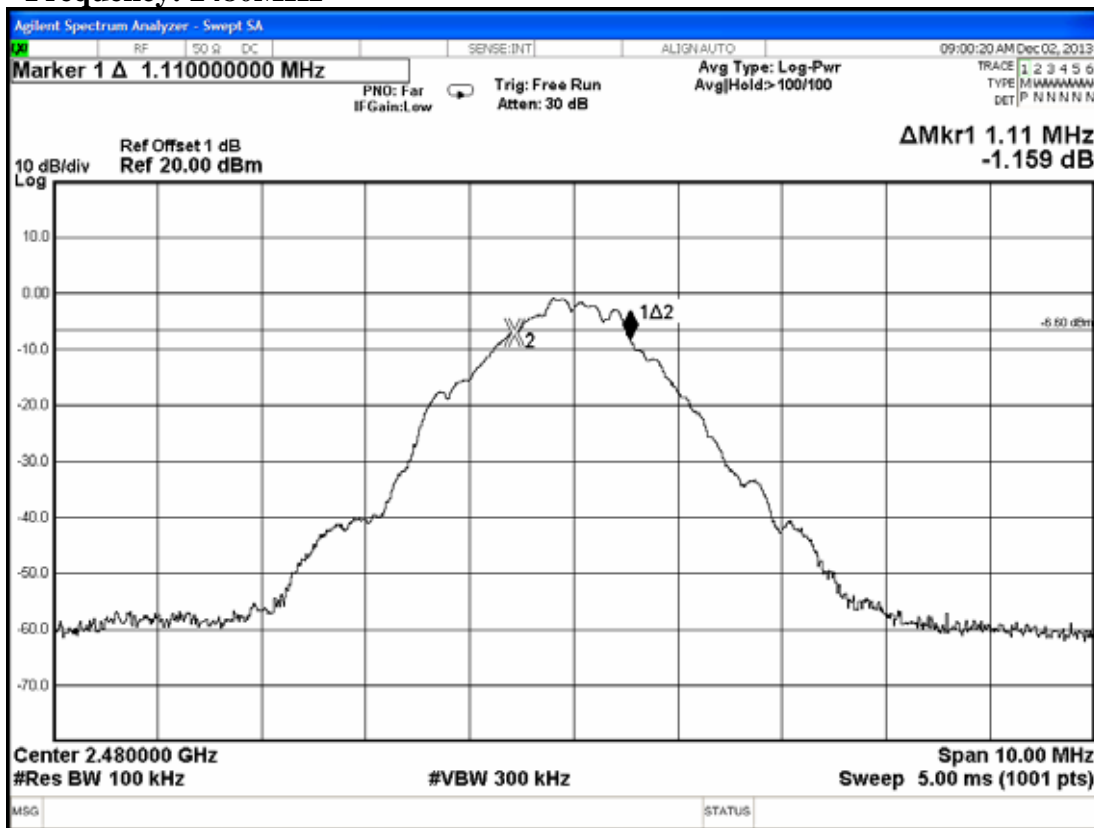
(Test Date : Dec. 02, 2013 Temperature : 23 Humidity : 61%)

Mode	Frequency	6dB Bandwidth
1.	2402MHz	1.11MHz
2.	2440MHz	1.11MHz
3.	2480MHz	1.11MHz

[Limit: least 500kHz]

Frequency: 2402MHz**Frequency: 2440MHz**

Frequency: 2480MHz



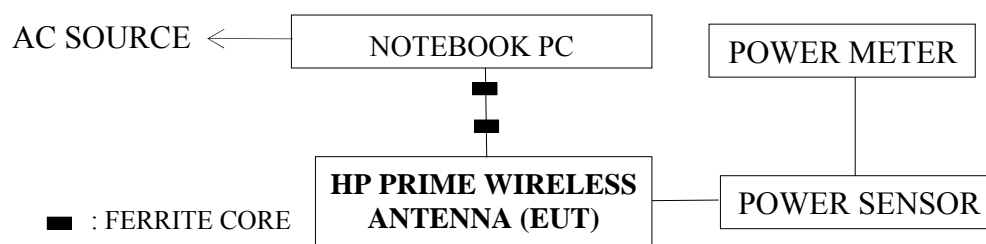
6. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

6.1. Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Power Meter	Anritsu	ML2495A	1145008	Oct. 23, 13'	Oct. 22, 14'
2.	Power Sensor	Anritsu	MA2411B	1126096	Oct. 23, 13'	Oct. 22, 14'

6.2. Block Diagram of Test Setup



6.3. Specification Limits (§15.247(b)-(3))

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz & 5725-5850MHz is : 1Watt. (30dBm)

6.4. Operating Condition of EUT

Test program RF Test is used for enabling the EUT transmitting continuing.

6.5. Test Procedure

The transmitter output was connected to the power sensor and record the reading of power meter.

The measurement guideline was according to KDB 558074 D01v03 9.2.2.1 AVGPM is used.

6.6. Test Results

PASSED. All the test results are listed below.

(Test Date : Dec. 02, 2013 Temperature : 23 Humidity : 61%)

Mode	Frequency	Peak Output Power (dBm)
1.	2402MHz	0.51
2.	2440MHz	-0.08
3.	2480MHz	-0.49

[Limit: 1Watt. (30dBm)]

7. EMISSION LIMITATIONS MEASUREMENT

7.1. Test Equipment

The following test equipment was used during the emission limitations test :

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Monitor	Agilent	N9030A-544	US51350140	Jul. 30, 13'	Jul. 29, 14'

7.2. Block Diagram of Test Setup

The same as section.5.2

7.3. Specification Limits (§15.247(c), RSS-210 A8.5)

7.3.1. In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)).(This test result attaching to §4.6.3)

7.3.2. The reference level for determining limit of emission limitations is according to the value measured indicated in plots at section 9.6.

7.4. Operating Condition of EUT

Test program RF Test is used for enabling the EUT transmitting continuing.

7.5. Test Procedure

The RF output of EUT was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 100kHz RBW and 100kHz VBW.

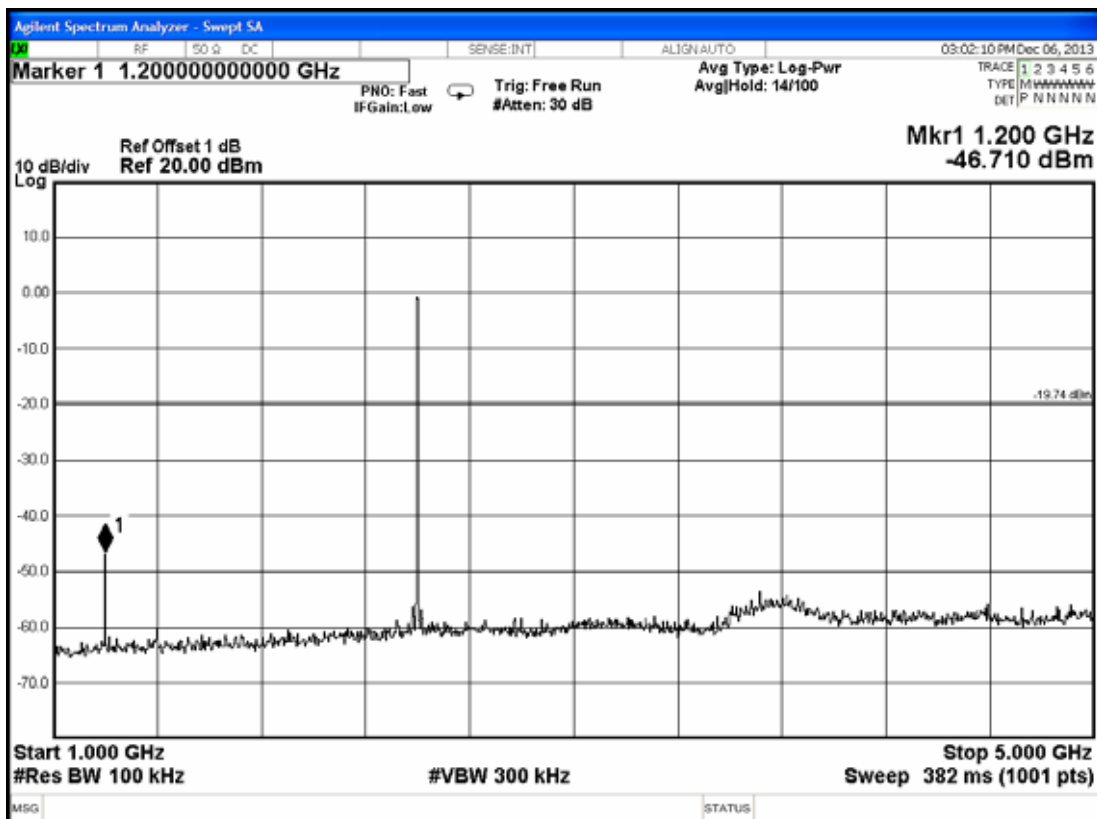
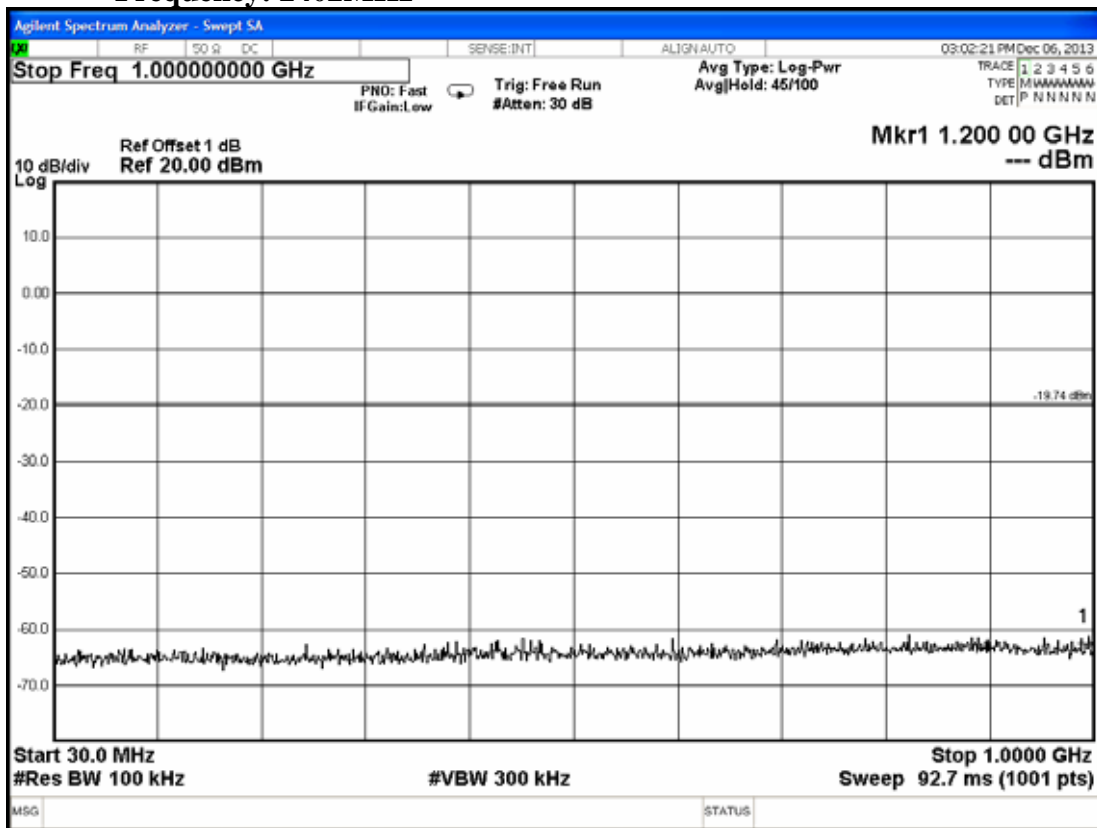
The measurement guideline was according to KDB 558074 D01v03.

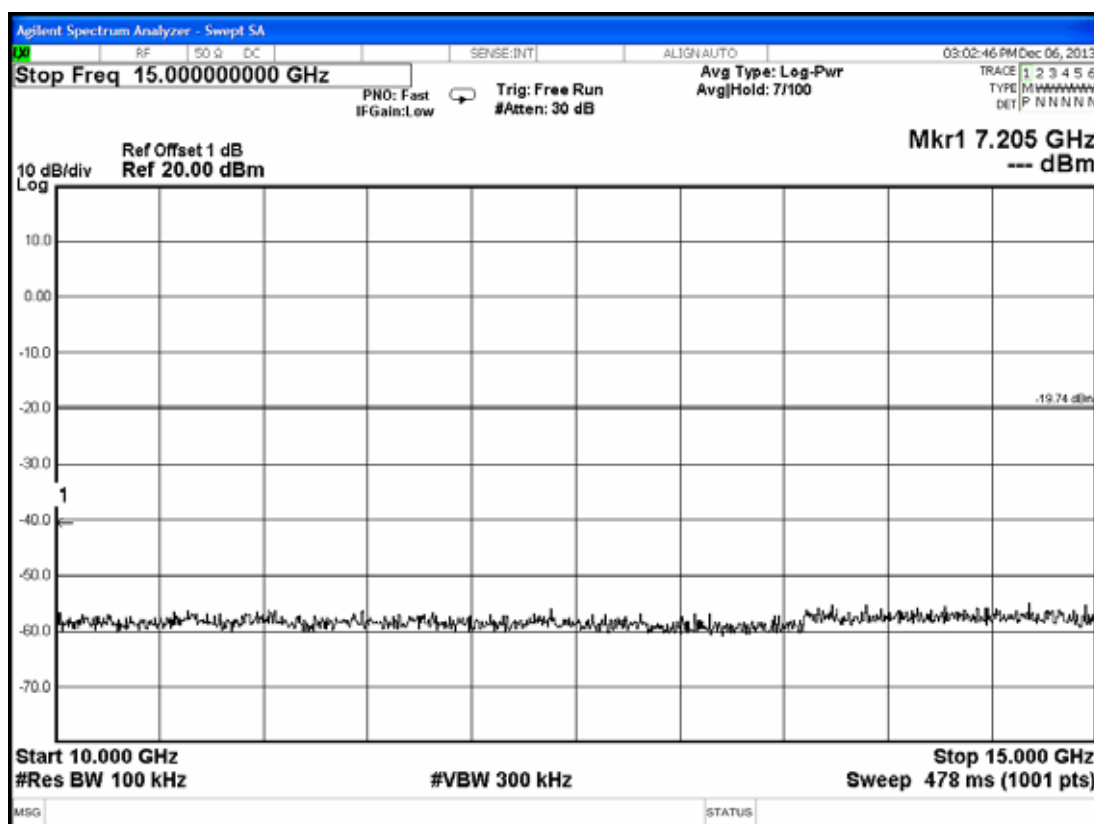
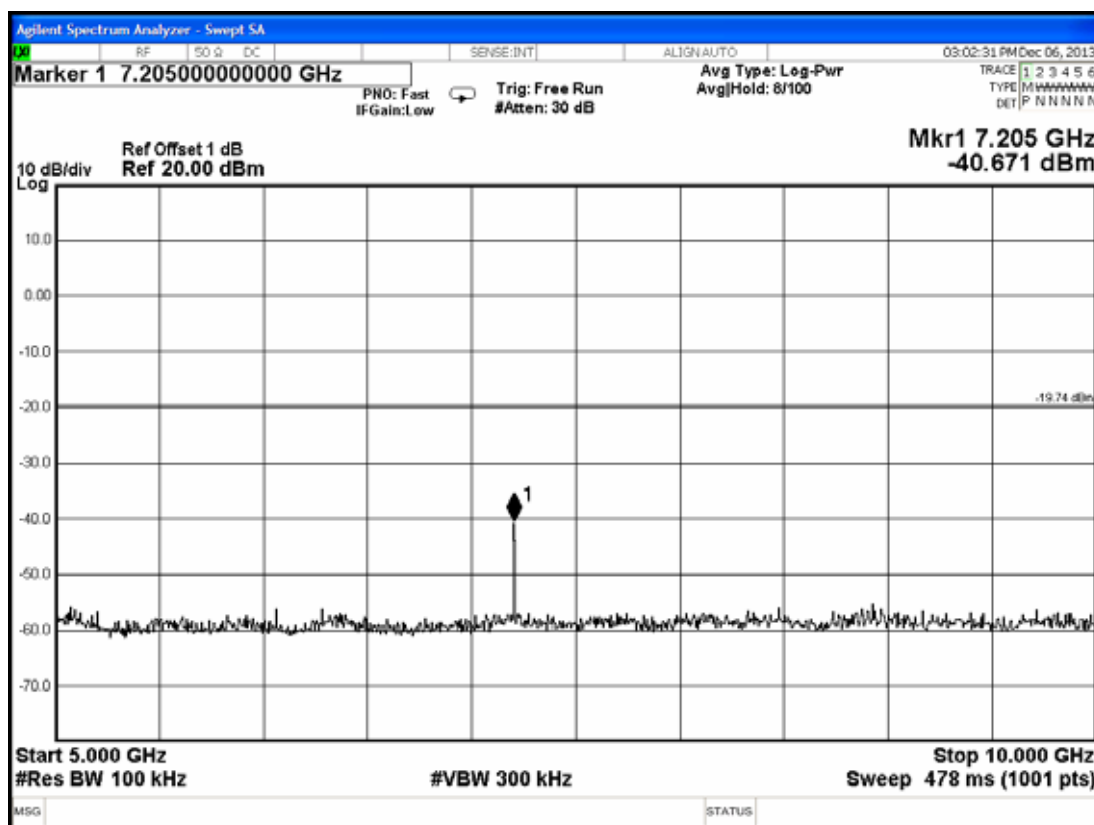
7.6. Test Results

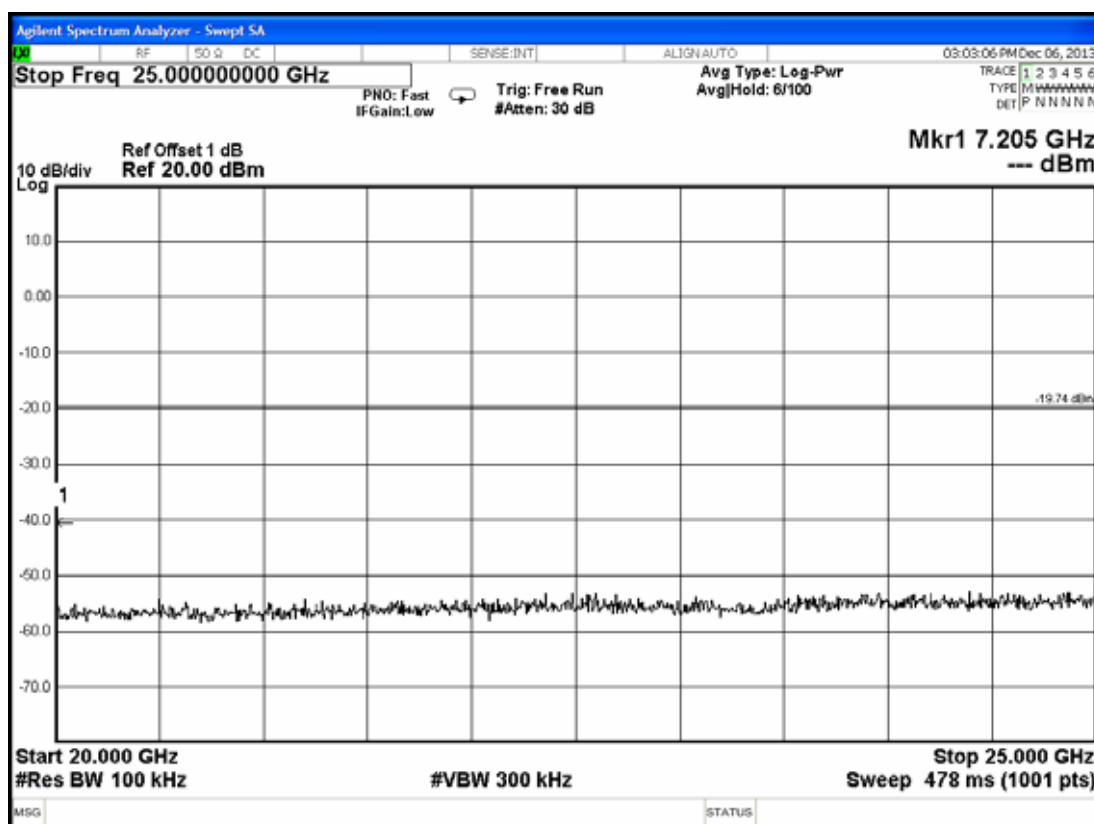
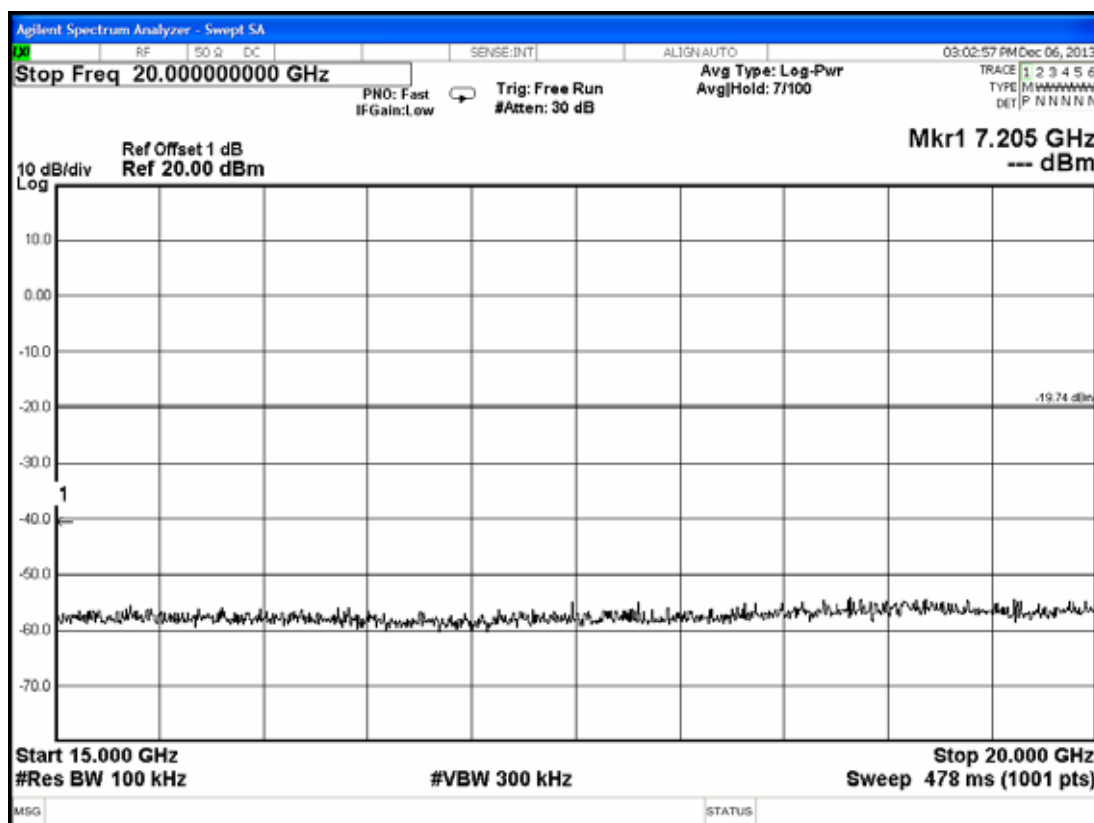
PASSED. The testing data was attached in the next pages.

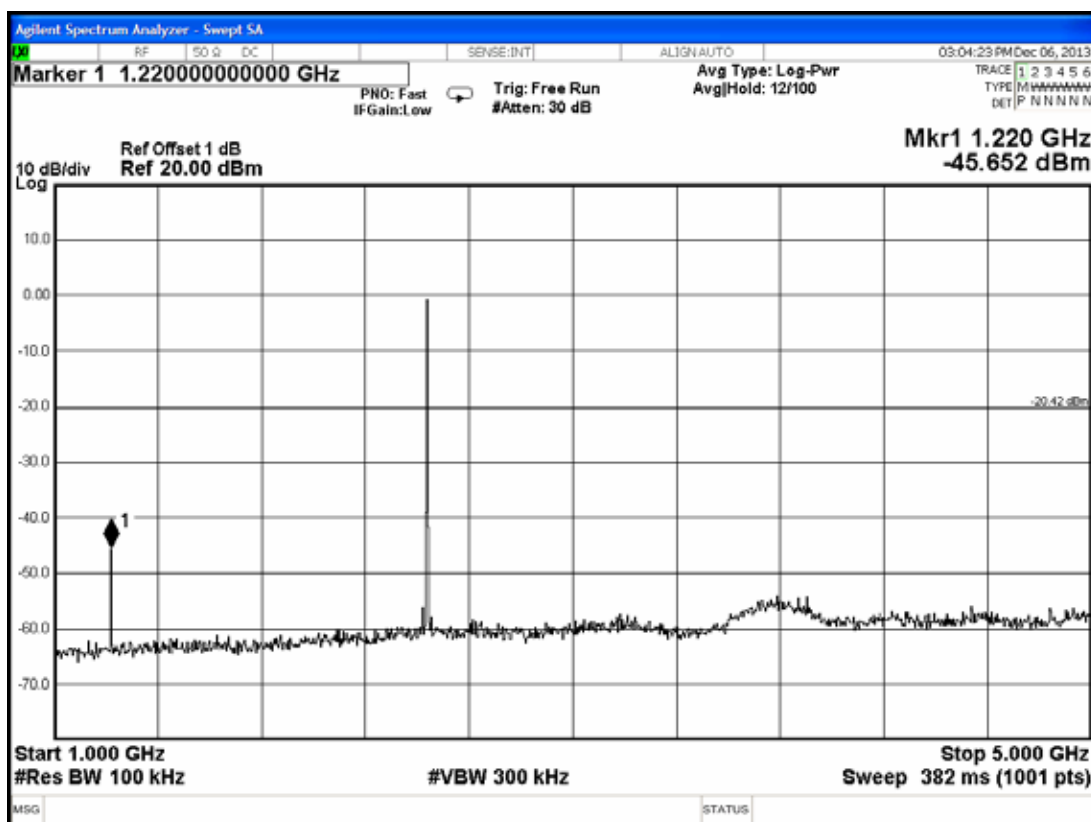
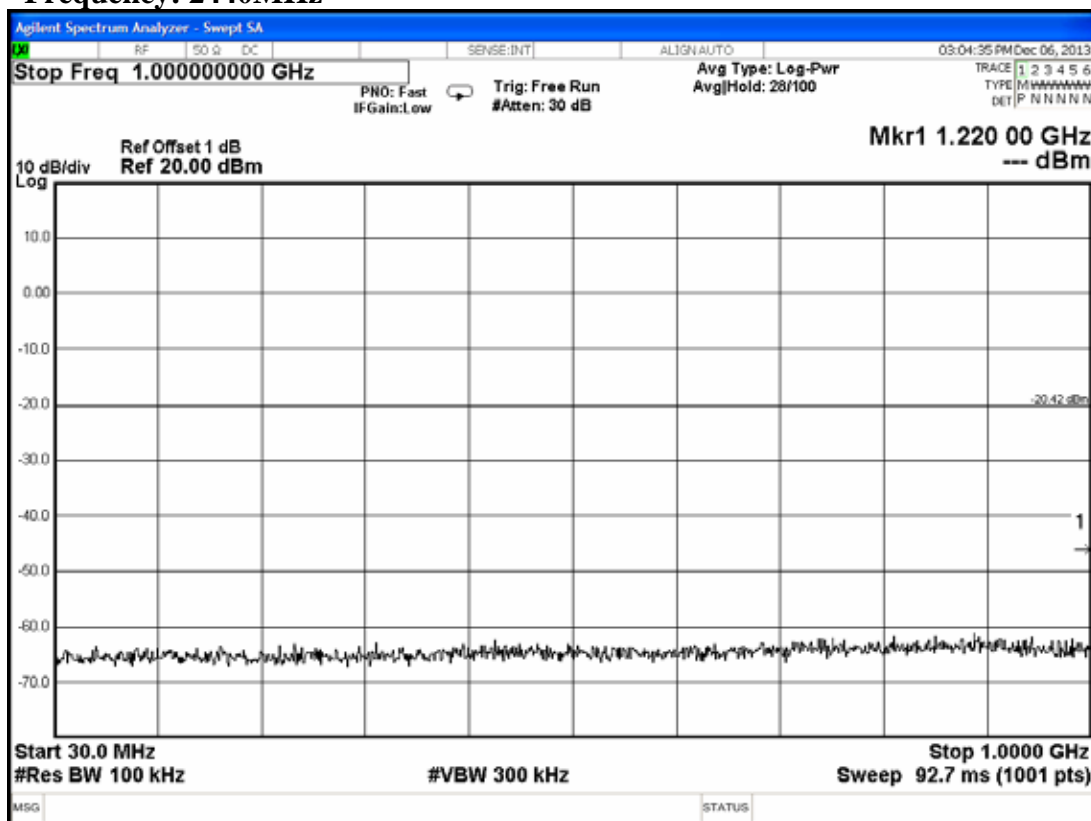
(Test Date : Dec. 06, 2013 Temperature : 25 Humidity : 60%)

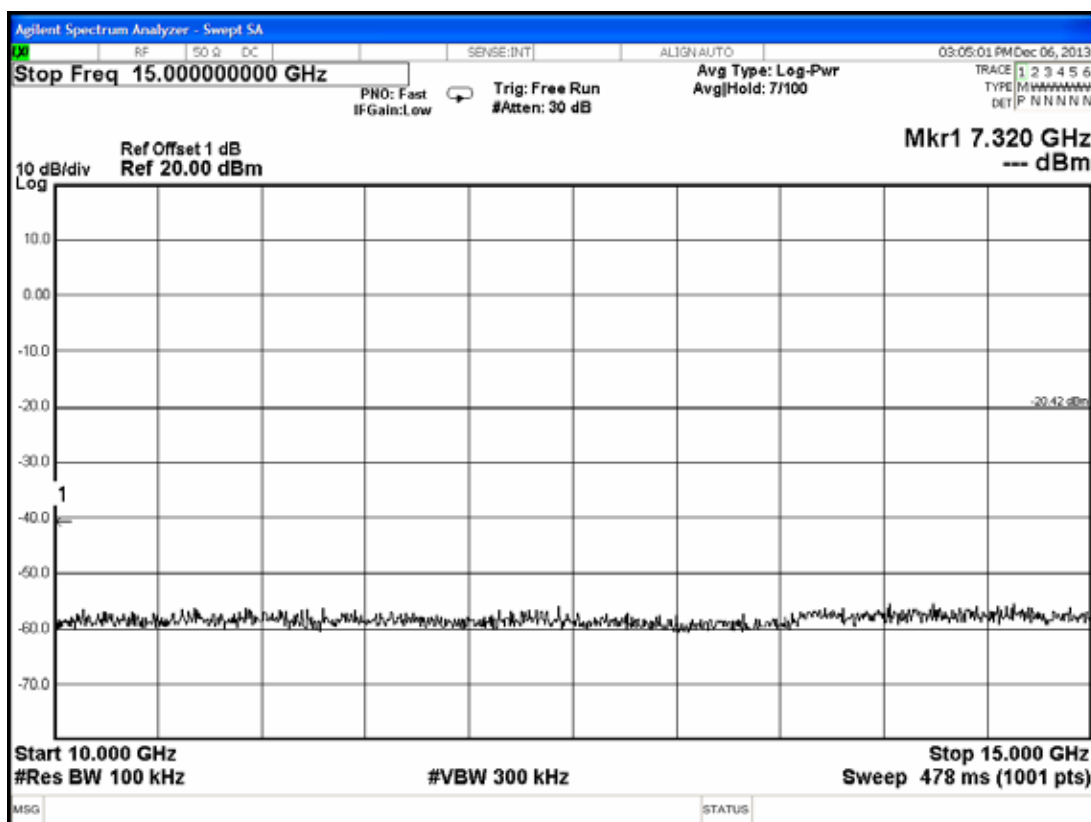
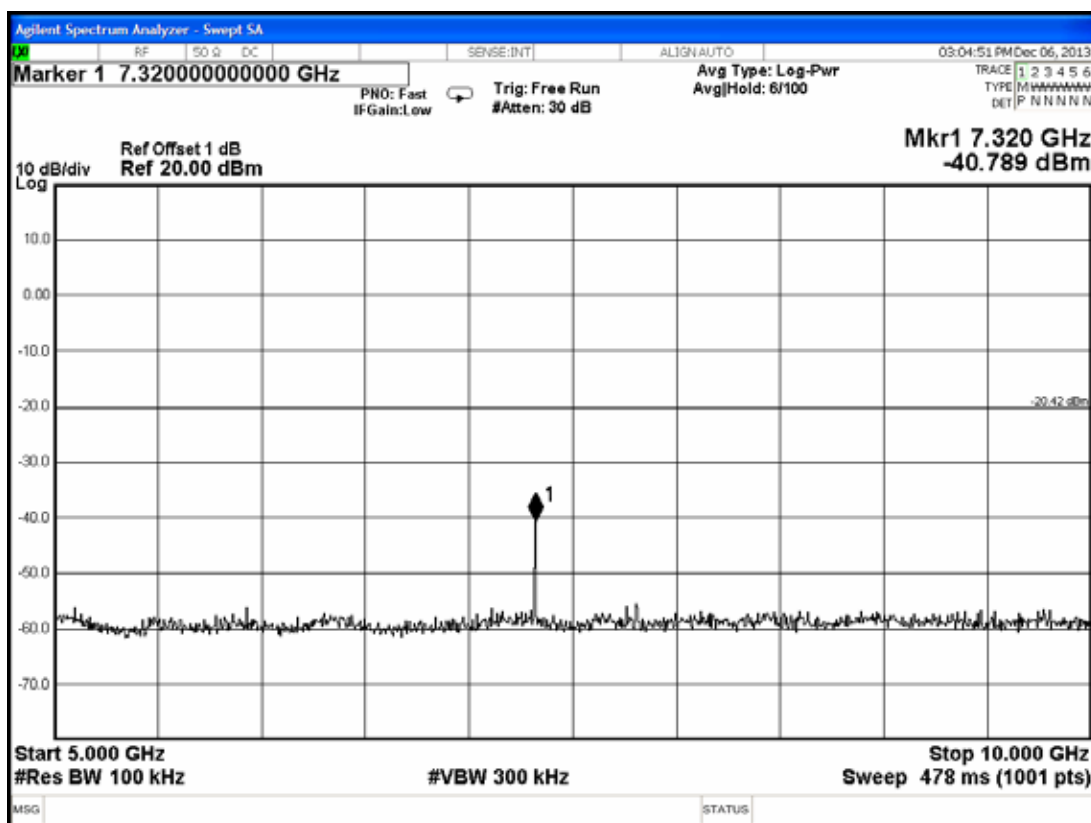
Frequency: 2402MHz

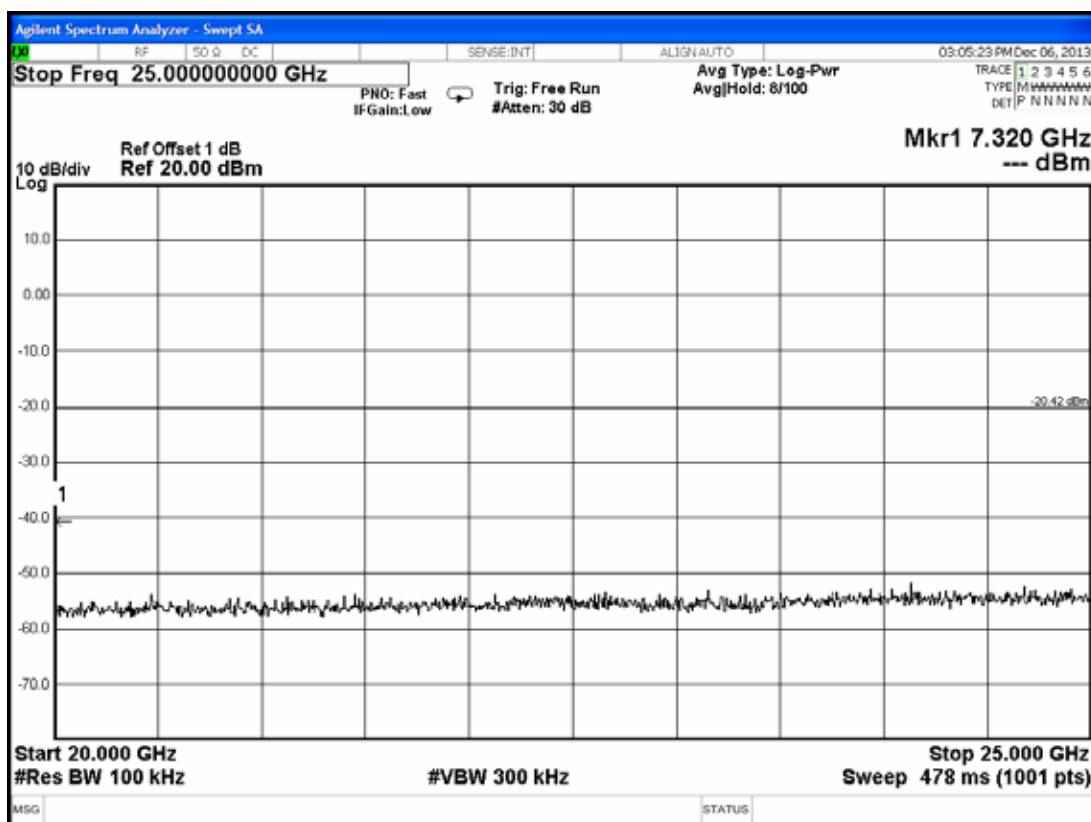
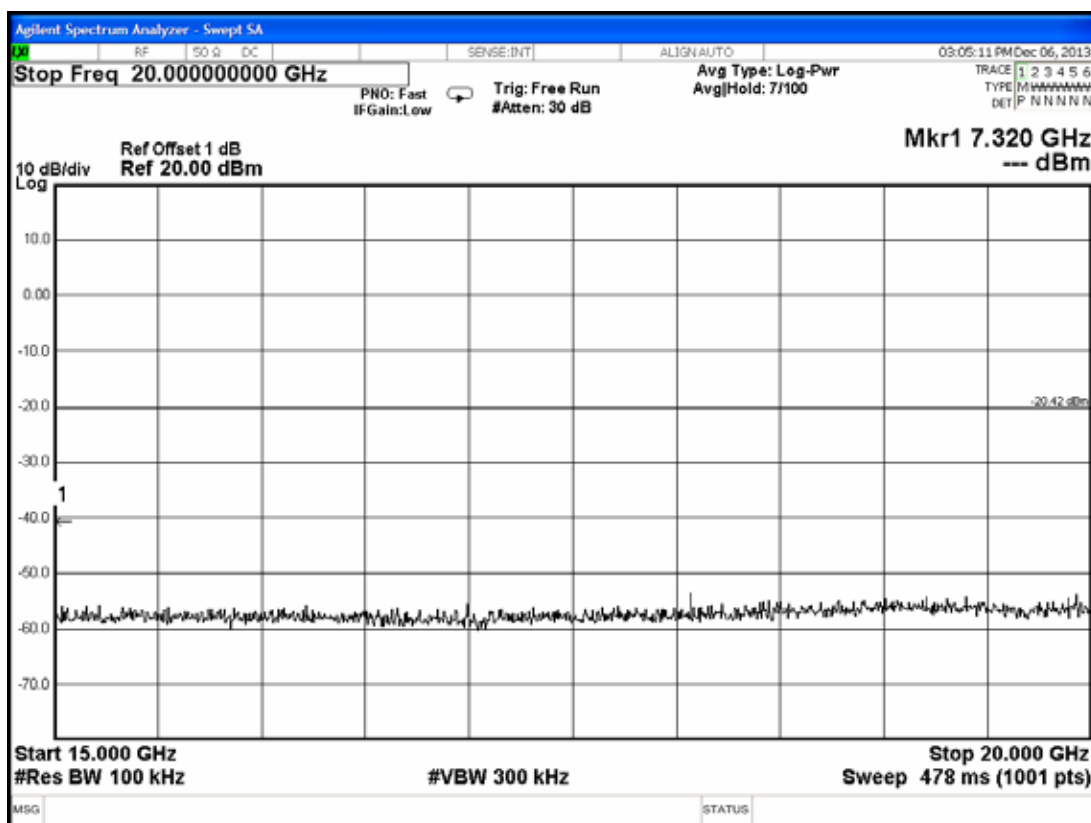


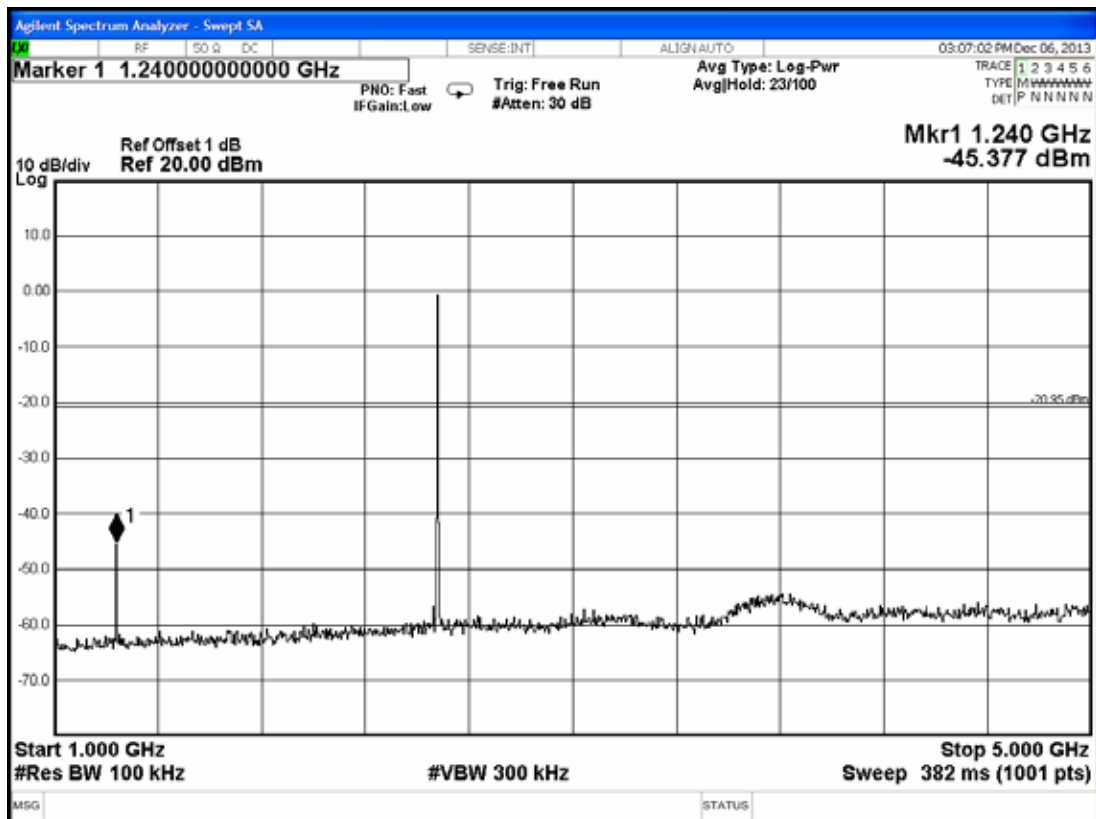
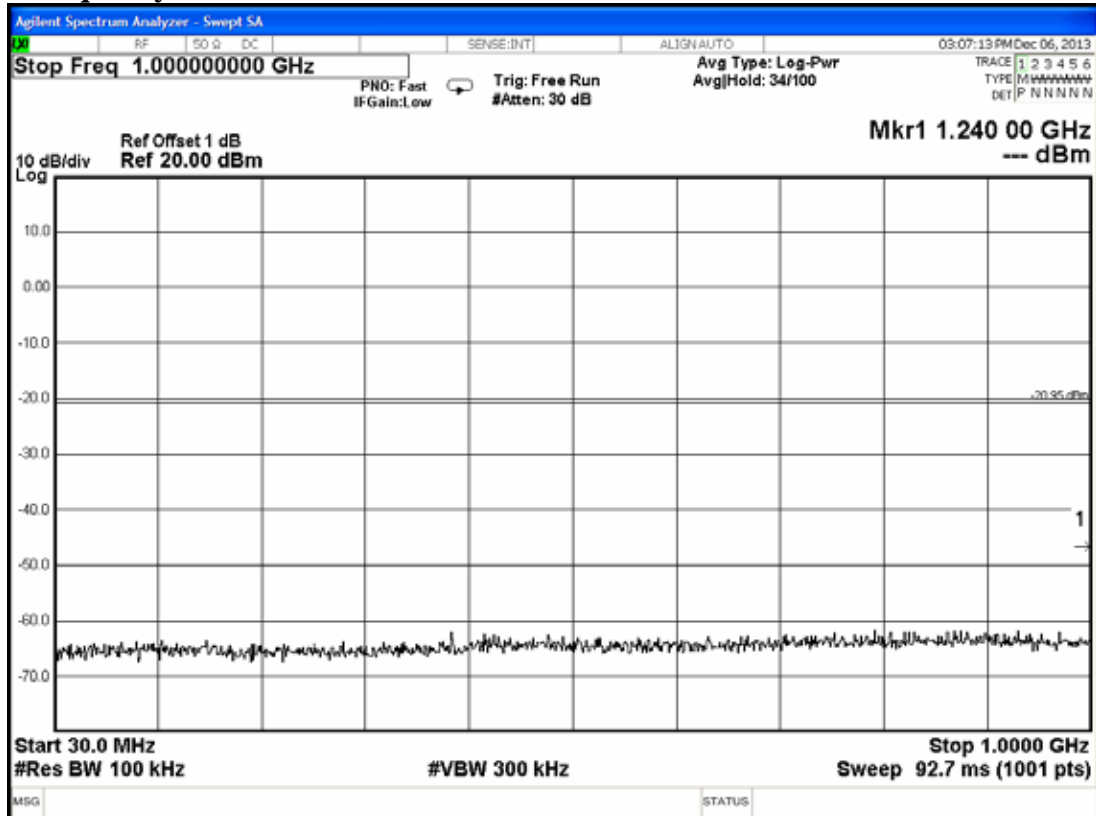


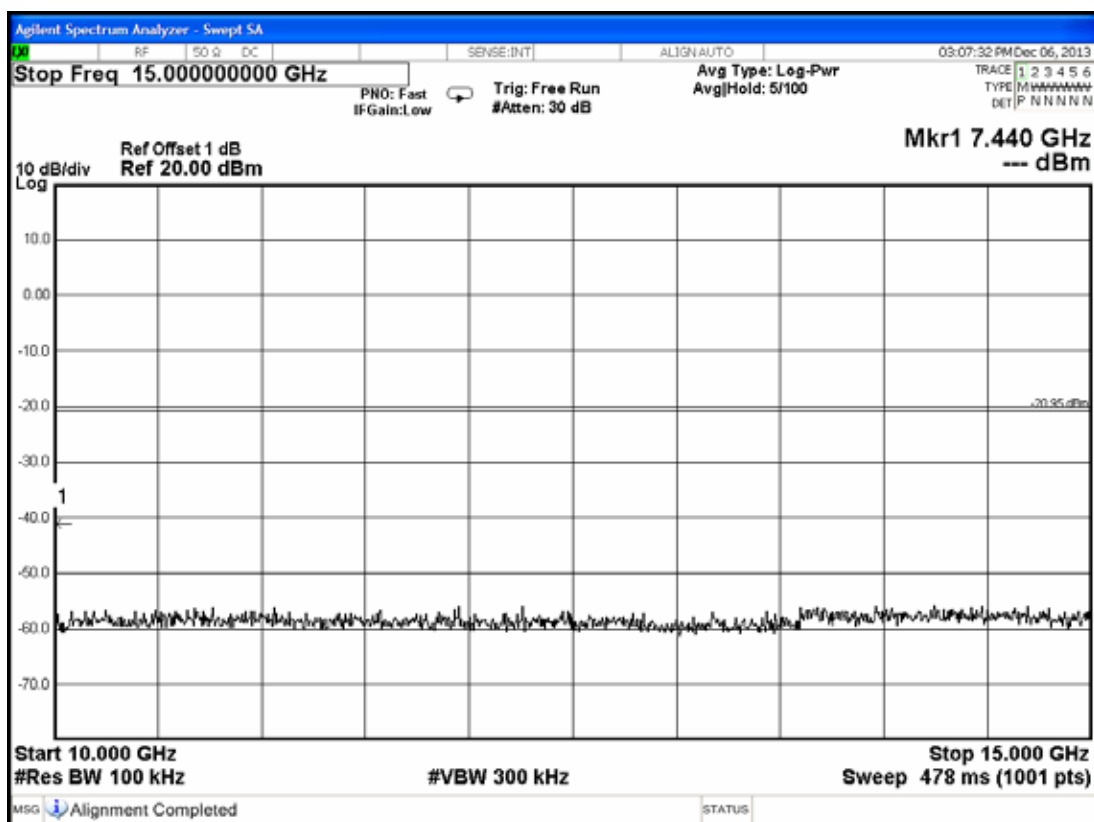
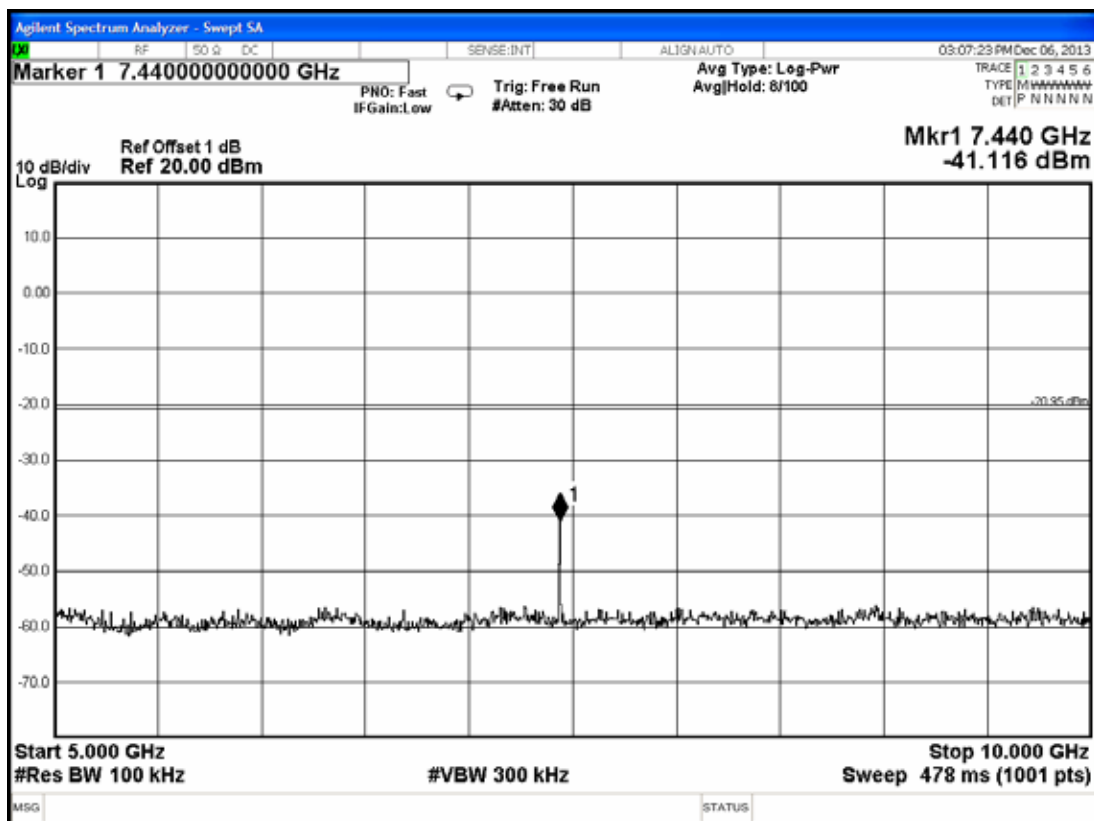


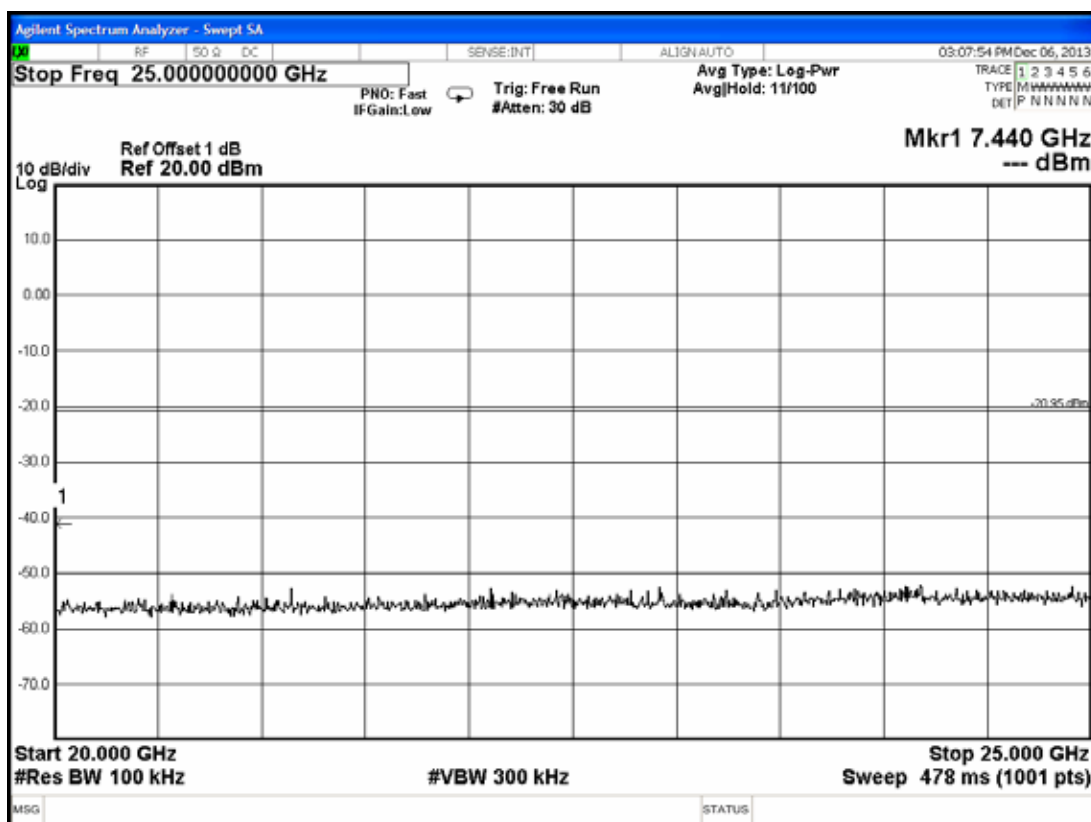
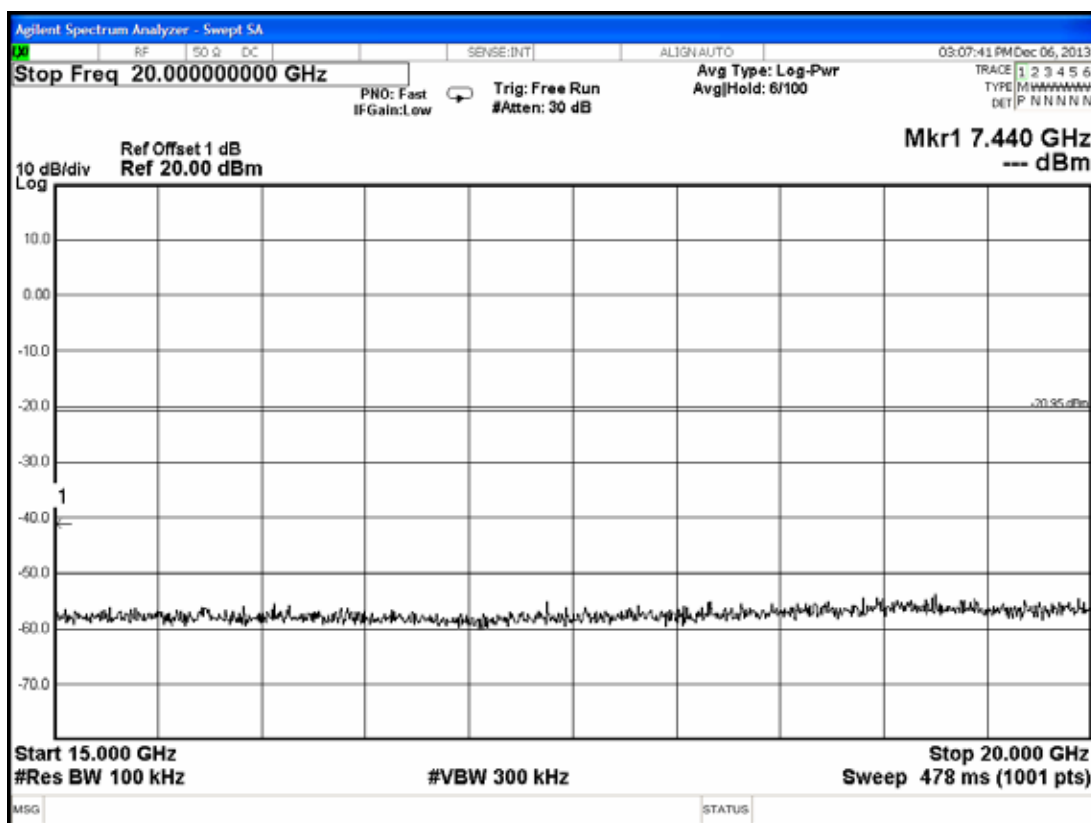
Frequency: 2440MHz





Frequency: 2480MHz





8. BAND EDGES MEASUREMENT

8.1. Test Equipment

The following test equipment was used during the band edges measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Jul. 30, 13'	Jul. 29, 14'

8.2. Block Diagram of Test Setup

The same as section.5.2.

8.3. Specification Limits [§15.247(c), RSS-210 §A8.5]

8.3.1. In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)).(This test result attaching to §4.6.3)

8.3.2. The reference level for determining limit of emission limitations is according to the value measured indicated in plots at section 9.6.

8.4. Operating Condition of EUT

Test program RF Test is used for enabling the EUT transmitting continuing.

8.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. Set both RBW=100 kHz and VBW to 300kHz with suitable frequency span including 100kHz bandwidth from band edge.

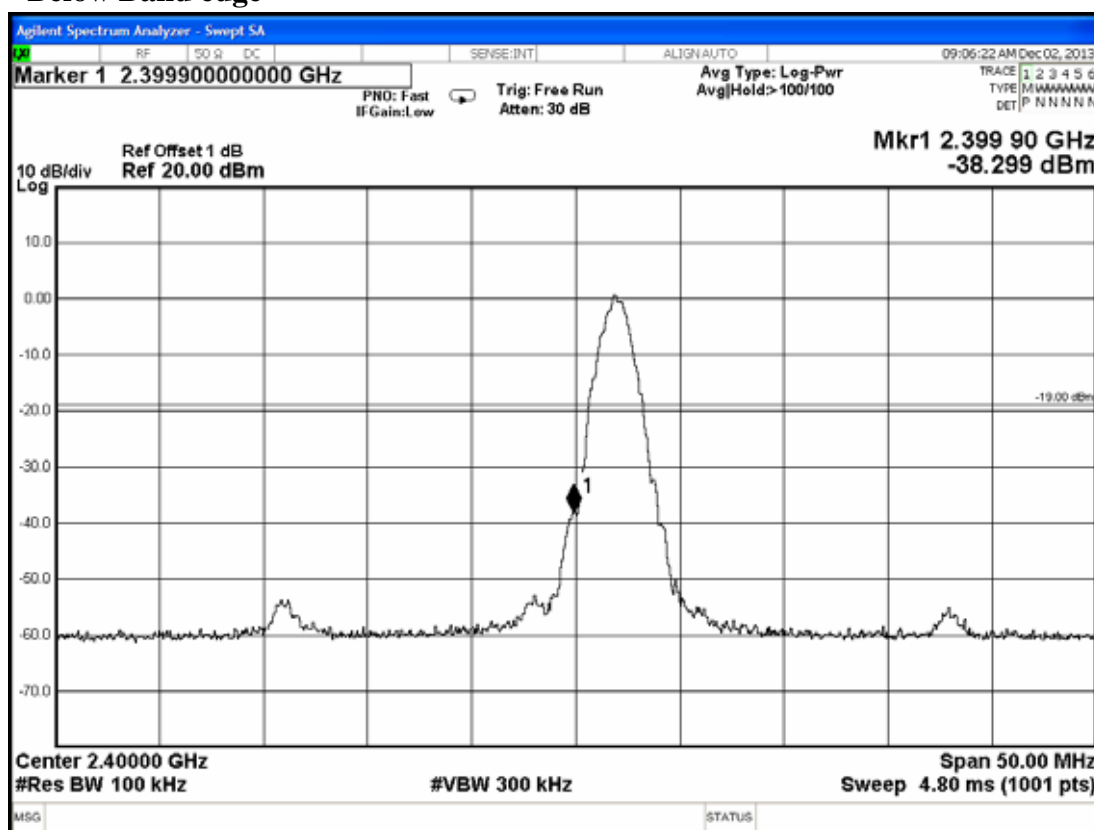
The measurement guideline was according to KDB 558074 D01 V03.

8.6. Test Results

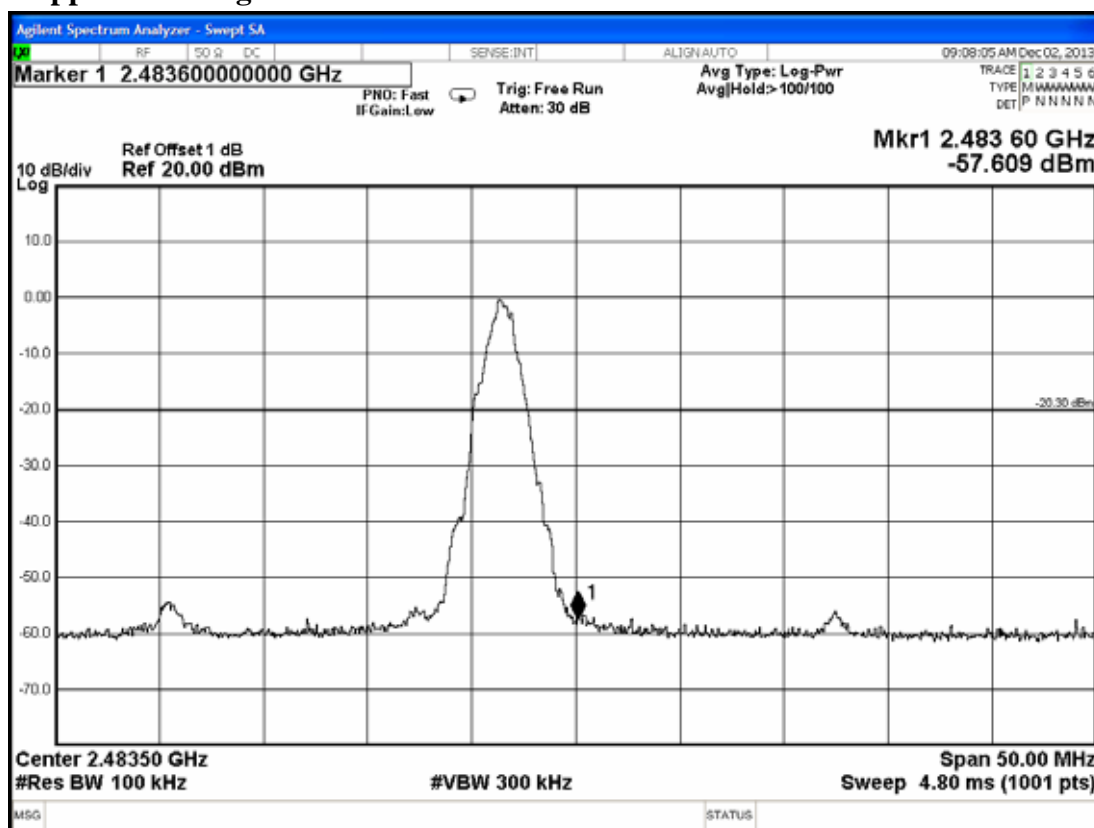
PASSED. All the test results are attached in next pages.

(Test Date : Dec. 02, 2013 Temperature : 23 Humidity : 61%)

Below Band edge



Upper Band edge



9. POWER SPECTRAL DENSITY MEASUREMENT

9.1. Test Equipment

The following test equipment was used during the power spectral density measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Jul. 30, 13'	Jul. 29, 14'

9.2. Block Diagram of Test Setup

The same as section.5.2.

9.3. Specification Limits [§15.247(d), RSS-210 §A8.2 (b)]

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

9.4. Operating Condition of EUT

Test program RF Test is used for enabling the EUT transmitting continuing.

9.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using 100kHz RBW and ≥ 300 kHz VBW, set sweep time = Auto.

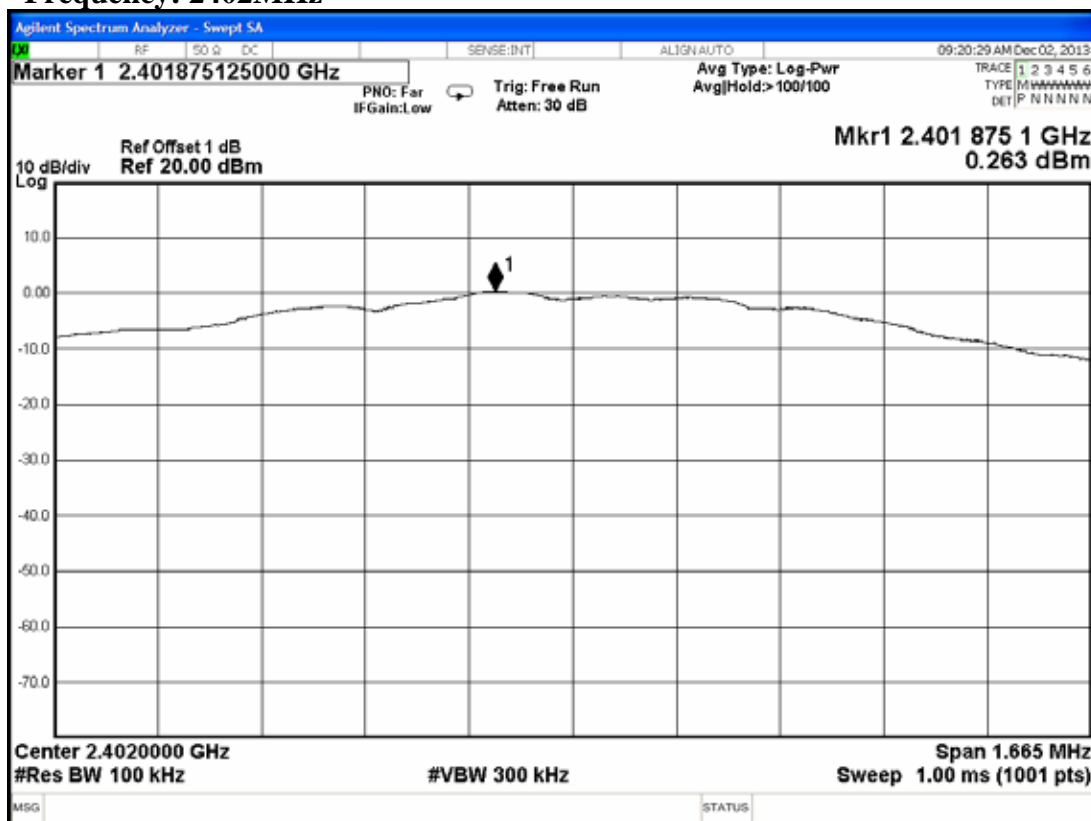
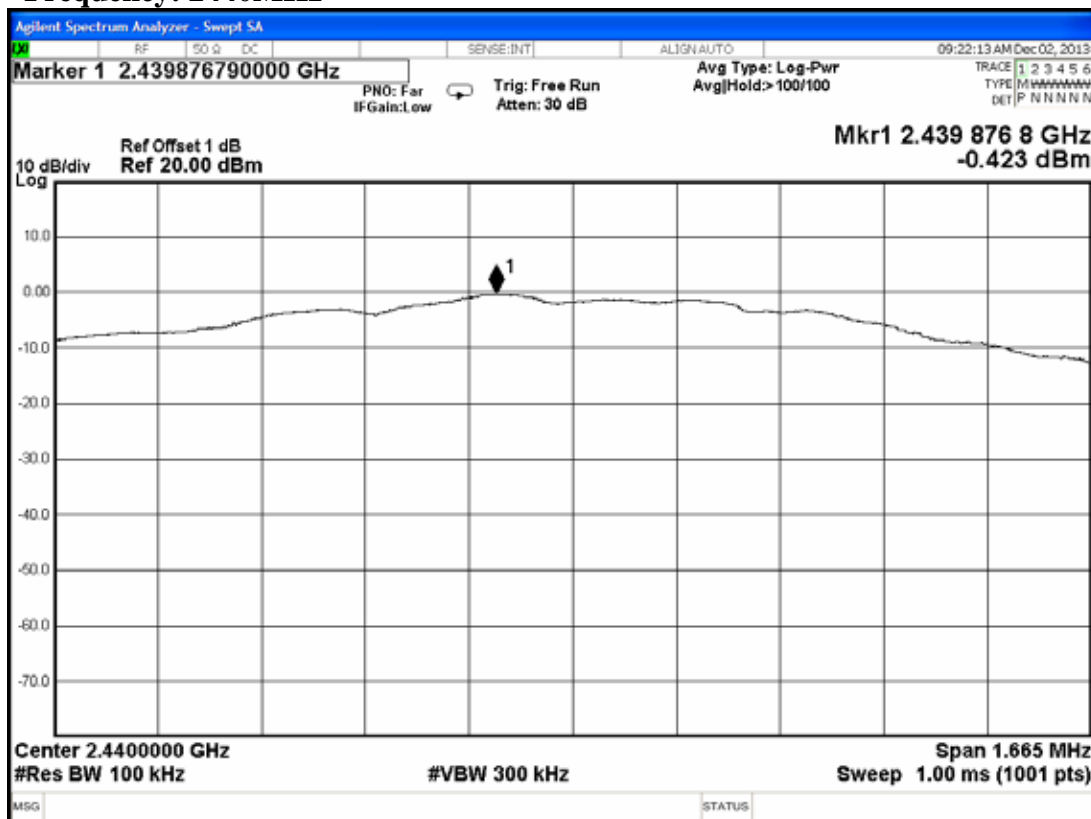
The measurement guideline was according to KDB 558074 D01v03 Peak PSD is used.

9.6. Test Results

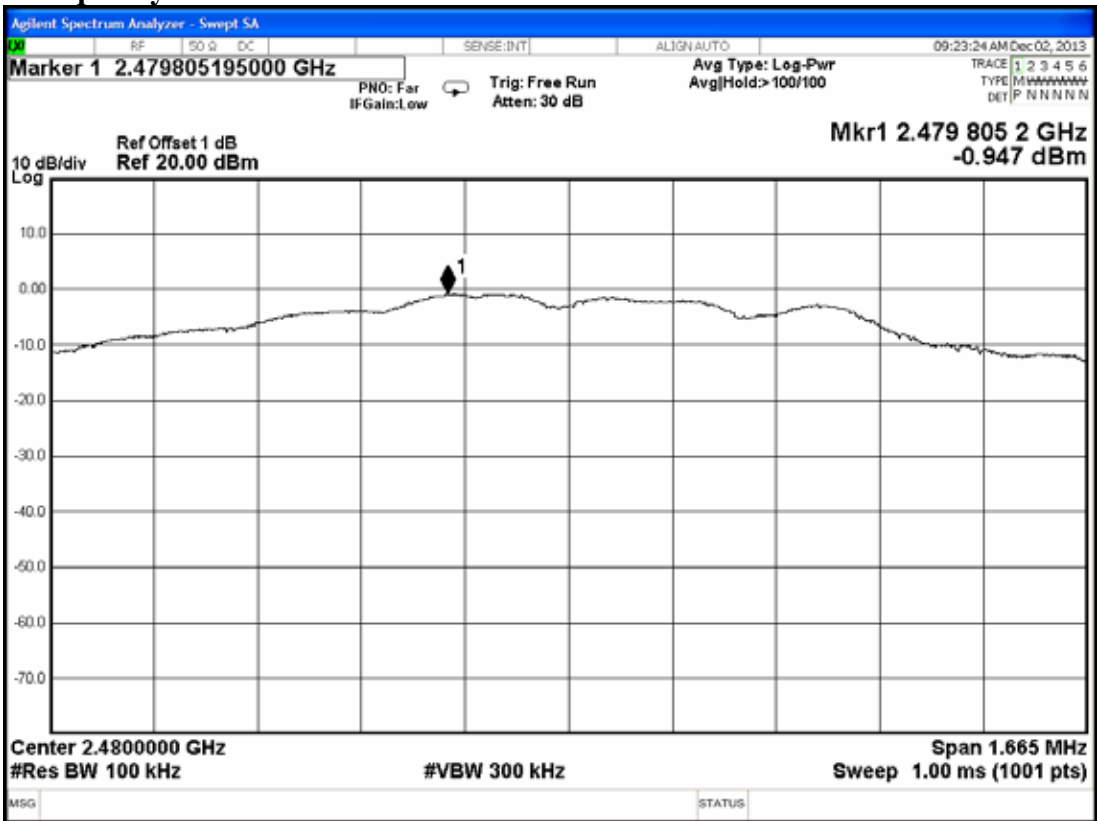
PASSED. All the test results are attached in next pages.

(Test Date : Dec. 02, 2013 Temperature : 23 Humidity : 61%)

Mode	Frequency	Power Spectral Density (dBm)	Limit (dBm)
1.	2402MHz	0.263	8
2.	2440MHz	-0.423	8
3.	2480MHz	-0.947	8

Frequency: 2402MHz**Frequency: 2440MHz**

Frequency: 2480MHz



10.DEVIATION TO TEST SPECIFICATIONS

【NONE】