

FCC 15.247 DTS Report

APPLICATION FOR CERTIFICATION

On Behalf of

Sony Corporation

Digital Media Player

Model No. : NW-ZX2

FCC ID : AK8NWZX2

Brand: SONY

Prepared for : Sony Corporation
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Japan 108-0075

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TEST REPORT CERTIFICATION

Applicant : Sony Corporation
EUT Description : Digital Media Player
FCC ID : **AK8NWZX2**
(A) Model No. : NW-ZX2
(B) Serial No. : N/A
(C) Brand : SONY
(D) Power Supply : DC 3.7V (Battery)
(E) Test Voltage : (1)AC 120/60Hz (Via Notebook PC)
(2)DC 3.7V (Via Battery)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C, Oct. 2013
(FCC 47 CFR Part 15C, §15.205 and §15.207 and §15.209 and §15.247)
And ANSI C63.4:2003

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 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 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: 2014. 10. 14 ~ 22

Date of Report: 2014. 10. 31

Producer: Annie Yu
(Annie Yu/Administrator)

Signatory: Ben Cheng
(Ben Cheng/Manager)

1. DESCRIPTION OF REVISION HISTORY

Edition No.	Date of Revision	Revision Summary	Report Number
0	2014. 10. 31	Original Report.	EM-F140658

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product	Digital Media Player
Model Number	NW-ZX2
Serial Number	N/A
Brand Name	SONY
Applicant	Sony Corporation 1-7-1 Konan Minato-ku, Tokyo, Japan 108-0075
Country of Mass-production	Malaysia
FCC ID	AK8NWZX2
Fundamental Range	<p>802.11b/g/n-HT20: 2412MHz ~ 2462MHz</p> <p>802.11a: 5180MHz ~ 5240MHz (UNII Band I) and 5260MHz ~ 5320MHz (UNII Band II-2A) and 5500MHz ~ 5700MHz (UNII Band II-2C) and 5745MHz ~ 5825MHz (UNII Band III) UNII Band II (DFS Function, Slave/no In service monitor, no Ad-Hoc mode)</p> <p>802.11n-HT20: 5180MHz ~ 5240MHz (UNII Band I) and 5260MHz ~ 5320MHz (UNII Band II-2A) and 5500MHz ~ 5700MHz (UNII Band II-2C) and 5745MHz ~ 5825MHz (UNII Band III) UNII Band II (DFS Function, Slave/no In service monitor, no Ad-Hoc mode)</p> <p>802.11n-HT40: 5190MHz ~ 5230MHz (UNII Band I) and 5270MHz ~ 5310MHz (UNII Band II-2A) and 5510MHz ~ 5670MHz (UNII Band II-2C) and 5755MHz ~ 5795MHz (UNII Band III) UNII Band II (DFS Function, Slave/no In service monitor, no Ad-Hoc mode)</p> <p>Bluetooth: 2402MHz ~ 2480MHz</p> <p>NFC: 13.56MHz</p> <p>GPS: 1575.42MHz</p>

Frequency Channel	802.11b/g/n-HT20: 11 channels 802.11a: UNII Band I: 4 channels UNII Band II-2A: 4 channels UNII Band II-2C: 8 channels UNII Band III: 5 channels 802.11n-HT20: UNI Band I: 4channels UNII Band II-2A: 4 channels UNII Band II-2C: 8 channels UNII Band III: 5 channels 802.11n-HT40: UNII Band I: 2 channels UNII Band II-2A: 2 channels UNII Band II-2C: 3 channels UNII Band III: 2 channels Bluetooth: 79 channels NFC: 1 Channel
Radio Technology	802.11b: DSSS Modulation (DBPSK/DQPSK/CCK) 802.11g: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) 802.11a: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) 802.11n: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) Bluetooth: FHSS (GFSK, π /4DQPSK, 8-DPSK) NFC: ASK
Data Transfer Rate	802.11b: 1/2/5.5/11Mbps 802.11a/g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps BT: 1/2/3Mbps
USB Cable	Shielded, Detachable, 1.0m
Date of Receipt of Sample	2014. 10. 09
Date of Test	2014. 10. 14 ~ 22

2.2. Antenna Information

Manufacture	Antenna Type	Usage	Frequency	Peak Gain
Shanghai Amphenol Airwave Communication Electronics Co., Ltd.	Inverted F (LDS)	BT/WLAN	2.4GHz	1dBi
		WLAN	5GHz	-1dBi
		GPS	1.5GHz	-1dBi
	Loop (pattern)	NFC	13.56MHz	---

2.3. Data Rate Relative to Output Power

802.11b			
Channel	Modulation	Date Rate(Mbps)	Power(dBm)
1	DBPSK	1	11.82
1	DQPSK	2	11.81
1	CCK	5.5	11.79
1	CCK	11	11.72

802.11g			
Channel	Modulation	Date Rate (Mbps)	Power (dBm)
1	BPSK	MCS0	9.54
1	BPSK	MCS1	9.53
1	QPSK	MCS2	9.51
1	QPSK	MCS3	9.52
1	16-QAM	MCS4	9.48
1	16-QAM	MCS5	9.47
1	64-QAM	MCS6	9.52
1	64-QAM	MCS7	9.44

802.11n-HT20			
Channel	Modulation	Date Rate (Mbps)	Power (dBm)
1	BPSK	MCS0	8.42
1	QPSK	MCS1	8.38
1	QPSK	MCS2	8.32
1	16-QAM	MCS3	8.31
1	16-QAM	MCS4	8.28
1	64-QAM	MCS5	8.21
1	64-QAM	MCS6	8.19
1	64-QAM	MCS7	8.11

2.4. Test Configuration for Each Test Item

Test Item	802.11b	802.11g	802.11n-HT20	802.11n-HT40
	Data Rate for Test(Mbps)			
6dB Bandwidth	1	6	6.5	13.5
Peak Power Spectral Density	1	6	6.5	13.5
Peak Output Power	1	6	6.5	13.5
Band Edge	1	6	6.5	13.5

2.5. Tested Supporting System Details

2.5.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	PC System	ASUS	U5F	6CN0AG047651	By DoC

2.5.2. Cable Lists

No.	Signal Cable Description Of The Above Support Units
1.	Adapter: DELTA, M/N SADP-65KB B, Cord: Non-Shielded, Detachable, 1.8m Power Cord: Non-Shielded, Undetachable, 1.8m

2.6. Description of Test Facility

Name of Firm : **AUDIX Technology Corporation**
EMC Department
 No. 53-11, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan

Test Location & Facility (C7/AC) : **No. 7 Shielded Room**
 No. 53-11, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan

Semi-Anechoic Chamber
 No. 53-11, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan
 May 11, 2012 File on
 Federal Communication Commission
 Registration Number: 90993

NVLAP Lab. Code : 200077-0

TAF Accreditation No : 1724

2.7. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	±3.43dB
Radiation Test (Distance: 3m)	30MHz~300MHz	± 2.91dB
	300MHz~1000MHz	± 2.74dB
	Above 1GHz	± 5.02dB

Remark : Uncertainty = $ku_c(y)$

Test Item	Uncertainty
6dB Bandwidth	± 0.05kHz
Maximum peak output power	± 0.33dBm
Band edges	± 0.13dB
Power spectral density	± 0.13dB
Emission Limitations	± 0.13dB

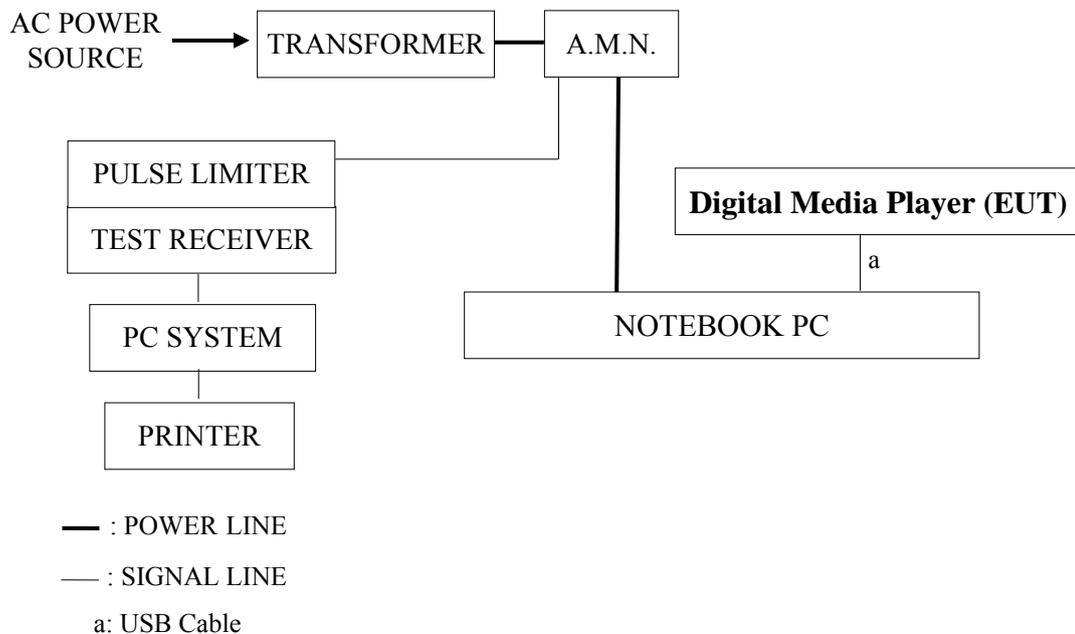
3. CONDUCTED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the conducted emission measurement : (No. 7 Shielded Room)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Test Receiver	R&S	ESCI	101276	2014. 06. 18	1 Year
2	A.M.N.	R&S	ENV4200	100169	2014. 05. 30	1 Year
3	L.I.S.N.	Kyoritsu	KNW-407	8-881-13	2014. 01. 15	1 Year
4	Pulse Limiter	R&S	ESH3-Z2	101495	2014. 01. 18	1 Year

3.2. Block Diagram of Test Setup



3.3. Powerline Conducted Emission Limit (§15.207)

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 as shown on 3.2.

3.4.2. During testing, the EUT was linked to notebook PC and charging through USB cable.

3.5. Test Procedure

The EUT was placed on the table which was above the ground by 80cm and notebook PC's power cord was connected to the AC mains through an Artificial Mains Network (A.M.N.). The peripheral devices power cord connected to the power mains through another line impedance stabilization network (L.I.S.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 regulation during conducted measurement.

The bandwidth of the R&S Test Receiver ESCI 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 : Digital Media Player

M/N : NW-ZX2

Test Date: 2014. 10. 14

Temperature: 25

Humidity: 54%

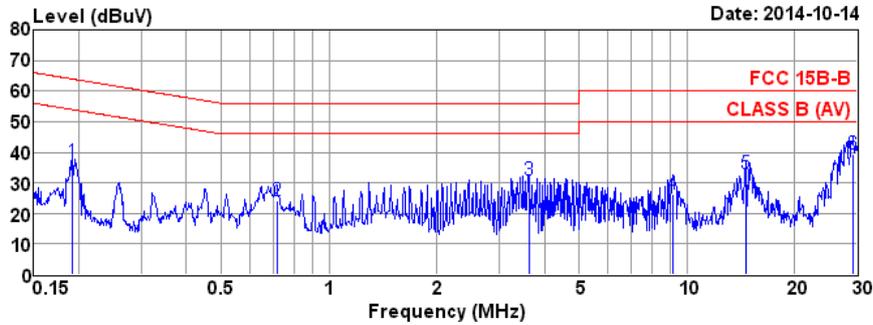
The details are as follows :

Mode	Reference Test Data	
	Neutral	Line
1.	# 2	# 1



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Data: 2 File: D:\test data\REPORT\2014\1C1M1410XXX\1C1M1410080-C-D(rf).EM6 (2)



Site no. : No.7 Shielded Room Data no. : 2
 Condition : ENV4200 100169 Phase : NEUTRAL
 Limit : FCC 15B-B
 Env. / Ins. : 25°C / 54% ESCI (1276) Engineer : Hank
 EUT : NW-ZX2
 Power Rating : 120Vac/60Hz
 Test Mode : CHARGE

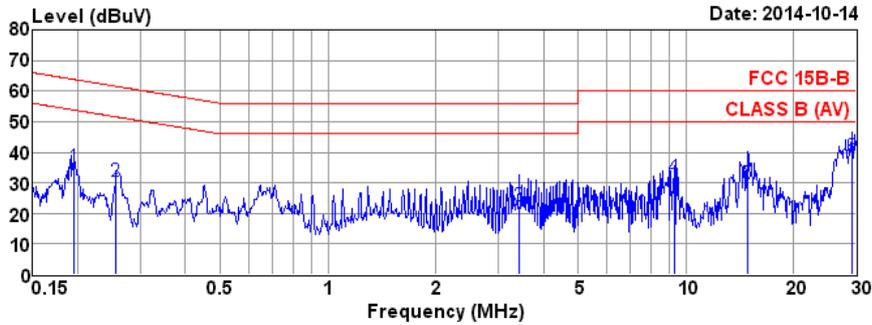
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.192	10.60	0.03	9.85	16.17	36.65	63.93	27.28	QP
2	0.716	10.46	0.04	9.84	3.69	24.03	56.00	31.97	QP
3	3.623	10.58	0.08	9.86	10.61	31.13	56.00	24.87	QP
4	9.156	11.18	0.13	9.89	5.11	26.31	60.00	33.69	QP
5	14.672	12.39	0.17	9.92	10.47	32.95	60.00	27.05	QP
6	29.216	15.84	0.26	10.01	13.46	39.57	60.00	20.43	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + 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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 Email:emc@audixtech.com

Data: 1 File: D:\test data\REPORT\2014\1C1M1410XXX\1C1M1410080-C-D(rf).EM6 (2)



Site no. : No.7 Shielded Room Data no. : 1
 Condition : ENV4200 100169 Phase : LINE
 Limit : FCC 15B-B
 Env. / Ins. : 25°C / 54% ESCI (1276) Engineer : Hank
 EUT : NW-ZX2
 Power Rating : 120Vac/60Hz
 Test Mode : CHARGE

	AMN	Cable	Pulse	Emission			Limits	Margin	Remark
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBμV)	Level (dBμV)		(dBμV)	(dB)	
1	0.195	10.60	0.03	9.85	14.72	35.20	63.80	28.60	QP
2	0.256	10.56	0.03	9.86	9.91	30.36	61.56	31.20	QP
3	3.436	10.58	0.08	9.86	1.88	22.40	56.00	33.60	QP
4	9.302	11.16	0.13	9.89	10.75	31.93	60.00	28.07	QP
5	14.828	12.34	0.17	9.92	7.41	29.84	60.00	30.16	QP
6	29.216	15.72	0.26	10.01	12.53	38.52	60.00	21.48	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + 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.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-503	MY52220119	2014. 06. 25	1 Year
2	Test Receiver	R & S	ESCS30	100338	2014. 06. 24	1 Year
3	Amplifier	HP	8447D	2944A06305	2014. 02. 19	1 Year
4	Bilog Antenna	TESEQ	CBL6112D	33821	2014. 08. 02	1 Year

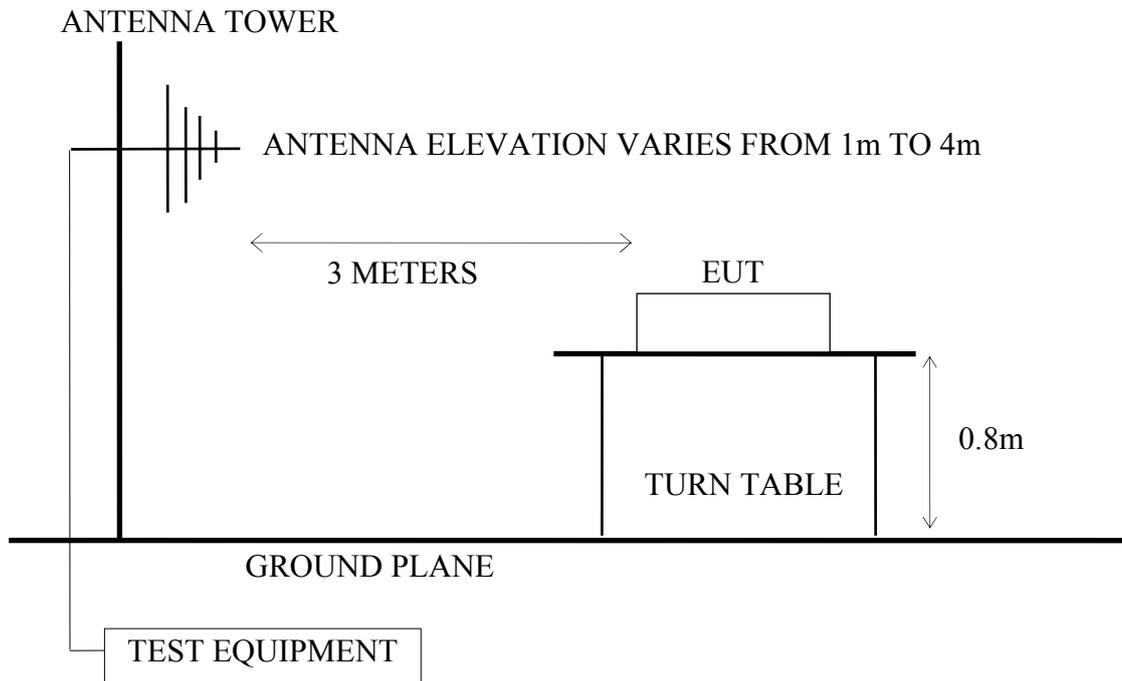
4.1.2. For Frequency Above 1GHz (at Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-544	US51350140	2014. 06. 25	1 Year
2	Test Receiver	R & S	ESCS30	100338	2014. 06. 24	1 Year
3	Amplifier	Agilent	8449B	3008A02676	2014. 02. 21	1 Year
4	2.4GHz Notch Filter	K&L	7NSL10-2441 .5E130.5-00	1	2014. 06. 12	1 Year
5	3G High Pass Filter	Microwave Circuits	H3G018G1	484796	2014. 06. 12	1 Year
6	Horn Antenna	EMCO	3115	9609-4927	2014. 06. 17	1 Year
7	Horn Antenna	EMCO	3116	2653	2014. 10. 10	1 Year

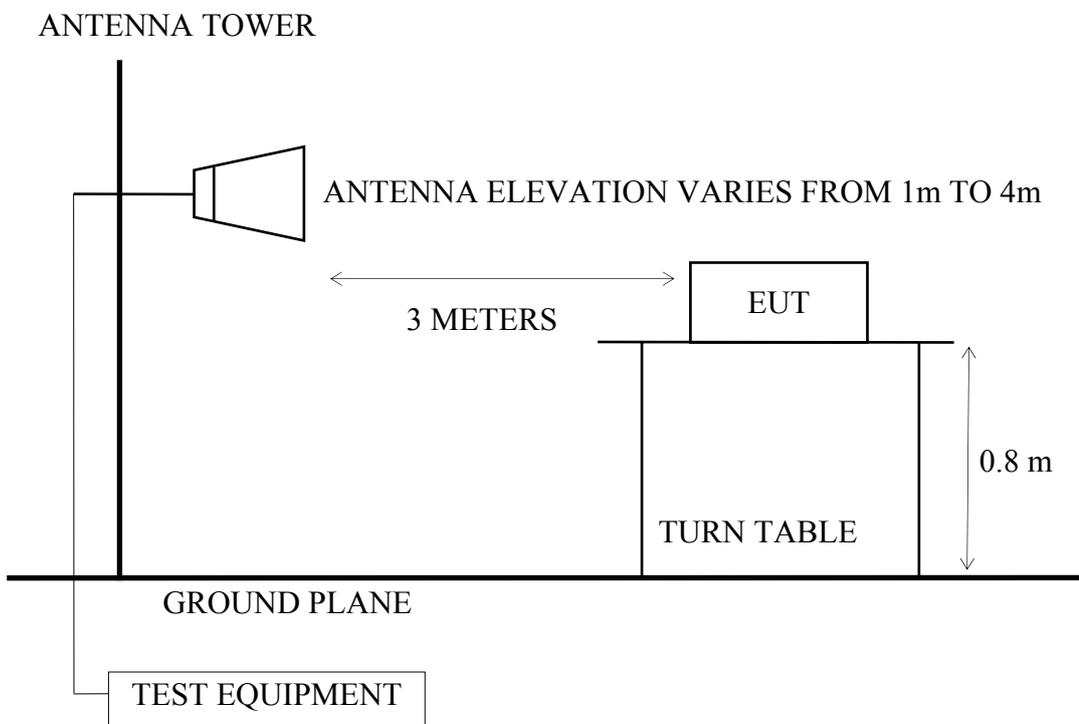
4.1.3. Block Diagram of connection between EUT and simulators

DIGITAL MEDIA PLAYER (EUT)

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



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



4.2. Radiated Emission Limits (§15.209)

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).

4.3. Operating Condition of EUT

- 4.3.1. Set up the EUT as shown on 4.2.
- 4.3.2. The EUT was running test program “Diag Test Mode” for WLAN test.
- 4.3.3. The EUT supports 802.11b/g/n-HT20, we performed pre-scan high, middle, low channels for each mode and presented the worst channel of each mode in test report.

The worst channel of each mode as following:

Mode	Type of Network	Channel
1.	802.11b	CH 6
2.	802.11g	CH 6
3.	802.11n-HT20	CH 11

4.4. 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 biconical and log-periodical 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 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 63.4: 4.2, 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.

4.5. Test Results

PASSED.

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

EUT : Digital Media Player

M/N : NW-ZX2

Test Date : 2014. 10. 22 Temperature : 26 Humidity : 43%

For Frequency Range 30MHz~1000MHz:

The EUT emitted the fundamental frequency with data code at the stand, side and lying conditions.

The EUT select **worst position “lying”** and power by battery and with following test modes was performed during this section testing and all the test results are listed in section 4.5.1.

Mode	Type of Network	Channel	Frequency	Test Mode	Reference Test Data	
					Horizontal	Vertical
1.	802.11b	CH 6	2437MHz	Transmit	# 2	# 1
2.	802.11g	CH 6	2437MHz		# 2	# 1
3.	802.11n-HT20	CH 11	2462MHz		# 2	# 1

* Above all final readings were measured with detector.

Frequency above 1GHz:

The emissions (up to 25GHz) not reported are too low to be measured.

For Restricted Bands:

The EUT select **worst position “lying”** and power by battery and with following test modes was performed during this section testing and all the test results are listed in section 4.5.2. (The restricted bands defined in part 15.205(a))

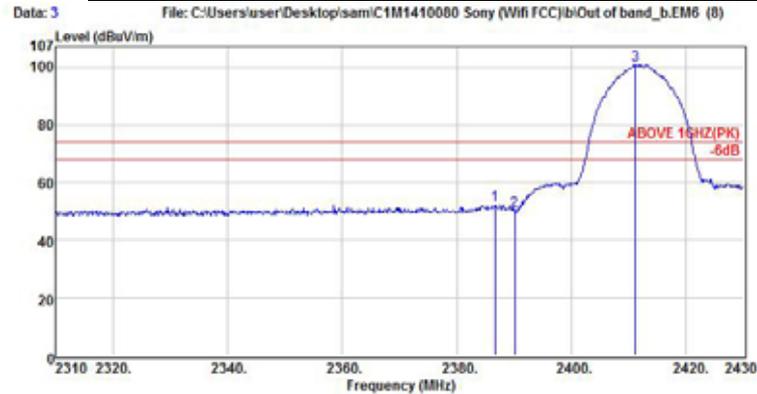
Mode	Type of Network	Channel	Frequency	Test Mode	Reference Test Data	
					Horizontal	Vertical
1.	802.11b	CH 6	2412MHz	Transmit	# 3, # 4	# 1, # 2
2.		CH 11	2462MHz		# 7, # 8	# 5, # 6
3.	802.11g	CH 6	2412MHz	Transmit	# 3, # 4	# 1, # 2
4.		CH 11	2462MHz		# 7, # 8	# 5, # 6
5.	802.11n-HT20	CH 6	2412MHz	Transmit	# 3, # 4	# 1, # 2
6.		CH 11	2462MHz		# 7, # 8	# 5, # 6

4.5.2. Restricted Bands Measurement Results

Date of Test : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

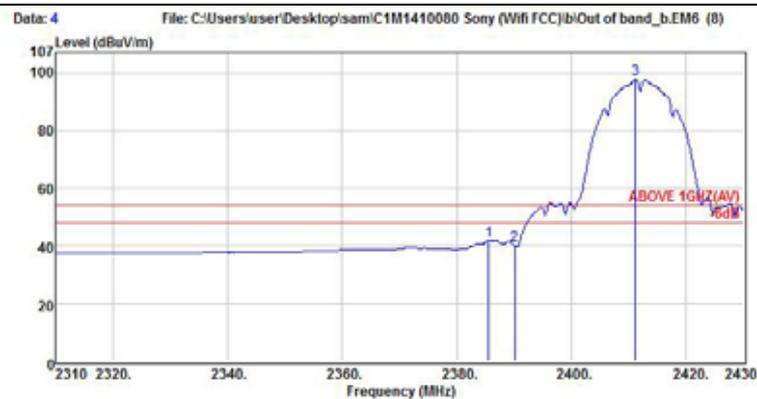
Test Mode : 802.11b, Transmit, Channel: 01, Frequency: 2412MHz



Site no. : Audix NO.1 Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11b 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limit (dB μV/m)	Margin (dB)	Remark
1	2386.68	28.20	5.23	18.69	52.12	74.00	21.88	Peak
2	2390.04	28.20	5.24	16.84	50.28	74.00	23.72	Peak
3	2411.18	28.22	5.27	87.12	100.61	74.00	-28.61	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 Data no. : 4
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11b 2412MHz

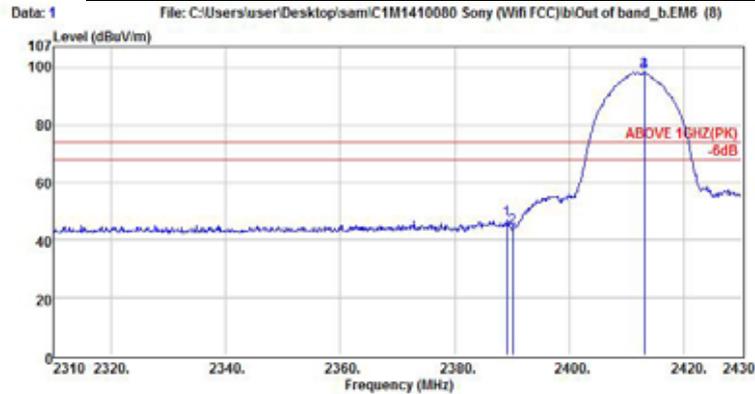
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limit (dB μV/m)	Margin (dB)	Remark
1	2385.60	28.20	5.23	8.42	41.85	54.00	12.15	Average
2	2390.04	28.20	5.24	6.55	39.88	54.00	14.01	Average
3	2411.18	28.22	5.27	84.25	97.74	54.00	-43.74	Average

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 : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

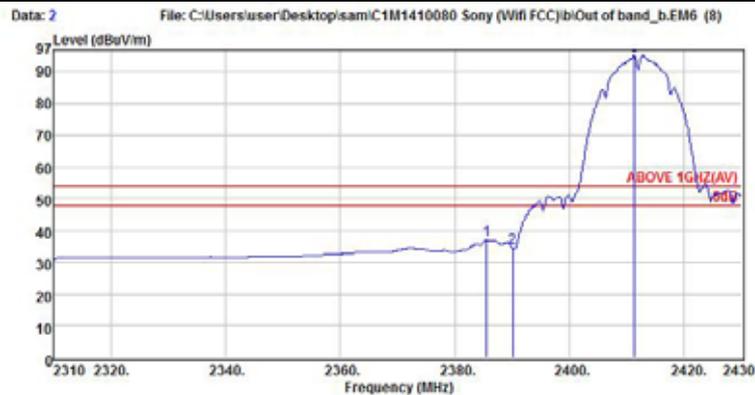
Test Mode : 802.11b, Transmit, Channel: 01, Frequency: 2412MHz



Site no. : Audix NO.1 Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11b 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	2389.08	28.20	5.24	13.64	47.08	74.00	26.92	Peak
2	2390.04	28.20	5.24	10.83	44.27	74.00	29.73	Peak
3	2413.08	28.22	5.27	84.74	98.23	74.00	-24.23	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 Data no. : 2
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11b 2412MHz

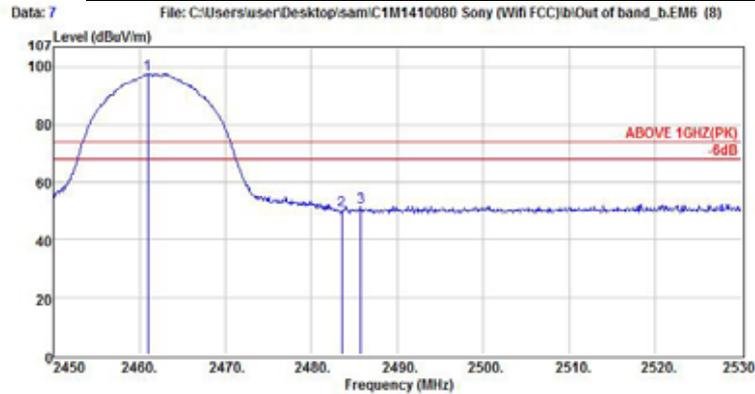
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	2385.80	28.20	5.23	3.53	38.98	54.00	17.04	Average
2	2390.04	28.20	5.24	1.11	34.55	54.00	19.45	Average
3	2411.28	28.22	5.27	61.69	95.18	54.00	-41.18	Average

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 : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

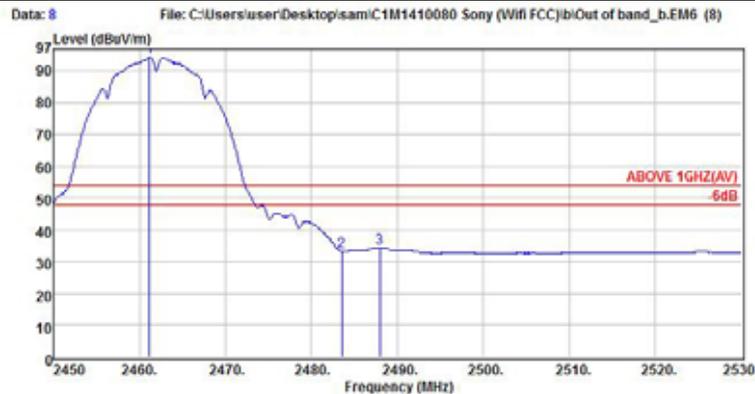
Test Mode : 802.11b, Transmit, Channel: 11, Frequency: 2462MHz



Site no. : Audix NO.1 Chamber Data no. : 7
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NH-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11b 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2460.96	28.27	5.34	63.93	97.54	74.00	-23.54	Peak
2	2483.52	28.29	5.37	16.83	50.29	74.00	23.71	Peak
3	2485.76	28.29	5.37	17.73	51.39	74.00	22.61	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 Data no. : 8
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NH-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11b 2462MHz

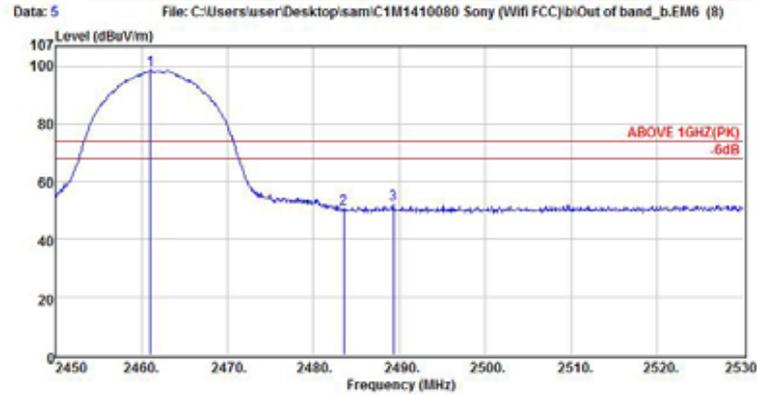
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2481.20	28.27	5.34	80.85	94.48	54.00	-40.48	Average
2	2483.52	28.29	5.37	-0.48	33.20	54.00	20.80	Average
3	2487.92	28.29	5.37	0.66	34.32	54.00	19.68	Average

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 : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

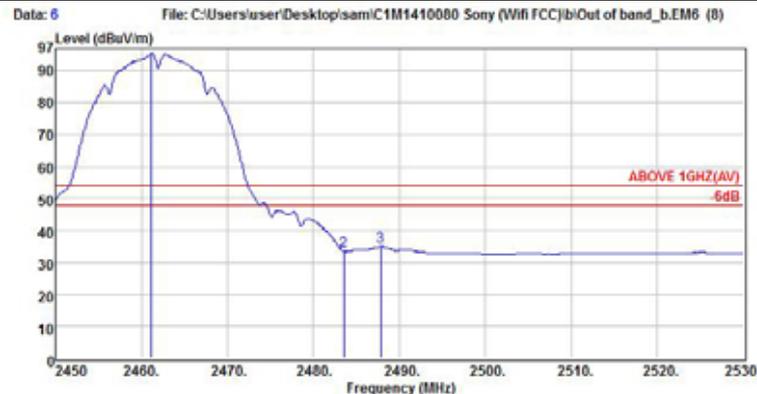
Test Mode : 802.11b, Transmit, Channel: 11, Frequency: 2462MHz



Site no. : Audix NO.1 Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Ratings : DC 3.7V
 Test Mode : 802.11b 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limits (dB μV/m)	Margin (dB)	Remark
1	2461.04	28.27	5.34	84.94	98.55	74.00	-24.55	Peak
2	2483.52	28.29	5.37	18.32	50.48	74.00	23.52	Peak
3	2489.28	28.29	5.37	18.38	52.04	74.00	21.96	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 Data no. : 6
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Ratings : DC 3.7V
 Test Mode : 802.11b 2462MHz

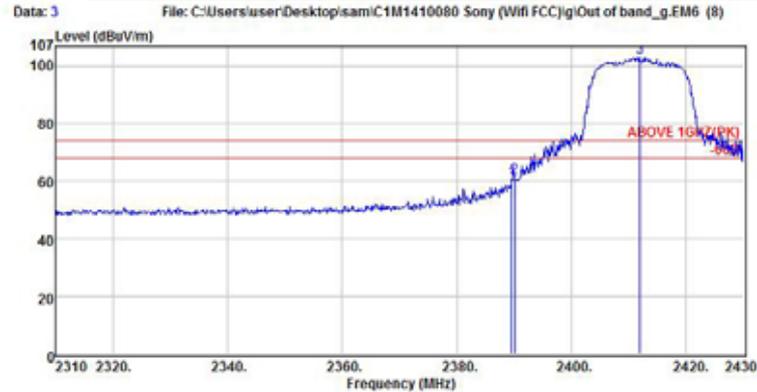
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limits (dB μV/m)	Margin (dB)	Remark
1	2461.20	28.27	5.34	81.82	95.43	54.00	-41.43	Average
2	2483.52	28.29	5.37	-0.20	33.46	54.00	20.54	Average
3	2487.84	28.29	5.37	1.18	34.84	54.00	19.16	Average

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 : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

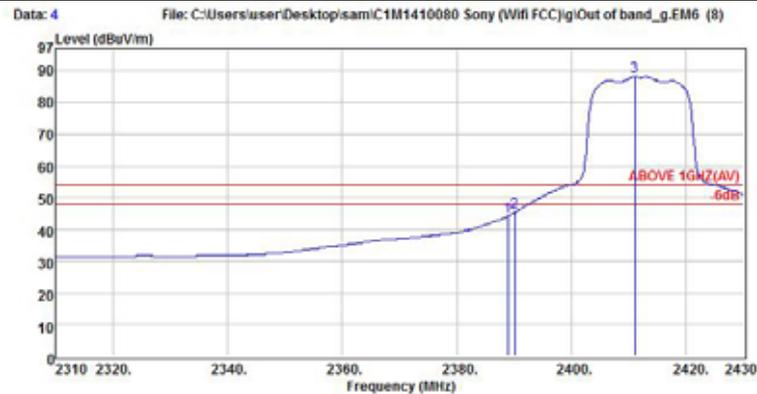
Test Mode : 802.11g, Transmit, Channel: 01, Frequency: 2412MHz



Site no. : Audix NO.1 Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11g 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	2389.58	28.20	5.24	27.05	60.49	74.00	13.51	Peak
2	2390.04	28.20	5.24	27.84	61.08	74.00	12.92	Peak
3	2411.88	28.22	5.27	89.58	103.07	74.00	-29.07	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 Data no. : 4
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11g 2412MHz

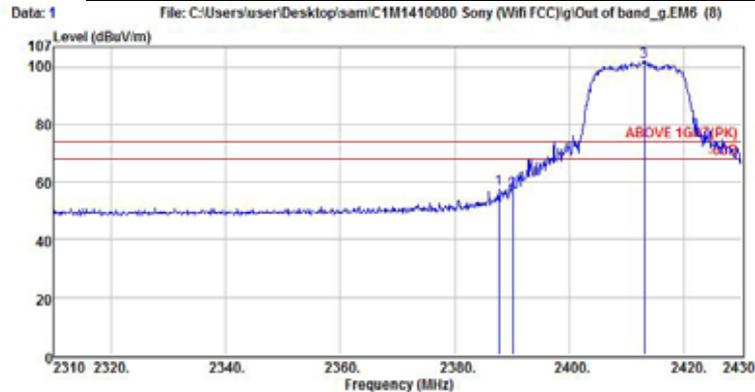
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	2388.84	28.20	5.24	10.82	44.06	54.00	9.94	Average
2	2390.04	28.20	5.24	11.86	45.30	54.00	8.70	Average
3	2411.04	28.22	5.27	54.89	88.38	54.00	-34.38	Average

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 : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

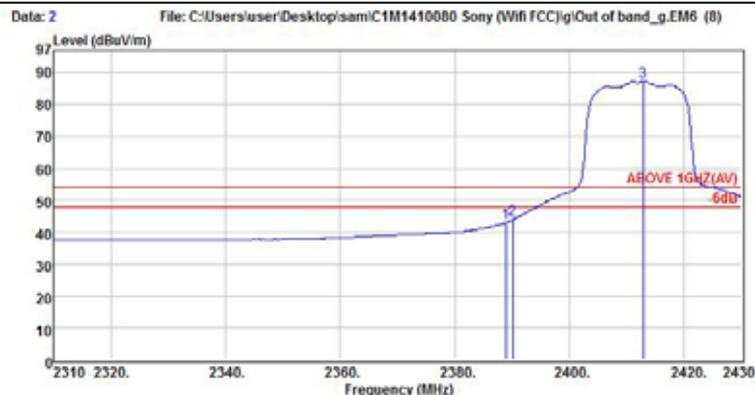
Test Mode : 802.11g, Transmit, Channel: 01, Frequency: 2412MHz



Site no. : Audix NO.1 Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11g 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limit (dB μV/m)	Margin (dB)	Remark
1	2387.84	28.20	5.24	24.40	57.84	74.00	16.16	Peak
2	2390.04	28.20	5.24	23.35	56.79	74.00	17.21	Peak
3	2413.08	28.22	5.27	88.36	101.85	74.00	-27.85	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 Data no. : 2
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11g 2412MHz

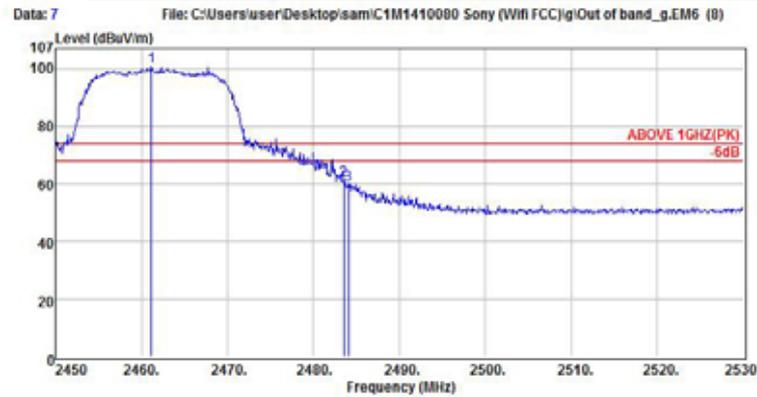
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limit (dB μV/m)	Margin (dB)	Remark
1	2388.84	28.20	5.24	9.50	42.94	54.00	11.06	Average
2	2390.04	28.20	5.24	10.43	43.87	54.00	10.13	Average
3	2412.84	28.22	5.27	53.90	87.39	54.00	-33.39	Average

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 : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

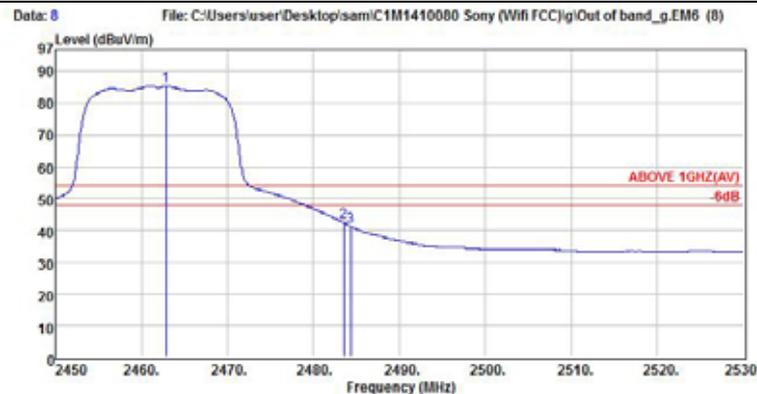
Test Mode : 802.11g, Transmit, Channel: 11, Frequency: 2462MHz



Site no. : Audix NO.1 Chamber Data no. : 7
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Ratings : DC 3.7V
 Test Mode : 802.11g 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limits (dB μV/m)	Margin (dB)	Remark
1	2461.20	28.27	5.34	86.83	100.44	74.00	-26.44	Peak
2	2483.52	28.29	5.37	27.87	61.33	74.00	12.67	Peak
3	2484.08	28.29	5.37	26.07	59.73	74.00	14.27	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 Data no. : 8
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 28°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Ratings : DC 3.7V
 Test Mode : 802.11g 2462MHz

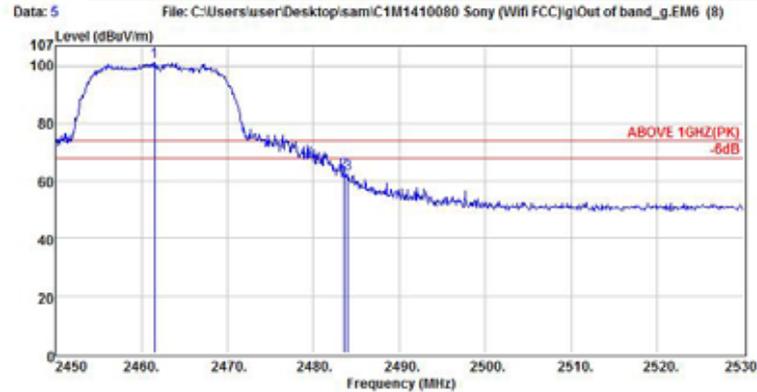
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limits (dB μV/m)	Margin (dB)	Remark
1	2462.88	28.27	5.34	51.96	85.57	54.00	-31.57	Average
2	2483.52	28.29	5.37	8.75	42.41	54.00	11.59	Average
3	2484.32	28.29	5.37	7.62	41.28	54.00	12.72	Average

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 : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

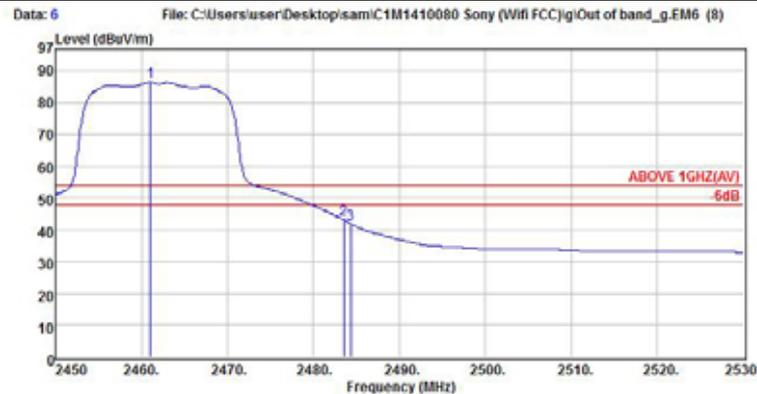
Test Mode : 802.11g, Transmit, Channel: 11, Frequency: 2462MHz



Site no. : Audix NO.1 Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11g 2462MHz

	Freq. (MHz)	Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limit (dB μV/m)	Margin (dB)	Remark
1	2461.52	28.27	5.34	67.76	101.37	74.00	-27.37	Peak
2	2483.52	28.29	5.37	29.85	63.31	74.00	10.89	Peak
3	2484.00	28.29	5.37	28.74	62.40	74.00	11.60	Peak

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



Site no. : Audix NO.1 Chamber Data no. : 6
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11g 2462MHz

	Freq. (MHz)	Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limit (dB μV/m)	Margin (dB)	Remark
1	2481.04	28.27	5.34	52.88	66.47	54.00	-32.47	Average
2	2483.52	28.29	5.37	9.49	43.15	54.00	10.85	Average
3	2484.32	28.29	5.37	8.34	42.00	54.00	12.00	Average

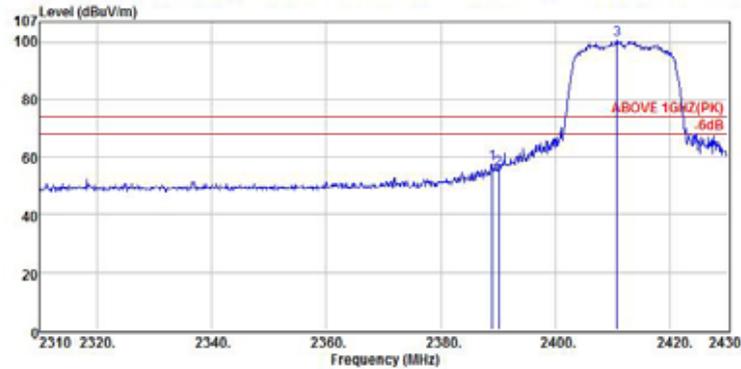
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 2. The emission levels that are 20dB below the official limit are not reported.

Date of Test : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

Test Mode : 802.11n-HT20, Transmit, Channel: 01, Frequency: 2412MHz

Data: 3 File: C:\Users\user\Desktop\sam\C1M1410080 Sony (Wifi FCC)\n20\Out of band_n20.EM6 (8)

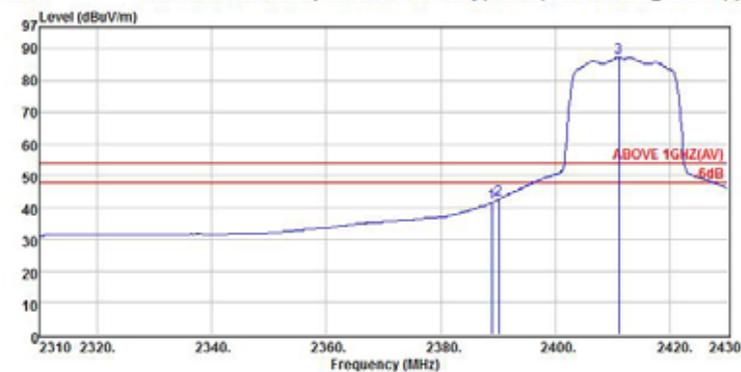


Site no. : Audix NO.1 Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11n20 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	2388.96	28.20	5.24	24.38	57.82	74.00	16.18	Peak
2	2390.04	28.20	5.24	22.11	55.55	74.00	18.45	Peak
3	2410.68	28.22	5.27	67.14	100.63	74.00	-26.63	Peak

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

Data: 4 File: C:\Users\user\Desktop\sam\C1M1410080 Sony (Wifi FCC)\n20\Out of band_n20.EM6 (8)



Site no. : Audix NO.1 Chamber Data no. : 4
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11n20 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	2388.84	28.20	5.24	8.09	41.53	54.00	12.47	Average
2	2390.04	28.20	5.24	9.12	42.56	54.00	11.44	Average
3	2411.04	28.22	5.27	53.90	87.39	54.00	-33.39	Average

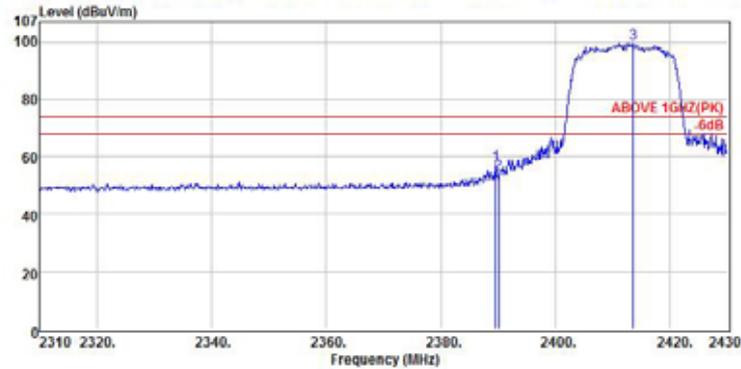
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 2. The emission levels that are 20dB below the official limit are not reported.

Date of Test : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

Test Mode : 802.11n-HT20, Transmit, Channel: 01, Frequency: 2412MHz

Data: 1 File: C:\Users\user\Desktop\sam\C1M1410080 Sony (Wifi FCC)\n20\Out of band_n20.EM6 (8)

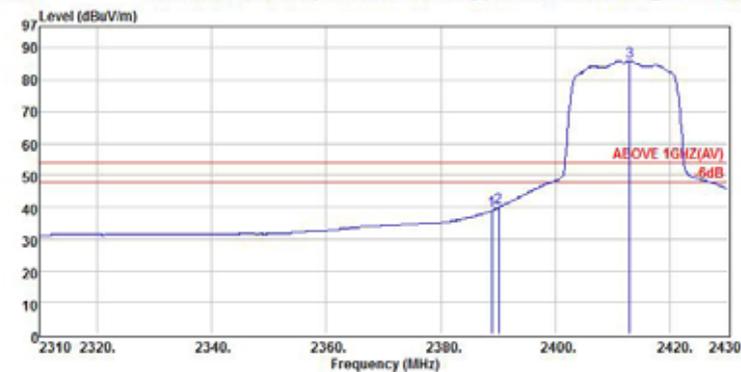


Site no. : Audix NO.1 Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11n20 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limits (dB μV/m)	Margin (dB)	Remark
1	2389.56	28.20	5.24	23.95	57.39	74.00	16.61	Peak
2	2390.04	28.20	5.24	20.76	54.20	74.00	19.80	Peak
3	2413.56	28.22	5.27	66.07	99.56	74.00	-25.56	Peak

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

Data: 2 File: C:\Users\user\Desktop\sam\C1M1410080 Sony (Wifi FCC)\n20\Out of band_n20.EM6 (8)



Site no. : Audix NO.1 Chamber Data no. : 2
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11n20 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μV)	Emission Level (dB μV/m)	Limits (dB μV/m)	Margin (dB)	Remark
1	2388.84	28.20	5.24	5.47	38.91	54.00	15.09	Average
2	2390.04	28.20	5.24	6.50	39.94	54.00	14.06	Average
3	2412.96	28.22	5.27	52.47	85.96	54.00	-31.96	Average

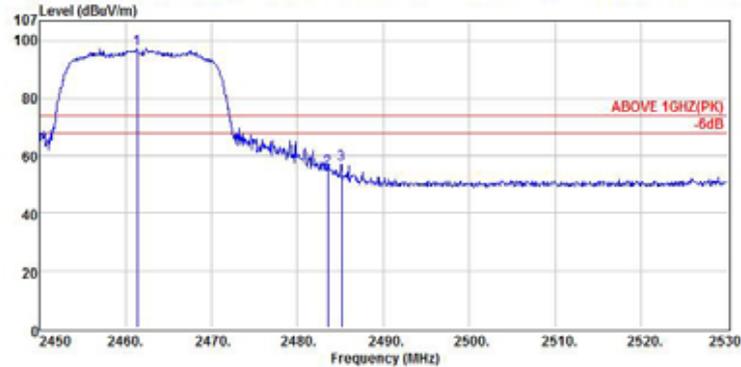
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 2. The emission levels that are 20dB below the official limit are not reported.

Date of Test : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

Test Mode : 802.11n-HT20, Transmit, Channel: 11, Frequency: 2462MHz

Data: 7 File: C:\Users\user\Desktop\sam\C1M1410080 Sony (WiFi FCC)\n20\Out of band_n20.EM6 (8)

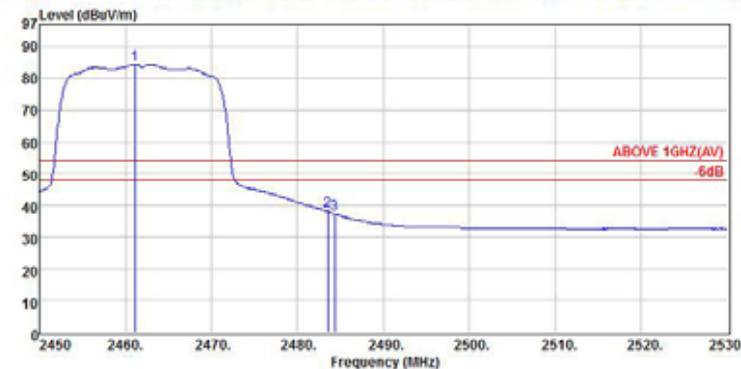


Site no. : Audix NO.1 Chamber Data no. : 7
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Ratings : DC 3.7V
 Test Mode : 802.11n20 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	2461.36	28.27	5.34	63.60	97.21	74.00	-23.21	Peak
2	2483.52	28.29	5.37	21.56	55.22	74.00	18.78	Peak
3	2485.12	28.29	5.37	23.41	57.07	74.00	18.93	Peak

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

Data: 8 File: C:\Users\user\Desktop\sam\C1M1410080 Sony (WiFi FCC)\n20\Out of band_n20.EM6 (8)



Site no. : Audix NO.1 Chamber Data no. : 8
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Ratings : DC 3.7V
 Test Mode : 802.11n20 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	2461.12	28.27	5.34	50.87	84.48	54.00	-30.48	Average
2	2483.52	28.29	5.37	4.43	38.09	54.00	15.91	Average
3	2484.32	28.29	5.37	3.64	37.30	54.00	16.70	Average

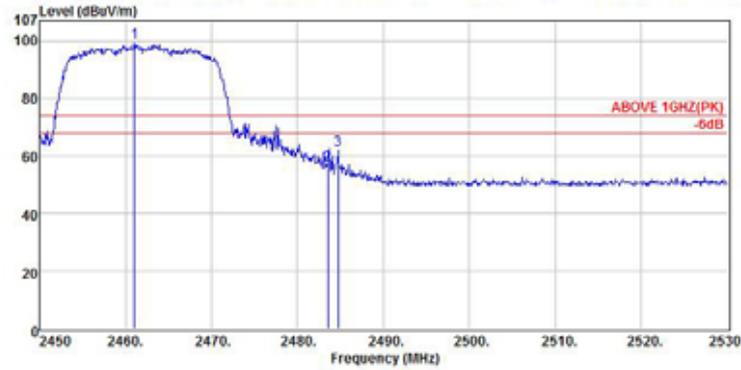
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 2. The emission levels that are 20dB below the official limit are not reported.

Date of Test : 2014. 10. 22 Temperature : 26

EUT : Digital Media Player Humidity : 43%

Test Mode : 802.11n-HT20, Transmit, Channel: 11, Frequency: 2462MHz

Data: 5 File: C:\Users\user\Desktop\sam\C1M1410080 Sony (Wifi FCC)\n20\Out of band_n20.EM6 (8)

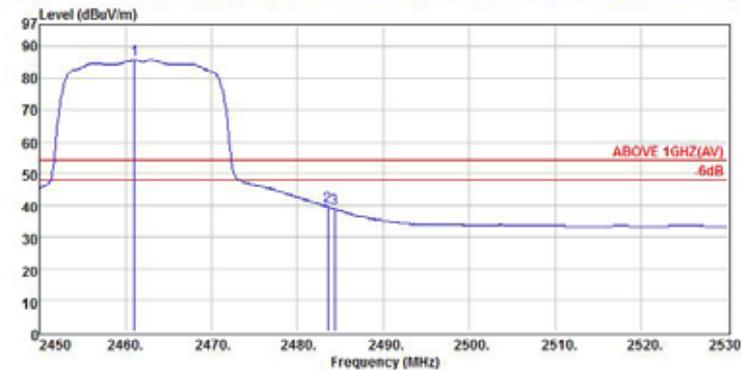


Site no. : Audix NO.1 Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11n20 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	2461.04	28.27	5.34	65.98	99.59	74.00	-25.59	Peak
2	2483.52	28.29	5.37	23.29	56.95	74.00	17.05	Peak
3	2484.72	28.29	5.37	28.41	62.07	74.00	11.93	Peak

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

Data: 6 File: C:\Users\user\Desktop\sam\C1M1410080 Sony (Wifi FCC)\n20\Out of band_n20.EM6 (8)



Site no. : Audix NO.1 Chamber Data no. : 6
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 26°C / 43% N9010A Engineer : Sam
 EUT : NW-ZX2
 Power Rating : DC 3.7V
 Test Mode : 802.11n20 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	2461.04	28.27	5.34	52.23	85.84	54.00	-31.84	Average
2	2483.52	28.29	5.37	5.92	39.58	54.00	14.42	Average
3	2484.32	28.29	5.37	5.14	38.80	54.00	15.20	Average

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

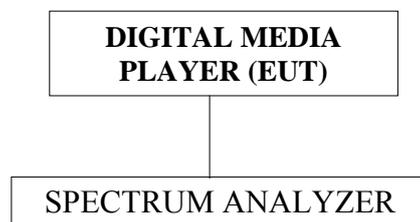
5. 6dB BANDWIDTH MEASUREMENT

5.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

5.2. Block Diagram of Test Setup



5.3. Specification Limits [§15.247(a)(2)]

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

5.4. Operating Condition of EUT

The EUT was running test program “Diag Test Mode” for WLAN test, and enable to transmit data at different channel frequency individually.

5.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 1.5% EBW, $VBW \geq 3 \times RBW$. 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 558074 D01 v03r02.

5.6. Test Results

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

Test Date : 2014. 10. 22 Temperature : 25 Humidity : 50%

Mode	Type of Network	Channel	Frequency (MHz)	6dB Bandwidth (MHz)
1.	802.11b	CH 1	2412	9.10
2.		CH 6	2437	9.10
3.		CH 11	2462	9.10
4.	802.11g	CH 1	2412	15.20
5.		CH 6	2437	15.20
6.		CH 11	2462	15.20
7.	802.11n-HT20	CH 1	2412	15.20
8.		CH 6	2437	15.20
9.		CH 11	2462	15.20

[Limit: least 500kHz]

802.11b, Frequency: 2412MHz



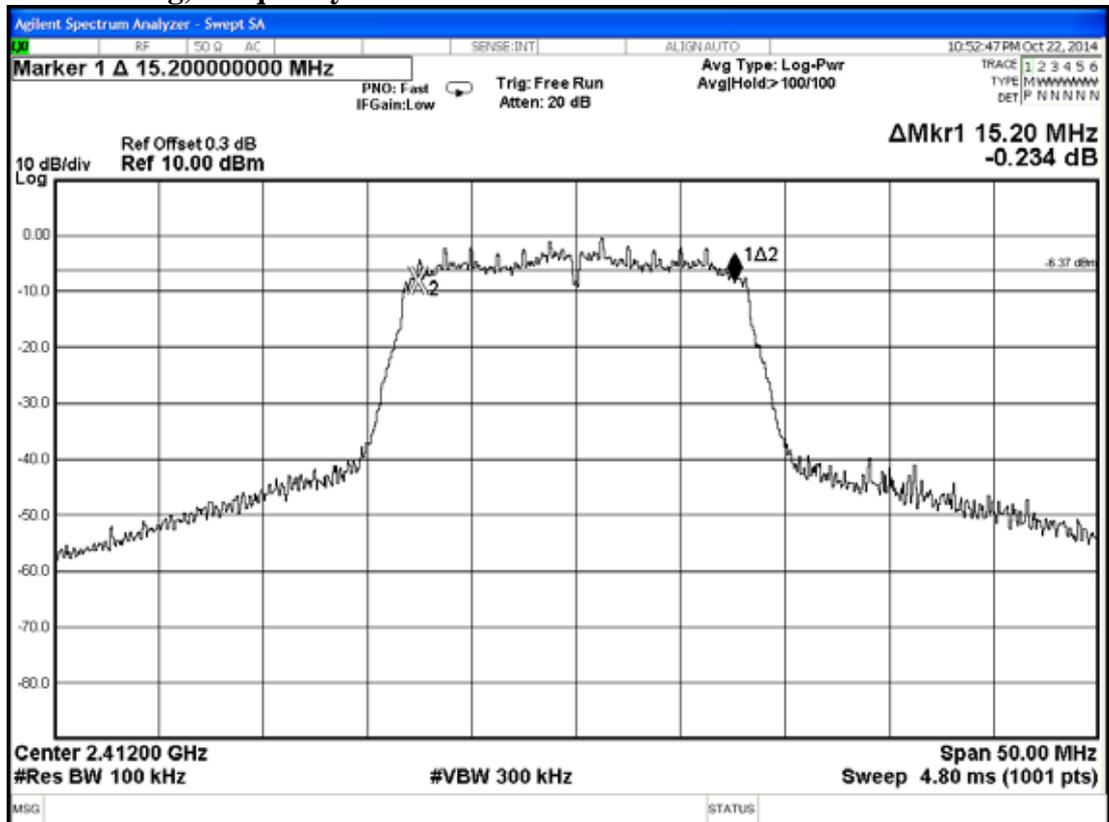
802.11b, Frequency: 2437MHz



802.11b, Frequency: 2462MHz



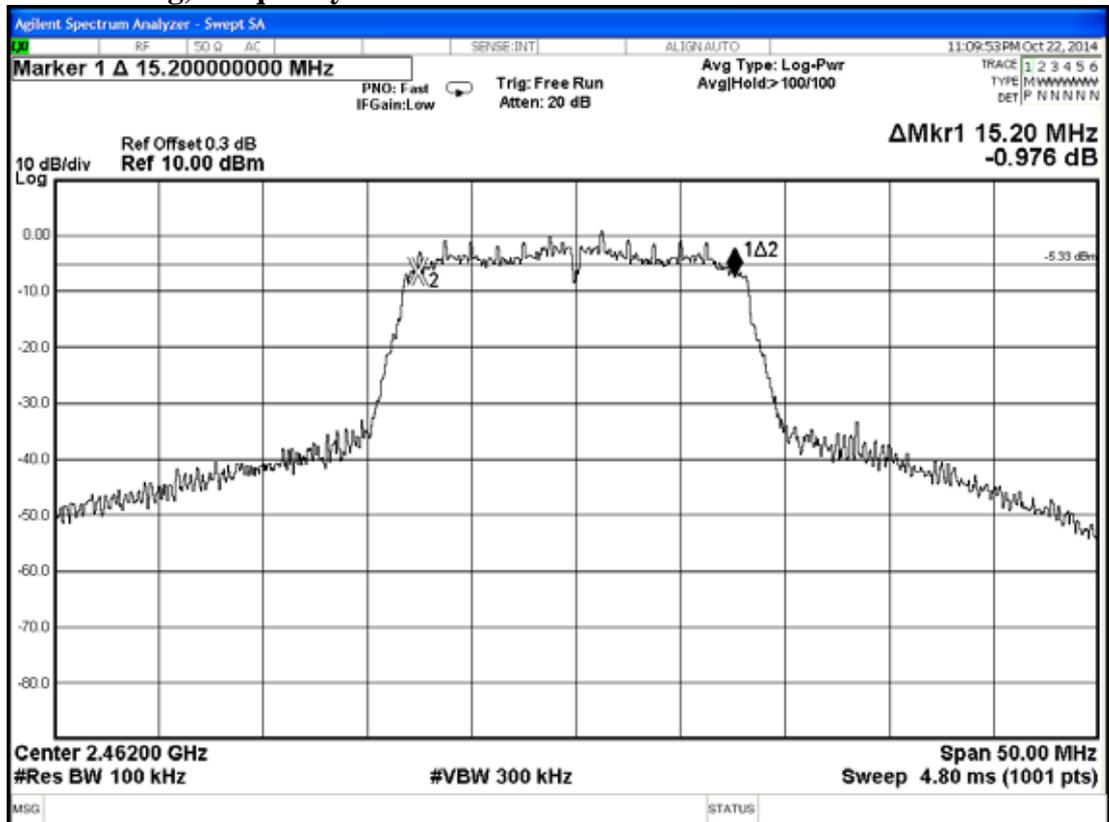
802.11g, Frequency: 2412MHz



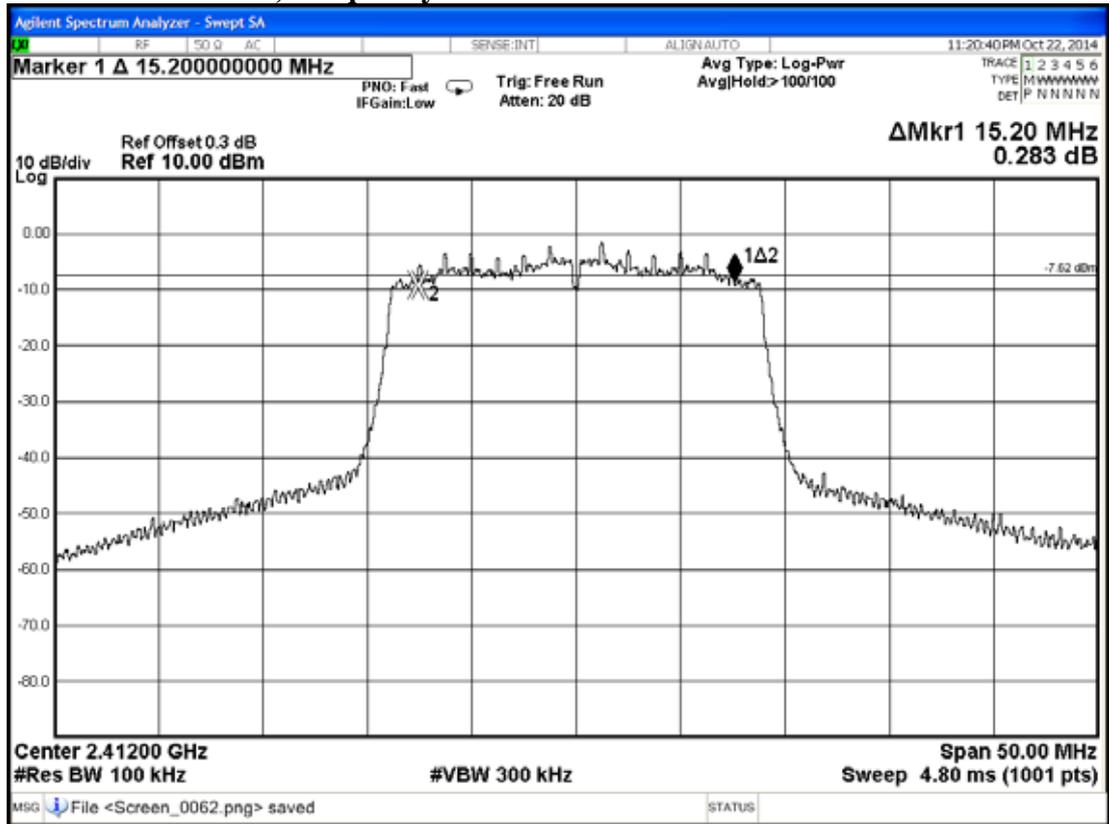
802.11g, Frequency: 2437MHz



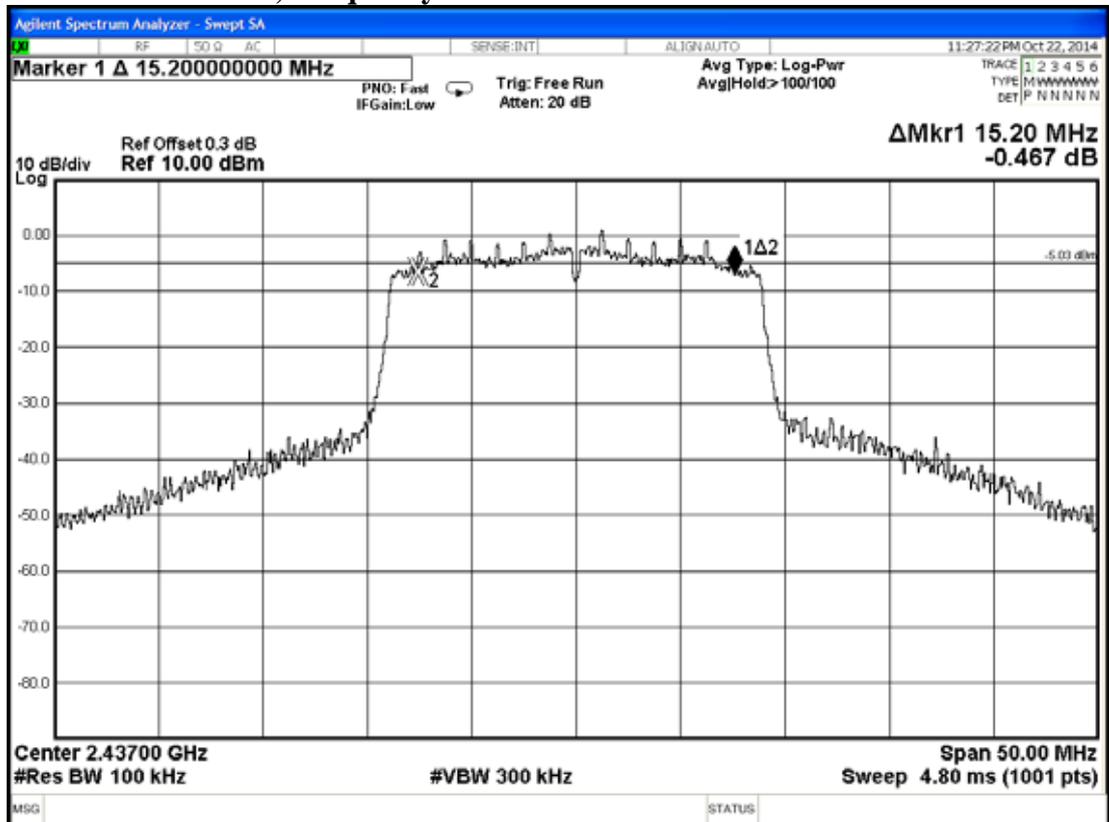
802.11g, Frequency: 2462MHz



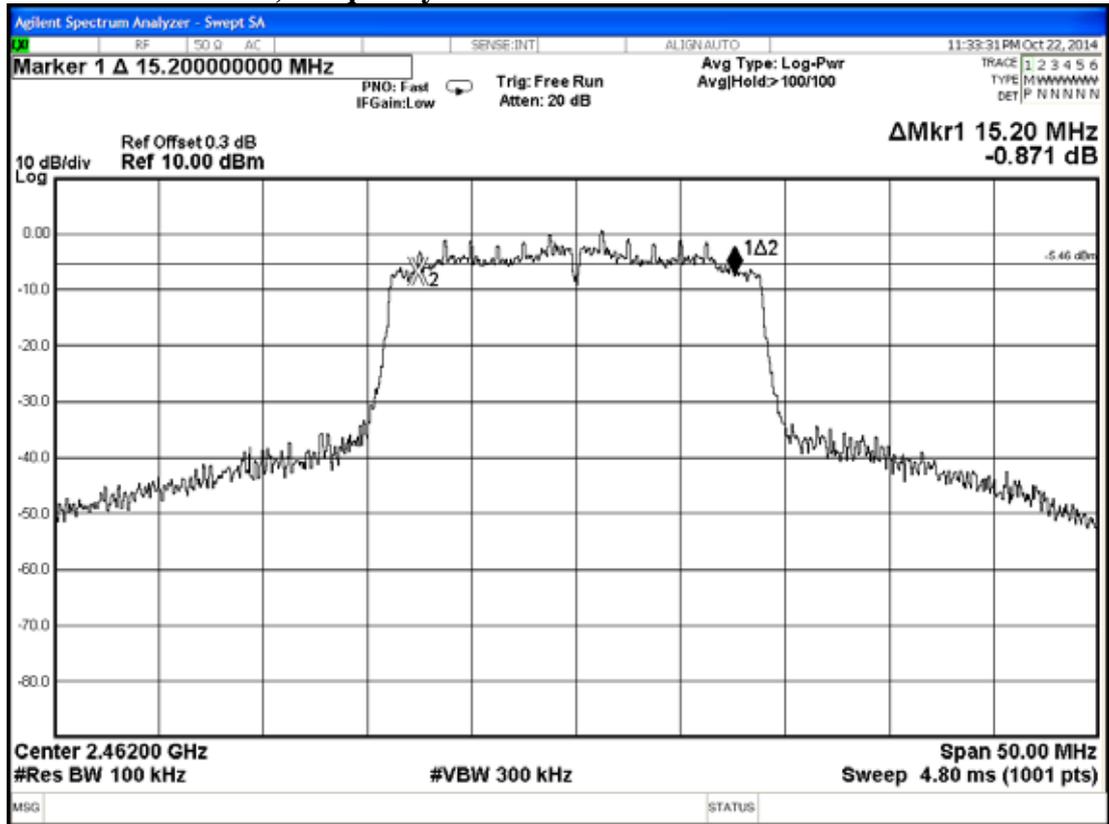
802.11n-HT20, Frequency: 2412MHz



802.11n-HT20, Frequency: 2437MHz



802.11n-HT20, Frequency: 2462MHz



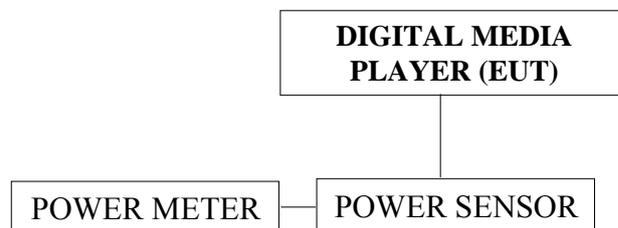
6. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

6.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Power Meter	Anritsu	ML2495A	1145008	2013. 10. 23	1 Year
2.	Power Sensor	Anritsu	MA2411B	1126096	2013. 10. 23	1 Year

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 is : 1Watt. (30dBm)

6.4. Operating Condition of EUT

The EUT was running test program “Diag Test Mode” for WLAN test, and enable to transmit data at different channel frequency individually.

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 558074 D01 v03r02.

6.6. Test Results

PASSED. All the test results are listed below.

Test Date: 2014. 10. 22 Temperature: 25 Humidity: 50%

Mode	Type of Network	Channel	Frequency (MHz)	Peak Output Power (dBm)
1.	802.11b	CH 1	2412	14.35
2.		CH 6	2437	14.41
3.		CH 11	2462	14.17
4.	802.11g	CH 1	2412	17.66
5.		CH 6	2437	17.95
6.		CH 11	2462	17.94
7.	802.11n-HT20	CH 1	2412	16.90
8.		CH 6	2437	17.86
9.		CH 11	2462	17.90

[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.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

7.2. Block Diagram of Test Setup

The same as section.5.2

7.3. Specification Limits [§15.247(c)]

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 §4.6.1.2 and §4.6.2.2)

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

The EUT was running test program “Diag Test Mode” for WLAN test, and enable to transmit data at different channel frequency individually.

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 300kHz VBW.

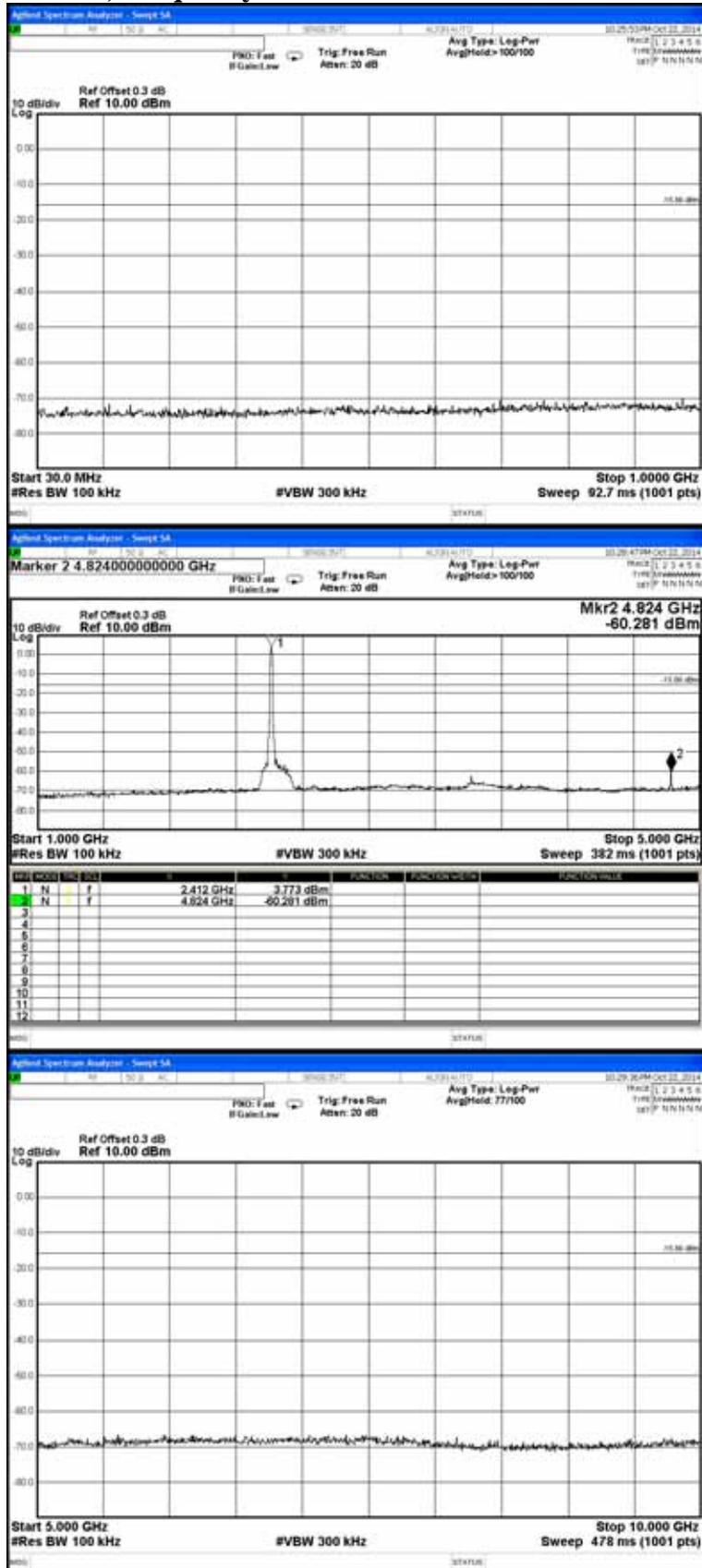
The measurement guideline was according to 558074 D01 v03r02.

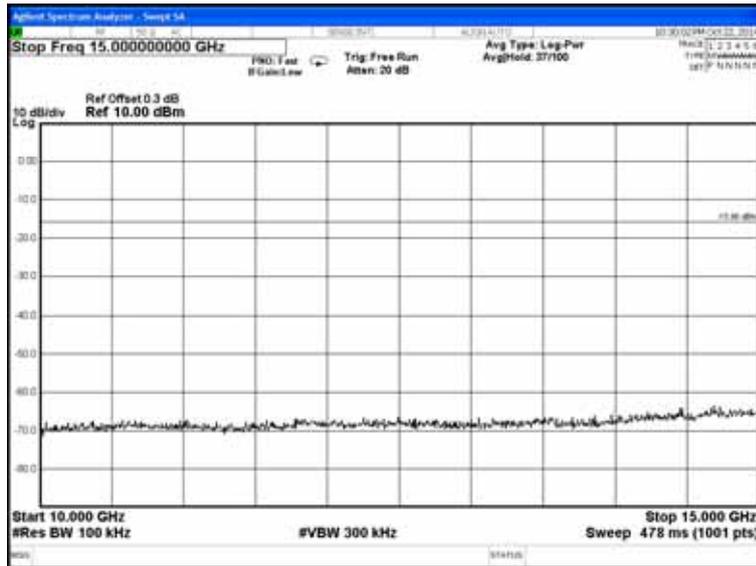
7.6. Test Results

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

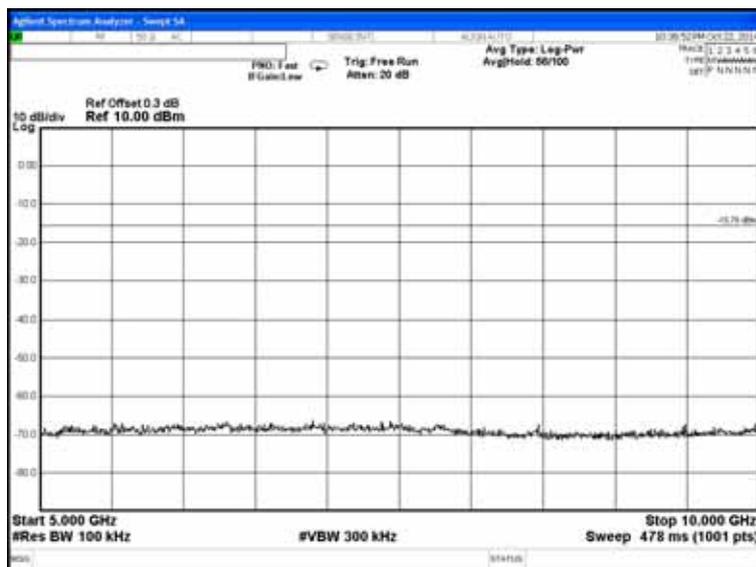
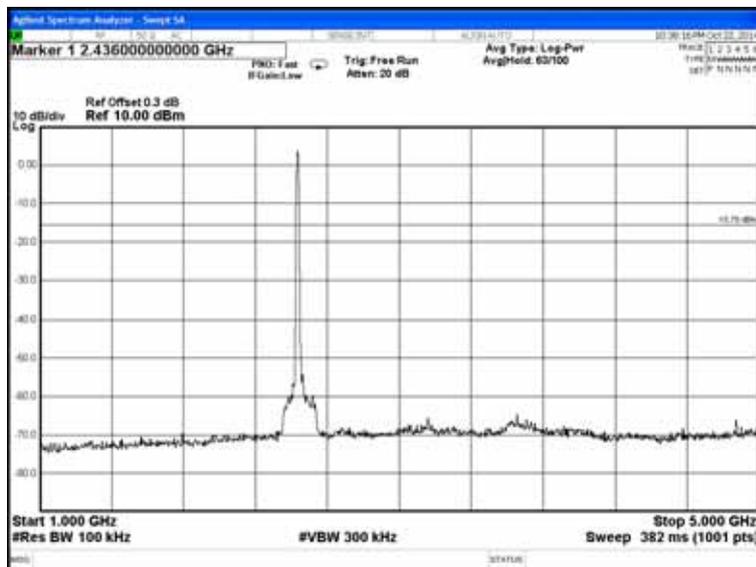
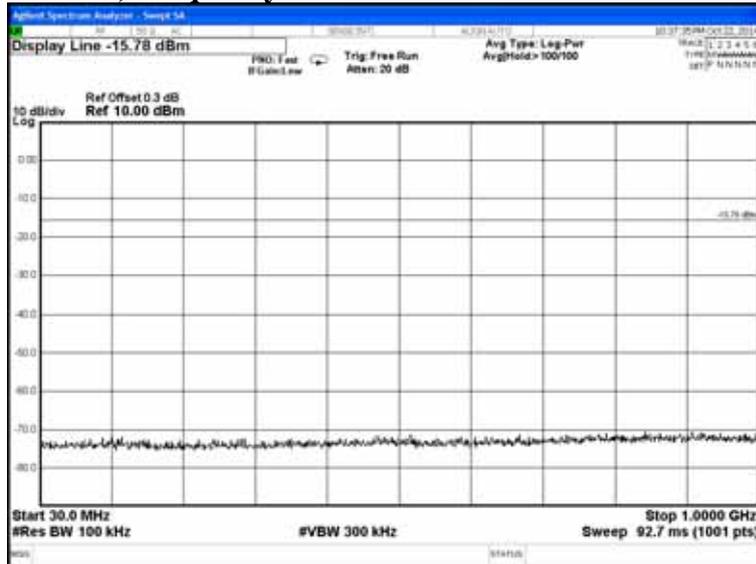
Test Date : 2014. 10. 22 Temperature : 25 Humidity : 50%

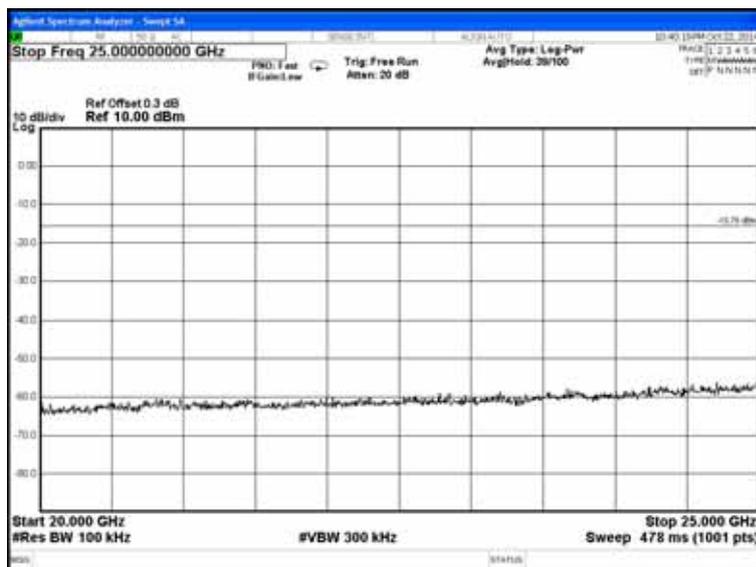
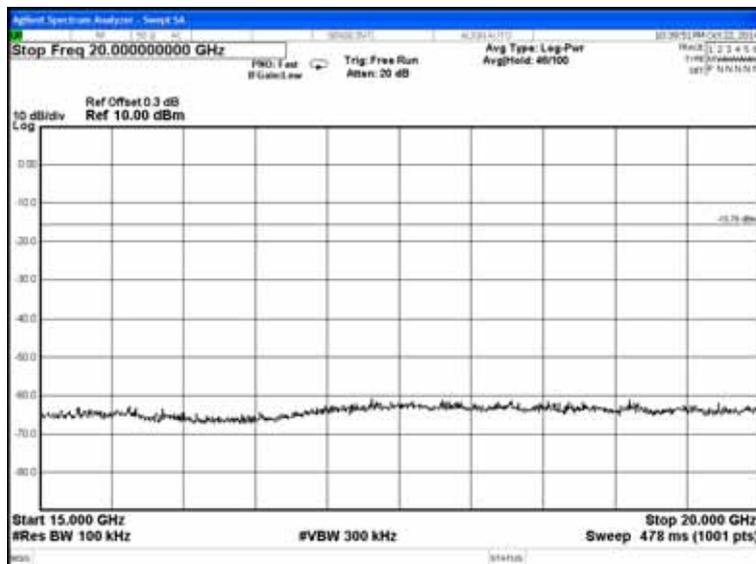
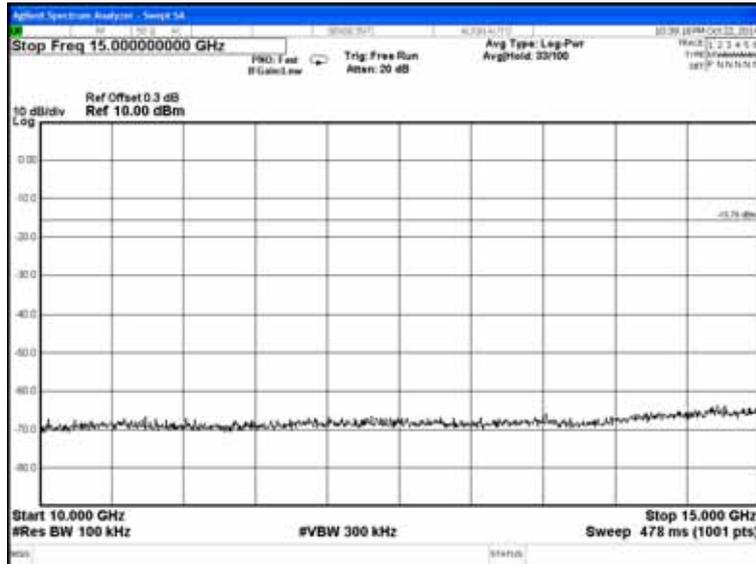
802.11b, Frequency: 2412MHz



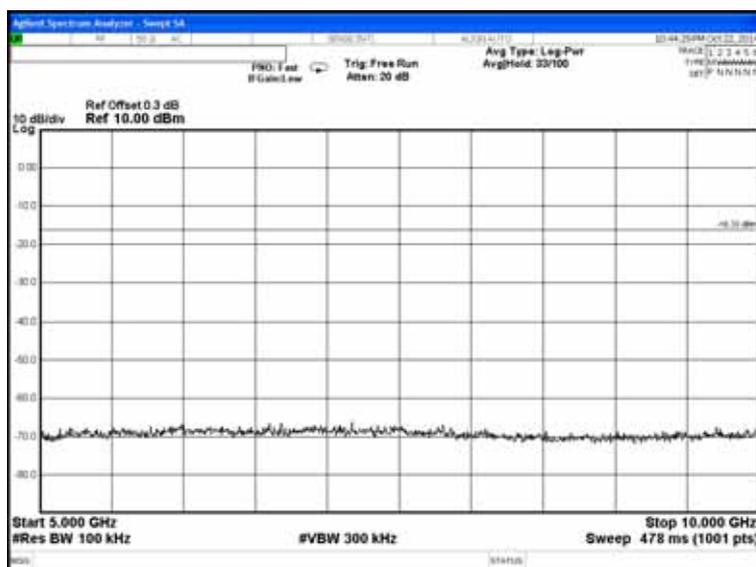
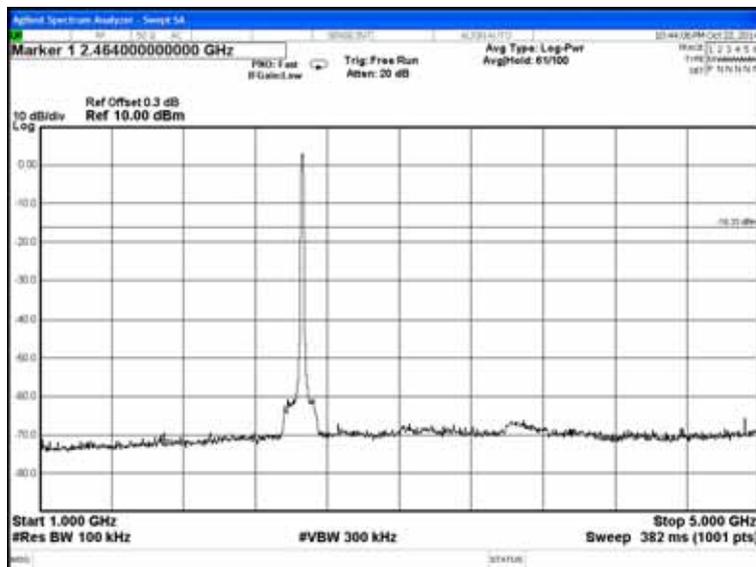


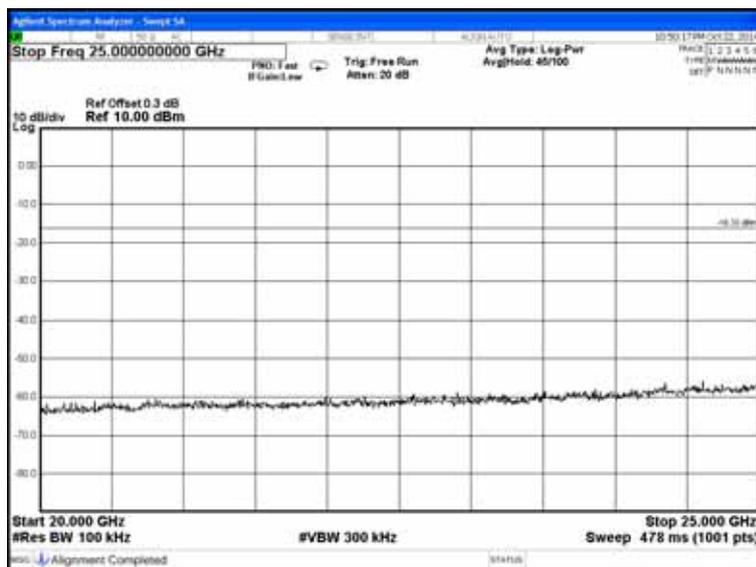
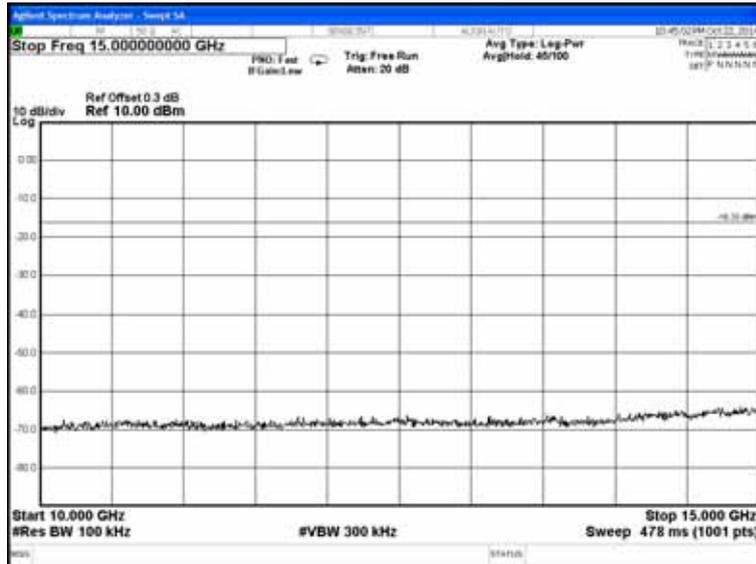
802.11b, Frequency: 2437MHz



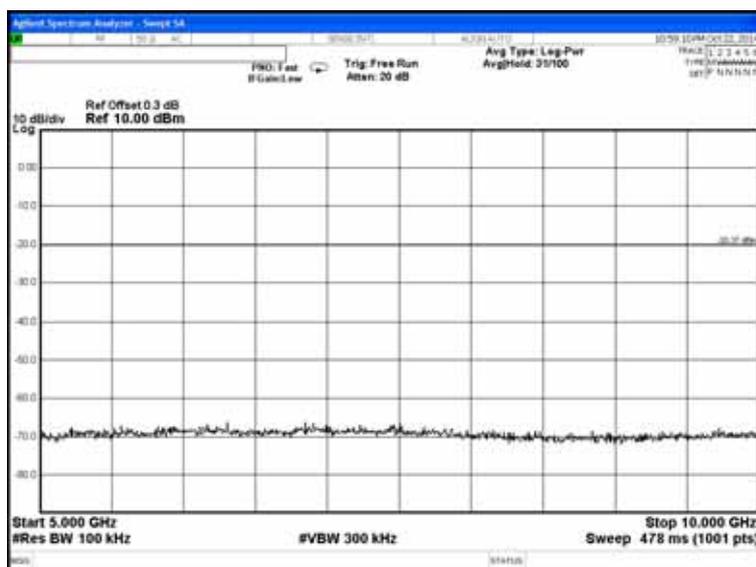
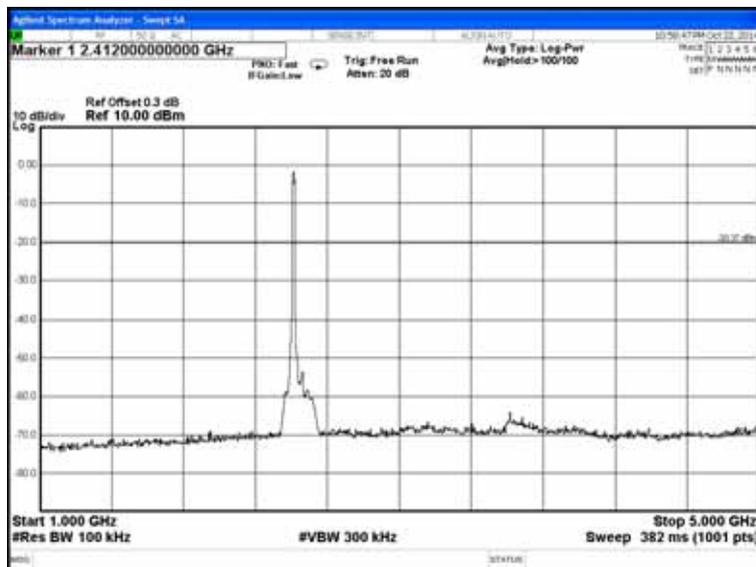
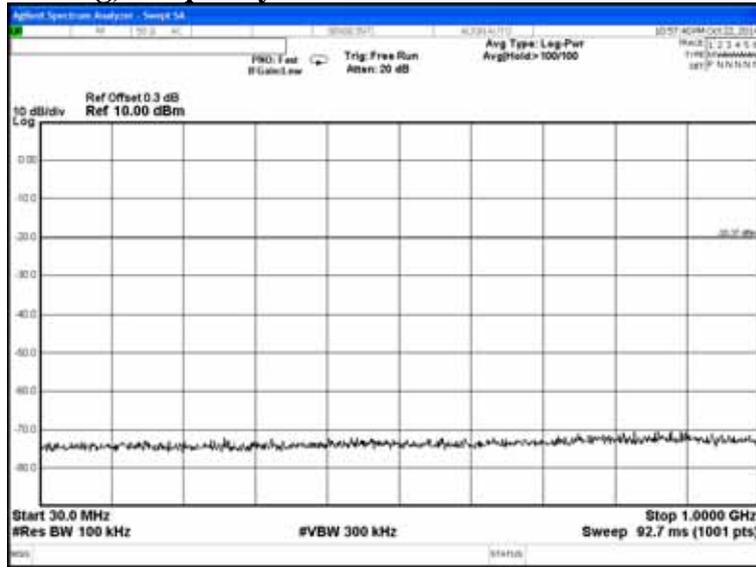


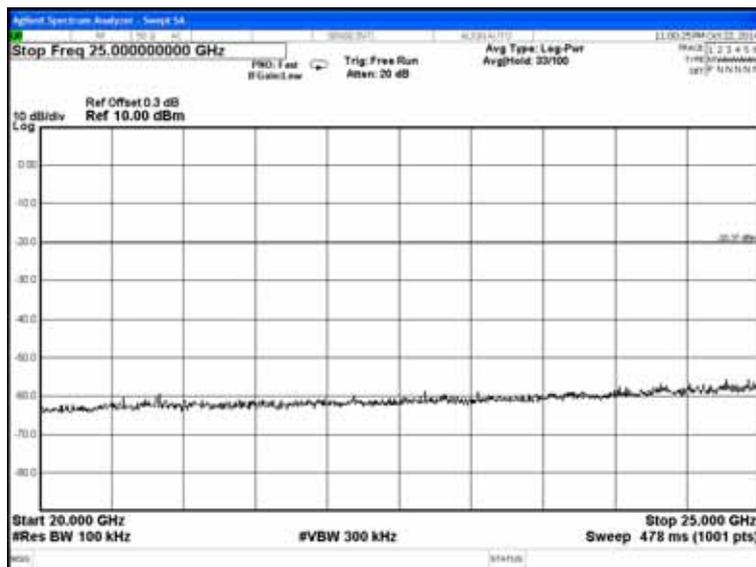
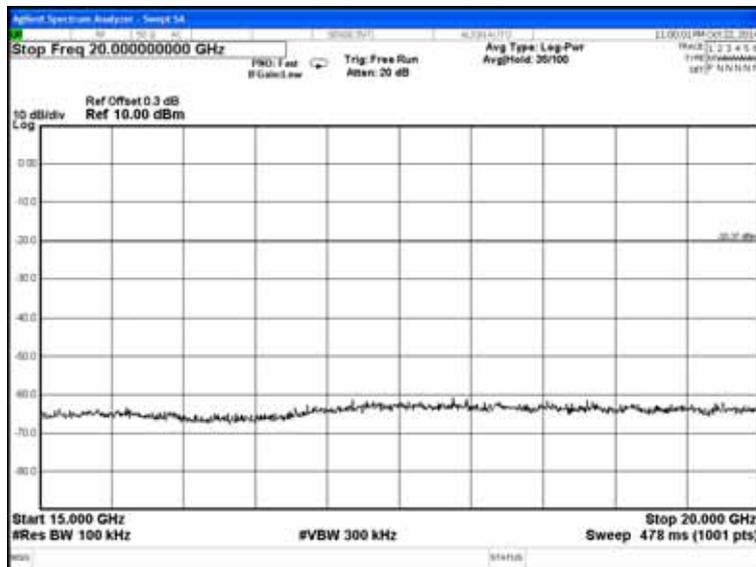
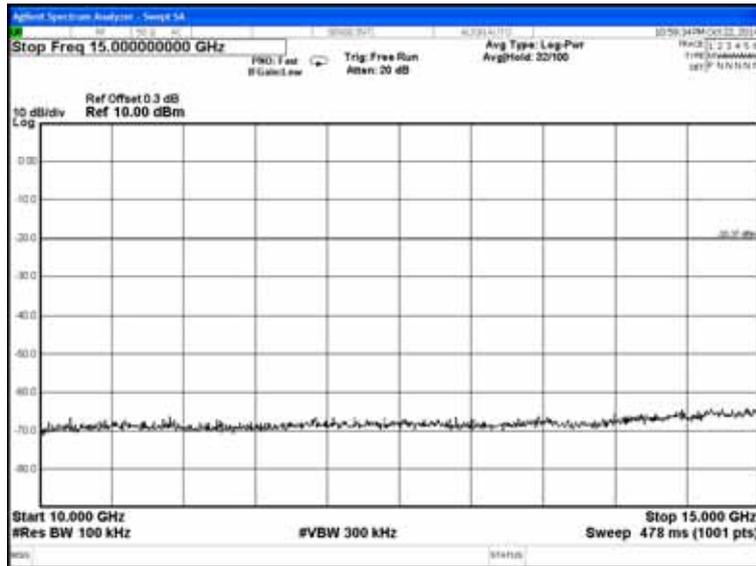
802.11b, Frequency: 2462MHz



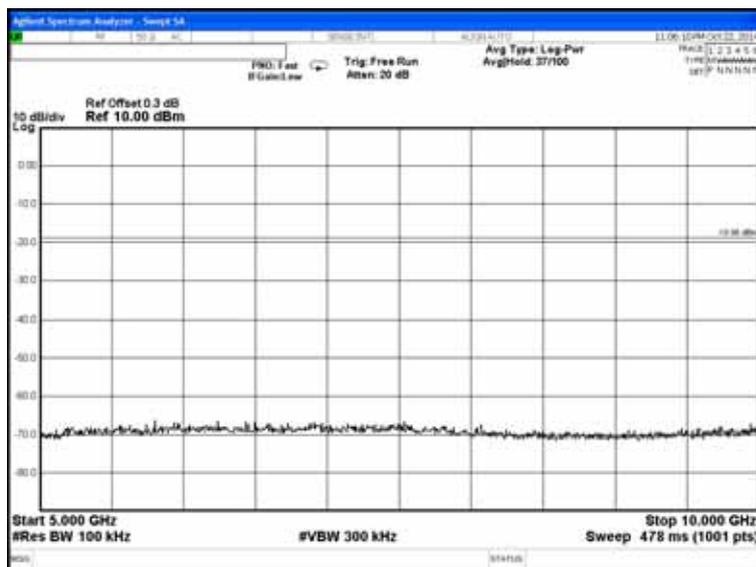
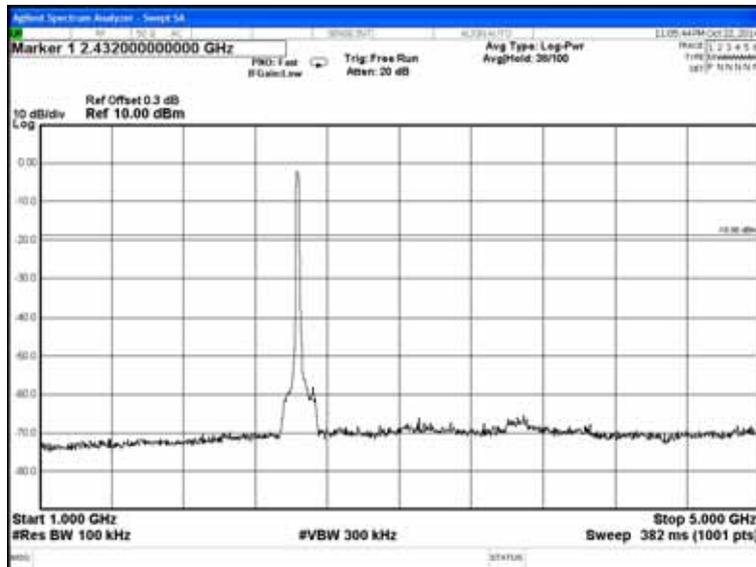
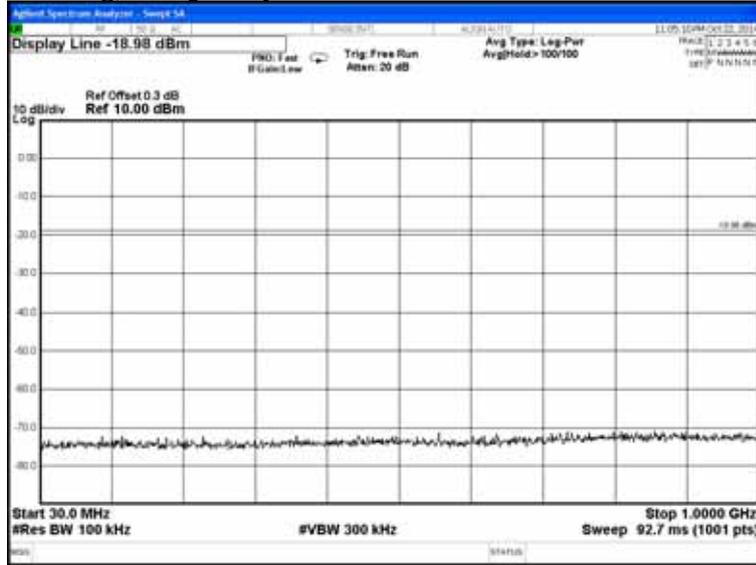


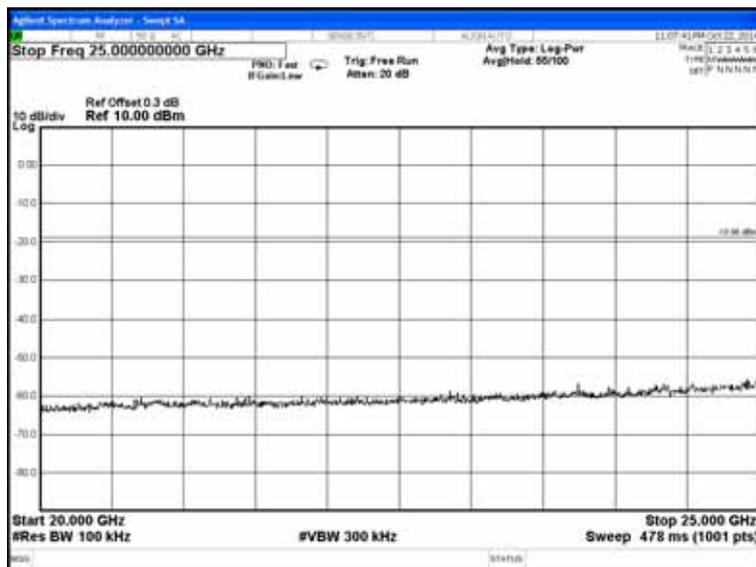
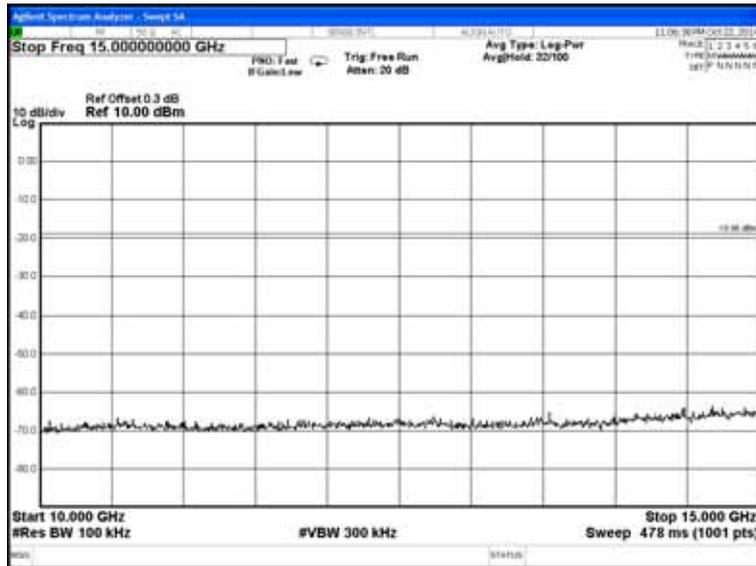
802.11g, Frequency: 2412MHz



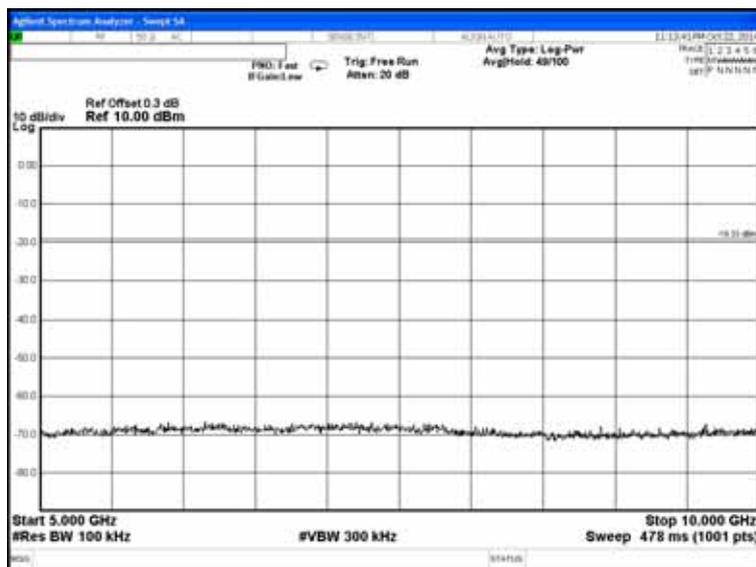
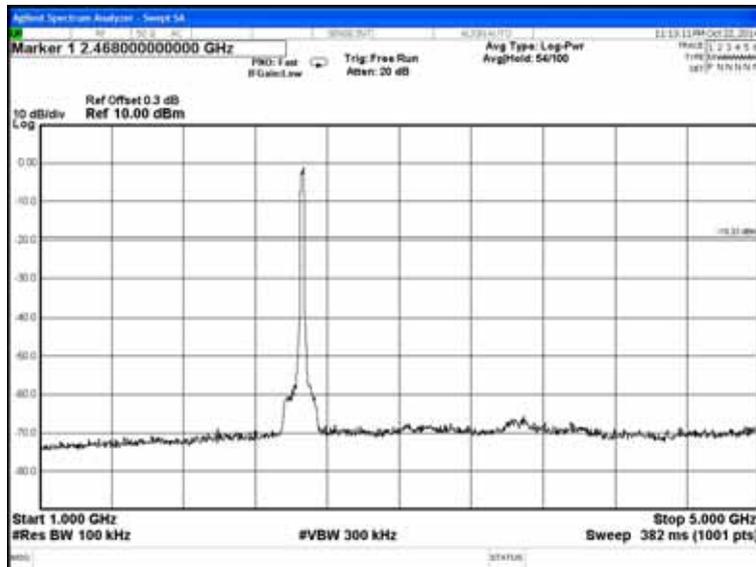
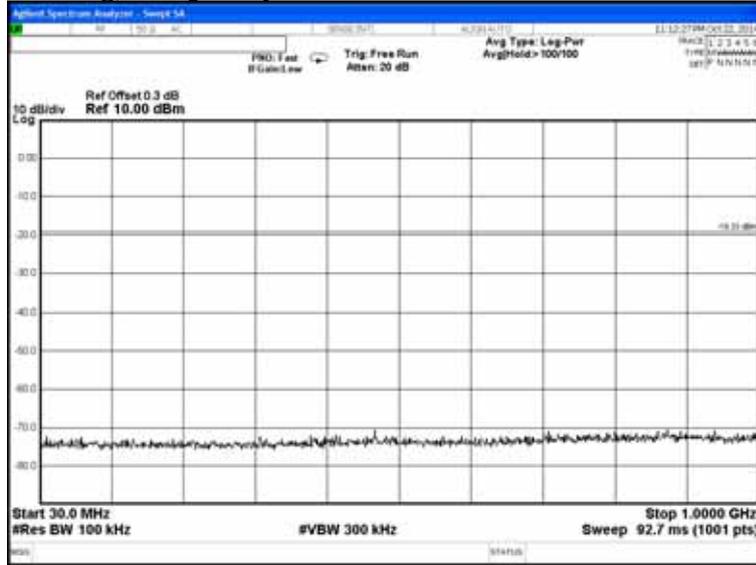


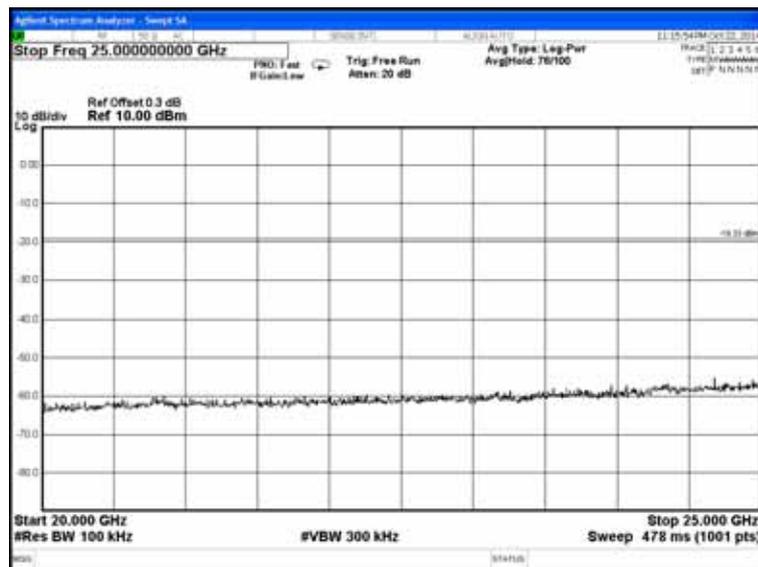
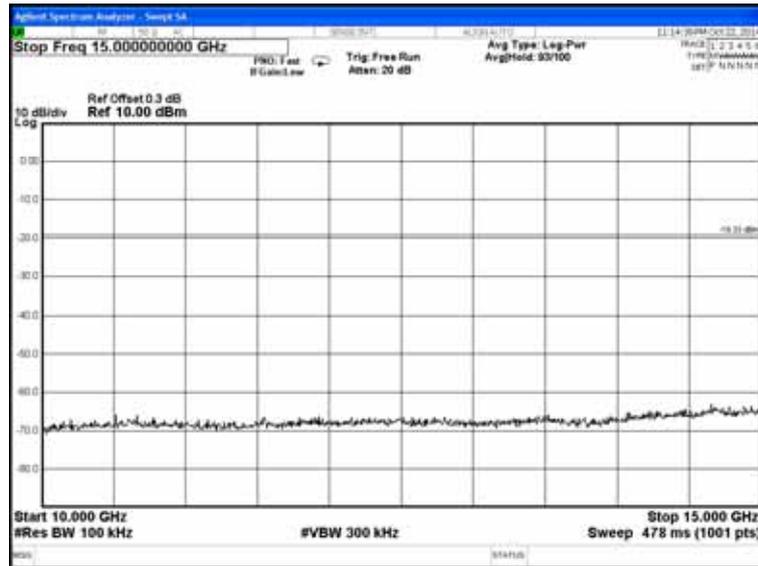
802.11g, Frequency: 2437MHz



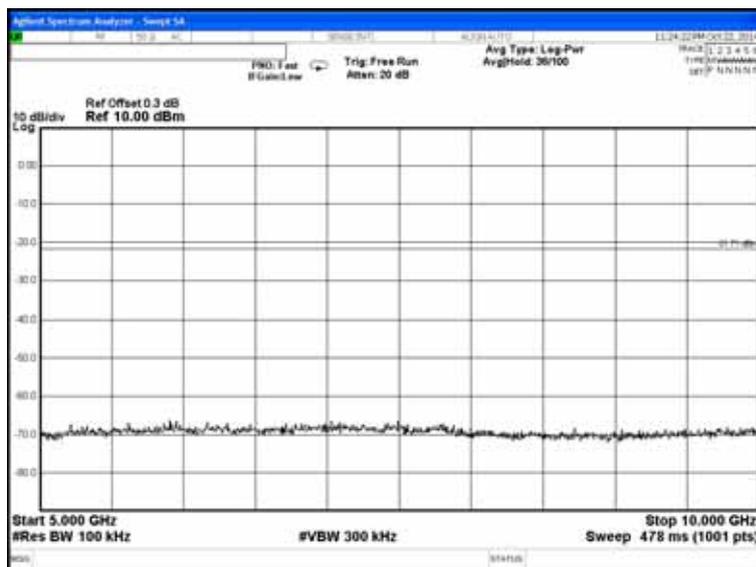
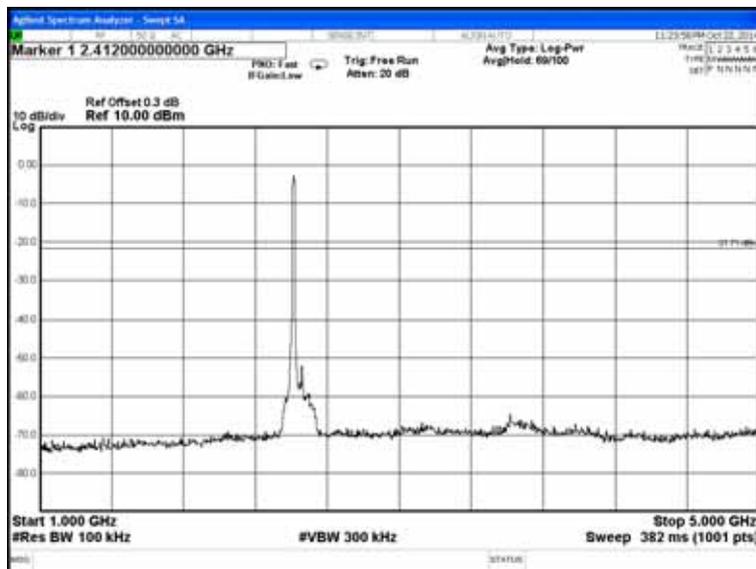
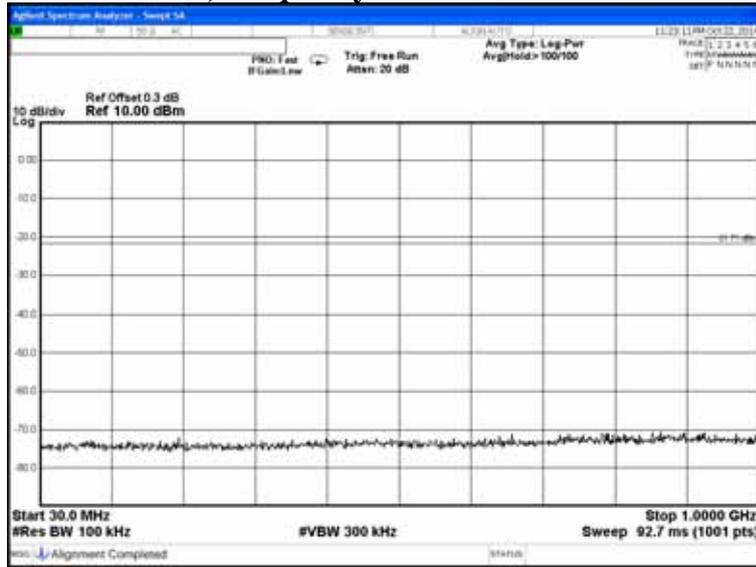


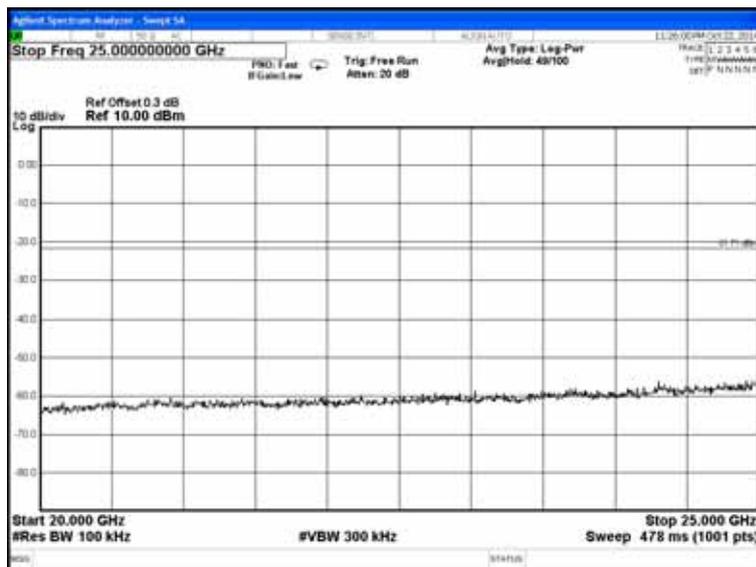
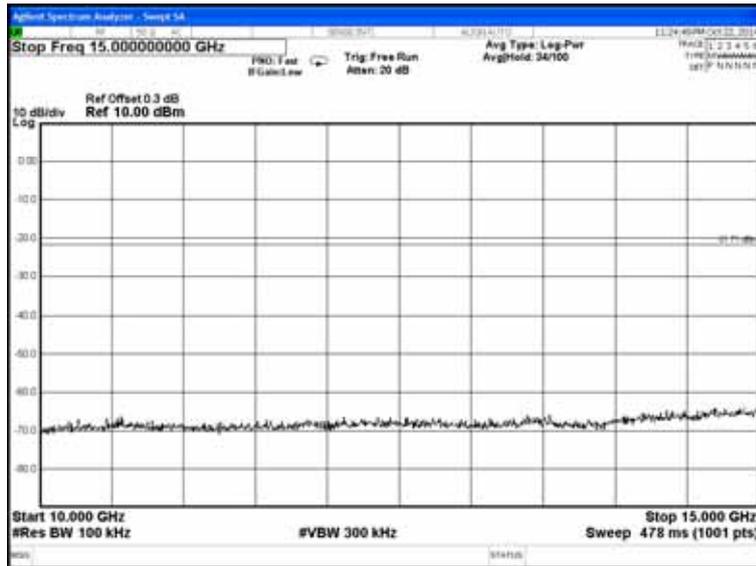
802.11g, Frequency: 2462MHz



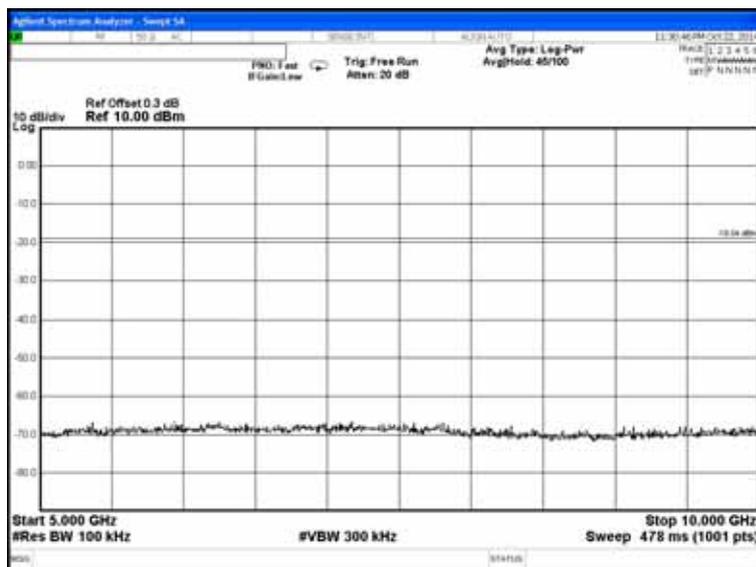
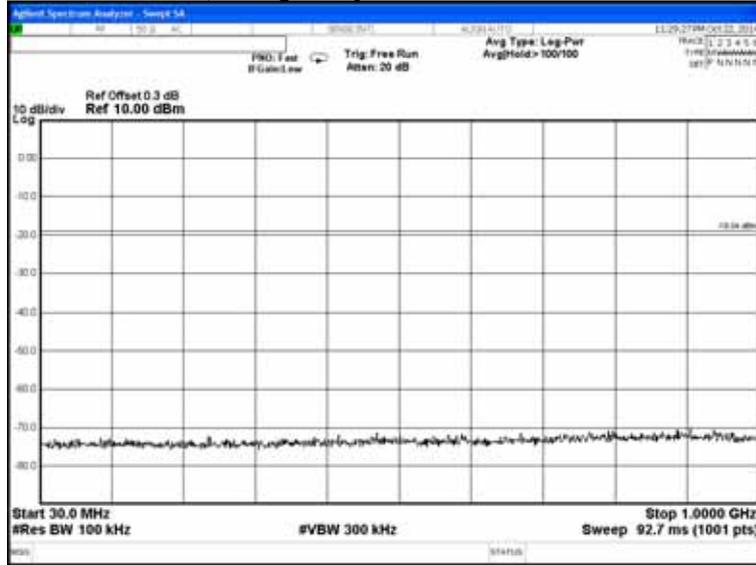


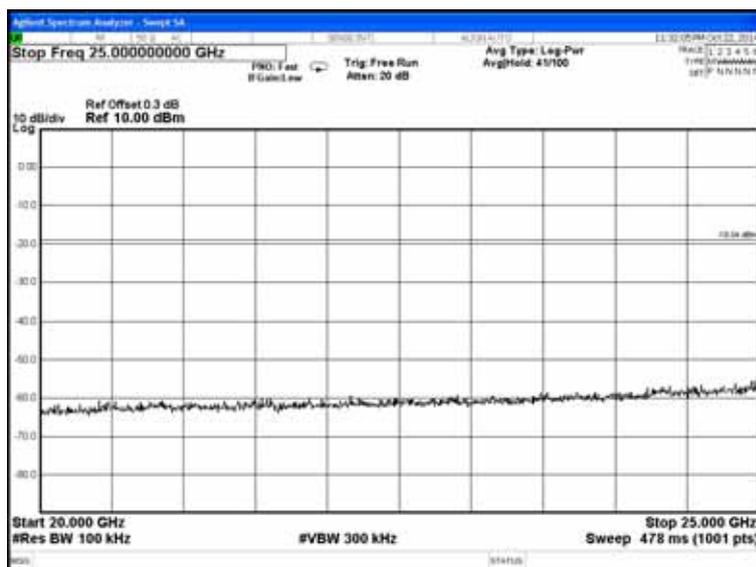
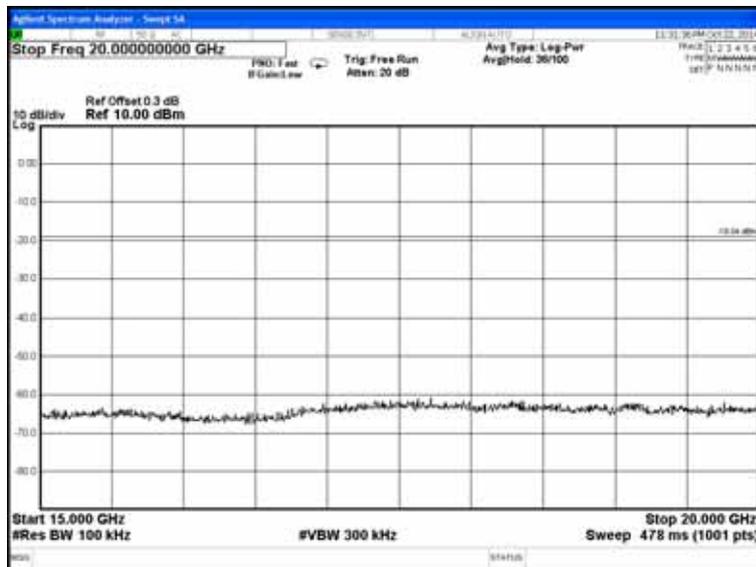
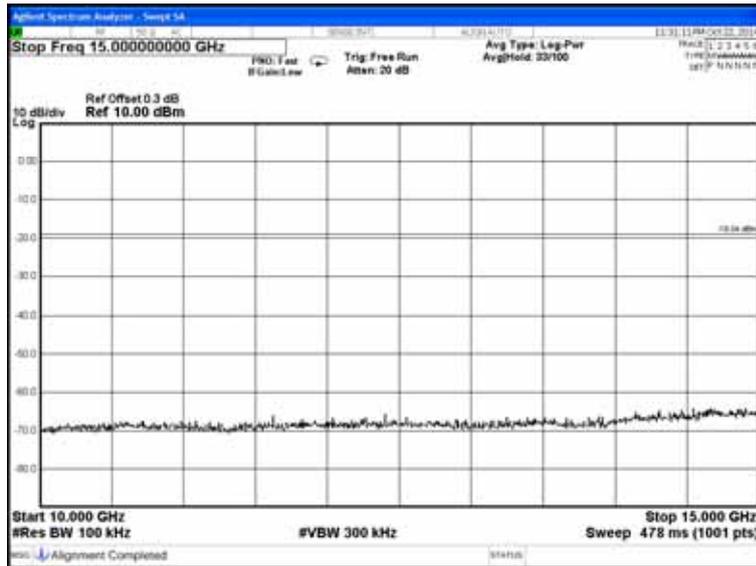
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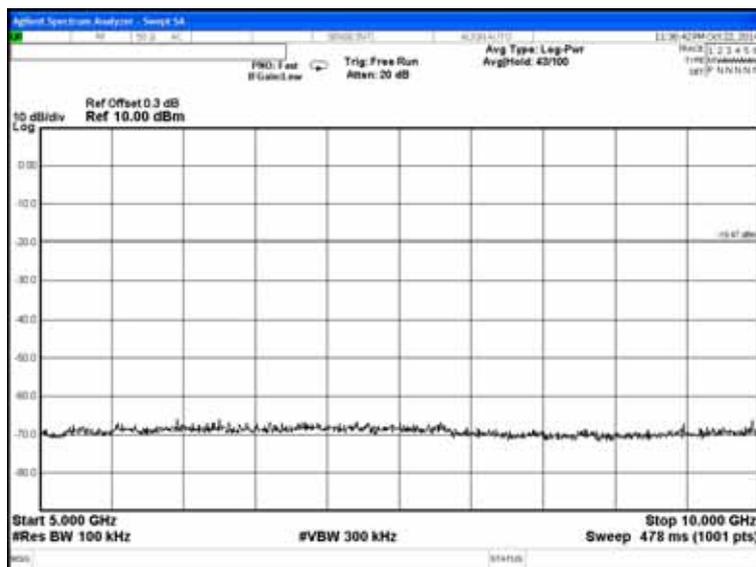
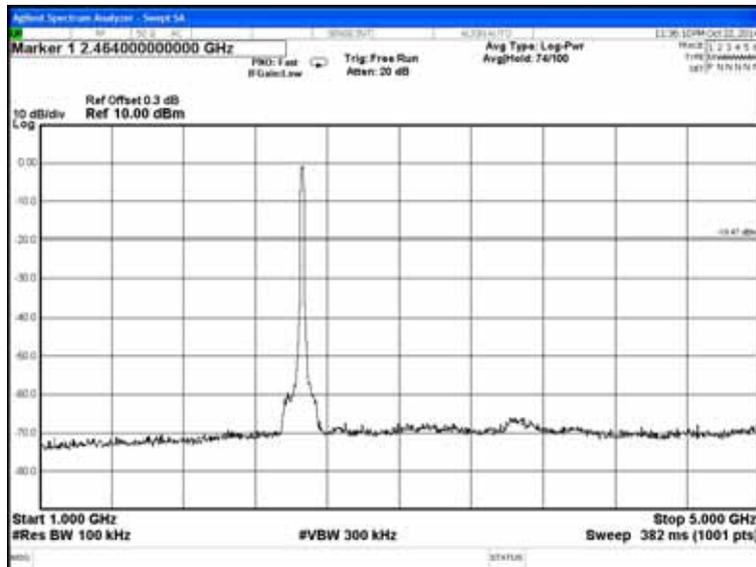
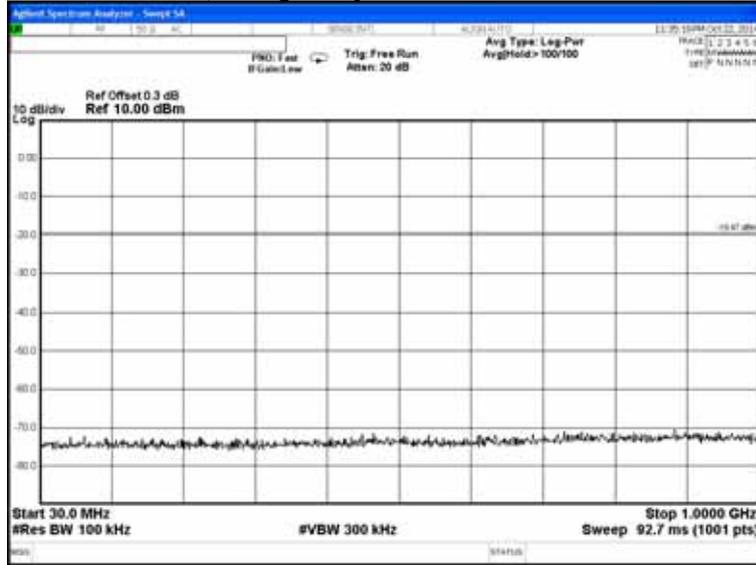


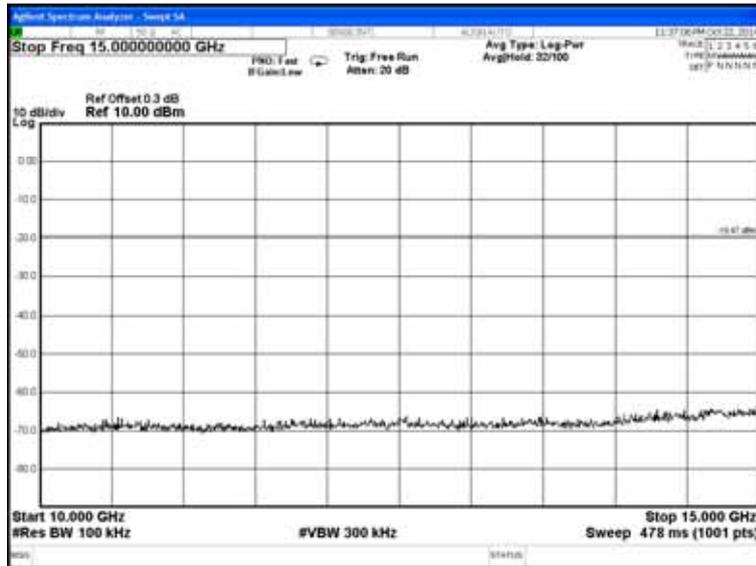
802.11n-HT20, Frequency: 2437MHz





802.11n-HT20, Frequency: 2462MHz





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.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

8.2. Block Diagram of Test Setup

The same as section.4.2.

8.3. Specification Limits [§15.247(c)]

8.3.1. The highest level should be at least 20 dB below that in the 100kHz bandwidth.

8.3.2. The reference level for determining limit of emission limitations is according to the value measured indicated in plots at section 8.6.

8.4. Operating Condition of EUT

The EUT was running test program “Diag Test Mode” for WLAN test, and enable to transmit data at different channel frequency individually.

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.

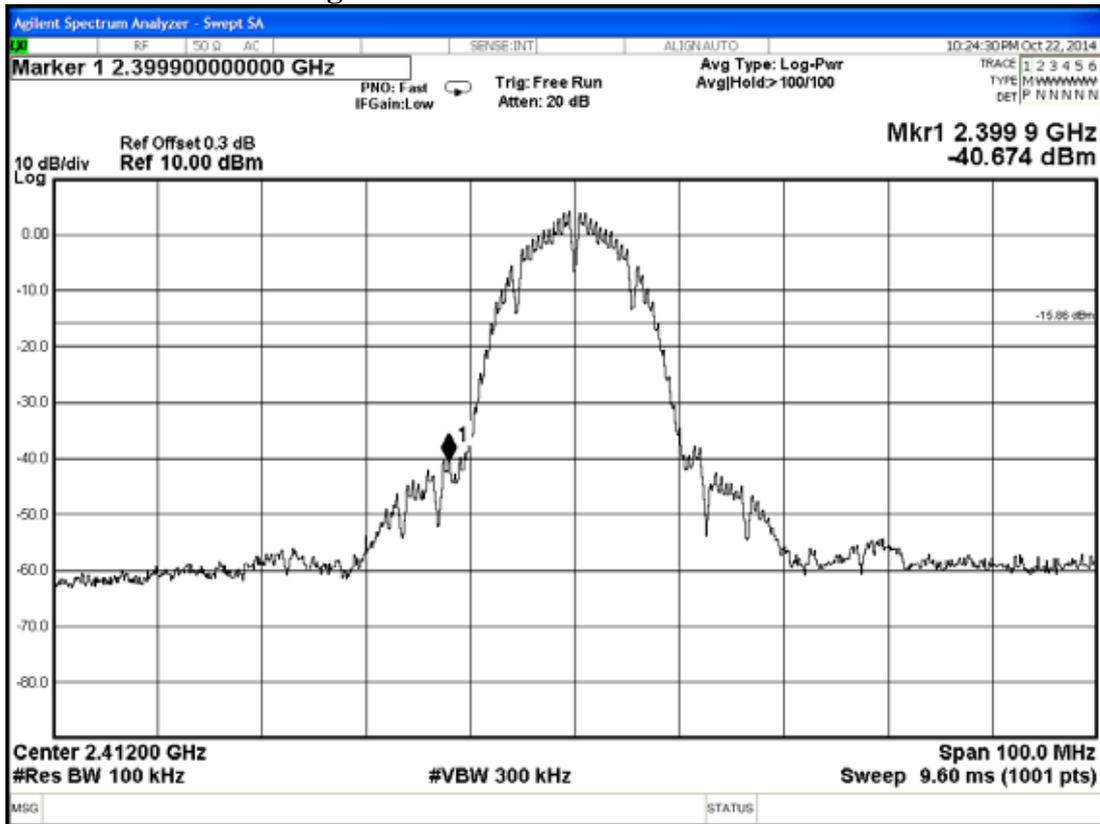
The measurement guideline was according to 558074 D01 v03r02.

8.6. Test Results

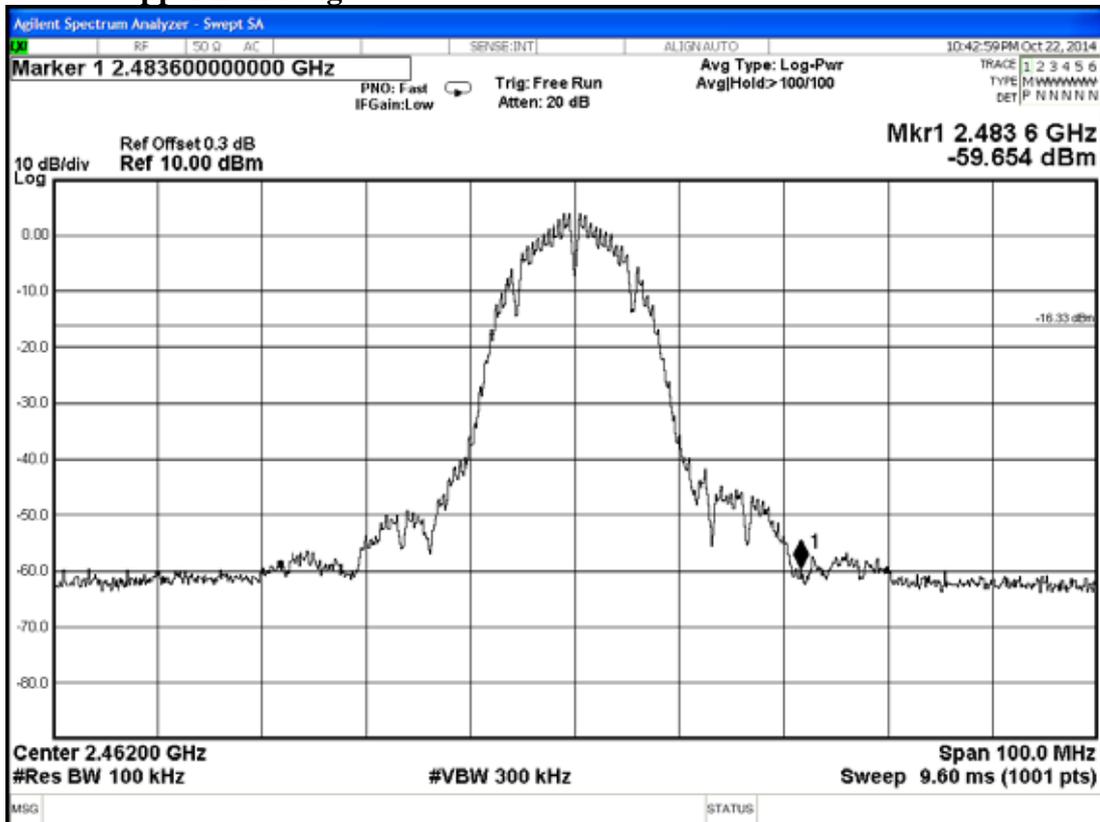
PASSED. All the test results are attached in next pages.

Test Date : 2014. 10. 22 Temperature : 25 Humidity : 50%

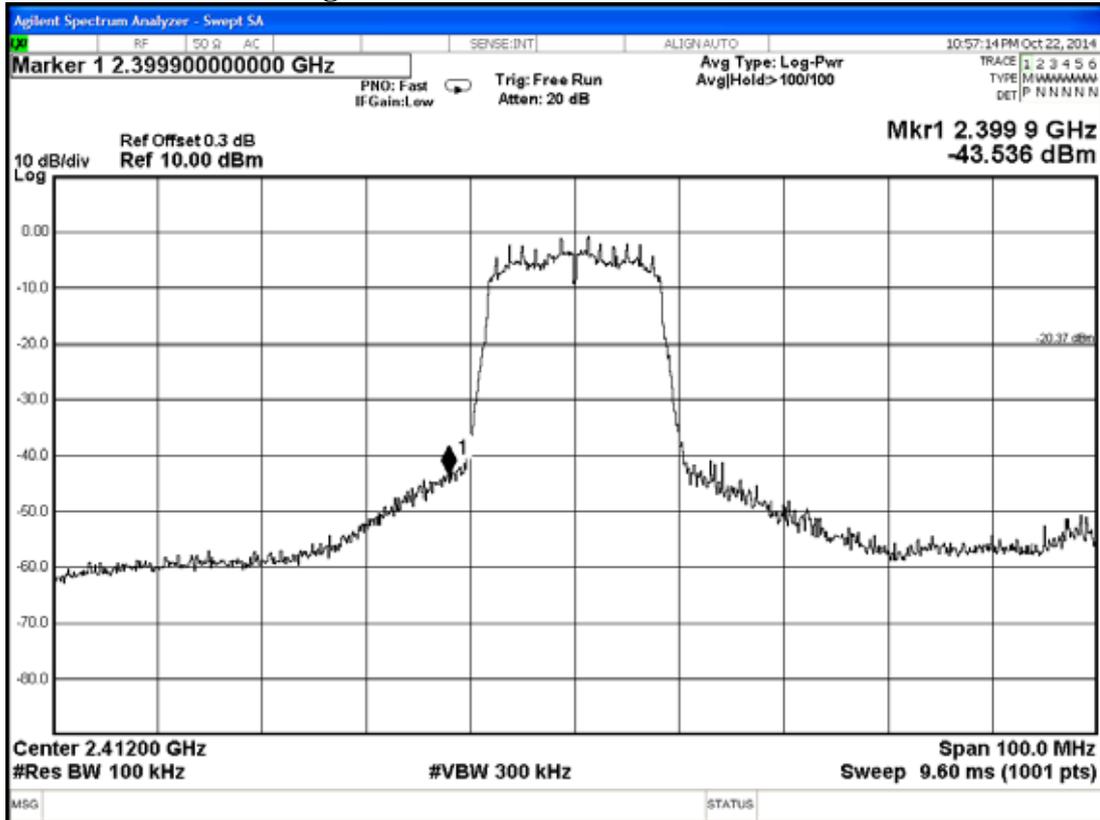
802.11b
Below Band edge



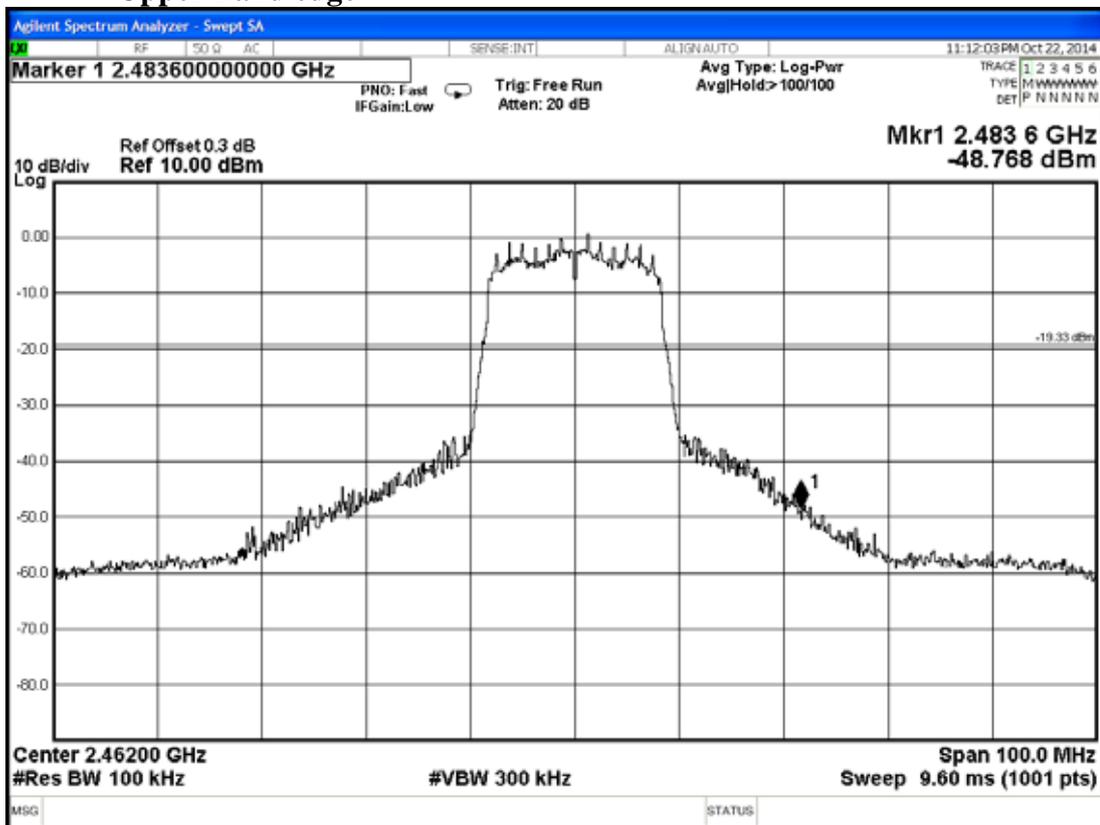
Upper Band edge



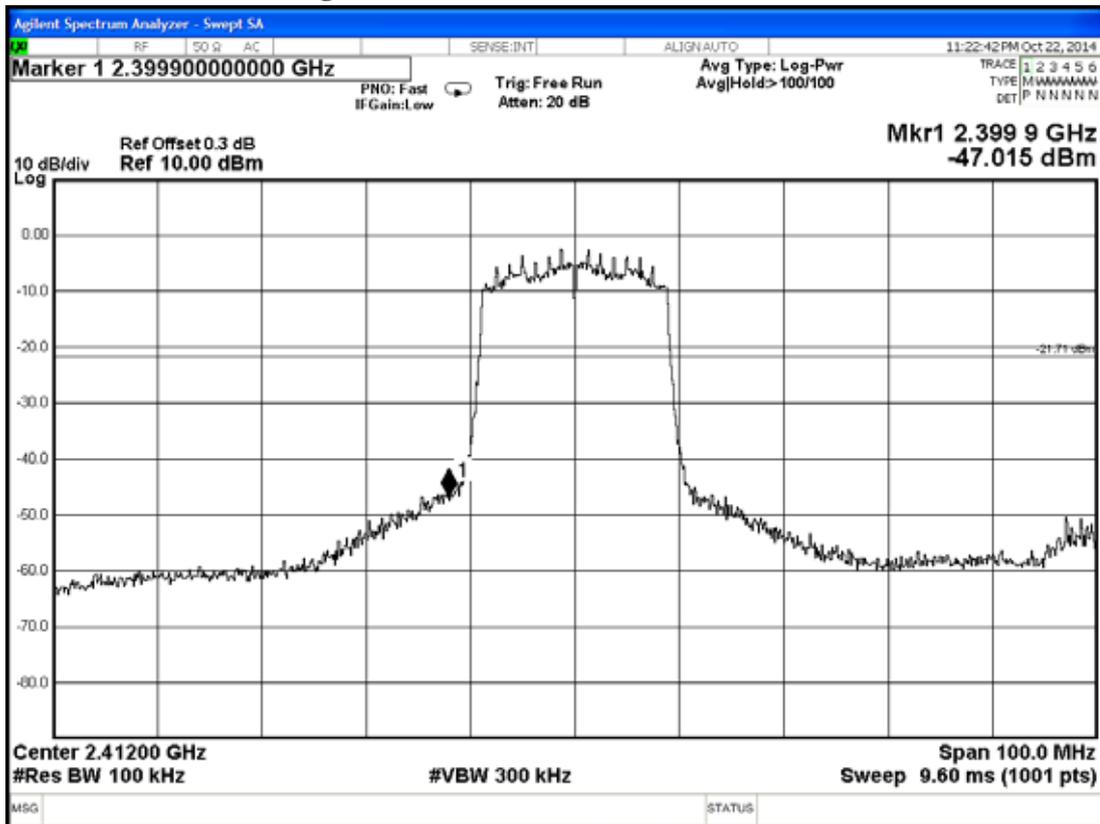
802.11g Below Band edge



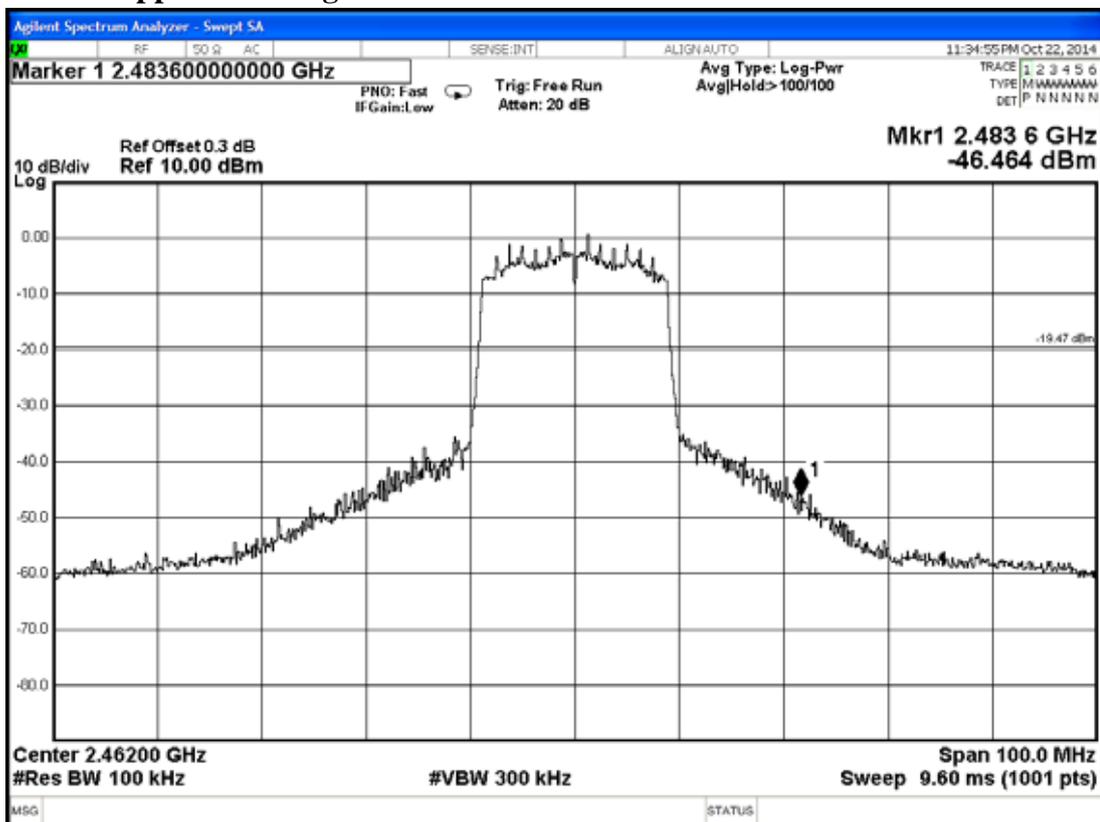
Upper Band edge



**802.11n-HT20
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.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

9.2. Block Diagram of Test Setup

The same as section.4.2.

9.3. Specification Limits [§15.247(d)]

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

The EUT was running test program “Diag Test Mode” for WLAN test, and enable to transmit data at different channel frequency individually.

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 558074 D01 v03r02.

9.6. Test Results

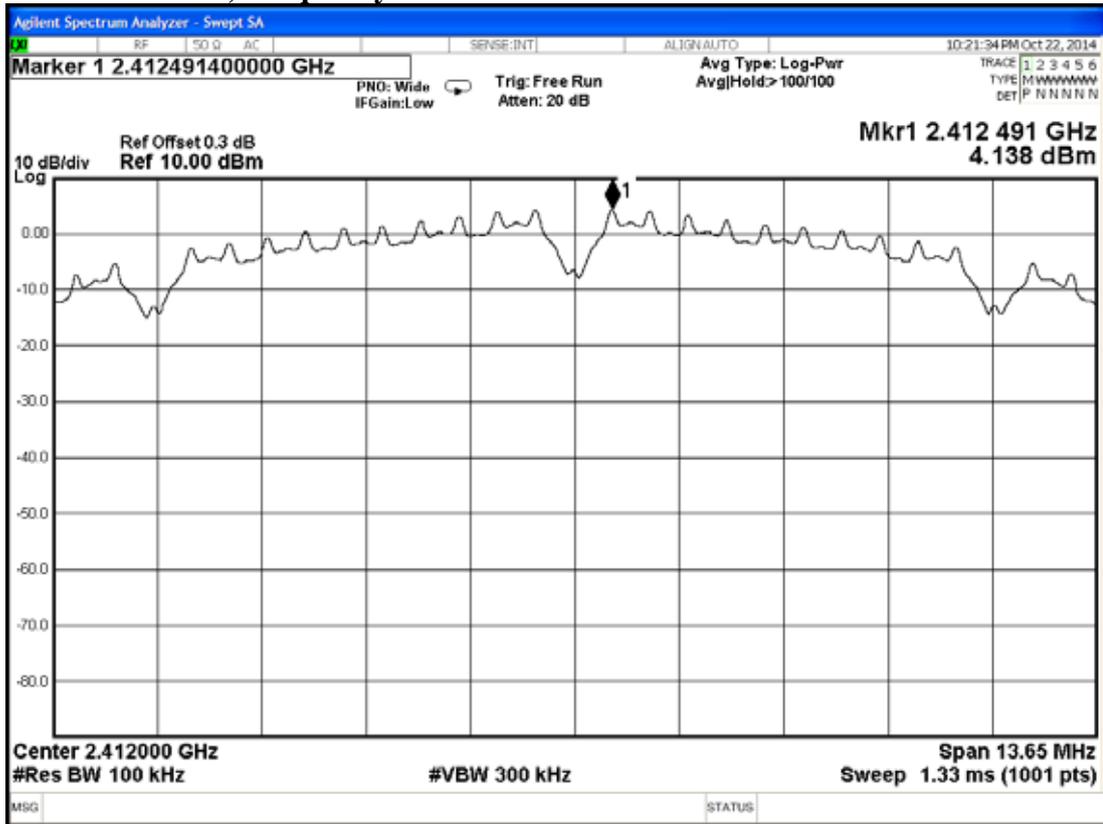
PASSED. All the test results are attached in next pages.

Test Date : 2014. 10. 22 Temperature : 25 Humidity : 50%

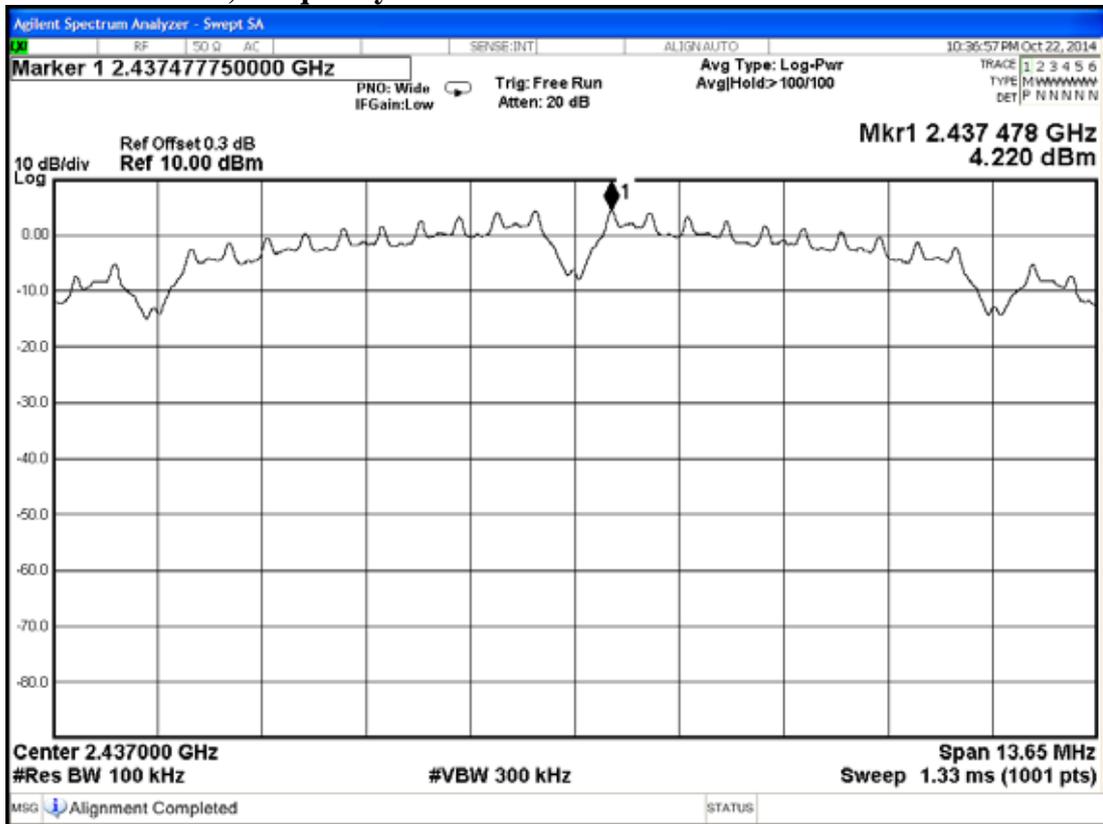
Mode	Type of Network	Channel	Frequency (MHz)	Power Spectral Density (dBm)
1.	802.11b	CH 1	2412	4.138
2.		CH 6	2437	4.220
3.		CH 11	2462	3.673
4.	802.11g	CH 1	2412	-0.370
5.		CH 6	2437	1.025
6.		CH 11	2462	0.670
7.	802.11n- HT20	CH 1	2412	-1.715
8.		CH 6	2437	0.959
9.		CH 11	2462	0.532

[Limit: 8dBm]

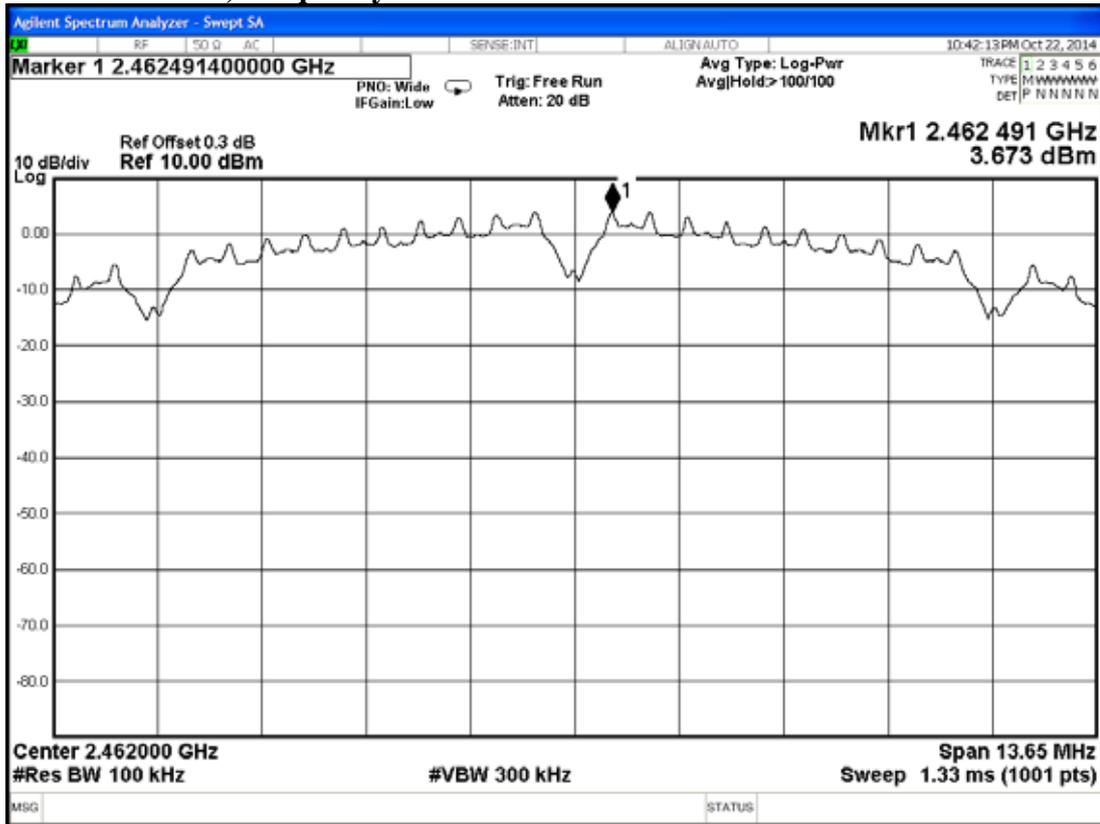
802.11b, Frequency: 2412MHz



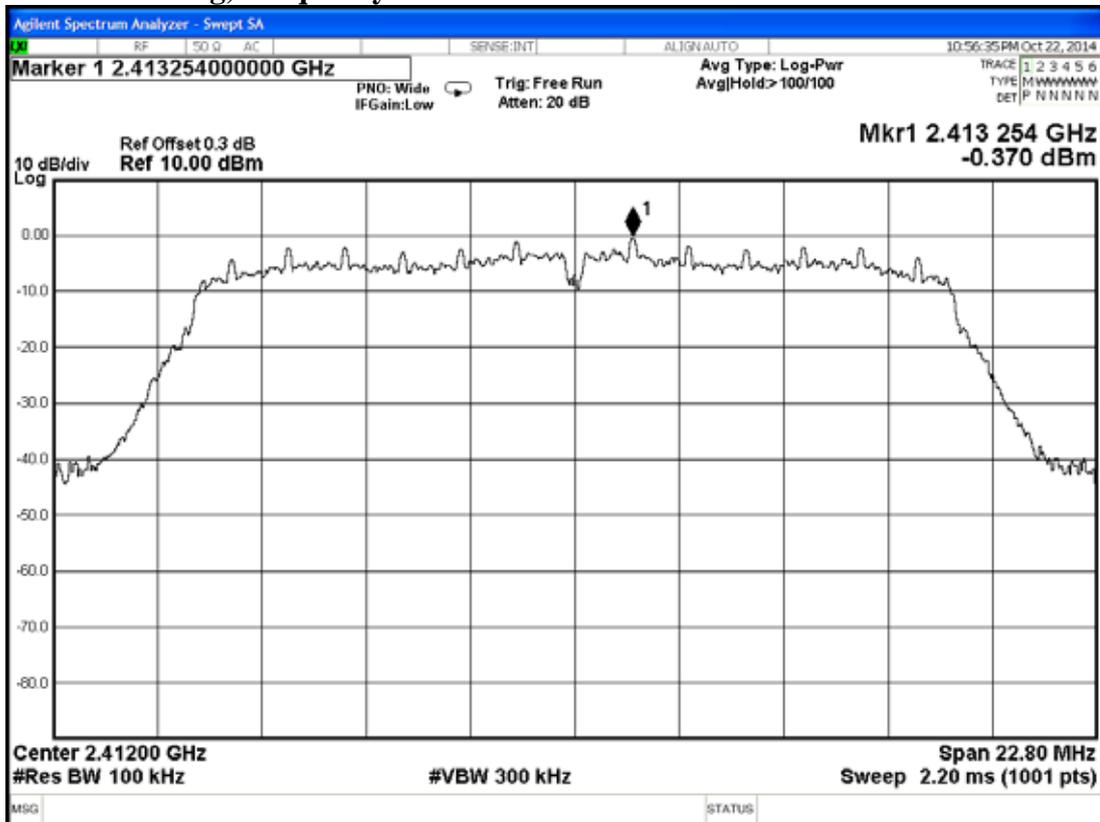
802.11b, Frequency: 2437MHz



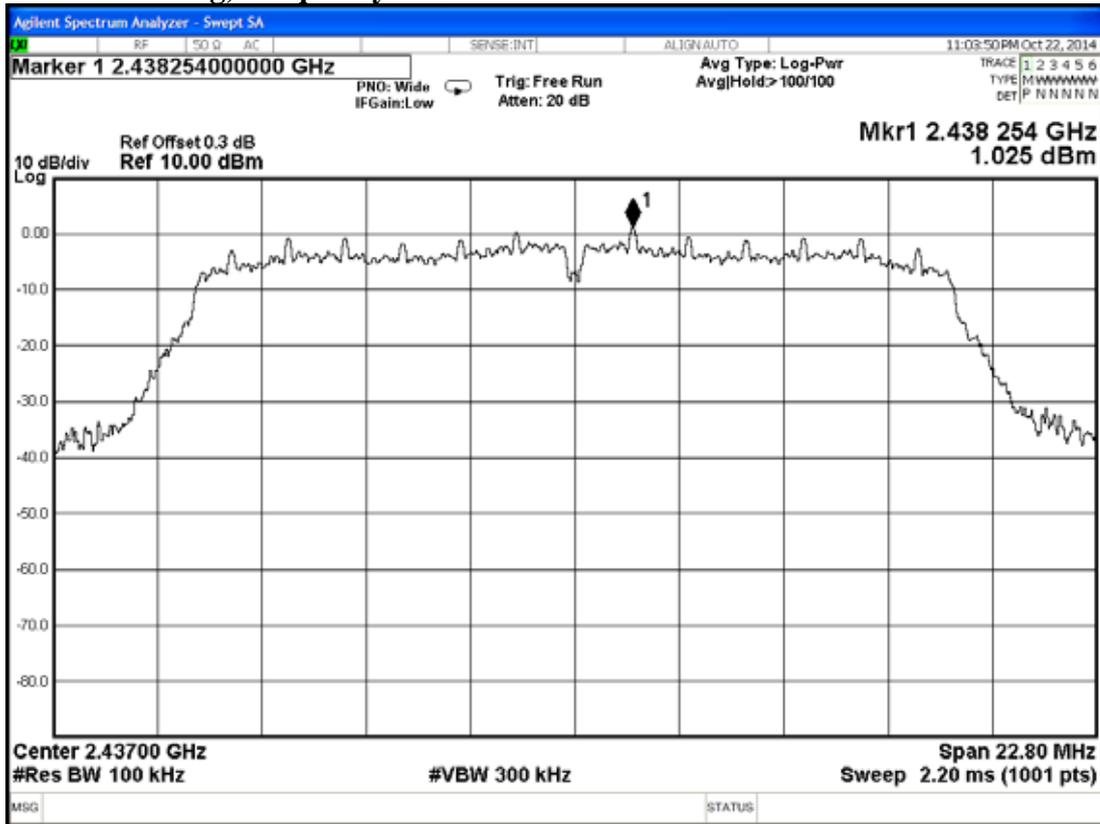
802.11b, Frequency: 2462MHz



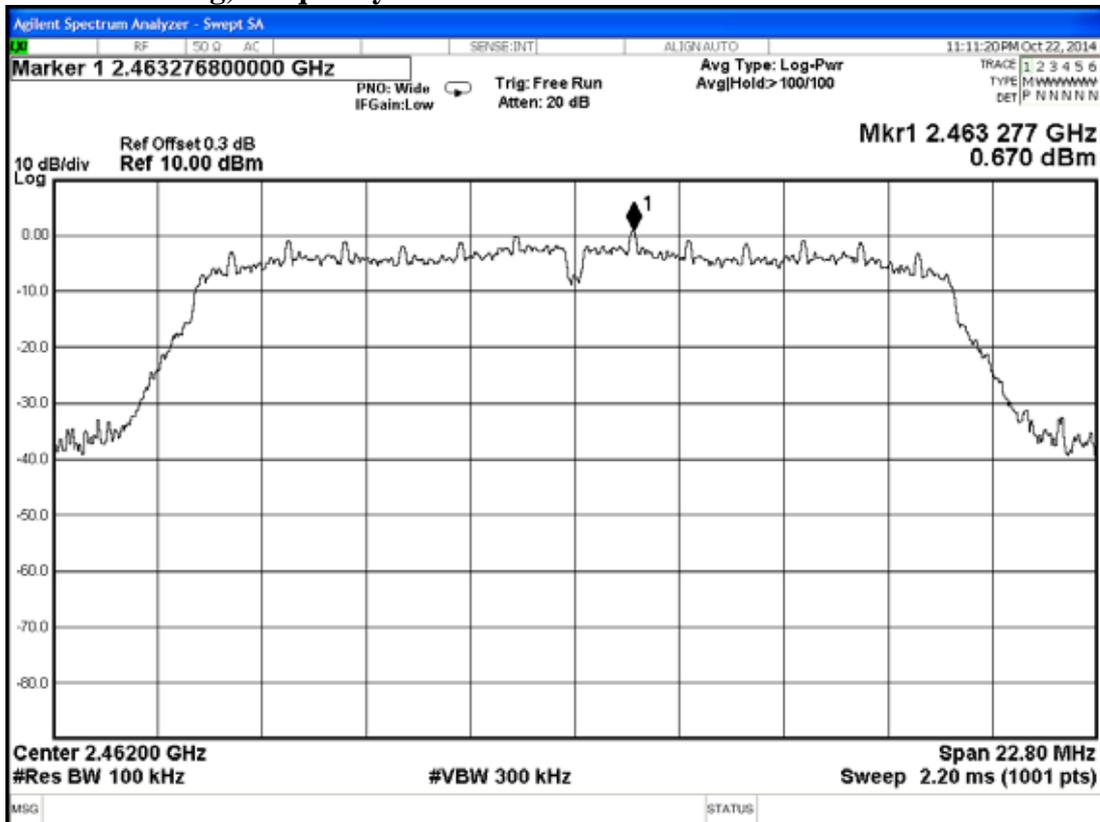
802.11g, Frequency: 2412MHz



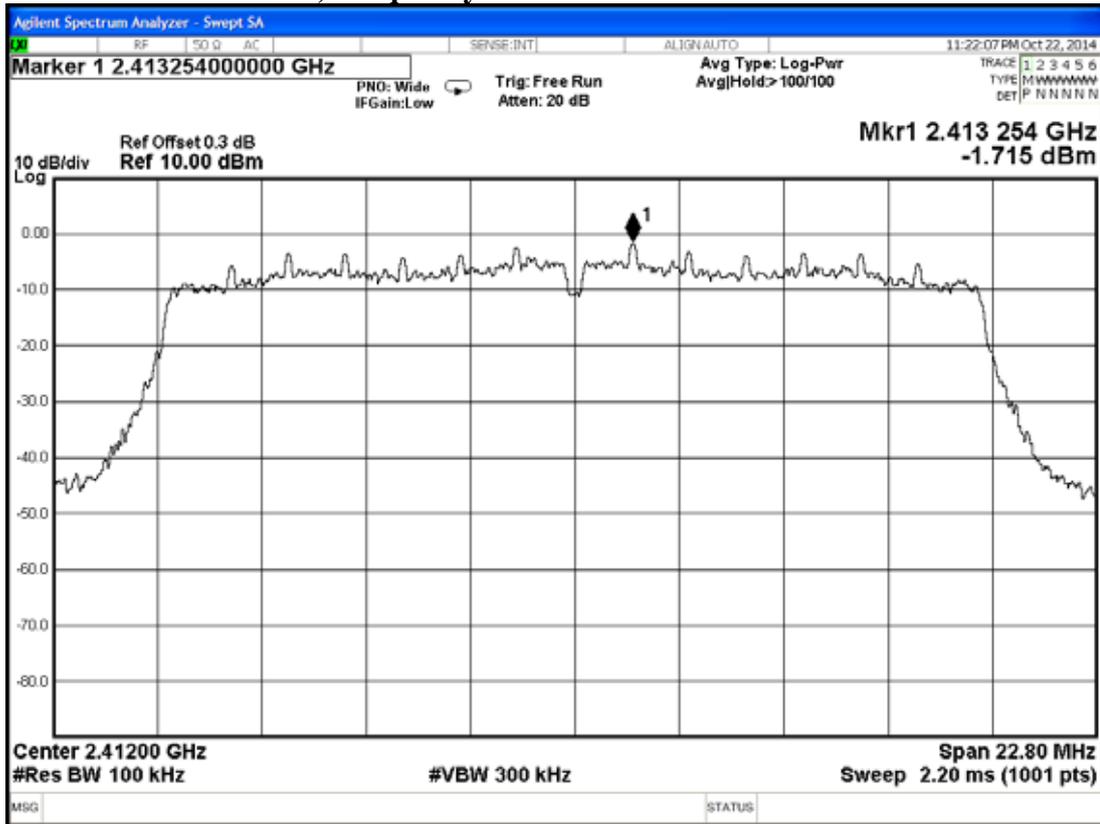
802.11g, Frequency: 2437MHz



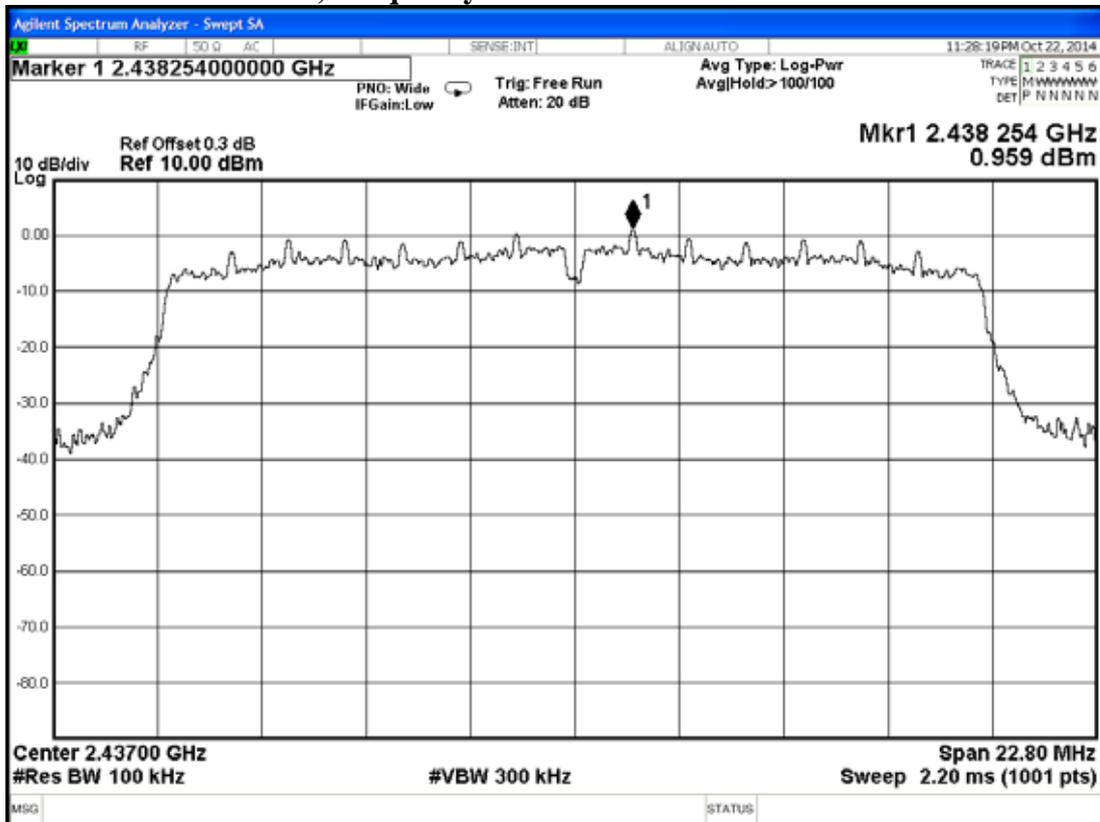
802.11g, Frequency: 2462MHz



802.11n-HT20, Frequency: 2412MHz



802.11n-HT20, Frequency: 2437MHz



10.DEVIATION TO TEST SPECIFICATIONS

【NONE】