JQA File No. : KL80150165
Issue Date : October 6, 2015

TEST REPORT

Applicant	:	WESTUNITIS CO., LTD.
Address	:	NORTH BUILDING 7F 3-1 OFUKA-CHO KITA-KU OSAKA 530-0011 JAPAN
Products	:	InfoLinker
Model No.	:	WUZ-01A-NB01
Serial No.	:	50007
FCC ID	:	2AFRZWUZ-01A-NB01
Test Standard	:	CFR 47 FCC Rules and Regulations Part 15
Test Results	:	**Passed**
Date of Test	:	August 7 ~ 18, 2015

ilac-MRA VLAC Lab Accreditation VLAC-001-2

Kousei Shibata
Manager
Japan Quality Assurance Organization
KITA-KANSAI Testing Center
SAITO EMC Branch
7-3-10, Saito-asagi, Ibaraki-shi, Osaka 567-0085, Japan

- The measurement values stated in Test Report was made with traceable to National Institute of Advanced Industrial Science and Technology (AIST) of Japan and National Institute of Information and Communications Technology (NICT) of Japan.
- The applicable standard, testing condition and testing method which were used for the tests are based on the request of the applicant.
- The test results presented in this report relate only to the offered test sample.
- The contents of this test report cannot be used for the purposes, such as advertisement for consumers.
- This test report shall not be reproduced except in full without the written approval of JQA.
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DEFINITIONS FOR ABBREVIATION AND SYMBOLS USED IN THIS TEST REPORT

EUT : Equipment Under Test
AE : Associated Equipment
N/A : Not Applicable
N/T : Not Tested

EMC : Electromagnetic Compatibility
EMI : Electromagnetic Interference
EMS : Electromagnetic Susceptibility

☑ - indicates that the listed condition, standard or equipment is applicable for this report.
☐ - indicates that the listed condition, standard or equipment is not applicable for this report.

1 Description of the Equipment Under Test

1.	Manufacturer	:	WESTUNITIS CO., LTD. NORTH BUILDING 7F 3-1 OFUKA-CHO KITA-KU OSAKA 530-0011 JAPAN
2.	Products	:	InfoLinker
3.	Model No.	:	WUZ-01A-NB01
4.	Serial No.	:	50007
5.	Product Type	:	Mass Production
6.	Date of Manufacture	:	June 2015
7.	Power Rating	:	3.7VDC (Lithium-ion Battery WHB-001 300mAh)
			5.0VDC (USB)
8.	Grounding	:	None
9.	Transmitting Frequency	:	WLAN: 2412.0 MHz(01CH) –2462.0MHz(11CH)
10.	Receiving Frequency	:	WLAN: 2412.0 MHz(01CH) –2462.0MHz(11CH)
11.	Max. RF Output Power	:	6.06 dBm(Measure Value of IEEE802.11b)
		:	17.07 dBm(Measure Value of IEEE802.11g)
		:	16.95 dBm(Measure Value of IEEE802.11n HT20)
		:	16.67 dBm(Measure Value of IEEE802.11n HT40)
12.	Antenna Type	:	1/2 λ Type Antenna (Integral)
13.	Antenna Gain	:	-2.00 dBi
14.	Category	:	DTS
15.	EUT Authorization	:	Certification
16.	Received Date of EUT	:	August 5, 2015

17. Channel Plan

WLAN:
The carrier spacing is 5 MHz.
The carrier frequency is designated by the absolute frequency channel number (ARFCN).
The carrier frequency is expressed in the equation shown as follows:

Transmitting Frequency (in MHz) = 2407.0 + 5*n
Receiving Frequency (in MHz) = 2407.0 + 5*n
where, n : channel number ($1 \leq n \leq 11$)

2 Summary of Test Results

Applied Standard : CFR 47 FCC Rules and Regulations Part 15
Subpart C – Intentional Radiators

The EUT described in clause 1 was tested according to the applied standard shown above.
Details of the test configuration is shown in clause 6.
The conclusion for the test items of which are required by the applied standard is indicated under the test result.

☑ - The test result was **passed** for the test requirements of the applied standard.

☐ - The test result was **failed** for the test requirements of the applied standard.

☐ - The test result was **not judged** the test requirements of the applied standard.

In the approval of test results,
- Determining compliance with the limits in this report was based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- No deviations were employed from the applied standard.
- No modifications were conducted by JQA to achieve compliance to the limitations.

Reviewed by:

Shigeru Osawa
Deputy Manager
JQA KITA-KANSAI Testing Center
SAITO EMC Branch

Tested by:

Takeshi Choda
Assistant Manager
JQA KITA-KANSAI Testing Center
SAITO EMC Branch

3 Test Procedure

Test Requirements : §15.247, §15.207 and §15.209

Test Procedure : ANSI C63.10–2009
Testing unlicensed wireless devices.

KDB 558074 D01
DTS Meas Guidance v03r03: June 9, 2015.

4 Test Location

Japan Quality Assurance Organization (JQA)
KITA-KANSAI Testing Center
7-7, Ishimaru, 1-chome, Minoh-shi, Osaka, 562-0027, Japan
SAITO EMC Branch
7-3-10, Saito-asagi, Ibaraki-shi, Osaka 567-0085, Japan

5 Recognition of Test Laboratory

JQA KITA-KANSAI Testing Center SAITO EMC Branch is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility is registered by the following bodies.

VLAC Accreditation No.	:	VLAC-001-2 (Expiry date : March 30, 2016)
VCCI Registration No.	:	A-0002 (Expiry date : March 30, 2016)
BSMI Registration No.	:	SL2-IS-E-6006, SL2-IN-E-6006, SL2-R1/R2-E-6006, SL2-A1-E-6006 (Expiry date : September 14, 2016)
IC Registration No.	:	2079E-3, 2079E-4 (Expiry date : July 16, 2017)

Accredited as conformity assessment body for Japan electrical appliances and material law by METI. (Expiry date : February 22, 2016)

6 Description of Test Setup

6.1 Test Configuration

The equipment under test (EUT) consists of :

	Item	Manufacturer	Model No.	Serial No.	FCC ID
A	InfoLinker	WESTUNITIS	WUZ-01A-NB01	50007	2AFRZWUZ-01A-NB01
B	Li-ion Battery	WESTUNITIS	WHB-001	--	N/A

The auxiliary equipment used for testing :

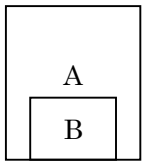
	Item	Manufacturer	Model No.	Serial No.	FCC ID
C	Earphone	--	--	--	N/A
D	Note PC	Lenovo	TYPE 2875-55J	LR-DPMAD 10/07	N/A
E	AC Adapter (for PC)	Lenovo	92P1156	11S92P1156Z1ZDXN06 M1FE	DoC
F	Access Point	Buffalo	WHR-1166DHP	20157940663629	N/A
G	AC Adapter (for AP)	Asian Power Device	WA-12M12FU	Z052 YD84714520006440200	N/A
H	Smart Phone	Sharp	SH-06E	--	APYHRO 00189

Type of Cable:

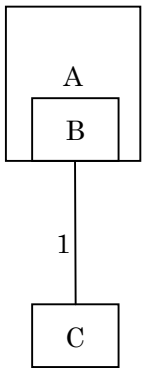
No.	Description	Identification (Manu. etc.)	Connector Shielded	Cable Shielded	Ferrite Core	Length (m)
1	Earphone cable	--	--	NO	NO	1.2
2	USB Cable	--	YES	YES	NO	1.2
3	DC Cable	--	--	NO	YES	1.8
4	AC Cable	--	--	NO	NO	1.0
5	LAN Cable	--	--	NO	NO	2.0
6	DC Cable	--	--	NO	NO	1.5
7	USB Cable	--	YES	YES	NO	0.8

6.2 Test Arrangement (Drawings)

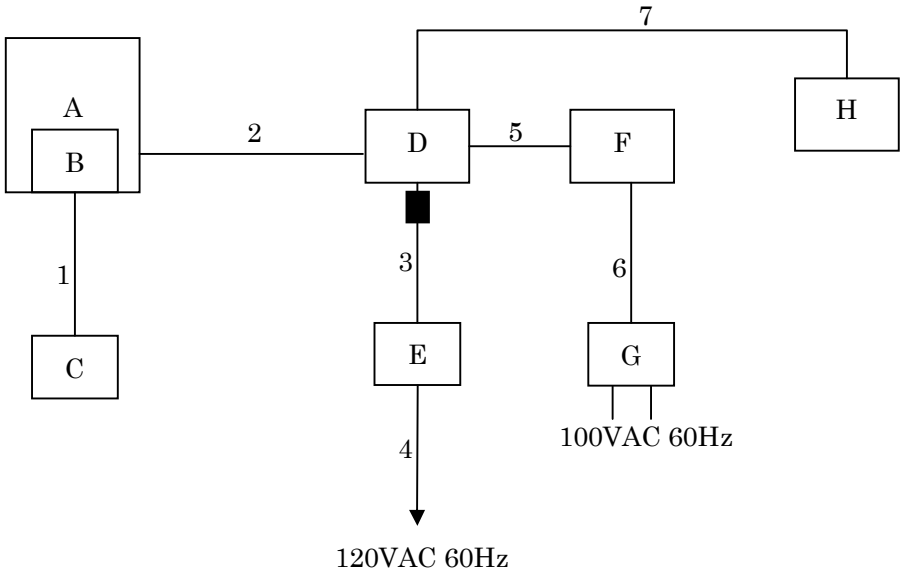
a) Single Unit



b) Earphone used



c) Wireless LAN Tx and USB Charging



▌: Ferrite Core

6.3 Operating Condition

Power Supply Voltage : 3.7 VDC (for Battery)
5.0 VDC (for USB)

Transmitting/Receiving

WLAN:
Transmitting frequency : 2412.0 MHz(1CH) – 2462.0 MHz(11CH)
Receiver frequency : 2412.0 MHz(1CH) – 2462.0 MHz(11CH)

Modulation Type
1. 802.11b : DSSS
2. 802.11g : OFDM
3. 802.11n HT20 : OFDM
4. 802.11n HT40 : OFDM

The tests were performed in the following worst condition.

Mode	Condition
IEEE802.11b	1 Mbps
IEEE802.11g	18 Mbps
IEEE802.11n HT20	MCS0 (6.5 Mbps)
IEEE802.11n HT40	MCS5 (108 Mbps)

Note: The worst condition was determined based on the test result of Maximum Peak Output Power(Low channel).

The EUT was rotated through three orthogonal axis (X, Y and Z axis) in radiated measurement.
The EUT with temporary antenna port was used in conducted measurement.

7 Test Requirements

7.0 Summary of the Test Results

Test Item	FCC Specification	Reference of the Test Report	Results	Remarks
Antenna Requirement	Section 15.203	Section 1.12	Passed	-
Channel Separation	Section 15.247(a)(1)	-		-
Minimum Hopping Channel	Section 15.247(a)(1)(iii)	-	-	-
Occupied Bandwidth	Section 15.247(a)(2)	Section 7.3	Passed	-
Dwell Time	Section 15.247(a)(1)(iii)	-	-	-
Peak Output Power (Conduction)	Section 15.247(b)(3)	Section 7.5	Passed	-
Peak Power Density (Conduction)	Section 15.247(e)	Section 7.6	Passed	-
Spurious Emissions (Conduction)	Section 15.247(d)	Section 7.7	Passed	-
AC Powerline Conducted Emission	Section 15.207	Section 7.8	Passed	-
Radiated Emission	Section 15.247(d)	Section 7.9	Passed	-

7.1 Channel Separation

For the requirements, ☐ - Applicable [☐ - Tested. ☐ - Not tested by applicant request.]
☑ - Not Applicable

Remarks : _____

7.2 Minimum Hopping Channel

For the requirements, ☐ - Applicable [☐ - Tested. ☐ - Not tested by applicant request.]
☑ - Not Applicable

Remarks : _____

7.3 Occupied Bandwidth

For the requirements, ☑ - Applicable [☑ - Tested. ☐ - Not tested by applicant request.]
☐ - Not Applicable

7.3.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

The 99% Bandwidth of IEEE802.11b is	14.619	MHz	at	2412.0	MHz
The 99% Bandwidth of IEEE802.11g is	16.483	MHz	at	2412.0	MHz
The 99% Bandwidth of IEEE802.11n HT20 is	17.803	MHz	at	2462.0	MHz
The 99% Bandwidth of IEEE802.11n HT40 is	35.969	MHz	at	2452.0	MHz
The 6dB Bandwidth of IEEE802.11b is	10.099	MHz	at	2437.0	MHz
The 6dB Bandwidth of IEEE802.11g is	15.749	MHz	at	2412.0	MHz
The 6dB Bandwidth of IEEE802.11n HT20 is	15.128	MHz	at	2412.0	MHz
The 6dB Bandwidth of IEEE802.11n HT40 is	35.117	MHz	at	2437.0	MHz
			and	2452.0	MHz
Uncertainty of Measurement Results				± 0.9	%(2σ)

Remarks : _____

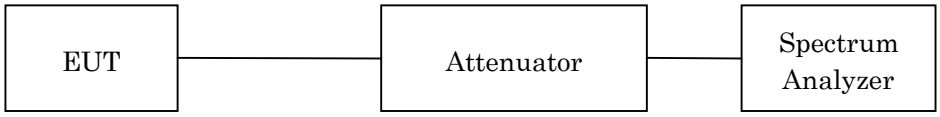
7.3.2 Test Instruments

Shielded Room S4				
Type	**Model**	**Serial No. (ID)**	**Manufacturer**	**Cal. Due**
Spectrum Analyzer	E4446A	US44300388 (A-39)	Agilent	2016/08/12
Attenuator	2-10	BA6214 (D-79)	Weinschel	2015/11/18
RF Cable	SUCOFLEX102E	6683/2E (C-70)	HUBER+SUHNER	2015/11/18
DC Power Supply	PAB18-1.8	1420354 (F-22)	KIKUSUI	N/A
Digital MultiMeter	CD772	07125007747 (F-51)	SANWA ELECTRIC	2016/04/07

NOTE : The calibration interval of the above test instruments is 12 months.

7.3.3 Test Method and Test Setup (Diagrammatic illustration)

The test system is shown as follows:



The setting of the spectrum analyzer are shown as follows:

	WLAN
Res. Bandwidth	100 kHz
Video Bandwidth	300 kHz
Span	30 MHz
Sweep Time	AUTO
Trace	Maxhold

7.3.4 Test Data

Mode of EUT : WLAN

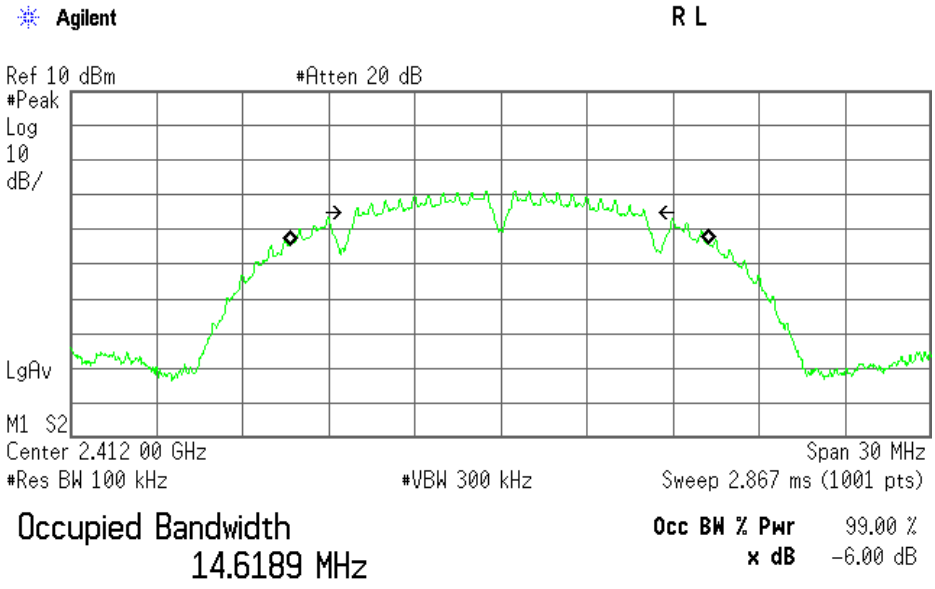
Test Date : August 18, 2015
Temp.:27°C, Humi:71%

The resolution bandwidth was set to 100 kHz, -6dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

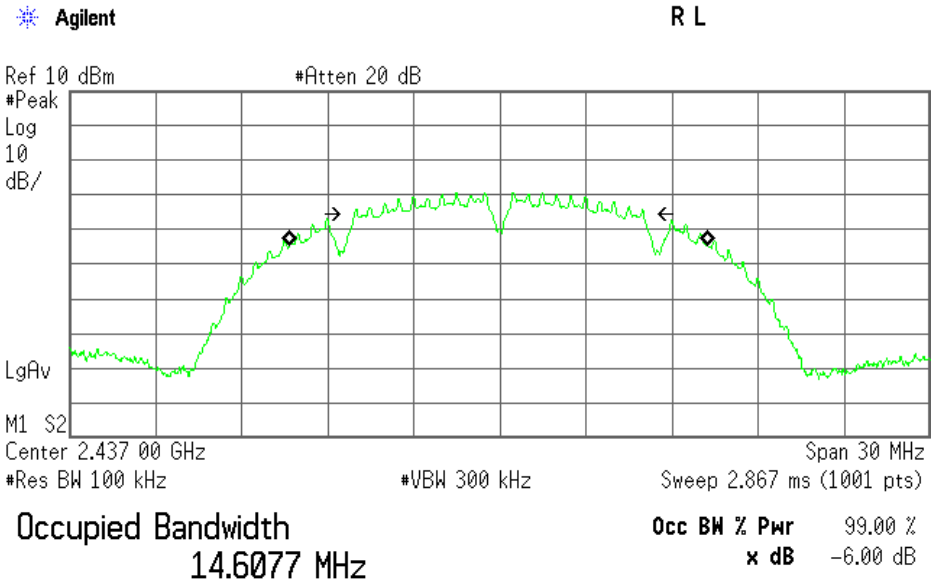
A) IEEE 802.11b

Channel	Frequency (MHz)	99% Bandwidth (MHz)	-6dBc Bandwidth (MHz)	Minimum -6dBc Bandwidth Limit (kHz)
01	2412.0	14.619	10.098	500
06	2437.0	14.608	10.099	500
11	2462.0	14.605	10.095	500

Low Channel

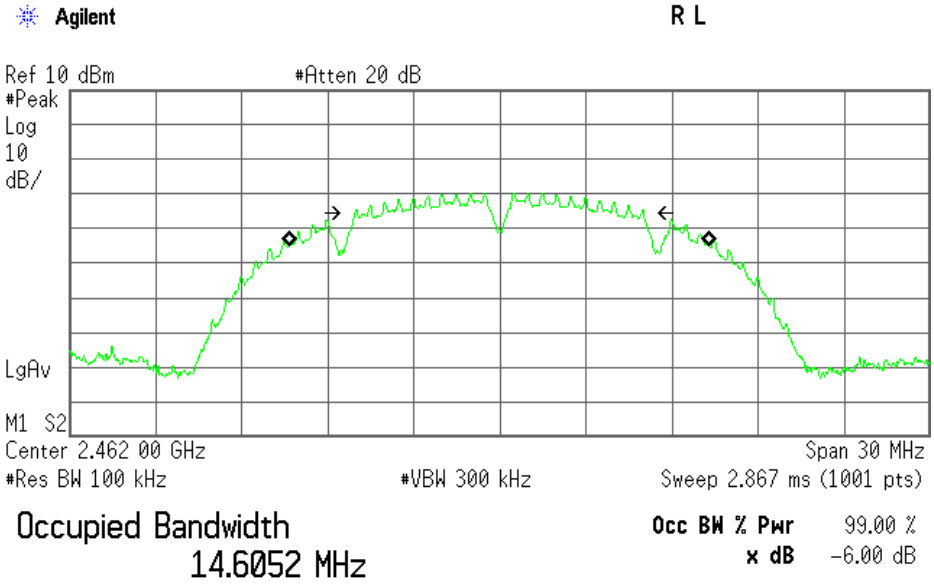


Middle Channel



Transmit Freq Error	-32.413 kHz
Occupied Bandwidth	10.099 MHz

High Channel

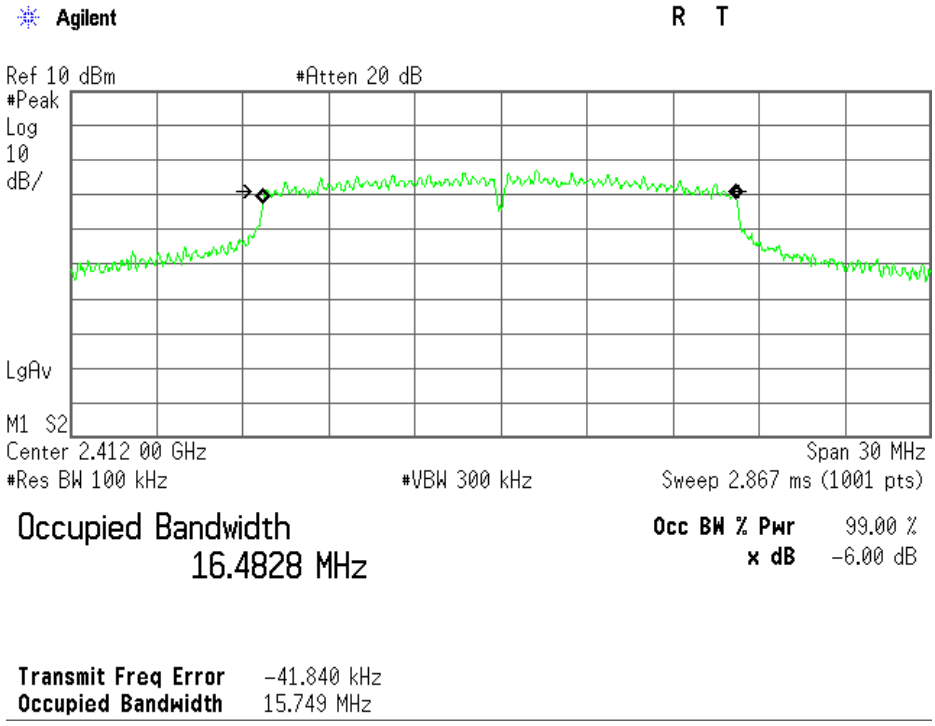


Transmit Freq Error	-22.986 kHz
Occupied Bandwidth	10.095 MHz

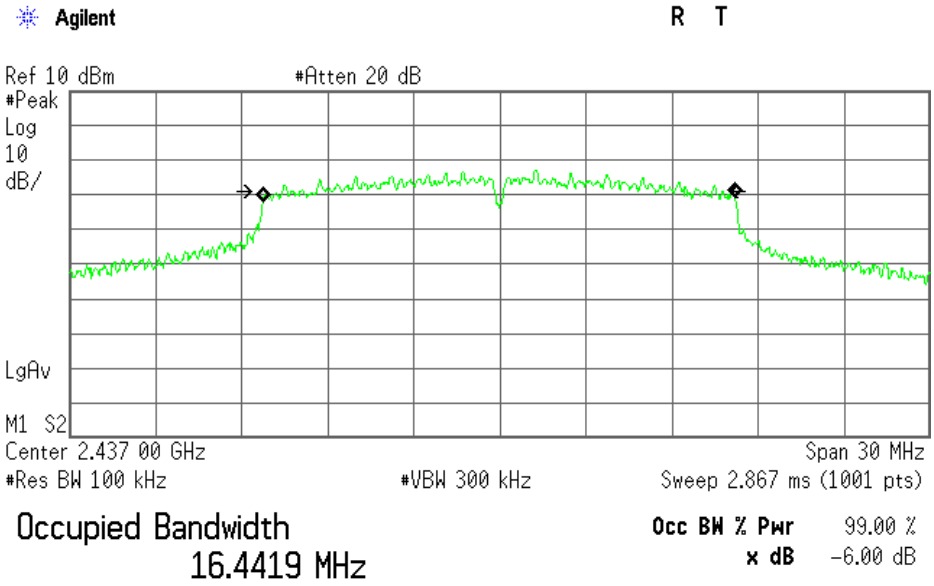
B) IEEE 802.11g

Channel	Frequency (MHz)	99% Bandwidth (MHz)	-6dBc Bandwidth (MHz)	Minimum -6dBc Bandwidth Limit (kHz)
01	2412.0	16.483	15.749	500
06	2437.0	16.442	15.684	500
11	2462.0	16.441	15.114	500

Low Channel

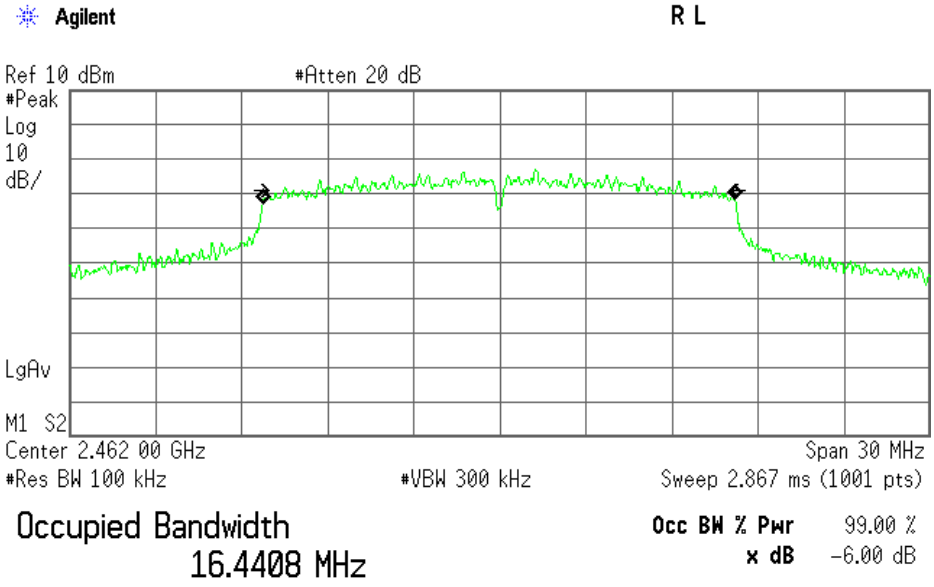


Middle Channel



Transmit Freq Error	-39.948 kHz
Occupied Bandwidth	15.684 MHz

High Channel

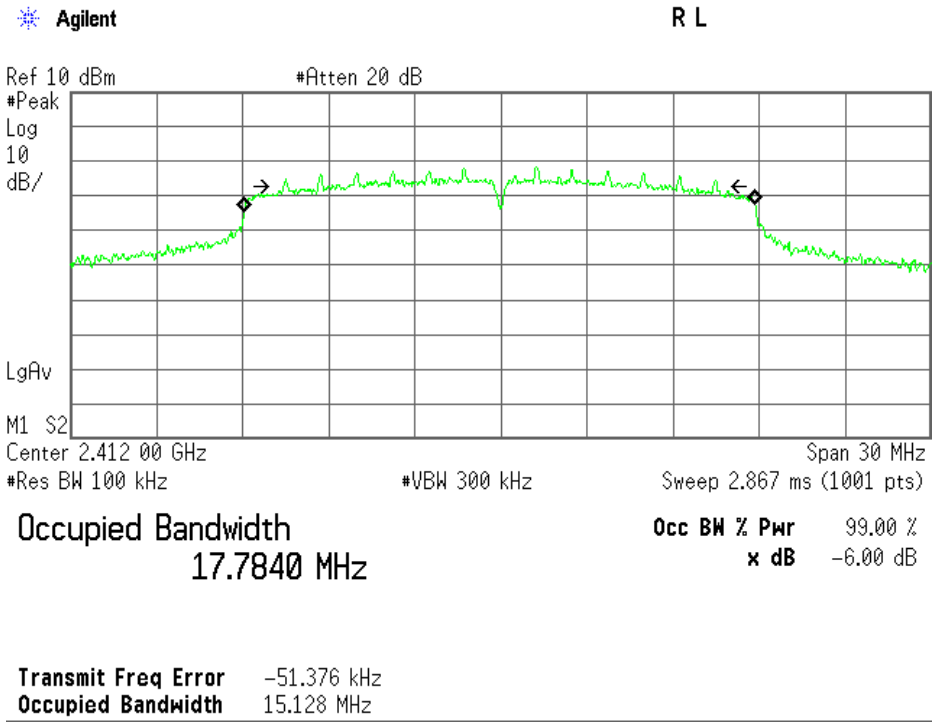


Transmit Freq Error	-36.092 kHz
Occupied Bandwidth	15.114 MHz

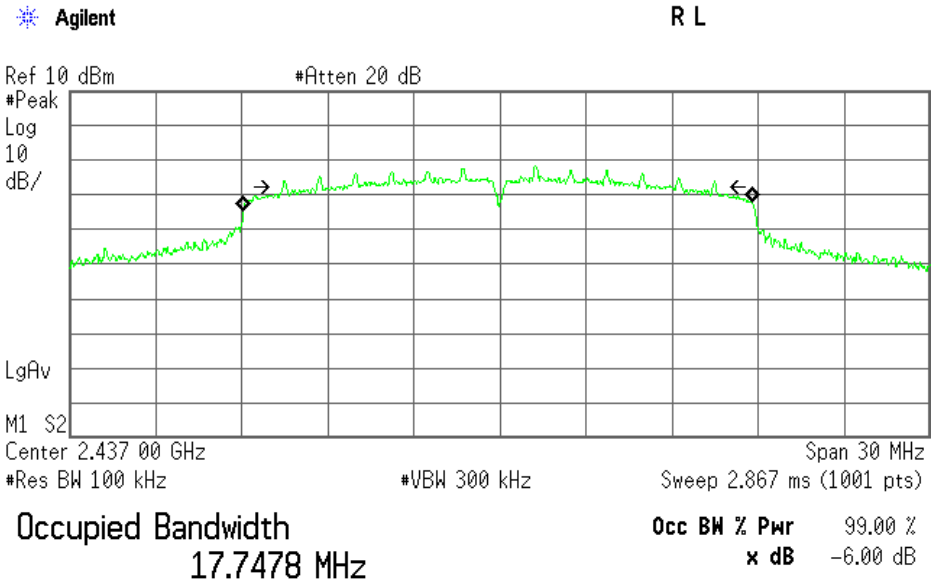
C) IEEE 802.11n HT20

Channel	Frequency (MHz)	99% Bandwidth (MHz)	-6dBc Bandwidth (MHz)	Minimum -6dBc Bandwidth Limit (kHz)
01	2412.0	17.784	15.128	500
06	2437.0	17.748	15.114	500
11	2462.0	17.803	15.116	500

Low Channel

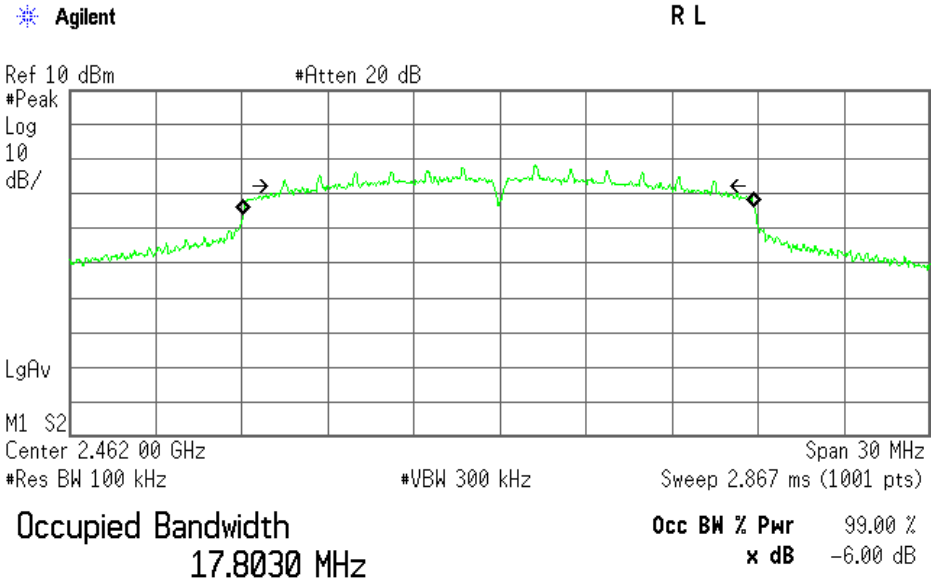


Middle Channel



Transmit Freq Error	-53.334 kHz
Occupied Bandwidth	15.114 MHz

High Channel

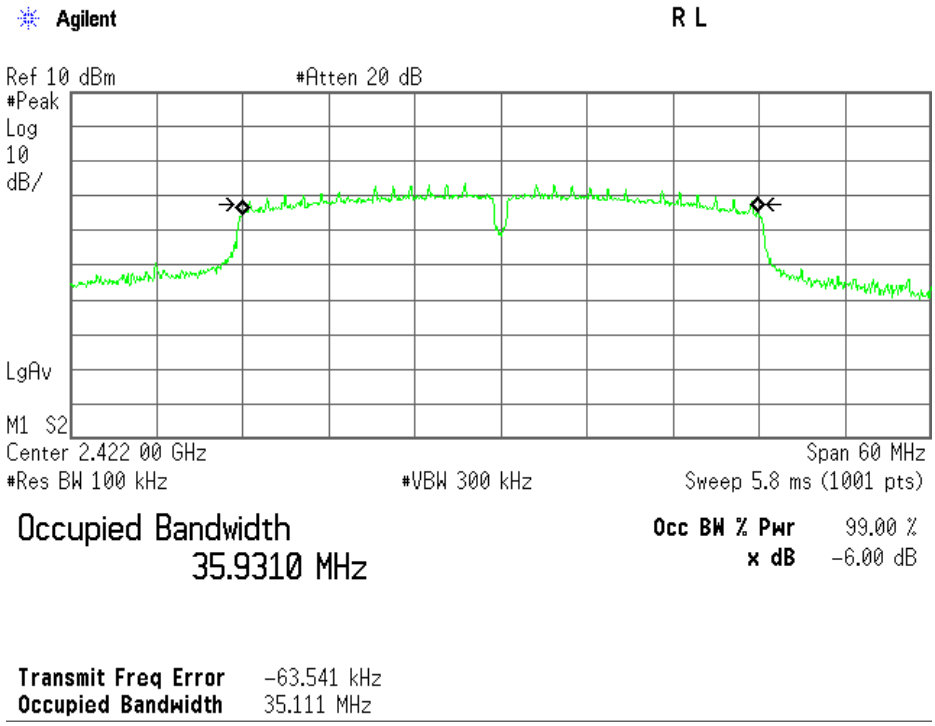


Transmit Freq Error	-52.971 kHz
Occupied Bandwidth	15.116 MHz

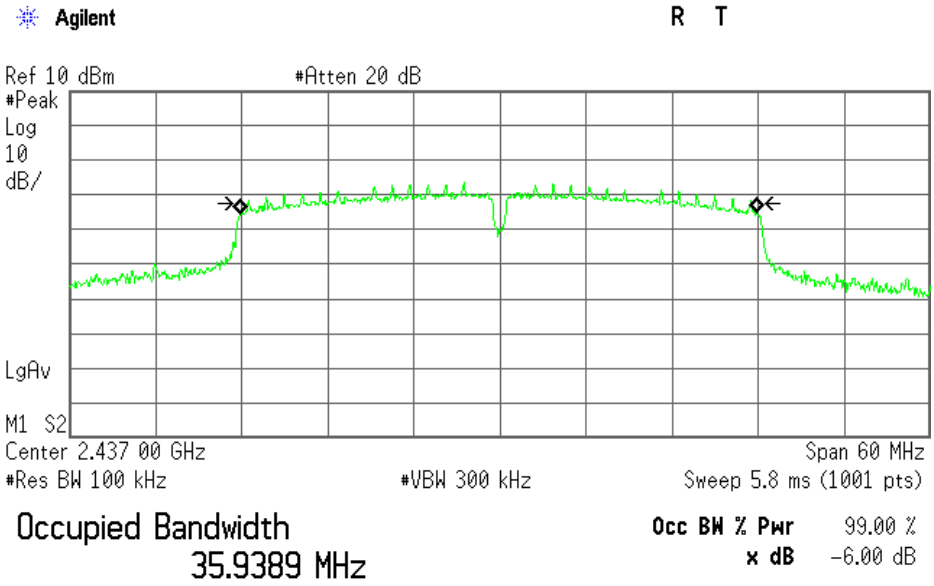
D) IEEE 802.11n HT40

Channel	Frequency (MHz)	99% Bandwidth (MHz)	-6dBc Bandwidth (MHz)	Minimum -6dBc Bandwidth Limit (kHz)
03	2422.0	35.931	35.111	500
06	2437.0	35.939	35.117	500
09	2452.0	35.969	35.117	500

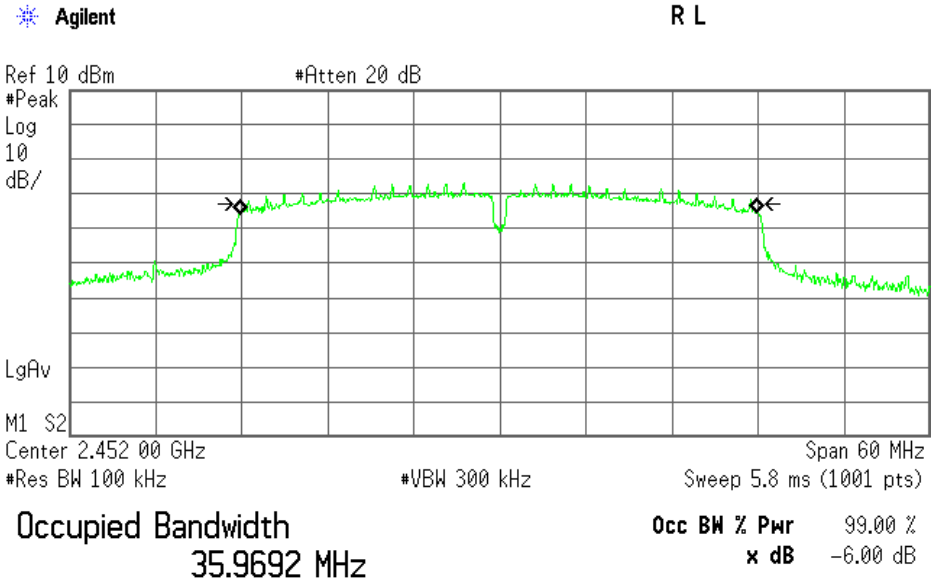
Low Channel



Middle Channel



High Channel



7.4 Dwell Time

For the requirements, ☐ - Applicable [☐ - Tested. ☐ - Not tested by applicant request.]
☑ - Not Applicable

Remarks :

7.5 Peak Output Power(Conduction)

For the requirements, ☑ - Applicable [☑ - Tested. ☐ - Not tested by applicant request.]
☐ - Not Applicable

7.5.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

Peak Output Power of IEEE802.11b is	6.06	dBm	at	2412.0	MHz
Peak Output Power of IEEE802.11g is	17.07	dBm	at	2412.0	MHz
Peak Output Power of IEEE802.11n HT20 is	16.95	dBm	at	2412.0	MHz
Peak Output Power of IEEE802.11n HT40 is	16.67	dBm	at	2422.0	MHz

Uncertainty of Measurement Results ± 0.9 dB(2σ)

Remarks :

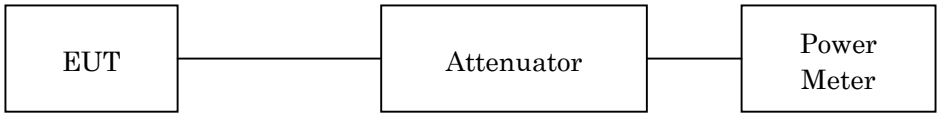
7.5.2 Test Instruments

Shielded Room S4				
Type	**Model**	**Serial No. (ID)**	**Manufacturer**	**Cal. Due**
Power Meter	ML2495A	1423001 (B-16)	Anritsu	2016/07/16
Power Sensor	MA2411B	1339136 (B-18)	Anritsu	2016/07/16
Attenuator	2-10	BA6214 (D-79)	Weinschel	2015/11/18
DC Power Supply	PAB18-1.8	1420354 (F-22)	KIKUSUI	N/A
Digital MultiMeter	CD772	07125007747 (F-51)	SANWA ELECTRIC	2016/04/07

NOTE : The calibration interval of the above test instruments is 12 months.

7.5.3 Test Method and Test Setup (Diagrammatic illustration)

The Conducted RF Power Output was measured with a power meter, one attenuator and a short, low loss cable.



7.5.4 Test Data

1) IEEE 802.11b

Test Date: August 12, 2015
Temp.: 25 °C, Humi: 70 %

Data Rate : 1Mbps

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Output Power		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	9.92	-3.86	6.06	4.04	30.00	+23.94
06	2437	9.92	-4.53	5.39	3.46	30.00	+24.61
11	2462	9.92	-4.85	5.07	3.21	30.00	+24.93

Calculated result at 2412.000 MHz, as the worst point shown on underline:

	Correction Factor	=	9.92 dB
+)	Meter Reading	=	-3.86 dBm
	Result	=	6.06 dBm = 4.04 mW

Minimum Margin: 30.00 - 6.06 = 23.94 (dB)

NOTES
1. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
2. Setting of measuring instrument(s) :

Detector Function	Video B.W.
Peak	OFF

CH	[MHz]
01	2412

Rate	Meter Reading [dBm]	Remark
1Mbps	-3.86	*
2Mbps	-3.93	
5.5Mbps	-4.07	
11Mbps	-3.96	

* : Worst Rate
All comparison were performed on the same measurement condition.

2) IEEE 802.11g

Test Date: August 12, 2015
Temp.: 25 °C, Humi: 70 %

Data Rate : 18Mbps

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Output Power		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	9.92	7.15	17.07	50.93	30.00	+12.93
06	2437	9.92	6.65	16.57	45.39	30.00	+13.43
11	2462	9.92	6.34	16.26	42.27	30.00	+13.74

Calculated result at 2412.000 MHz, as the worst point shown on underline:

	Correction Factor	=	9.92 dB
+)	Meter Reading	=	7.15 dBm
	Result	=	17.07 dBm = 50.93 mW

Minimum Margin: 30.00 - 17.07 = 12.93 (dB)

NOTES
1. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
2. Setting of measuring instrument(s) :

Detector Function	Video B.W.
Peak	OFF

CH	[MHz]
01	2412

Rate	Meter Reading [dBm]	Remark
6Mbps	6.86	
9Mbps	7.05	
12Mbps	7.08	
18Mbps	7.15	*
24Mbps	7.03	
36Mbps	7.12	
48Mbps	6.90	
54Mbps	6.97	

* : Worst Rate
All comparison were performed on the same measurement condition.

3) IEEE 802.11n HT20

Test Date: August 12, 2015
Temp.: 25 °C, Humi: 70 %

Data Rate : MCS0

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Output Power		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	9.92	7.03	16.95	49.55	30.00	+13.05
06	2437	9.92	6.47	16.39	43.55	30.00	+13.61
11	2462	9.92	6.11	16.03	40.09	30.00	+13.97

Calculated result at 2412.000 MHz, as the worst point shown on underline:

	Correction Factor	=	9.92 dB
+)	Meter Reading	=	7.03 dBm
	Result	=	16.95 dBm = 49.55 mW

Minimum Margin: 30.00 - 16.95 = 13.05 (dB)

NOTES
1. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
2. Setting of measuring instrument(s) :

Detector Function	Video B.W.
Peak	OFF

CH **[MHz]**
01 **2412**

Rate	Meter Reading [dBm]	Remark
MCS0	7.03	*
MCS1	6.98	
MCS2	7.03	*
MCS3	7.00	
MCS4	6.91	
MCS5	7.01	
MCS6	6.91	
MCS7	6.80	

* : Worst Rate
All comparison were performed on the same measurement condition.

4) IEEE 802.11n HT40

Test Date: August 12, 2015
Temp.: 25 °C, Humi: 70 %

Data Rate : MCS5

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Output Power		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
03	2422	9.92	6.75	16.67	46.45	30.00	+13.33
06	2437	9.92	6.41	16.33	42.95	30.00	+13.67
09	2452	9.92	6.47	16.39	43.55	30.00	+13.61

Calculated result at 2422.000 MHz, as the worst point shown on underline:

Correction Factor	=	9.92 dB
+) Meter Reading	=	6.75 dBm
Result	=	16.67 dBm = 46.45 mW

Minimum Margin: 30.00 - 16.67 = 13.33 (dB)

NOTES
1. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
2. Setting of measuring instrument(s) :

Detector Function	Video B.W.
Peak	OFF

CH	[MHz]
01	2412

Rate	Meter Reading [dBm]	Remark
MCS0	6.48	
MCS1	6.50	
MCS2	6.55	
MCS3	6.62	
MCS4	6.70	
MCS5	6.75	*
MCS6	6.05	
MCS7	5.59	

* : Worst Rate
All comparison were performed on the same measurement condition.

7.6 Peak Power Density(Conduction)

For the requirements, ☑ - Applicable [☑ - Tested. ☐ - Not tested by applicant request.]
☐ - Not Applicable

7.6.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

Peak Power Density IEEE802.11b is	-7.75	dBm	at	2437.0	MHz
Peak Power Density IEEE802.11g is	-3.71	dBm	at	2437.0	MHz
Peak Power Density IEEE802.11n HT20 is	-4.03	dBm	at	2437.0	MHz
Peak Power Density IEEE802.11n HT40 is	-7.46	dBm	at	2422.0	MHz

Uncertainty of Measurement Results ± 1.7 dB(2σ)

Remarks : _____

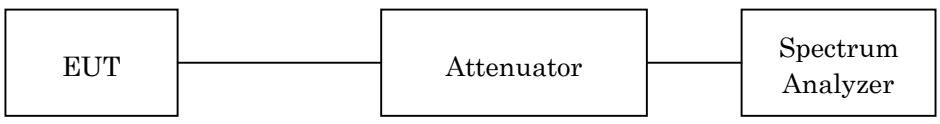
7.6.2 Test Instruments

Shielded Room S4				
Type	**Model**	**Serial No. (ID)**	**Manufacturer**	**Cal. Due**
Spectrum Analyzer	E4446A	US44300388 (A-39)	Agilent	2016/08/12
Attenuator	2-10	BA6214 (D-79)	Weinschel	2015/11/18
RF Cable	SUCOFLEX102E	6683/2E (C-70)	HUBER+SUHNER	2015/11/18
DC Power Supply	PAB18-1.8	1420354 (F-22)	KIKUSUI	N/A
Digital MultiMeter	CD772	07125007747 (F-51)	SANWA ELECTRIC	2016/04/07

NOTE : The calibration interval of the above test instruments is 12 months.

7.6.3 Test Method and Test Setup (Diagrammatic illustration)

The test system is shown as follows:



7.6.4 Test Data

1) IEEE 802.11b

Test Date: August 18, 2015
Temp.: 27 °C, Humi: 71 %

Data Rate : 1Mbps

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Power Density		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	13.60	-21.66	-8.06	0.16	8.00	+16.06
06	2437	13.62	-21.37	-7.75	0.17	8.00	+15.75
11	2462	13.64	-22.03	-8.39	0.14	8.00	+16.39

Calculated result at 2437.000 MHz, as the worst point shown on underline:

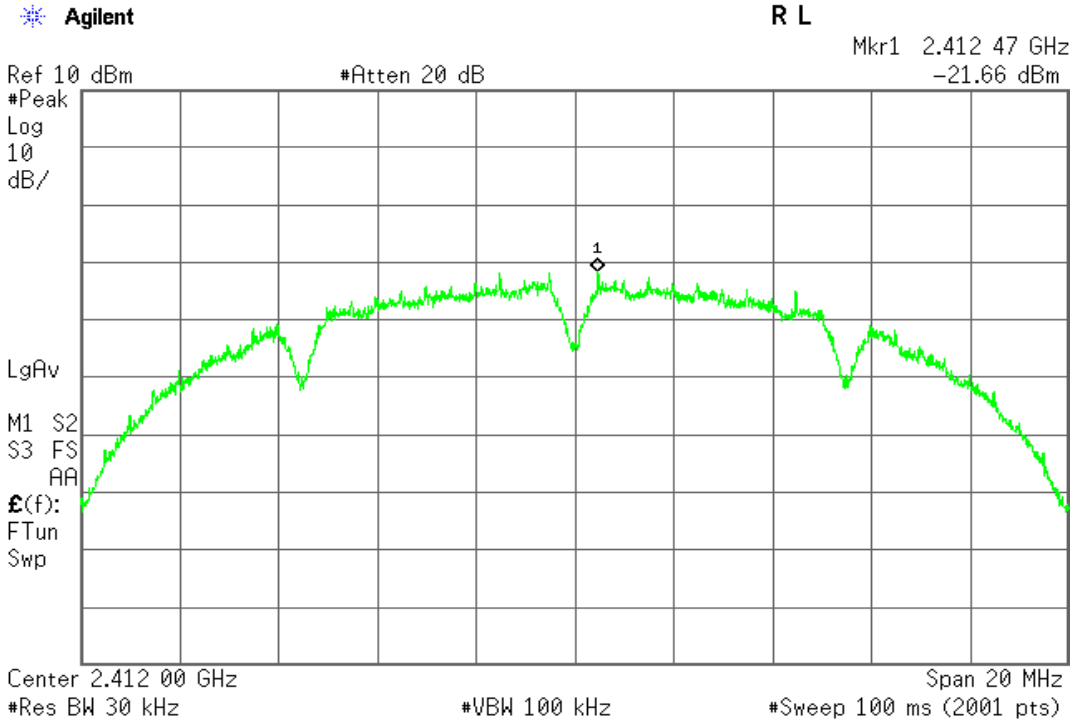
	Correction Factor	=	13.62 dB
+)	Meter Reading	=	-21.37 dBm
	Result	=	-7.75 dBm = 0.17 mW

Minimum Margin: 8.00 - -7.75 = 15.75 (dB)

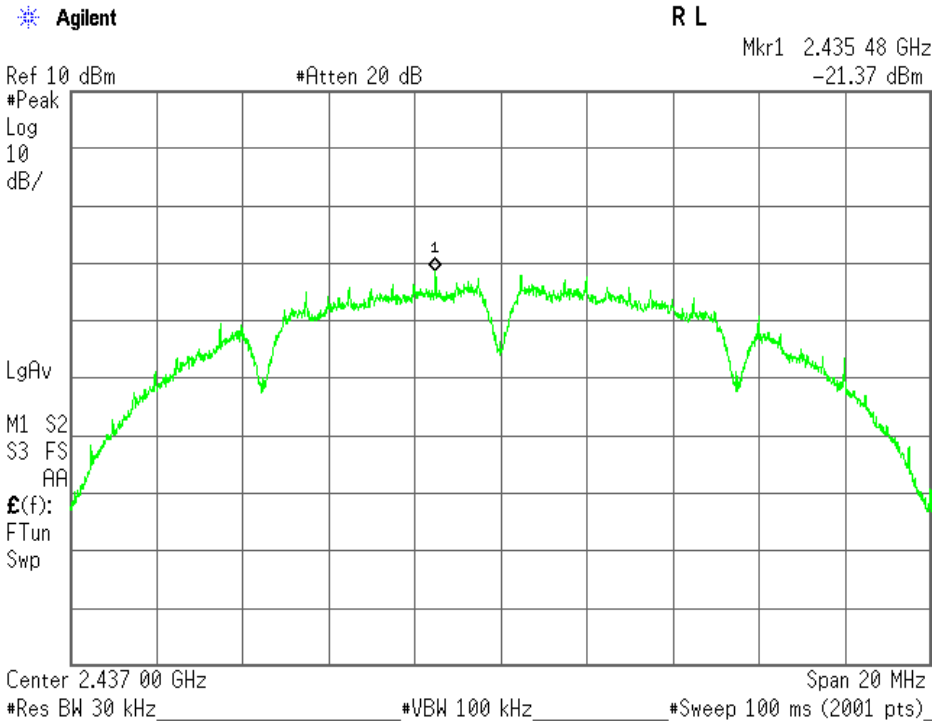
NOTES
1. The peak power density complied with the limit using 30 kHz resolution bandwidth of Spectrum Analyzer.
2. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
3. Setting of measuring instrument(s) :

Detector Function	RES B.W.	Video B.W.
Peak	30kHz	100kHz

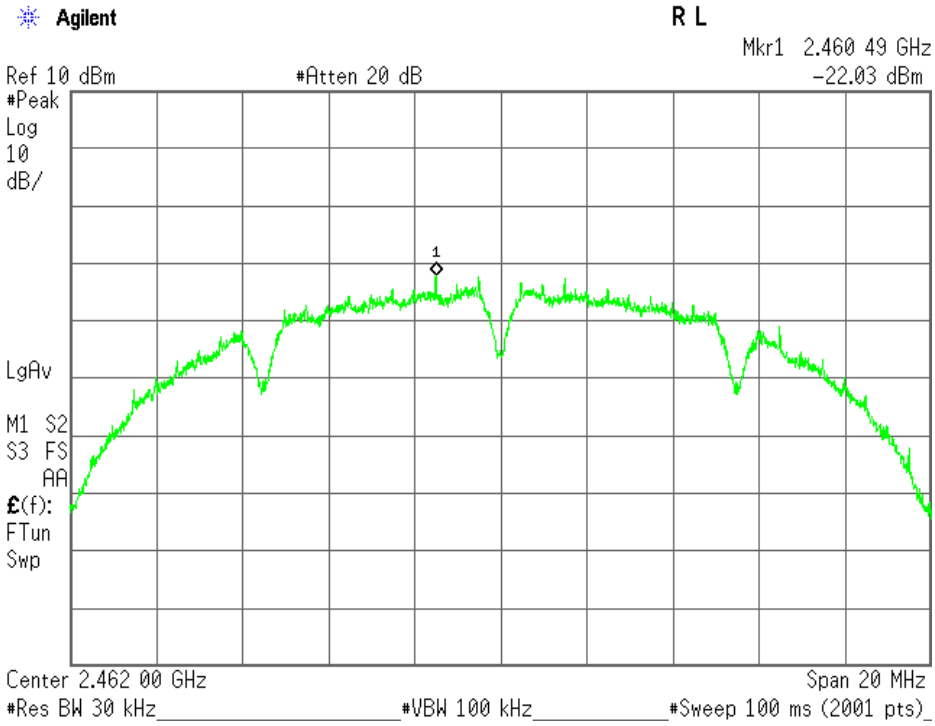
Low Channel



Middle Channel



High Channel



2) IEEE 802.11g

Test Date: August 18, 2015
Temp.: 27 °C, Humi: 71 %

Data Rate : 18Mbps

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Power Density		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	13.60	-18.07	-4.47	0.36	8.00	+12.47
06	2437	13.62	-17.33	-3.71	0.43	8.00	+11.71
11	2462	13.64	-17.57	-3.93	0.40	8.00	+11.93

Calculated result at 2437.000 MHz, as the worst point shown on underline:

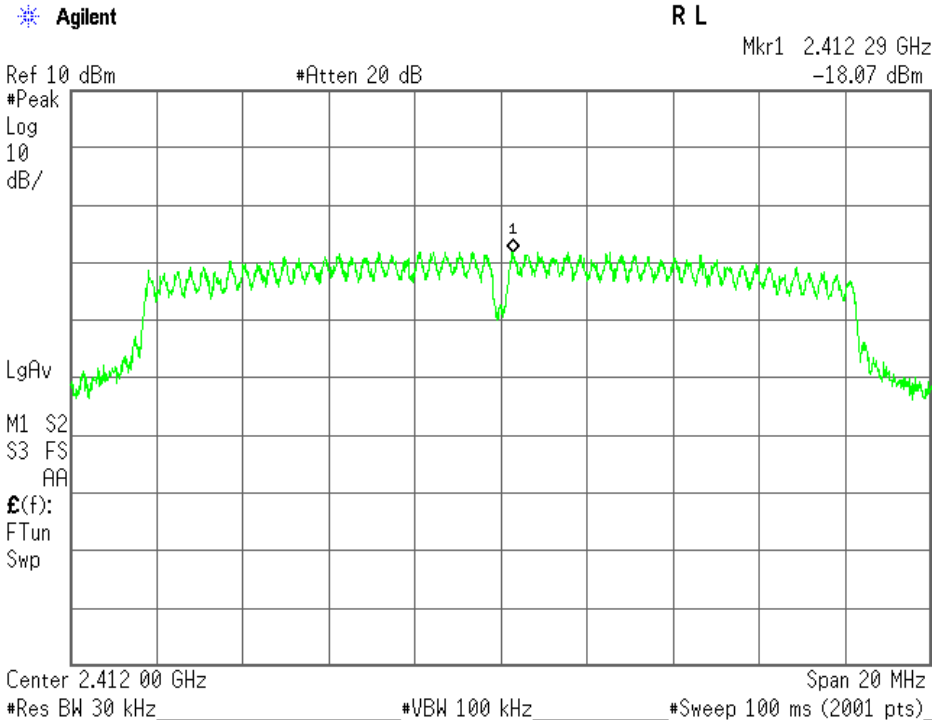
Correction Factor	=	13.62 dB	
+) Meter Reading	=	-17.33 dBm	
Result	=	-3.71 dBm	= 0.43 mW

Minimum Margin: 8.00 - -3.71 = 11.71 (dB)

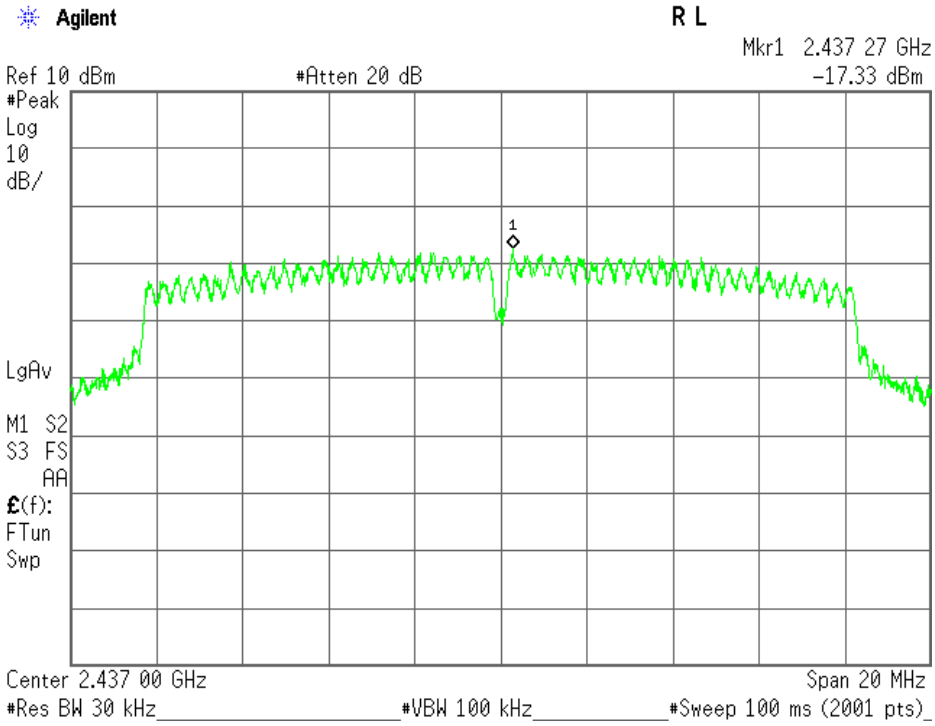
NOTES
1. The peak power density complied with the limit using 30 kHz resolution bandwidth of Spectrum Analyzer.
2. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
3. Setting of measuring instrument(s) :

Detector Function	RES B.W.	Video B.W.
Peak	30kHz	100kHz

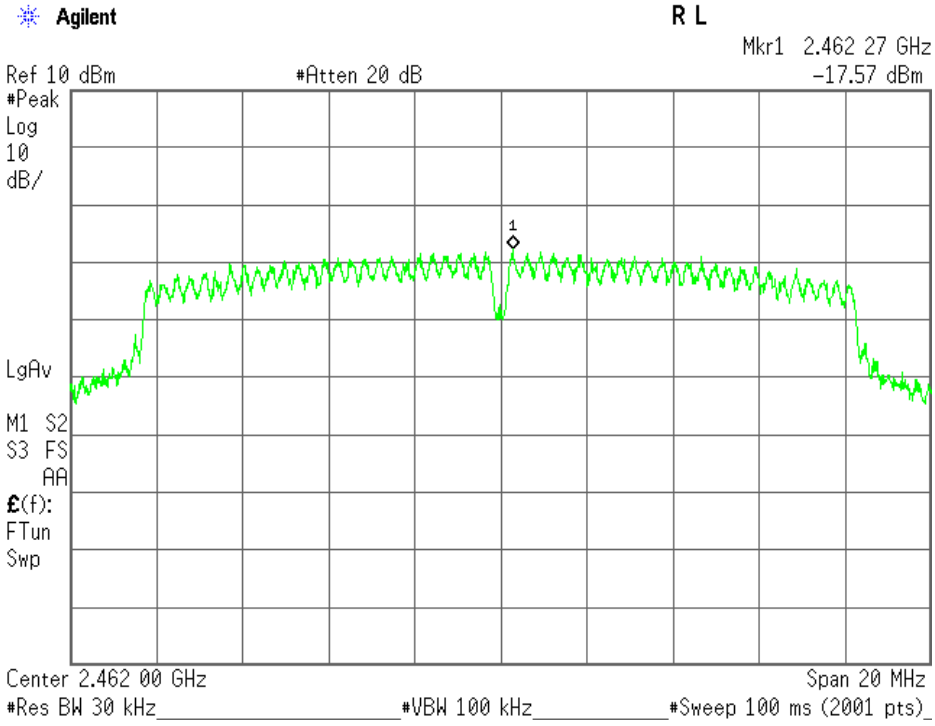
Low Channel



Middle Channel



High Channel



3) IEEE 802.11n HT20

Test Date: August 18, 2015
Temp.: 27 °C, Humi: 71 %

Data Rate : MCS0

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Power Density		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	13.60	-17.70	-4.10	0.39	8.00	+12.10
06	2437	13.62	-17.65	-4.03	0.40	8.00	+12.03
11	2462	13.64	-17.99	-4.35	0.37	8.00	+12.35

Calculated result at 2437.000 MHz, as the worst point shown on underline:

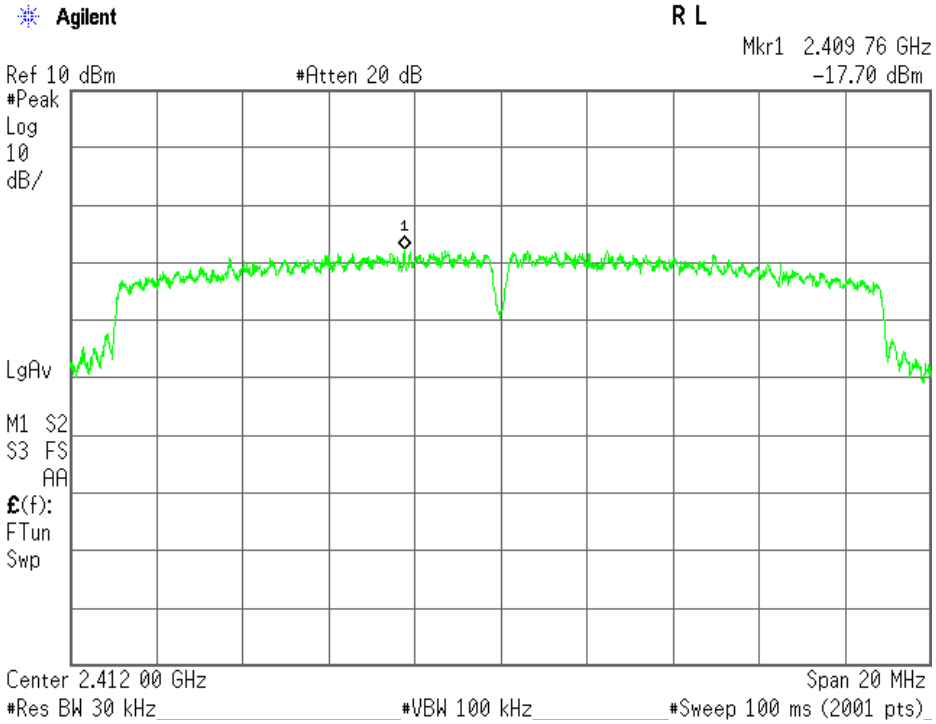
Correction Factor	=	13.62 dB	
+) Meter Reading	=	-17.65 dBm	
Result	=	-4.03 dBm	= 0.40 mW

Minimum Margin: 8.00 - -4.03 = 12.03 (dB)

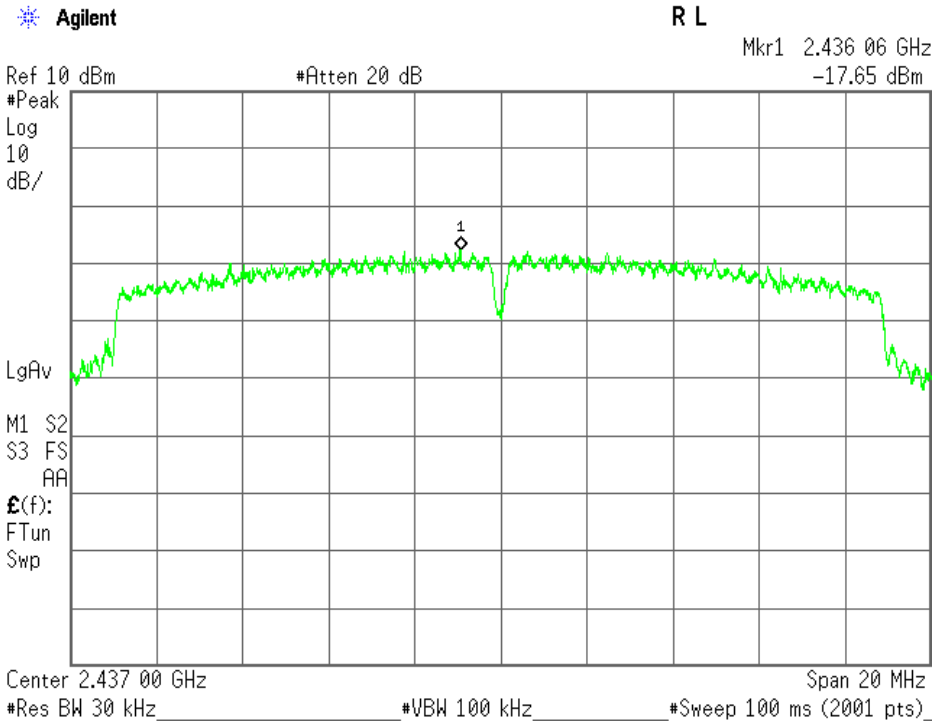
NOTES
1. The peak power density complied with the limit using 30 kHz resolution bandwidth of Spectrum Analyzer.
2. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
3. Setting of measuring instrument(s) :

Detector Function	RES B.W.	Video B.W.
Peak	30kHz	100kHz

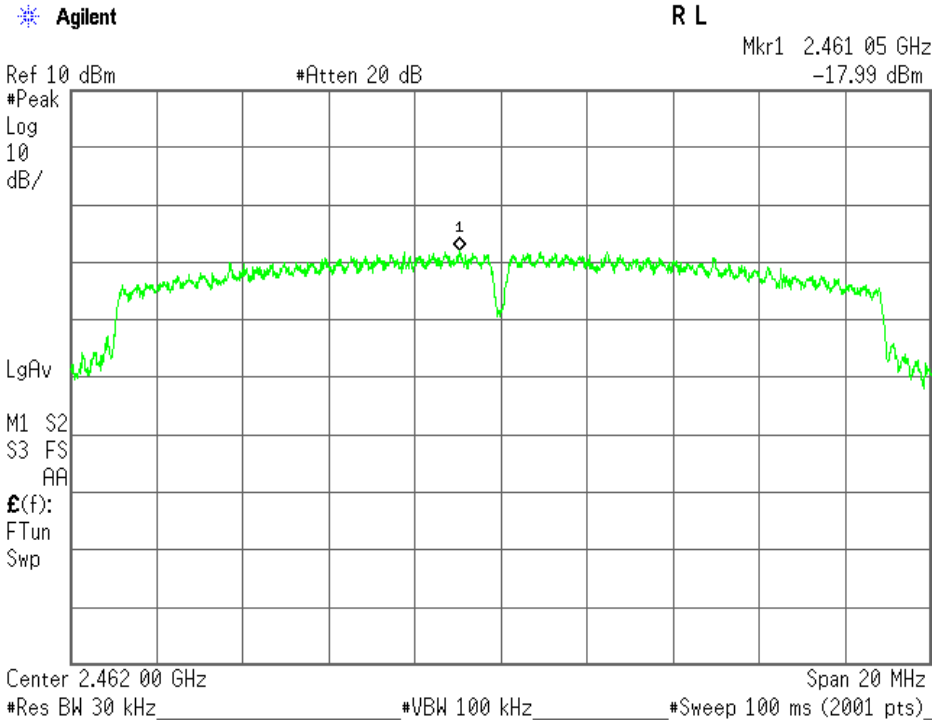
Low Channel



Middle Channel



High Channel



4) IEEE 802.11n HT40

Test Date: August 18, 2015
Temp.: 27 °C, Humi: 71 %

Data Rate : MCS5

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Power Density		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
03	2422	13.61	-21.07	-7.46	0.18	8.00	+15.46
06	2437	13.62	-21.29	-7.67	0.17	8.00	+15.67
09	2452	13.63	-21.37	-7.74	0.17	8.00	+15.74

Calculated result at 2422.000 MHz, as the worst point shown on underline:

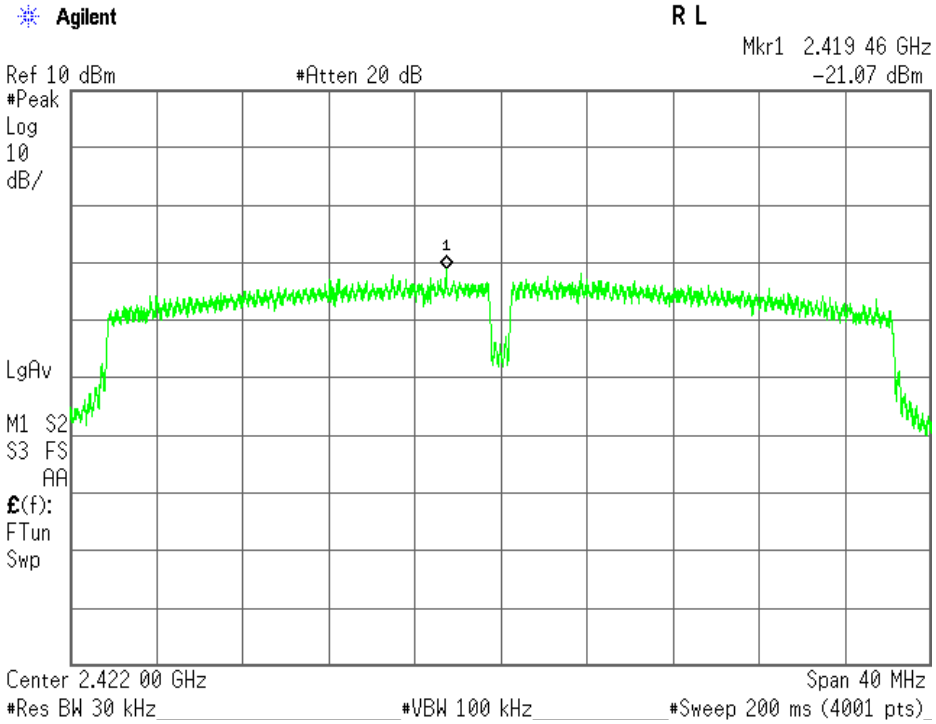
Correction Factor	=	13.61 dB	
+) Meter Reading	=	-21.07 dBm	
Result	=	-7.46 dBm	= 0.18 mW

Minimum Margin: 8.00 - -7.46 = 15.46 (dB)

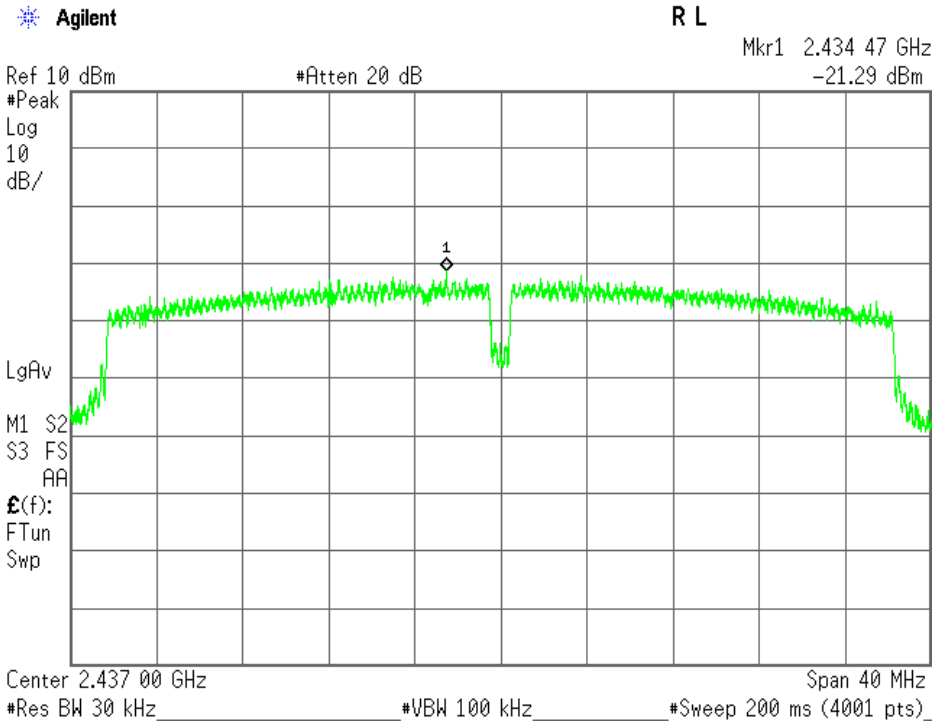
NOTES
1. The peak power density complied with the limit using 30 kHz resolution bandwidth of Spectrum Analyzer.
2. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
3. Setting of measuring instrument(s) :

Detector Function	RES B.W.	Video B.W.
Peak	30kHz	100kHz

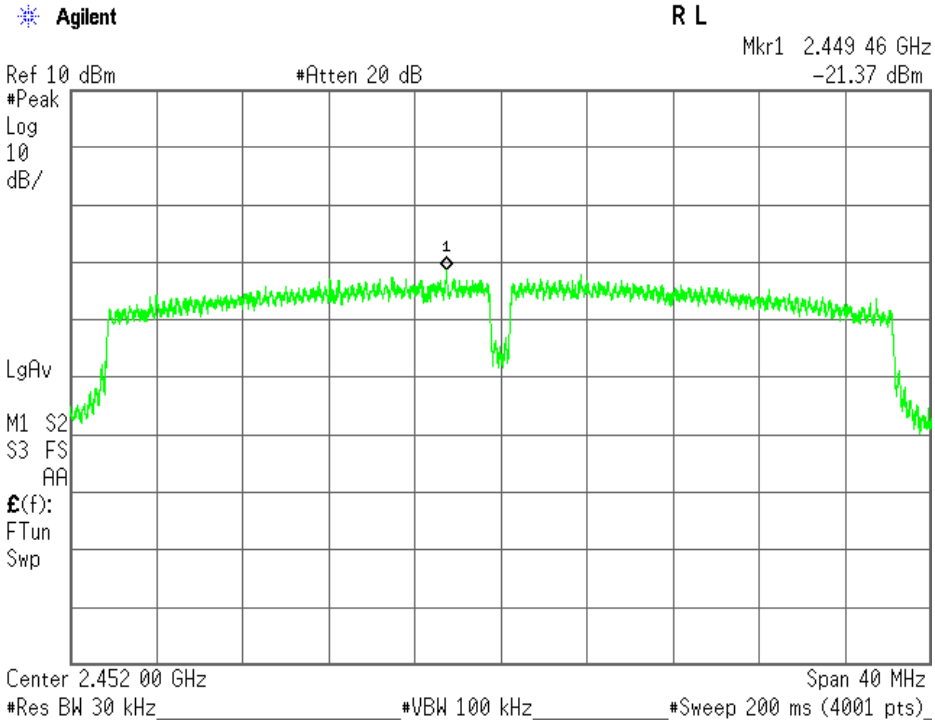
Low Channel



Middle Channel



High Channel



7.7 Spurious Emissions(Conduction)

For the requirements, ☑ - Applicable [☑ - Tested. ☐ - Not tested by applicant request.]
☐ - Not Applicable

7.7.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

Uncertainty of Measurement Results

9 kHz – 1 GHz	± 1.4	dB(2σ)
1 GHz – 18 GHz	± 1.7	dB(2σ)
18 GHz – 40 GHz	± 2.3	dB(2σ)

Remarks : _____

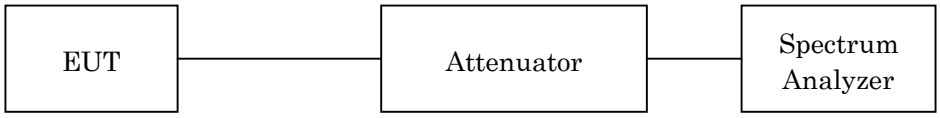
7.7.2 Test Instruments

Shielded Room S4				
Type	**Model**	**Serial No. (ID)**	**Manufacturer**	**Cal. Due**
Spectrum Analyzer	E4446A	US44300388 (A-39)	Agilent	2016/08/12
Attenuator	2-10	BA6214 (D-79)	Weinschel	2015/11/18
RF Cable	SUCOFLEX102E	6683/2E (C-70)	HUBER+SUHNER	2015/11/18
DC Power Supply	PAB18-1.8	1420354 (F-22)	KIKUSUI	N/A
Digital MultiMeter	CD772	07125007747 (F-51)	SANWA ELECTRIC	2016/04/07

NOTE : The calibration interval of the above test instruments is 12 months.

7.7.3 Test Method and Test Setup (Diagrammatic illustration)

The test system is shown as follows:



The setting of the spectrum analyzer are shown as follows:

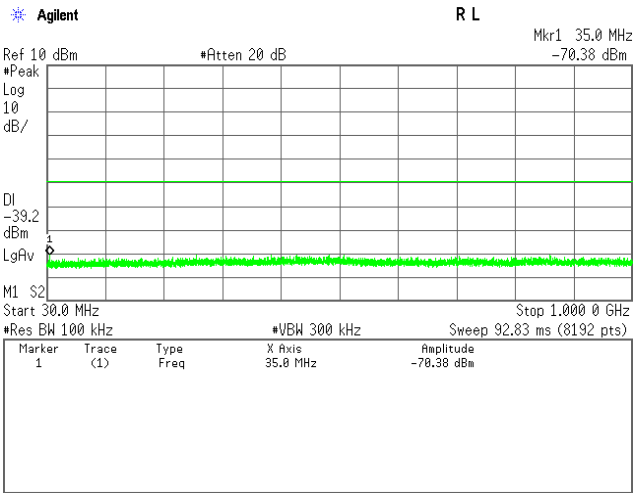
Frequency Range	30 MHz - 25 GHz	Band-Edge
Res. Bandwidth	100 kHz	100 kHz
Video Bandwidth	300 kHz	300 kHz
Sweep Time	AUTO	AUTO
Trace	Maxhold	Maxhold

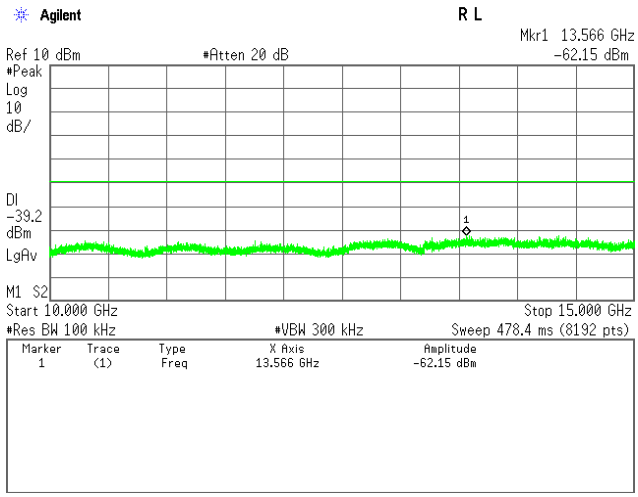
7.7.4 Test Data

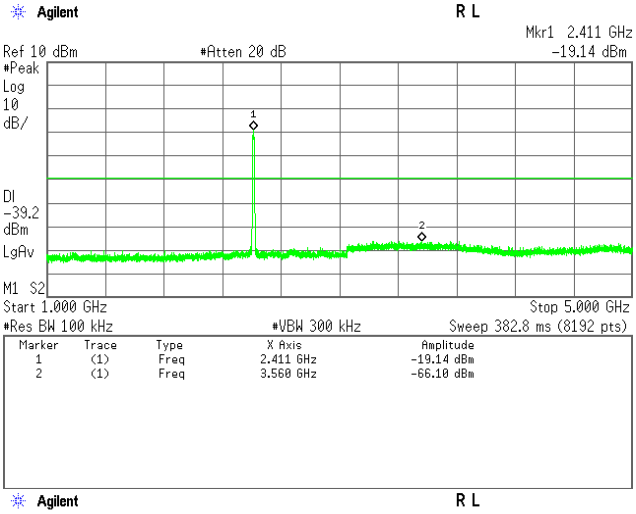
Test Date : August 18, 2015
Temp.:27°C, Humi:71%

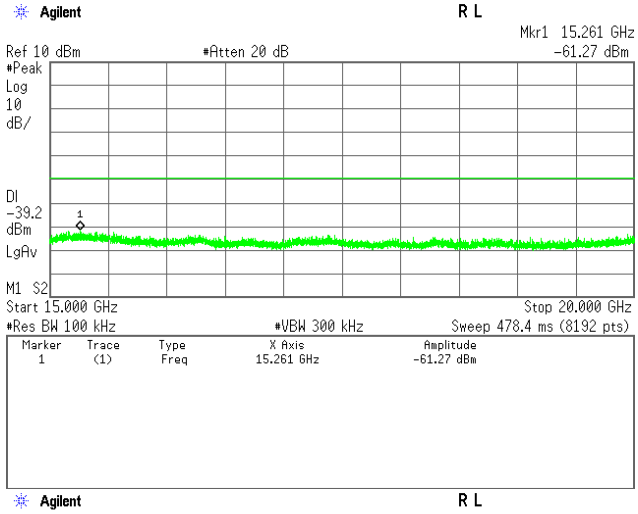
1) IEEE 802.11b

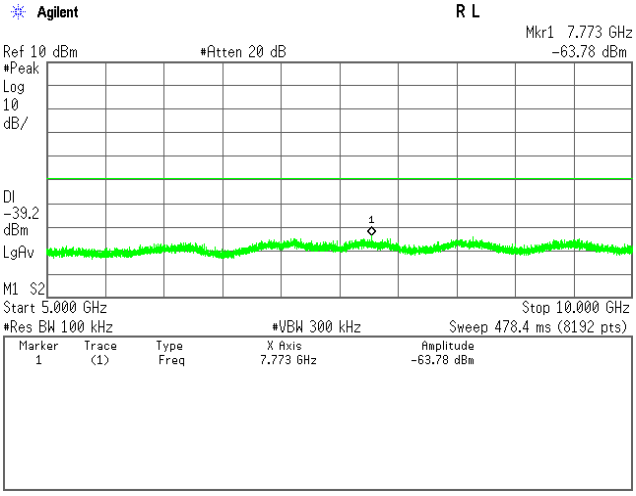
Low Channel

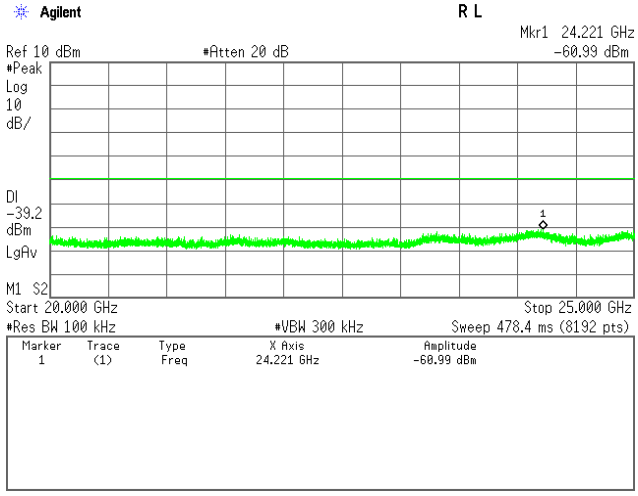




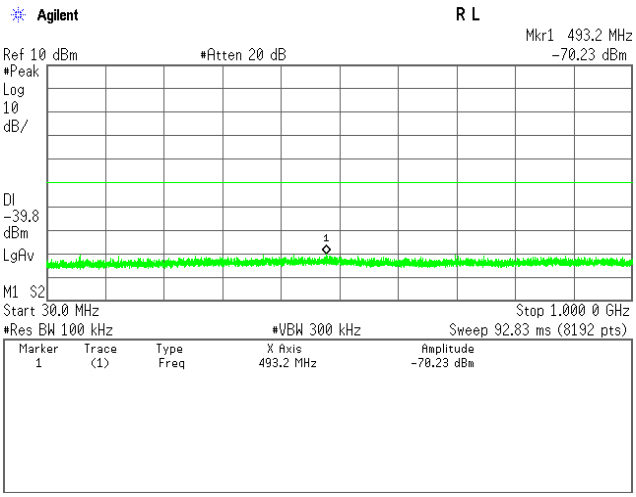


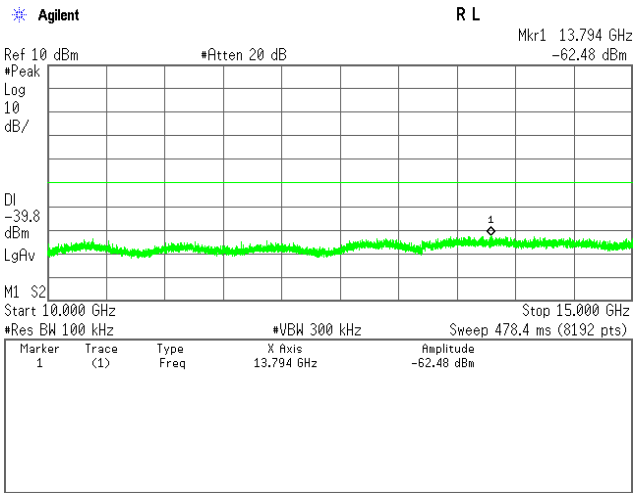


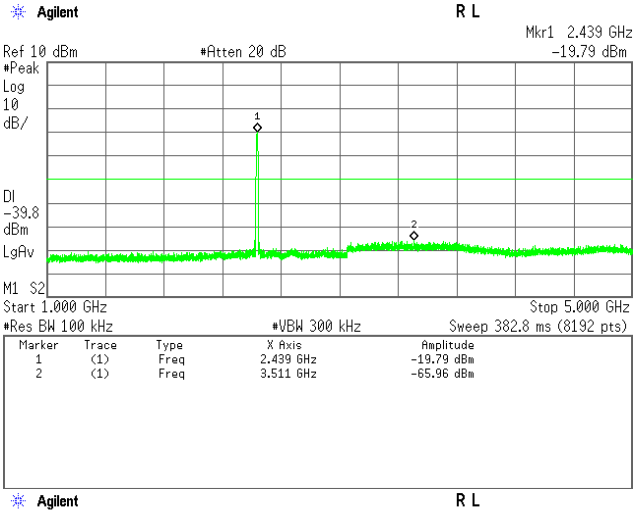


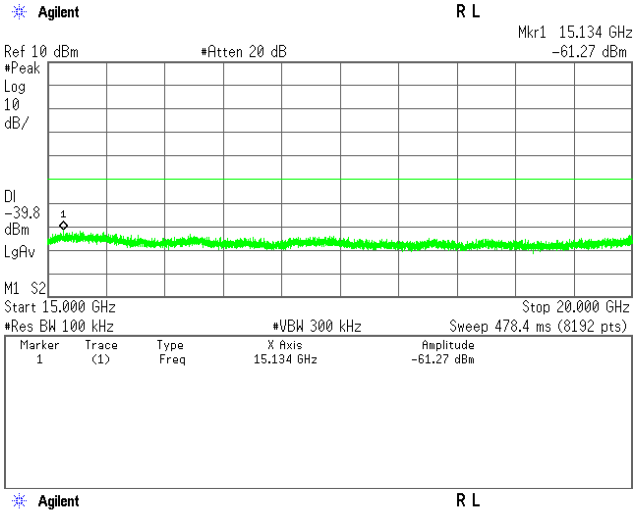


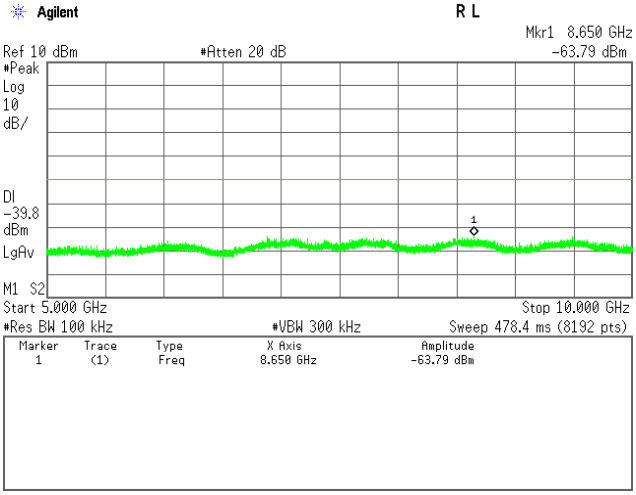
Middle Channel

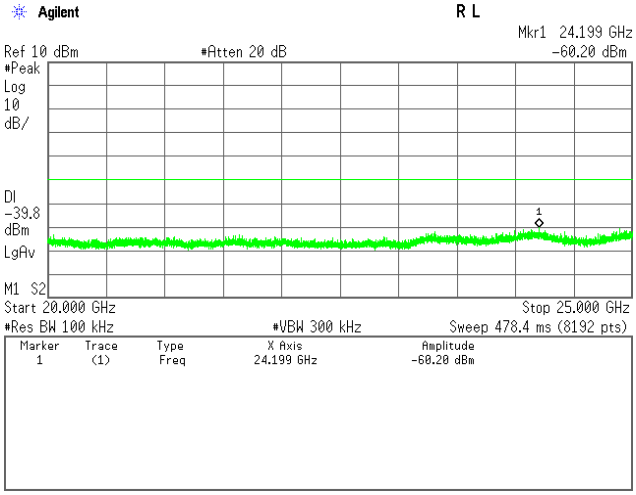




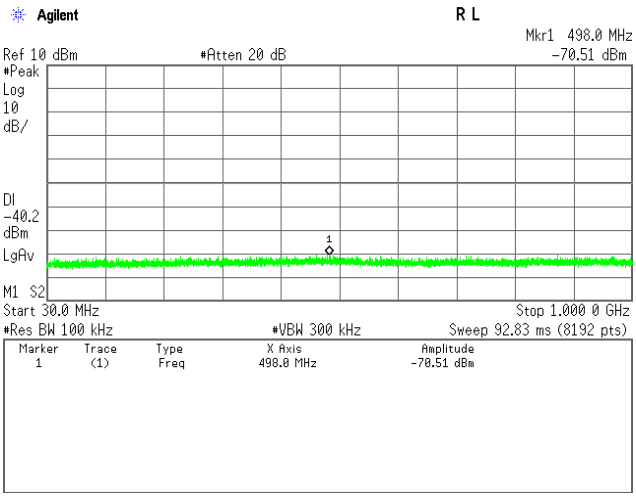


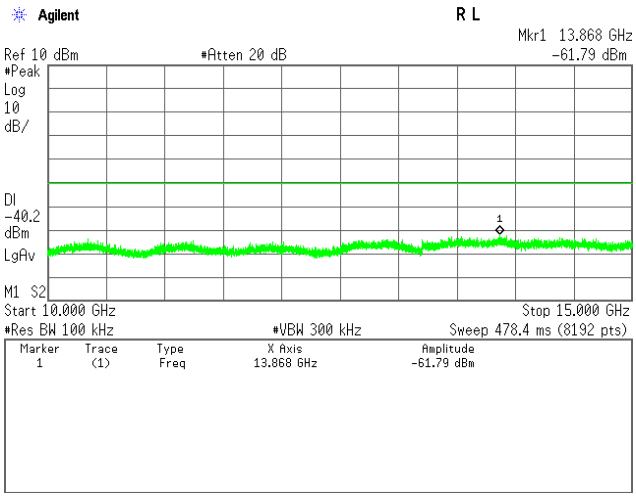


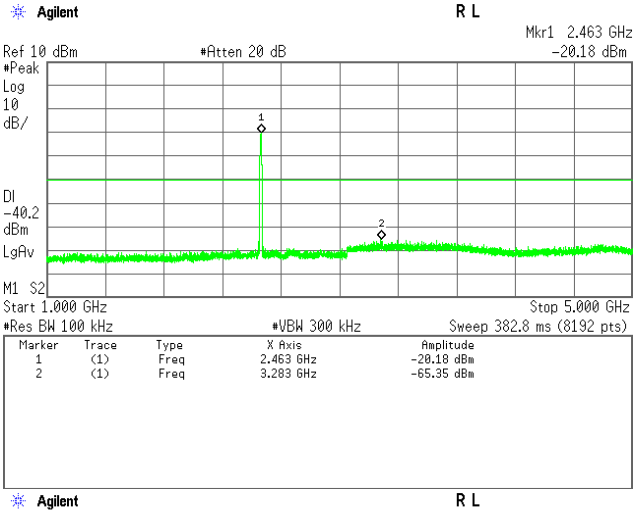


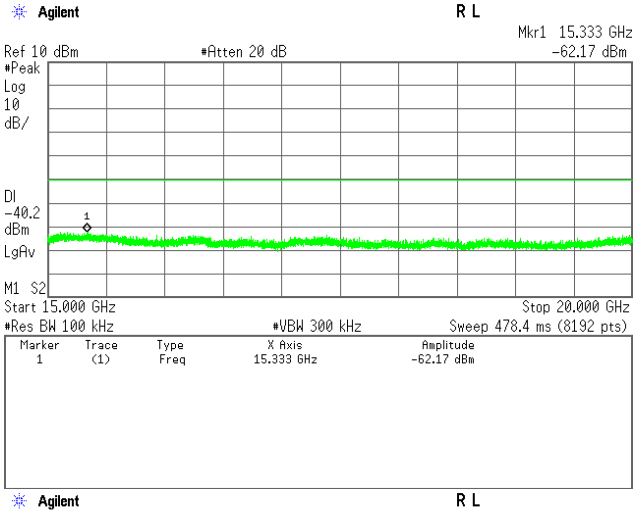


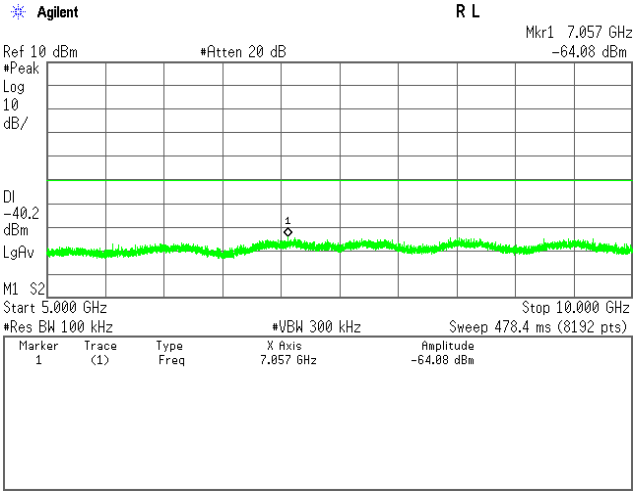
High Channel

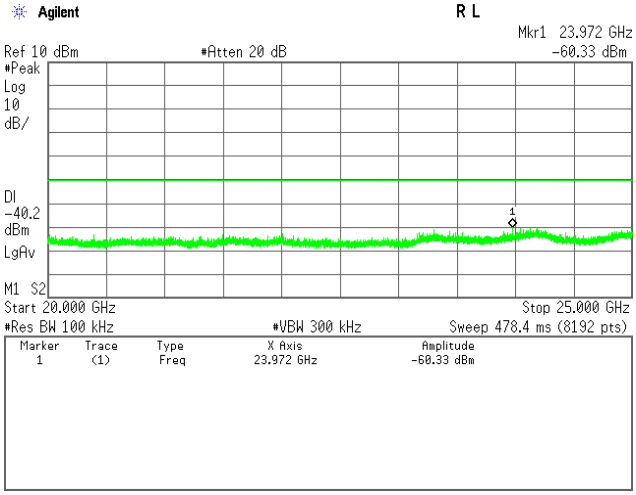






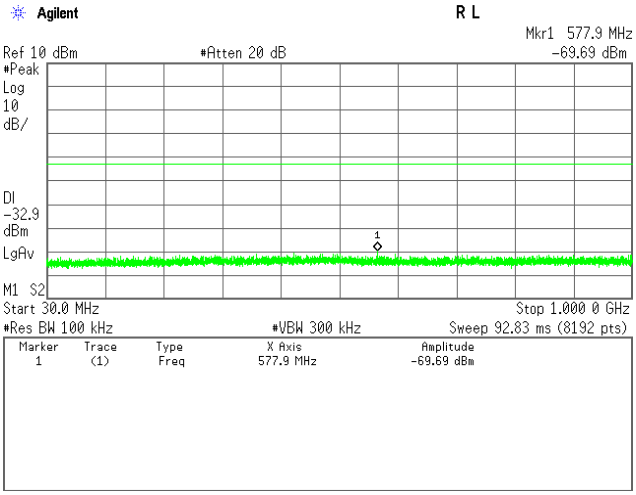


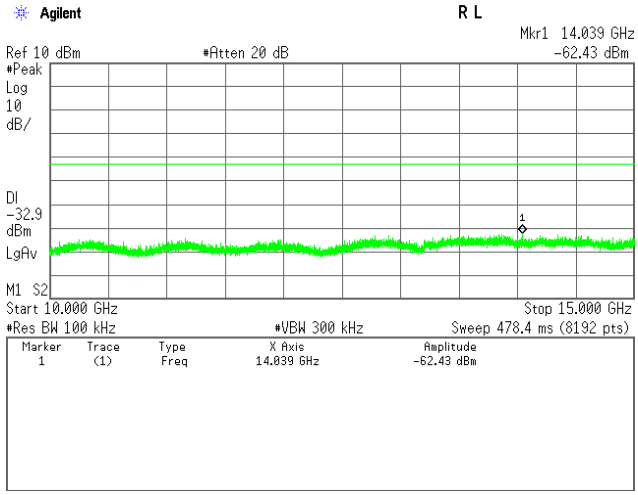


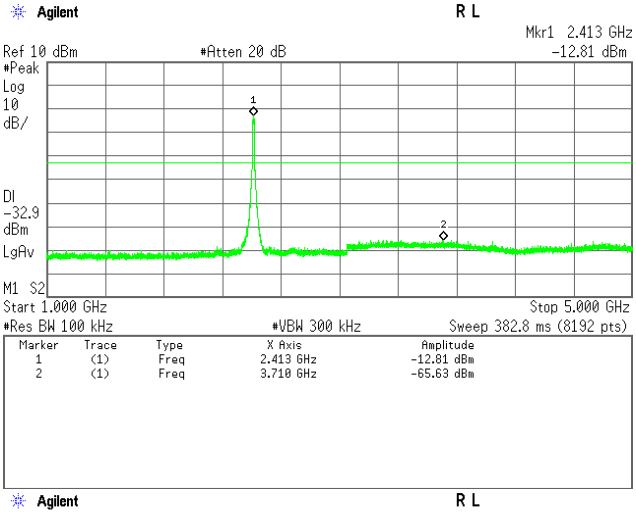


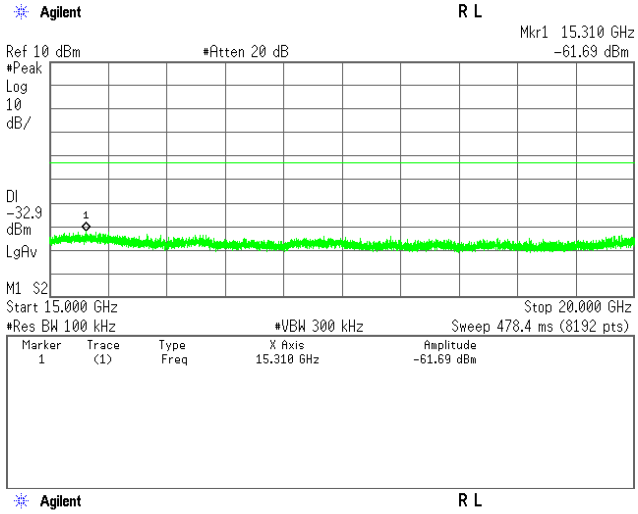
2) IEEE 802.11g

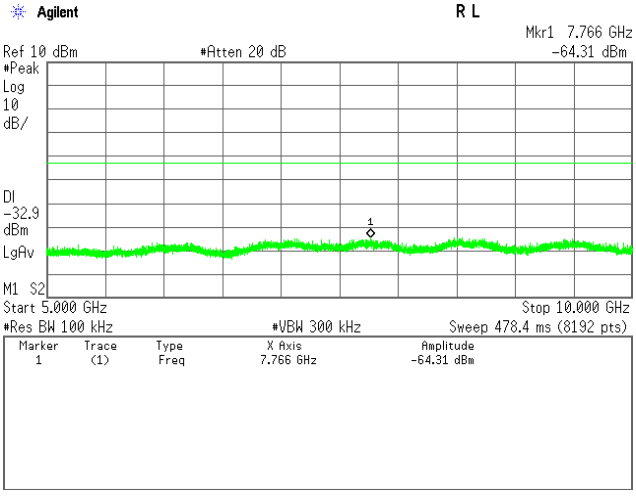
Low Channel

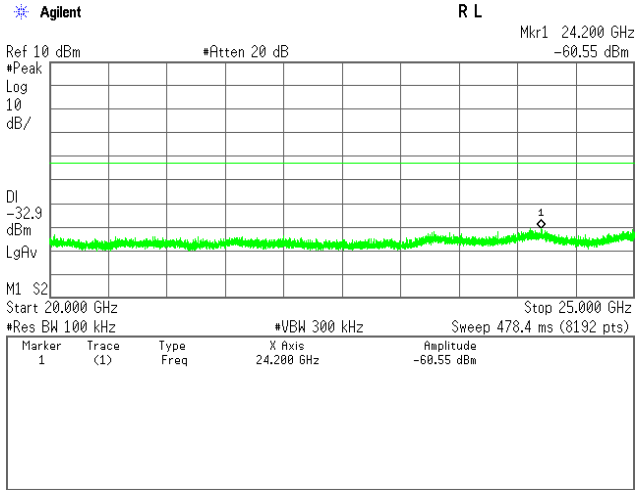




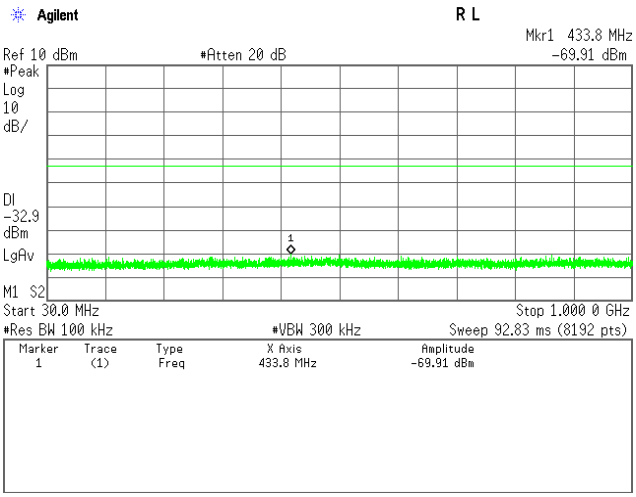


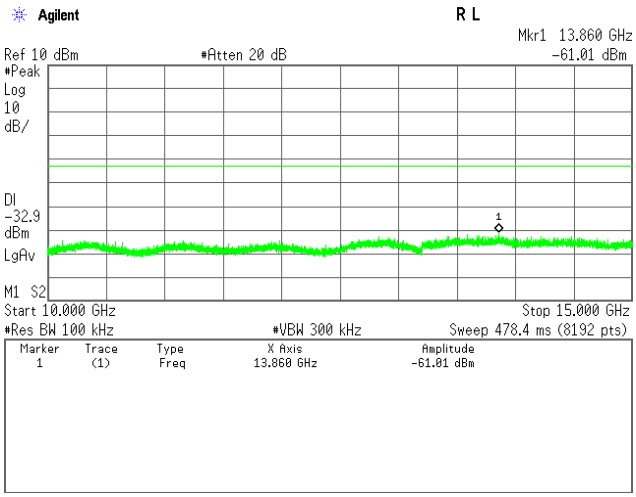


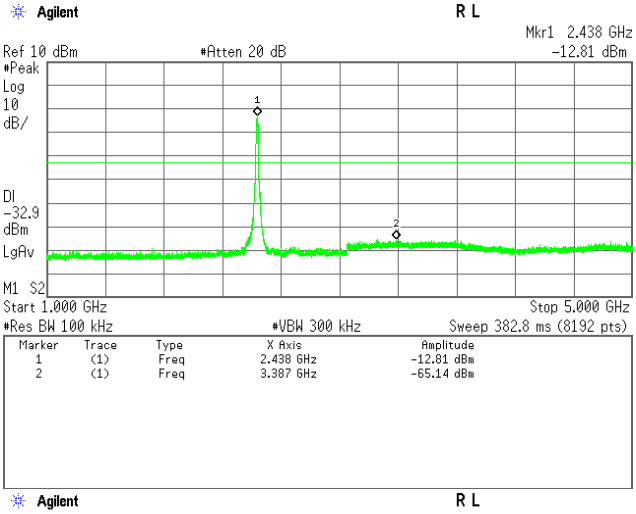


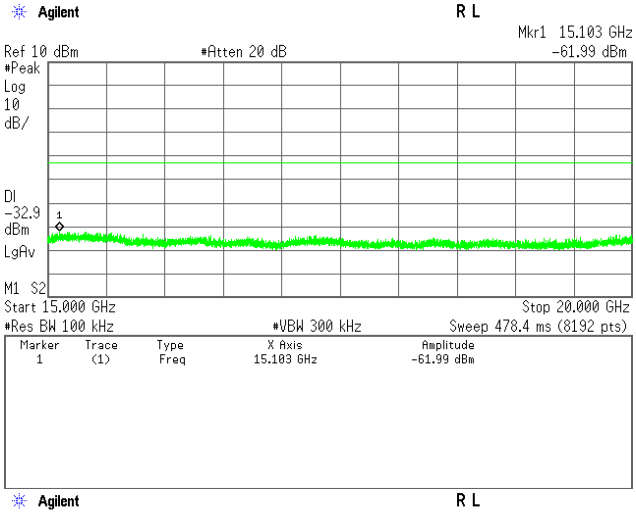


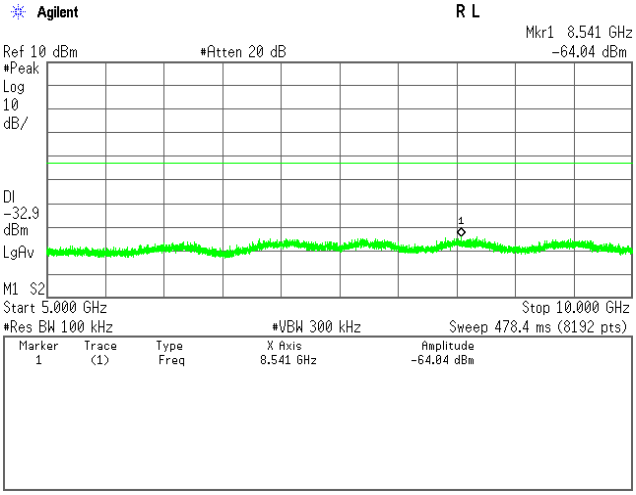
Middle channel

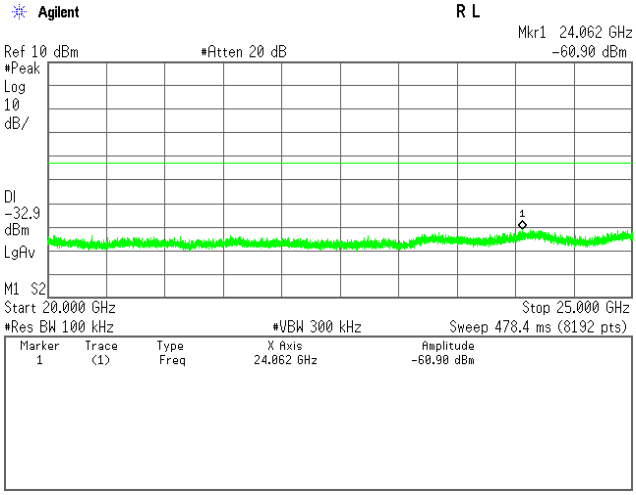




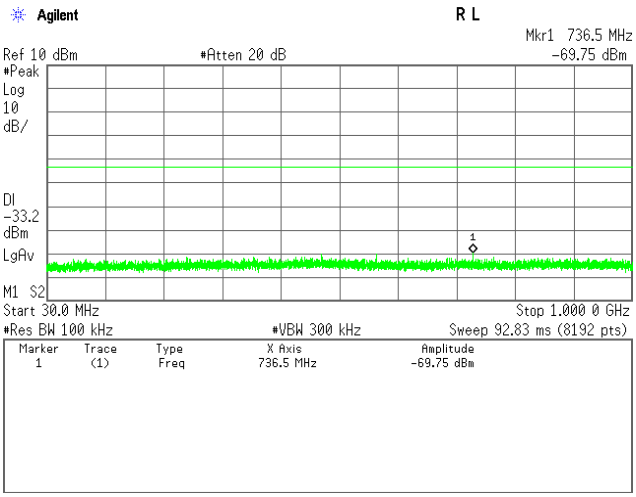


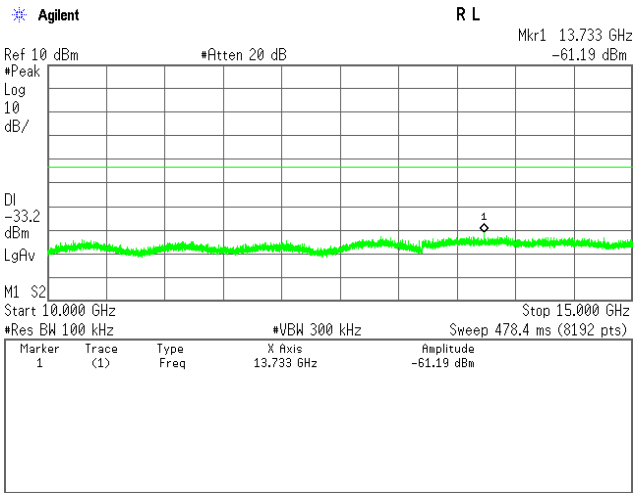


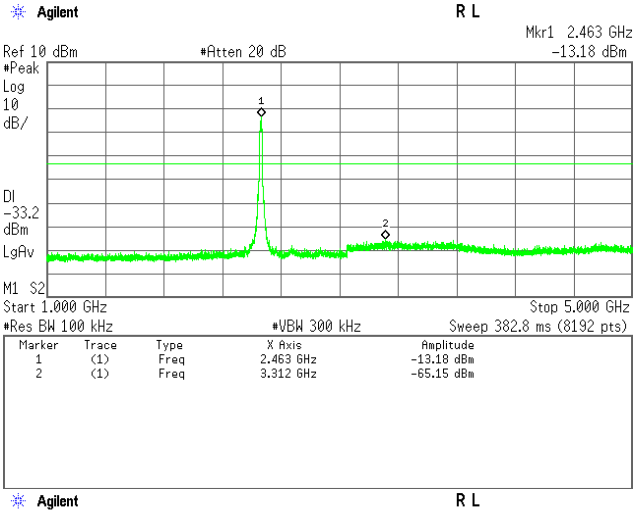


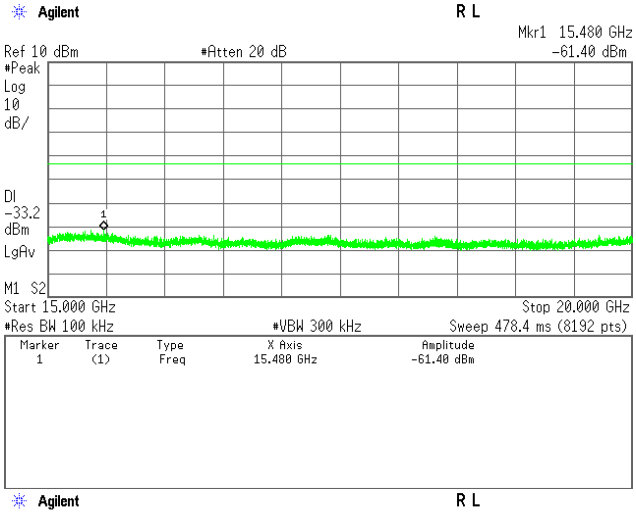


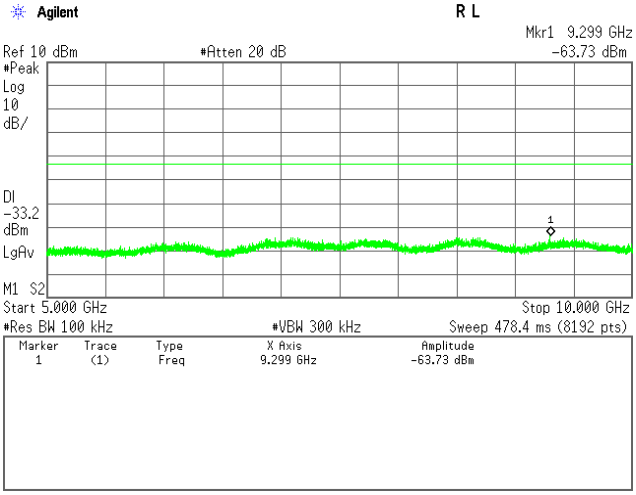
High Channel

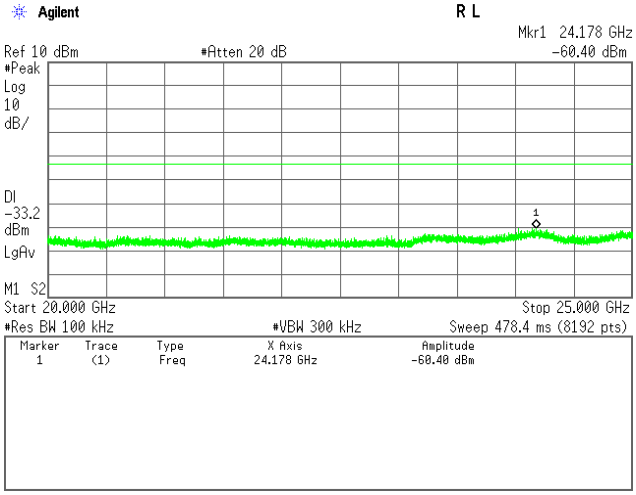






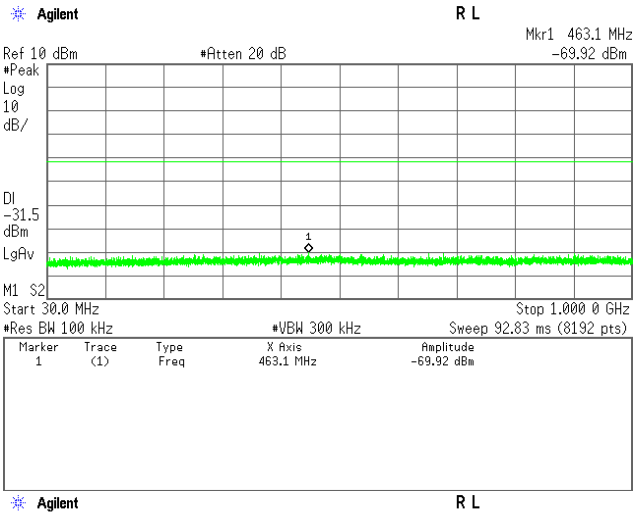


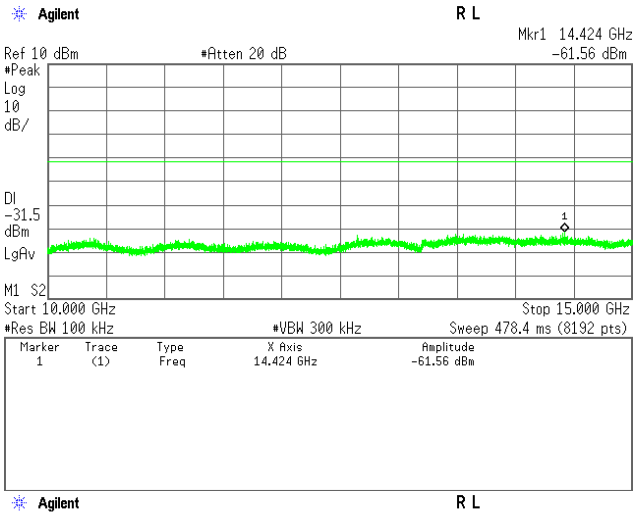


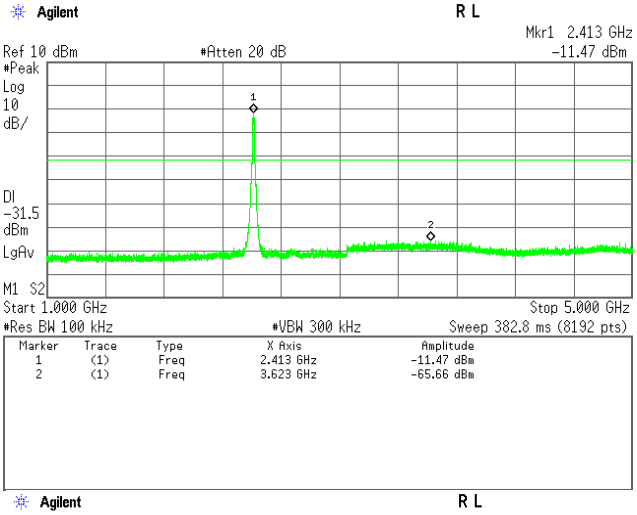


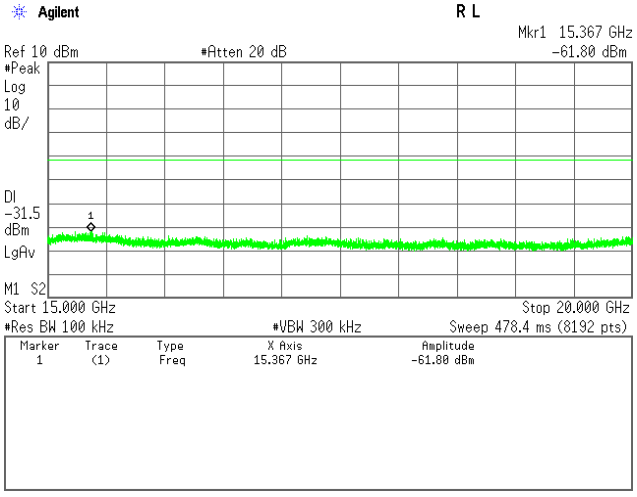
3) IEEE 802.11n HT20

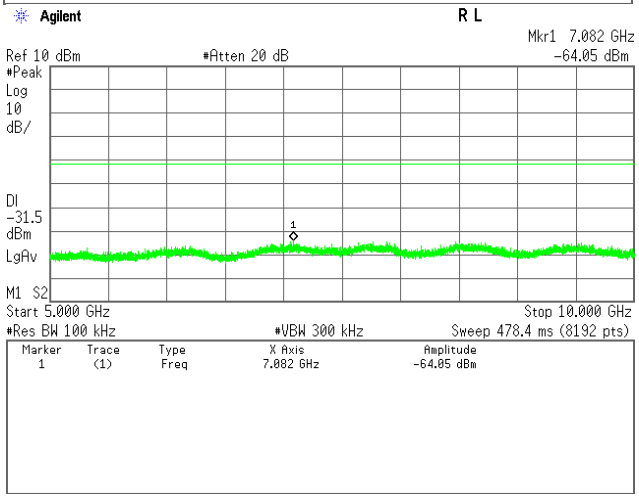
Low Channel

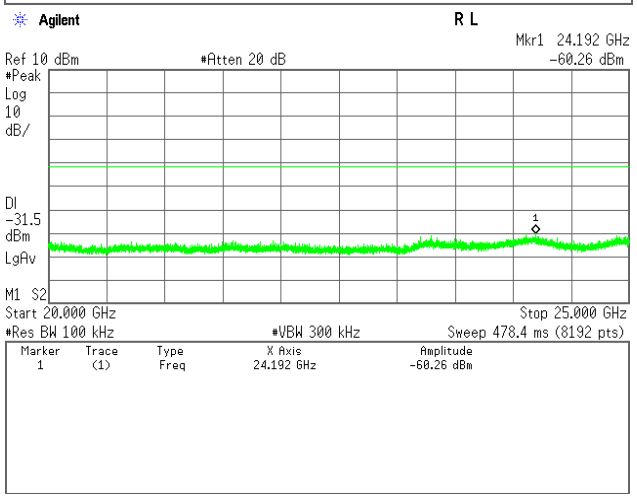




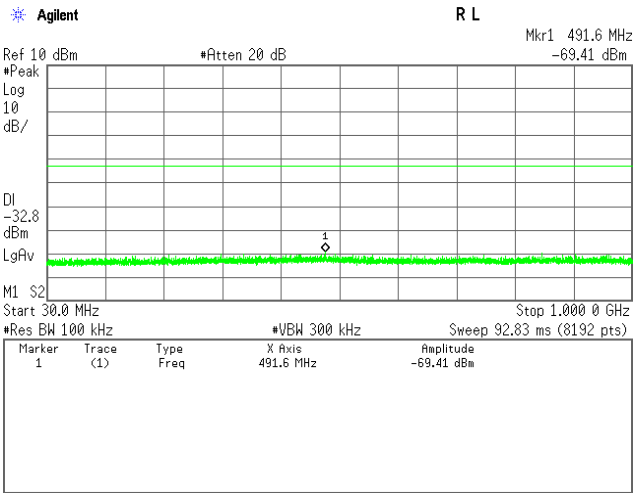


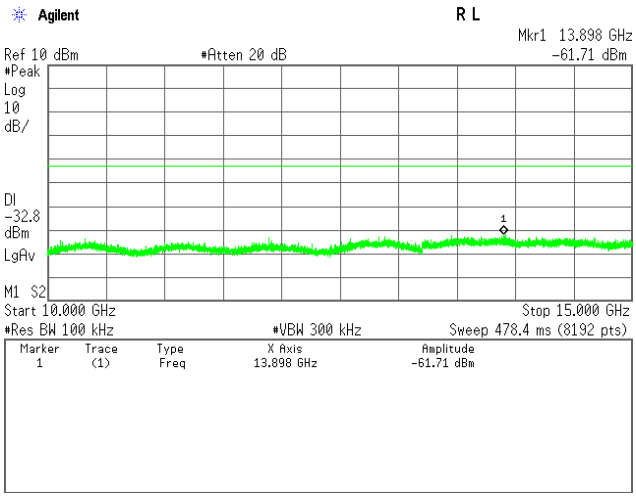


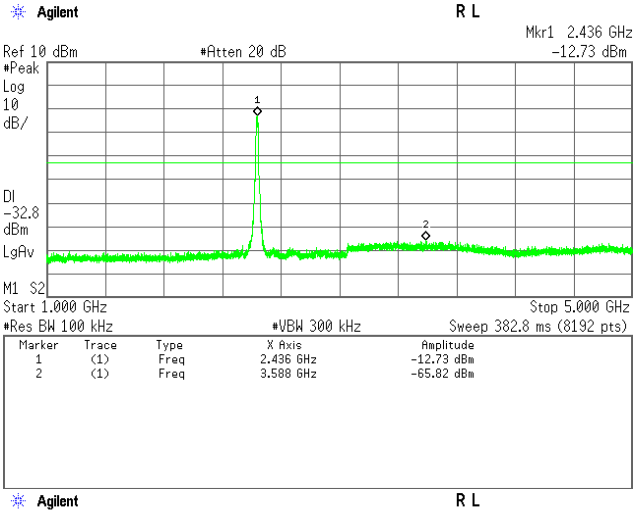


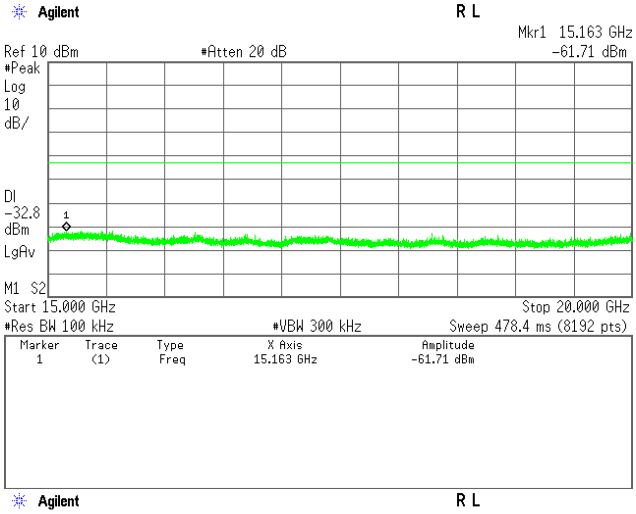


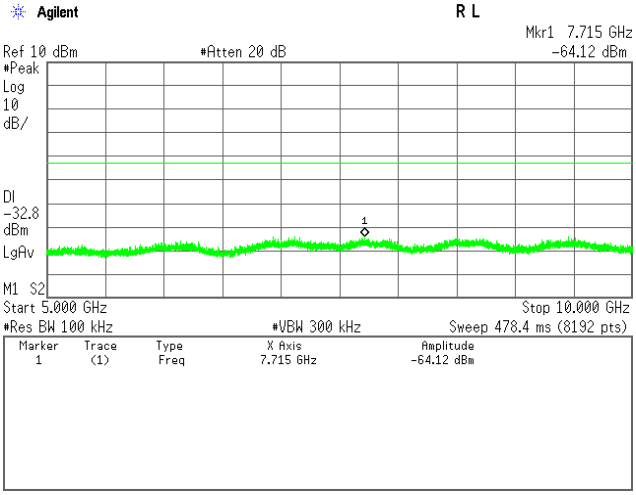
Middle Channel

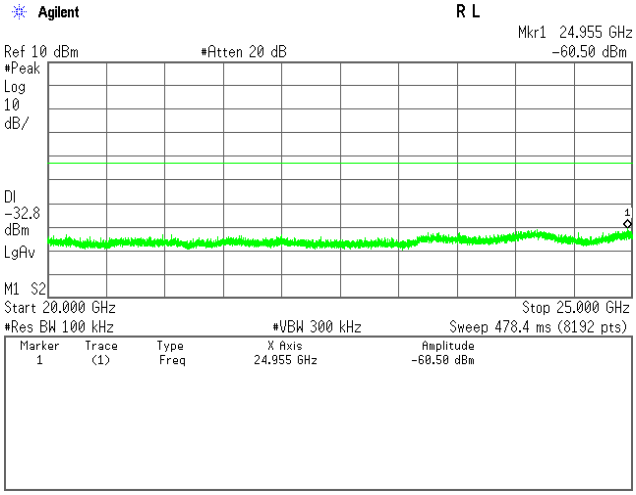




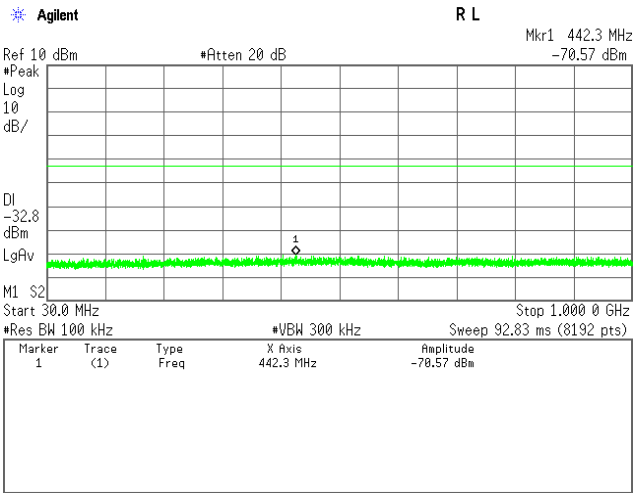


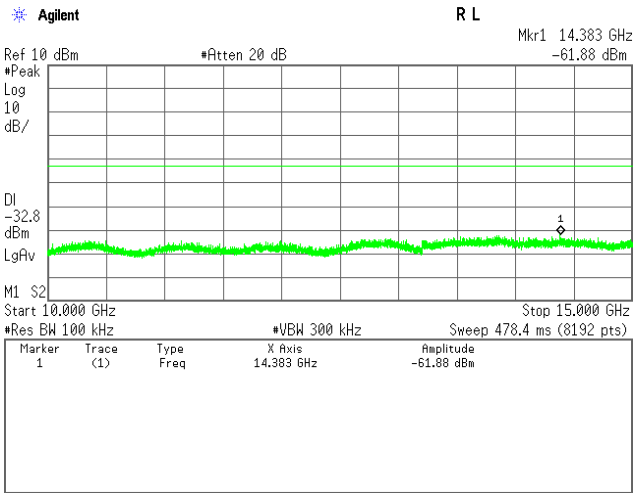


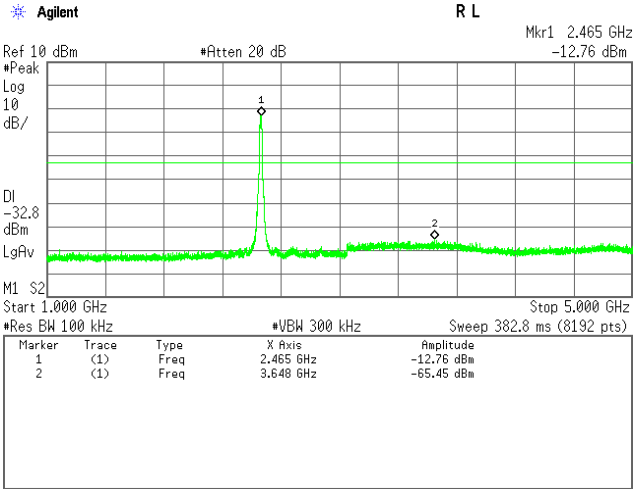


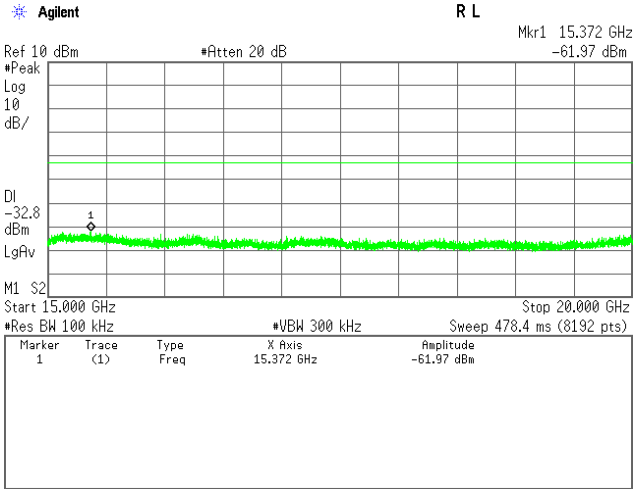


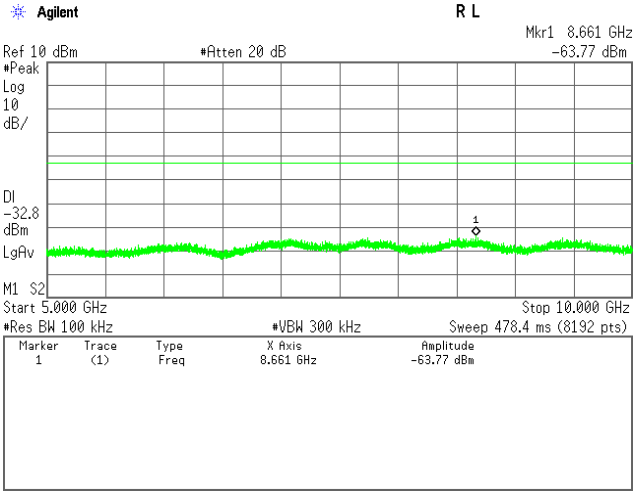
High Channel

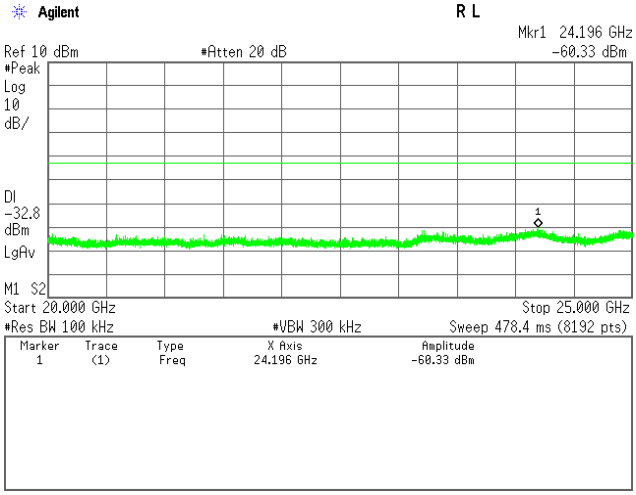






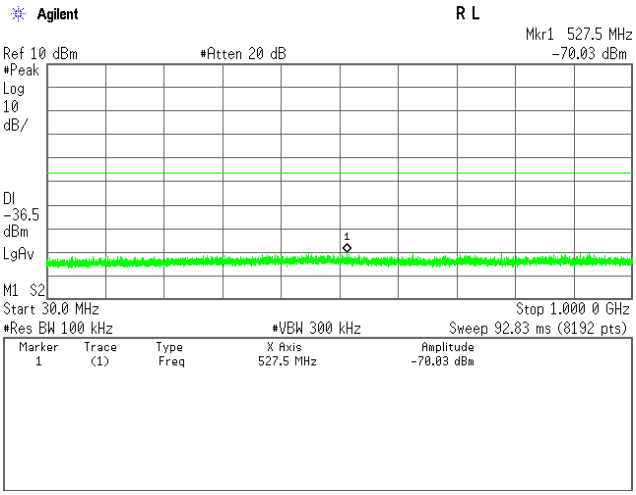


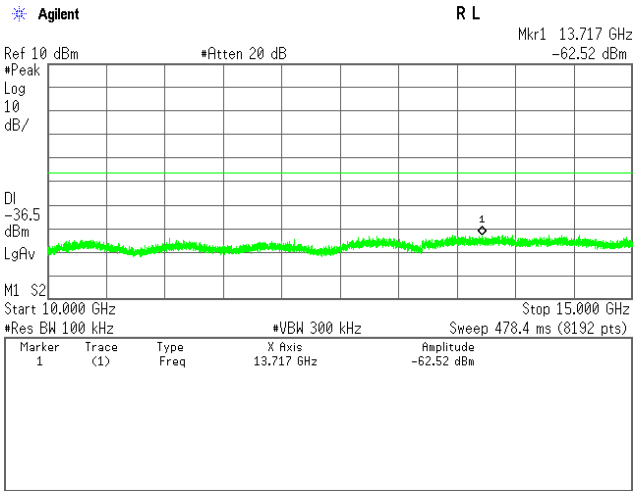


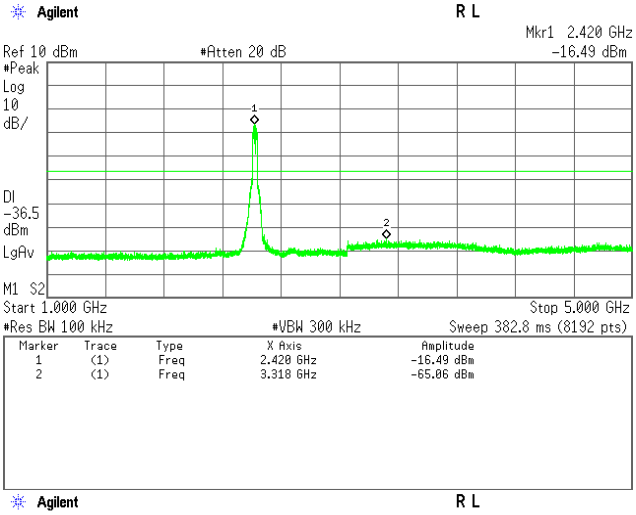


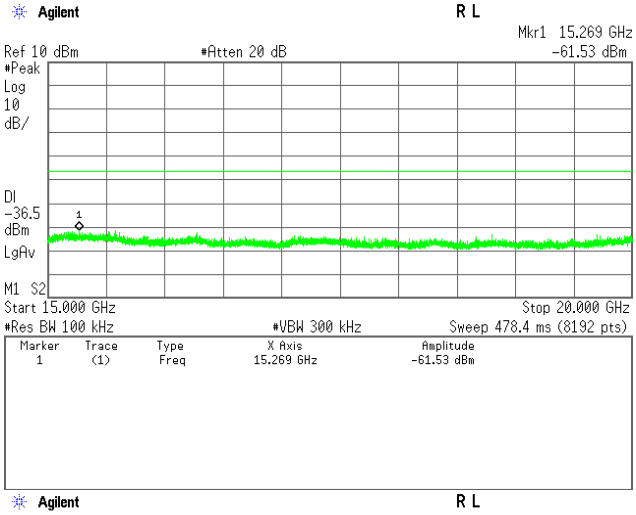
4) IEEE 802.11n HT40

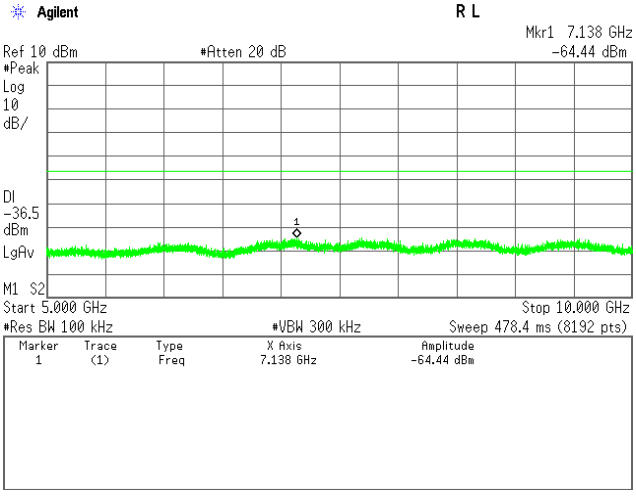
Low Channel

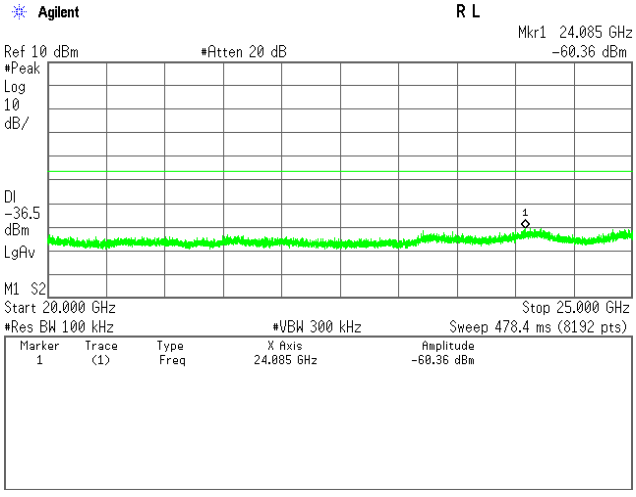




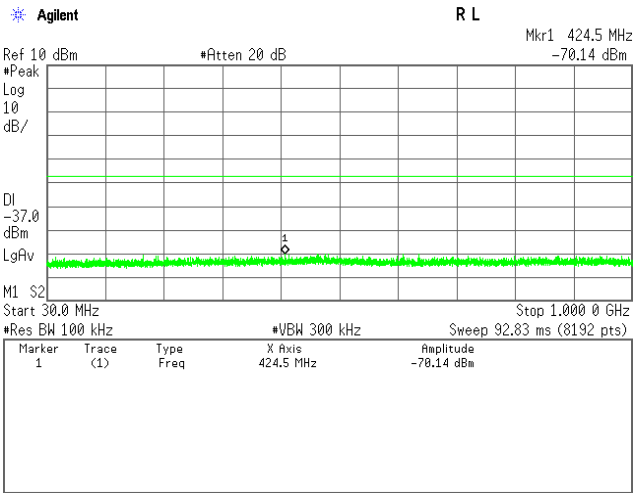


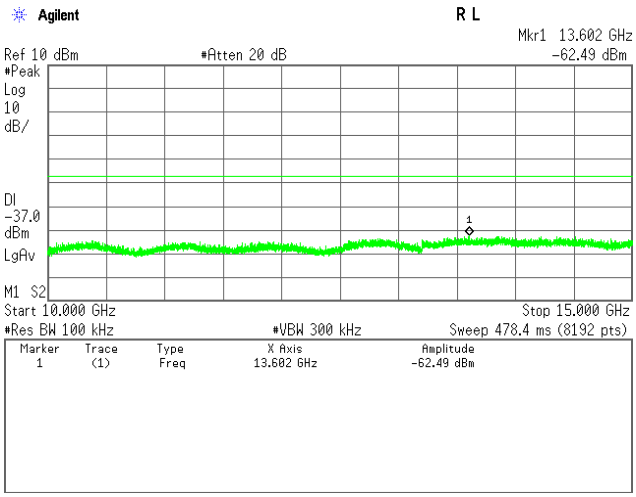


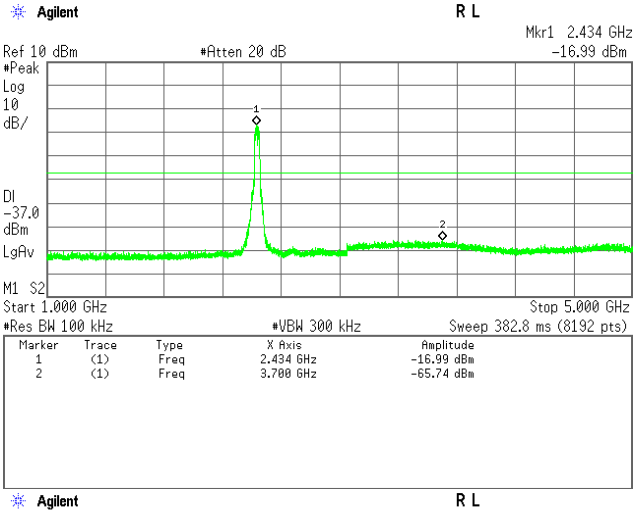


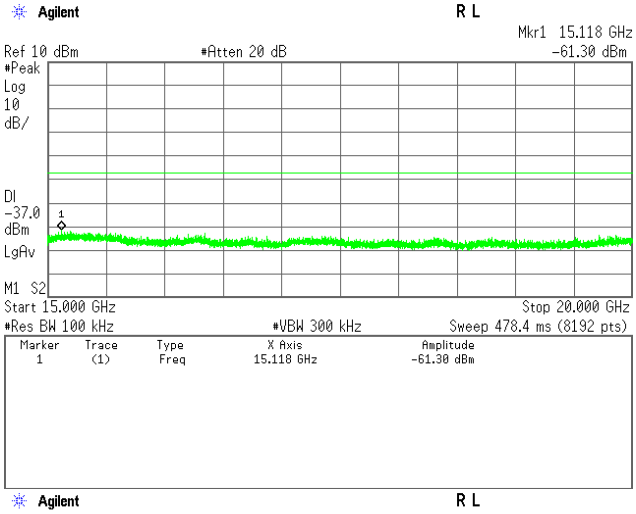


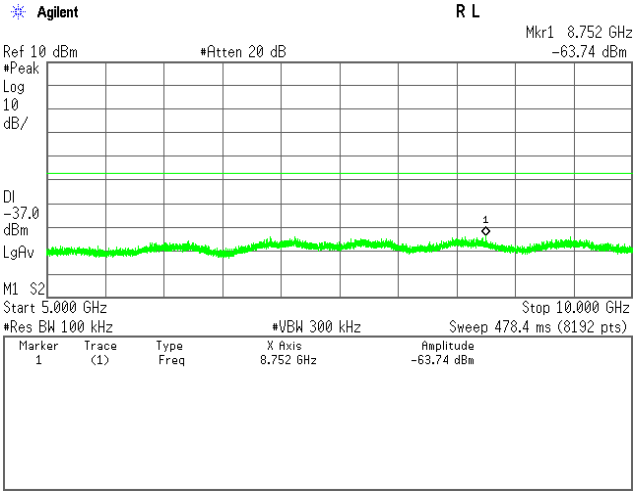
Middle Channel

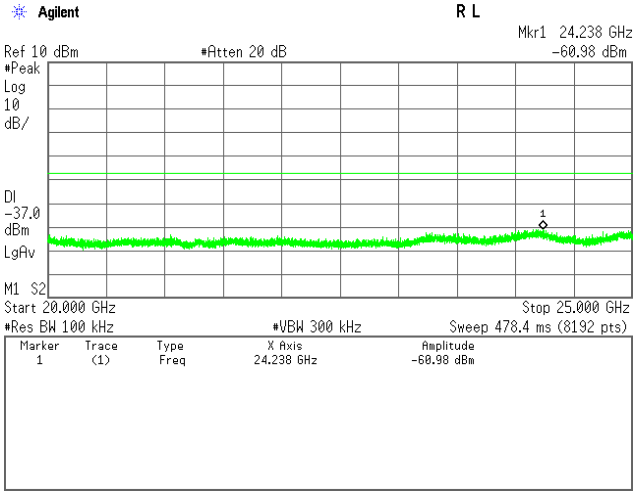




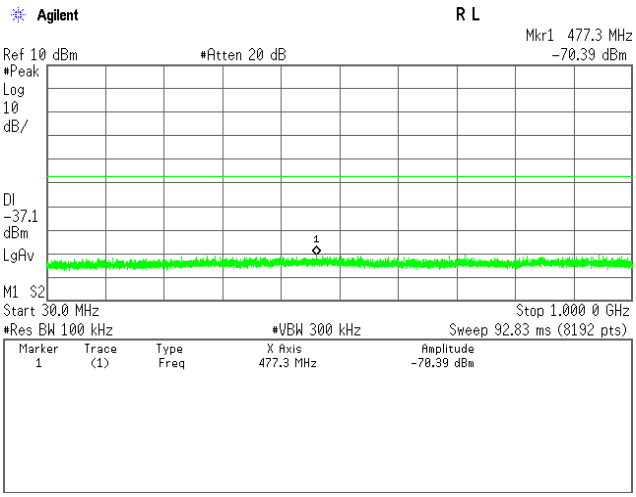


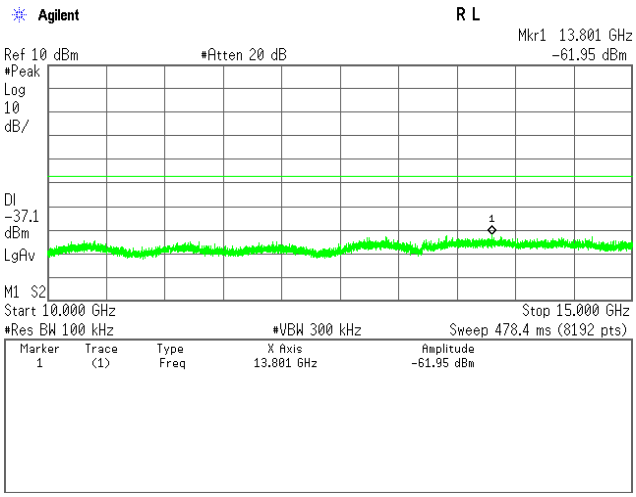


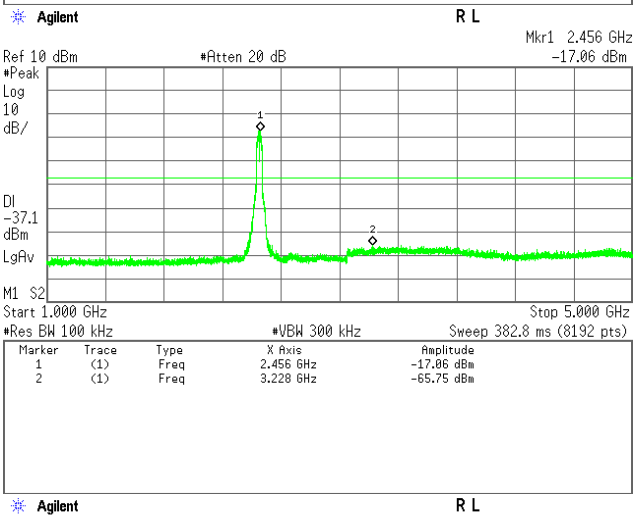


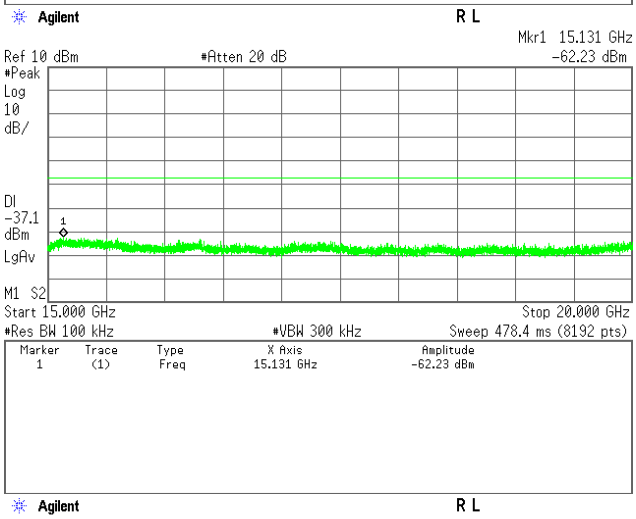


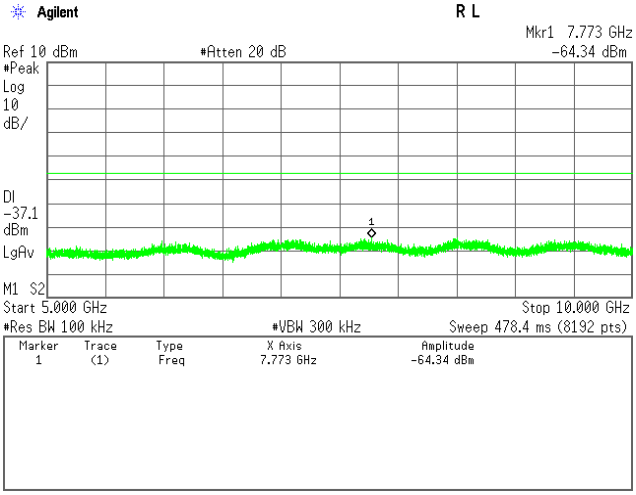
High Channel

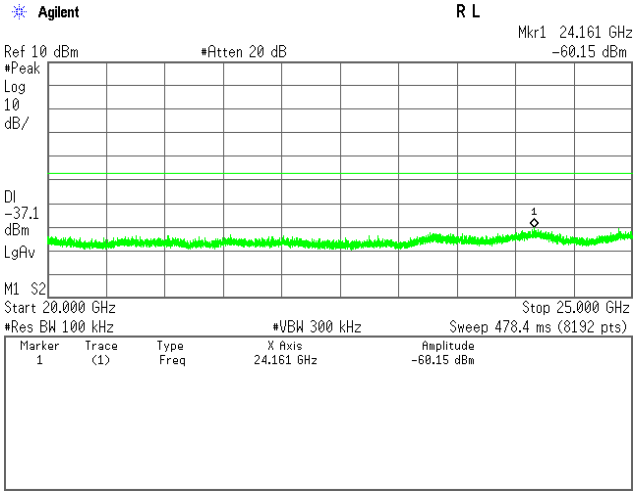










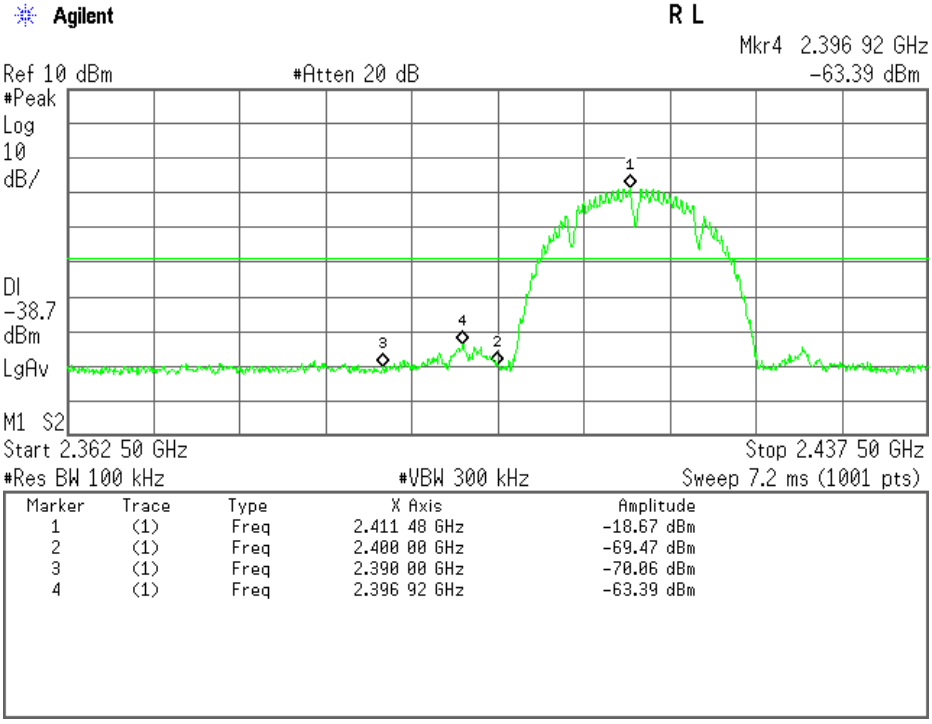


Band-Edge Emission

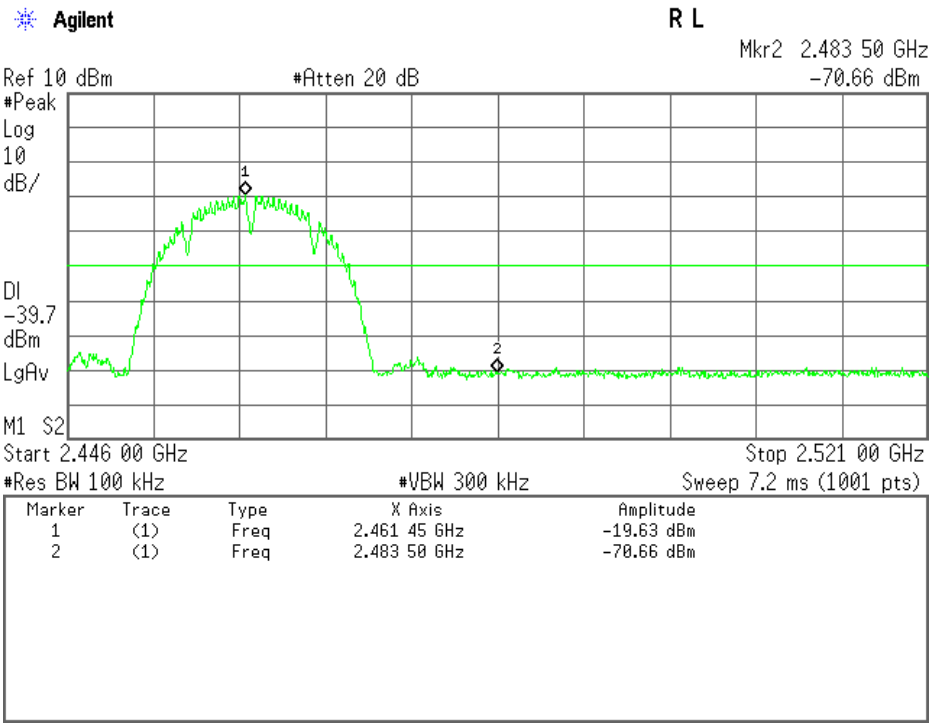
Test Date : August 18, 2015
Temp.:27°C, Humi:71%

1) IEEE 802.11b

Low Channel

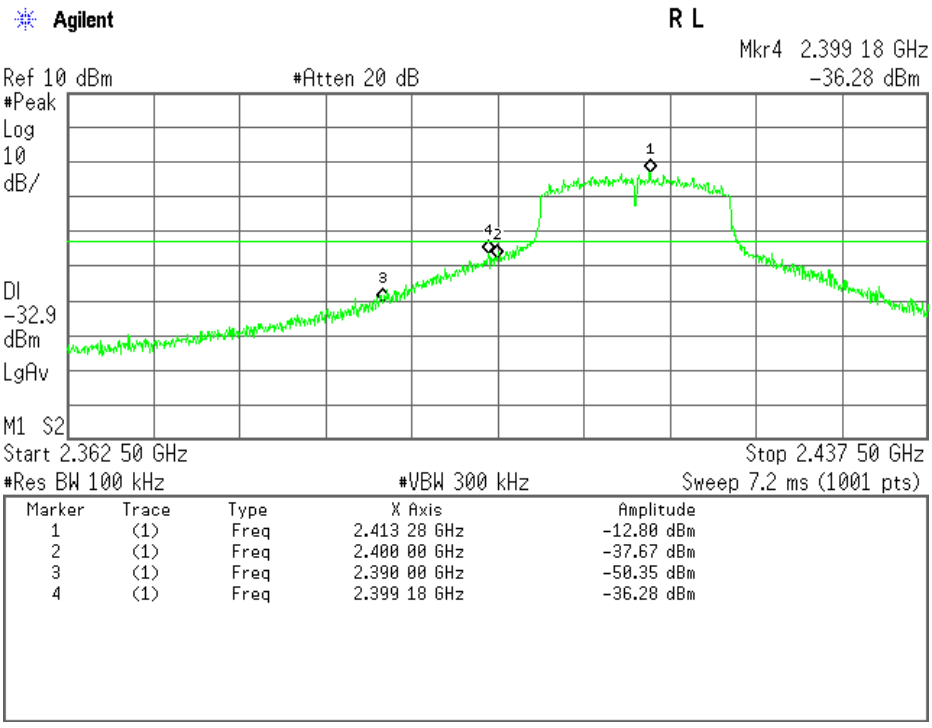


High Channel

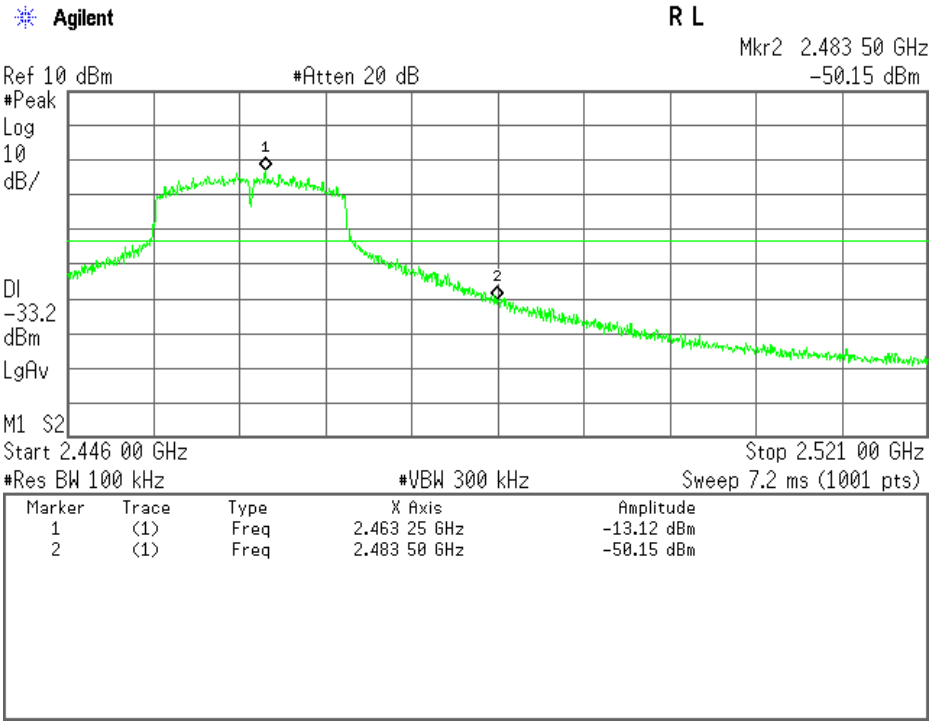


2) IEEE 802.11g

Low Channel

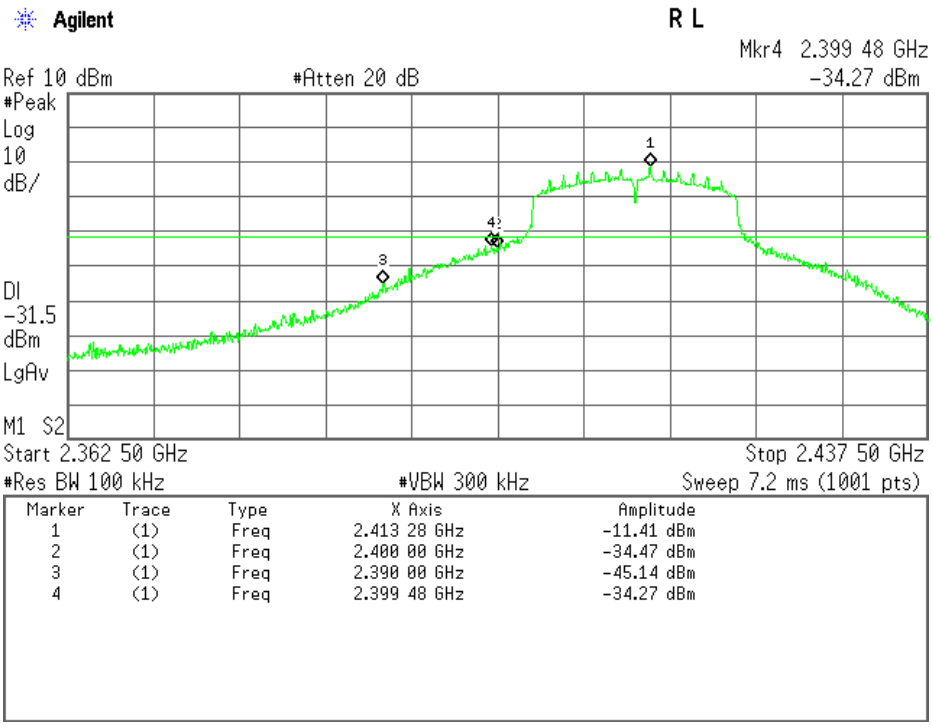


High Channel

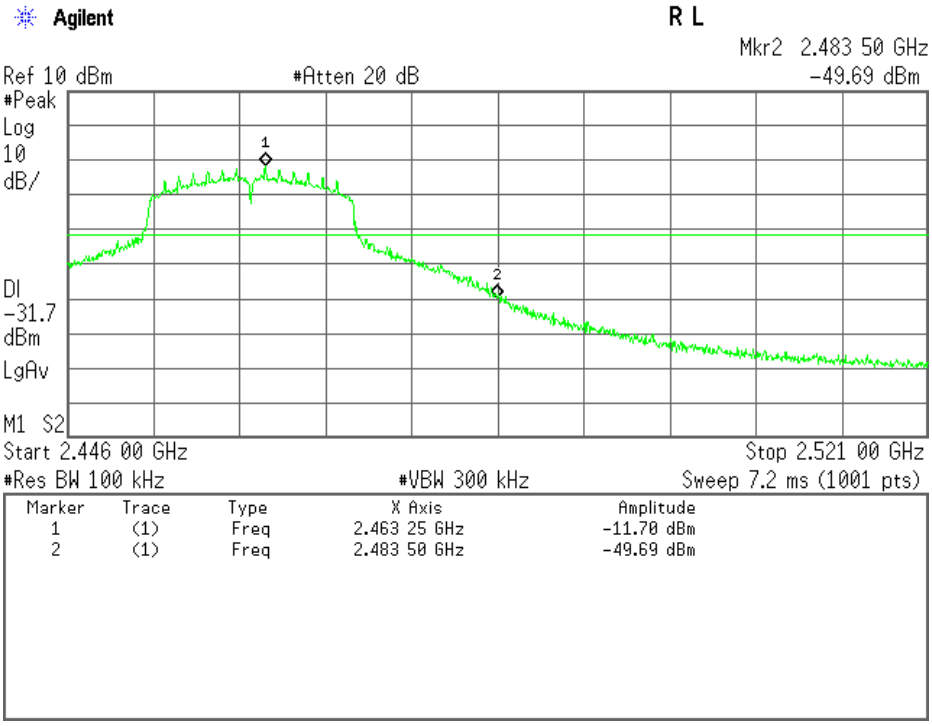


3) IEEE 802.11n HT20

Low Channel

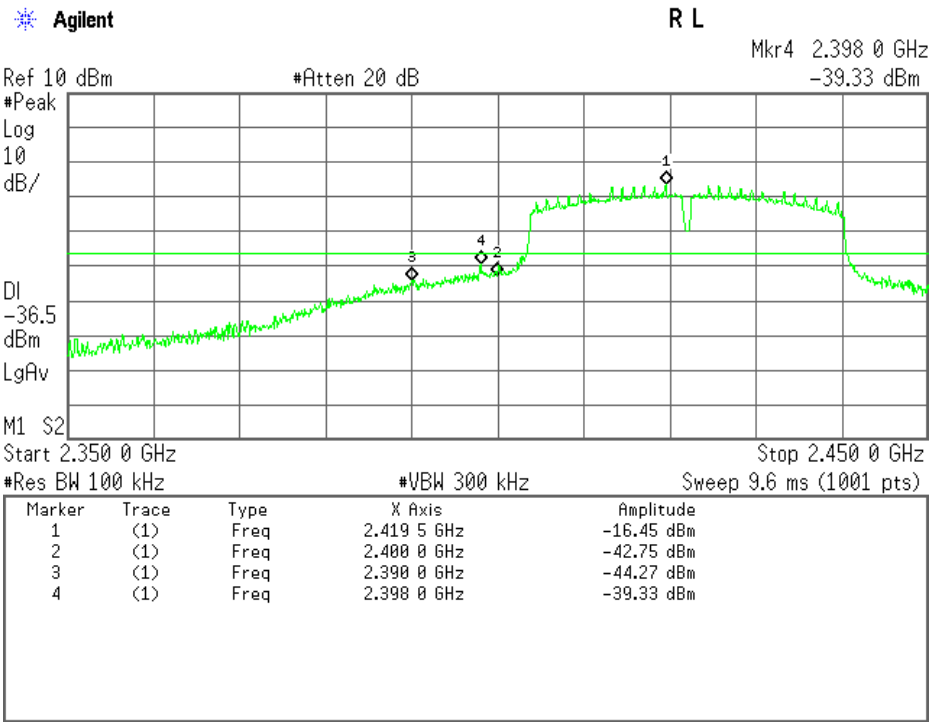


High Channel

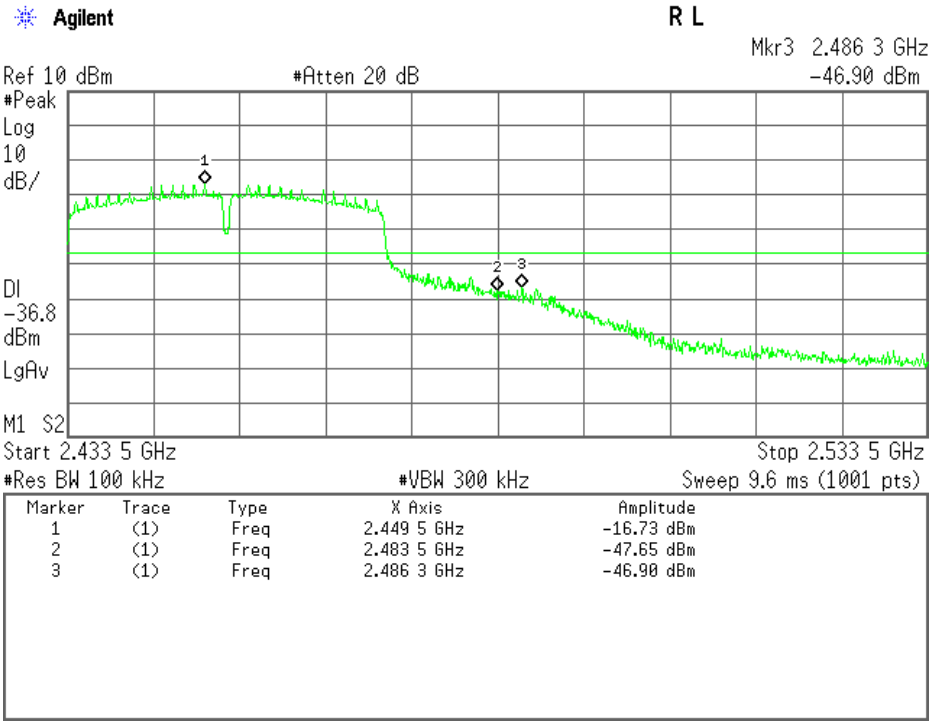


4) IEEE 802.11n HT40

Low Channel



High Channel



7.8 AC Powerline Conducted Emission

For the requirements, ☑ - Applicable [☑ - Tested. ☐ - Not tested by applicant request.]
☐ - Not Applicable

7.8.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

Min. Limit Margin (Average) 5.3 dB at 0.469 MHz

Uncertainty of Measurement Results ± 2.6 dB(2σ)

Remarks : Wireless LAN and USB Charging mode

7.8.2 Test Instruments

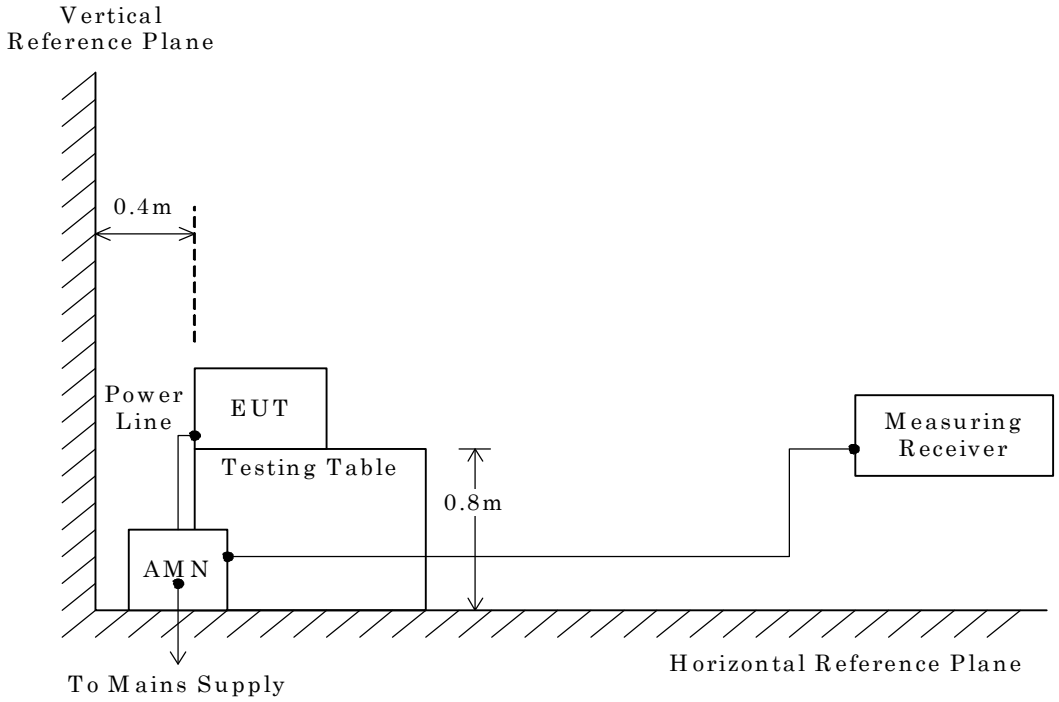
Shielded Room S2				
Type	**Model**	**Serial No. (ID)**	**Manufacturer**	**Cal. Due**
Test Receiver	ESU 26	100170 (A-6)	Rohde & Schwarz	2016/04/25
AMN (Main)	KNW-407R	8-1832-1 (D-39)	Kyoritsu	2015/09/16
RF Cable	RG223/U	--- (H-35)	HUBER+SUHNER	2016/06/04
AMN (Sub)	ESH3-Z5	893045/007 (D-12)	Rohde & Schwarz	2015/08/27
Terminator	65 BNC-50-0-1	--- (H-21)	HUBER+SUHNER	2015/10/13

NOTE : The calibration interval of the above test instruments is 12 months.

7.8.3 Test Method and Test Setup (Diagrammatic illustration)

The preliminary tests were performed using the scan mode of test receiver or spectrum analyzer to observe the emissions characteristics of the EUT.
The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configurations was used for final tests.

– Side View –



NOTE
AMN : Artificial Mains Network

7.8.4 Test Data

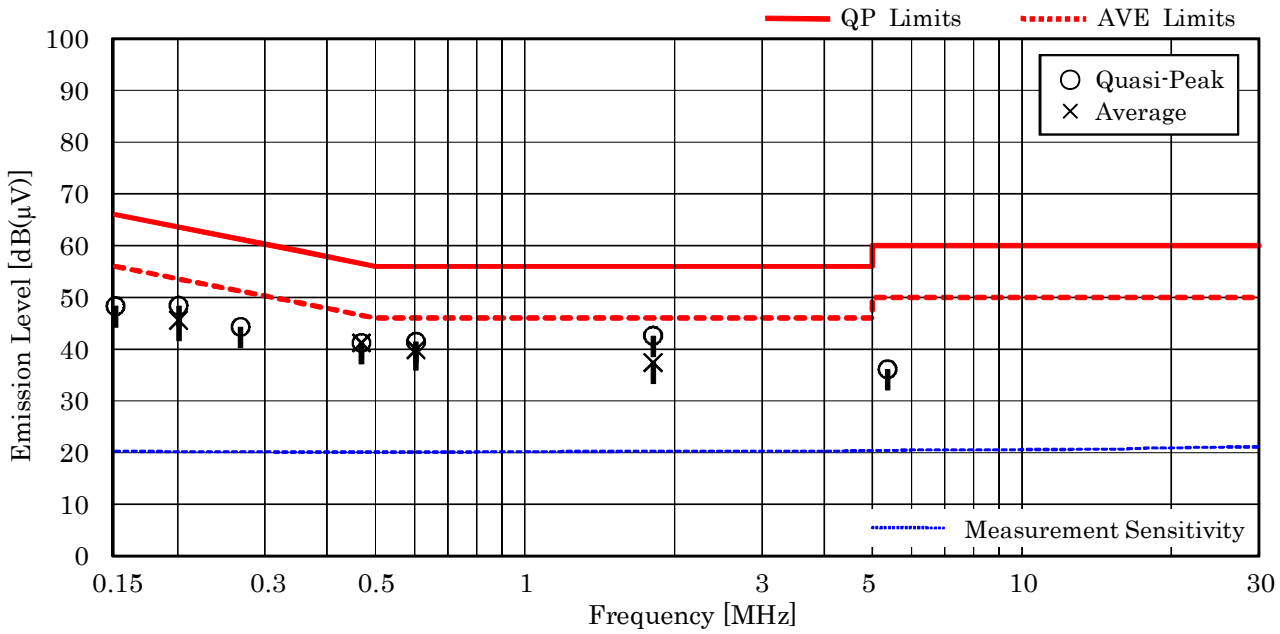
1) Mode of EUT : (WLAN) All modes have been investigated and the worst case mode for channel (06ch: 2437MHz / IEEE 802.11b, IEEE 802.11g and IEEE 802.11n) has been listed.

Test voltage : 120VAC 60Hz

Test Date: August 14, 2015
Temp.: 25 °C, Humi.: 64 %

Measured phase : L1

Frequency [MHz]	Corr. Factor [dB]	Meter Readings [dB(μV)] QP	AVE	Limits [dB(μV)] QP	AVE	Results [dB(μV)] QP	AVE	Margin [dB] QP	AVE	Remarks
0.150	10.3	38.0	--	66.0	56.0	48.3	--	+17.7	--	-
0.201	10.2	38.2	35.4	63.6	53.6	48.4	45.6	+15.2	+ 8.0	-
0.268	10.2	34.1	--	61.2	51.2	44.3	--	+16.9	--	-
0.469	10.1	31.1	31.1	56.5	46.5	41.2	41.2	+15.3	+ 5.3	-
0.604	10.1	31.3	29.8	56.0	46.0	41.4	39.9	+14.6	+ 6.1	-
1.811	10.3	32.3	27.1	56.0	46.0	42.6	37.4	+13.4	+ 8.6	-
5.366	10.4	25.7	--	60.0	50.0	36.1	--	+23.9	--	-



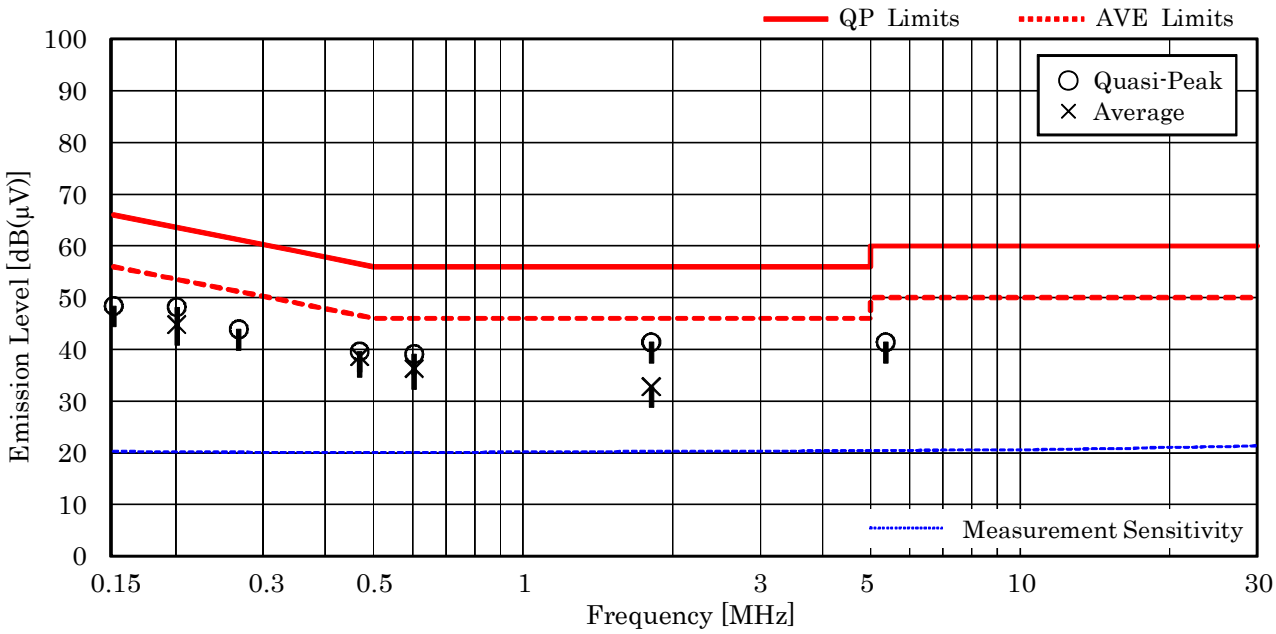
NOTES
1. The spectrum was checked from 0.15 MHz to 30 MHz.
2. The correction factor includes the AMN insertion loss and the cable loss.
3. The symbol of "<" means "or less".
4. The symbol of ">" means "more than".
5. The symbol of "--" means "not applicable".
6. Calculated result at 0.469 MHz, as the worst point shown on underline:
   Correction Factor + Meter Reading (AVE) = 10.1 + 31.1 = 41.2 dB(μV)
7. QP : Quasi-Peak Detector / AVE : Average Detector
8. Test receiver setting(s) : CISPR QP 9 kHz / Average 9 kHz

Test voltage : 120VAC 60Hz

Test Date: August 14, 2015
Temp.: 25 °C, Humi.: 64 %

Measured phase : L2

Frequency [MHz]	Corr. Factor [dB]	Meter Readings [dB(μV)] QP	AVE	Limits [dB(μV)] QP	AVE	Results [dB(μV)] QP	AVE	Margin [dB] QP	AVE	Remarks
0.150	10.3	38.1	--	66.0	56.0	48.4	--	+17.6	--	-
0.201	10.2	38.0	34.6	63.6	53.6	48.2	44.8	+15.4	+ 8.8	-
0.268	10.2	33.7	--	61.2	51.2	43.9	--	+17.3	--	-
0.469	10.1	29.5	28.5	56.5	46.5	39.6	38.6	+16.9	+ 7.9	-
0.604	10.1	29.0	26.2	56.0	46.0	39.1	36.3	+16.9	+ 9.7	-
1.811	10.3	31.1	22.5	56.0	46.0	41.4	32.8	+14.6	+13.2	-
5.365	10.4	31.0	--	60.0	50.0	41.4	--	+18.6	--	-



NOTES
1. The spectrum was checked from 0.15 MHz to 30 MHz.
2. The correction factor includes the AMN insertion loss and the cable loss.
3. The symbol of "<" means "or less".
4. The symbol of ">" means "more than".
5. The symbol of "--" means "not applicable".
6. Calculated result at 0.469 MHz, as the worst point shown on underline:
   Correction Factor + Meter Reading (AVE) = 10.1 + 28.5 = 38.6 dB(μV)
7. QP : Quasi-Peak Detector / AVE : Average Detector
8. Test receiver setting(s) : CISPR QP 9 kHz / Average 9 kHz

7.9 Radiated Emission

For the requirements, ☑ - Applicable [☑ - Tested. ☐ - Not tested by applicant request.]
☐ - Not Applicable

7.9.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

Min. Limit Margin (Average) 0.54 dB at 2483.5 MHz

Uncertainty of Measurement Results		
9 kHz – 30 MHz	± 3.0	dB(2σ)
30 MHz – 300 MHz	± 3.8	dB(2σ)
300 MHz – 1000 MHz	± 4.8	dB(2σ)
1 GHz – 6 GHz	± 4.7	dB(2σ)
6 GHz – 18 GHz	± 4.6	dB(2σ)
18 GHz – 40 GHz	± 5.5	dB(2σ)

Remarks : IEEE802.11n HT20 mode, X axis position. The measurement result is within the range of measurement uncertainty.

7.9.2 Test Instruments

Anechoic Chamber A2				
Type	**Model**	**Serial No. (ID)**	**Manufacturer**	**Cal. Due**
Test Receiver	ESU 26	100170 (A-6)	Rohde & Schwarz	2016/04/25
AMN	HFH2-Z2	872096/25 (C-2)	Rohde & Schwarz	2016/07/26
RF Cable	RG213/U	--- (H-28)	HUBER+SUHNER	2016/07/26
Biconical Antenna	VHA9103/BBA9106	2355 (C-30)	Schwarzbeck	2016/05/24
Log-periodic Antenna	UHALP9108-A1	0694 (C-31)	Schwarzbeck	2016/05/24
RF Cable	S 10162 B-11 etc.	--- (H-4)	HUBER+SUHNER	2016/04/15
Site Attenuation	--	--- (H-15)	----	N/A
Pre-Amplifier	TPA0118-36	1010 (A-37)	TOYO	2016/05/11
Pre-Amplifier	RP1826G-45H	RP140121-11 (A-53)	EMCS	2016/06/28
Horn Antenna	91888-2	562 (C-41-1)	EATON	2016/06/16
Horn Antenna	91889-2	568 (C-41-2)	EATON	2016/06/16
Horn Antenna	3160-04	9903-1053 (C-55)	EMCO	2016/06/29
Horn Antenna	3160-05	9902-1061 (C-56)	EMCO	2016/06/29
Horn Antenna	3160-06	9712-1045 (C-57)	EMCO	2016/06/29
Horn Antenna	3160-07	9902-1113 (C-58)	EMCO	2016/06/29
Horn Antenna	3160-08	9904-1099 (C-59)	EMCO	2016/06/29
Horn Antenna	3160-09	9808-1117 (C-48)	EMCO	2016/06/28
Attenuator	54A-10	W5713 (D-29)	Weinschel	2015/09/24
Attenuator	2-10	BA6214 (D-79)	Weinschel	2015/11/18
Band Rejection Filter	BRM50701	029 (D-93)	MICRO-TRONICS	2016/02/08
RF Cable	SUCOFLEX104	267479/4 (C-66)	HUBER+SUHNER	2016/01/19
RF Cable	SUCOFLEX104	267414/4 (C-67)	HUBER+SUHNER	2016/01/19
RF Cable	SUCOFLEX102EA	3041/2EA (C-69)	HUBER+SUHNER	2016/01/19
SVSWR	--	--- (H-19)	----	N/A
Pre-Amplifier	310N	304573 (A-17)	SONOMA	2016/04/15

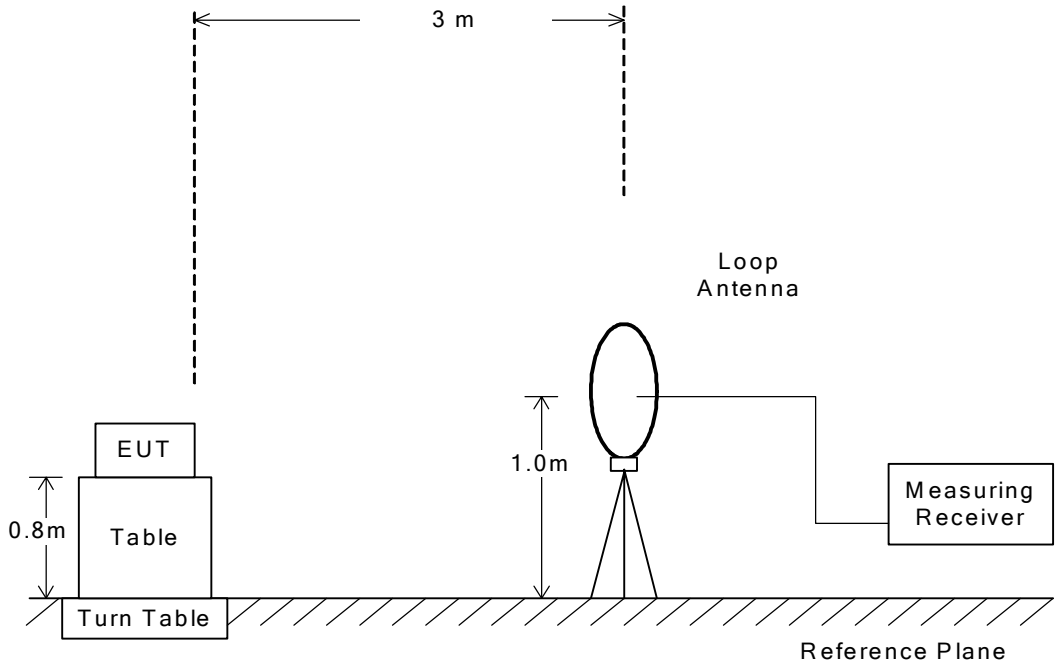
NOTE : The calibration interval of the above test instruments is 12 months.

7.9.3 Test Method and Test Setup (Diagrammatic illustration)

7.9.3.1 Radiated Emission 9 kHz – 30 MHz

The preliminary tests were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.
The EUT configuration(in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configurations was used for the final tests.

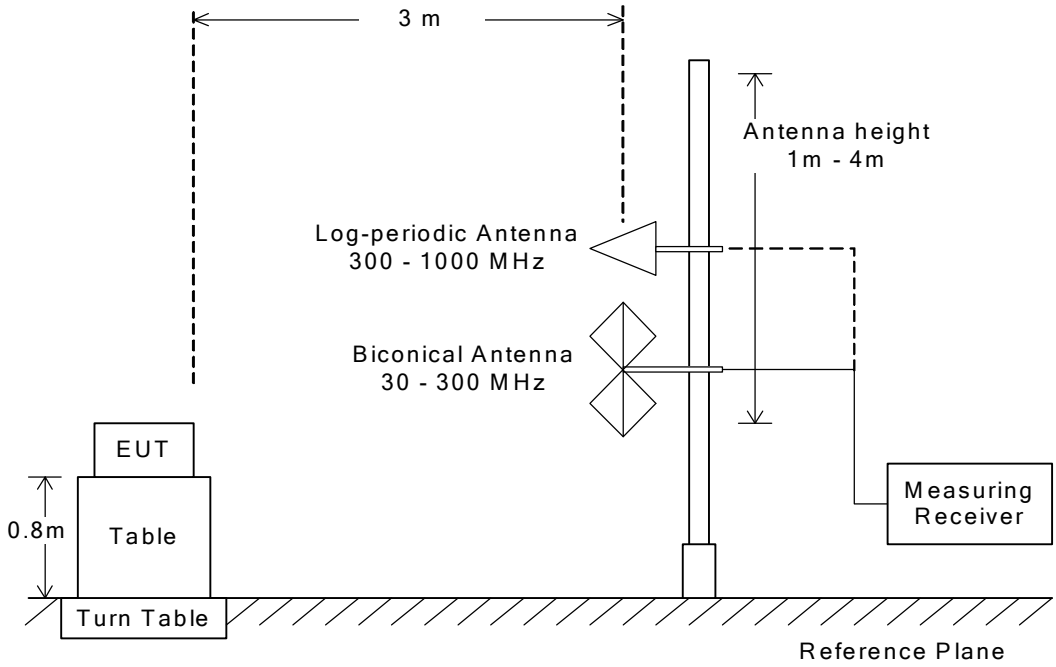
– Side View –



7.9.3.2 Radiated Emission 30 MHz – 1000 MHz

The preliminary tests were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.
The EUT configuration(in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configurations was used for the final tests.

– Side View –



7.9.3.3 Radiated Emission above 1 GHz

The preliminary tests were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.
The EUT configuration(in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configurations was used for the final tests.

The setting of the measuring instruments are shown as follows:

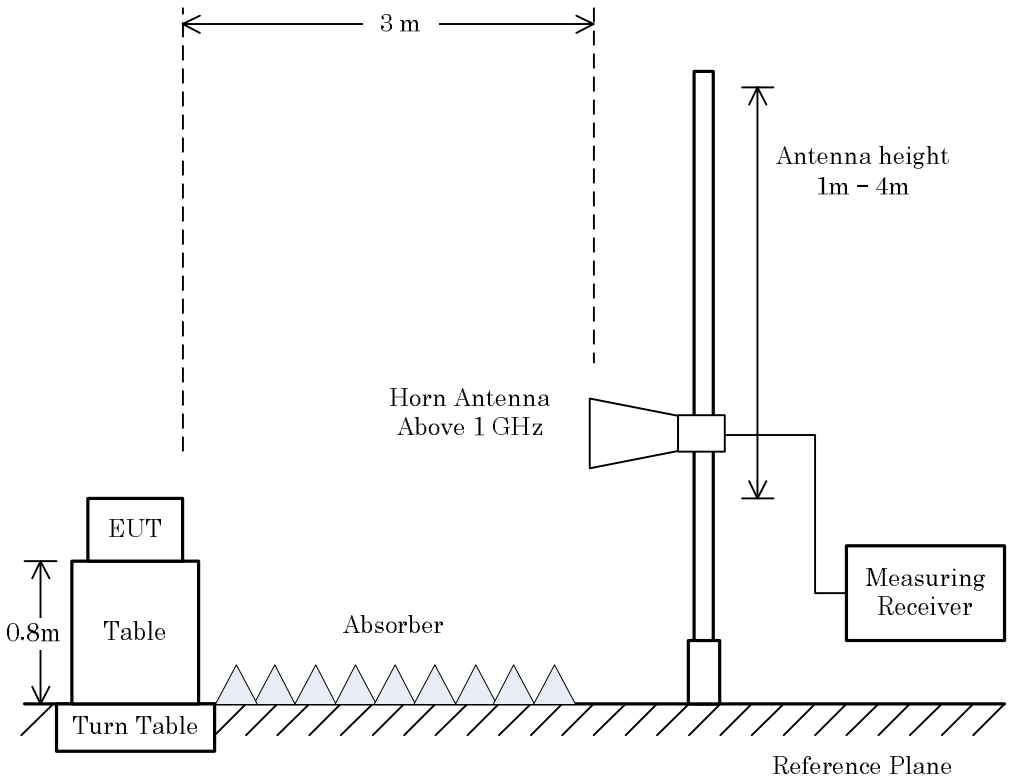
Type	Peak	Average
Detector Function	Peak	Peak
Res. Bandwidth	1 MHz	1 MHz
Video Bandwidth	3 MHz	≥ 1/T *1)
Video Filtering	Linear Voltage	Linear Voltage
Sweep Time	AUTO	AUTO
Trace	Max Hold	Max Hold

Note: 1. T: Minimum transmission duration

Average (VBW) Setting:

Mode	Interval (msec)	Cycle (msec)	Duty cycle (%)	Burst on period(T) (msec)	Min. VBW(1/T) (kHz)	VBW Setting (kHz))
IEEE802.11b(11Mbps)	0.40	2.06	80.8%	1.67	0.60	1.00
IEEE802.11g(18Mbps)	0.40	1.32	69.6%	0.92	1.09	2.00
IEEE802.11n HT20(MCS0)	0.32	2.60	87.7%	2.28	0.44	0.50
IEEE802.11n HT40(MCS5)	0.31	0.49	35.8%	0.17	5.75	10.00

– Side View –



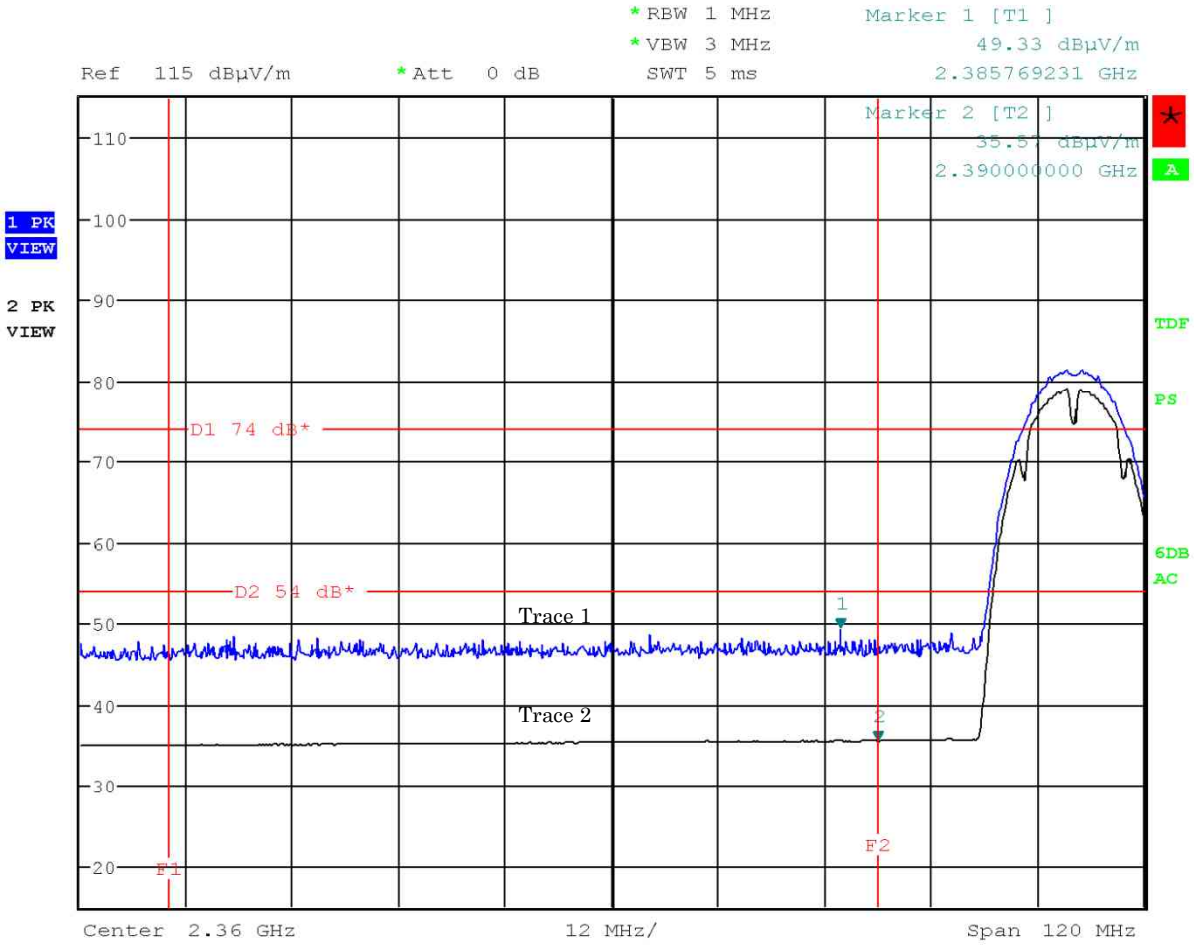
NOTE
The antenna height is scanned depending on the EUT's size and mounting height.

7.9.4 Test Data

7.9.4.1 Band-edge Compliance

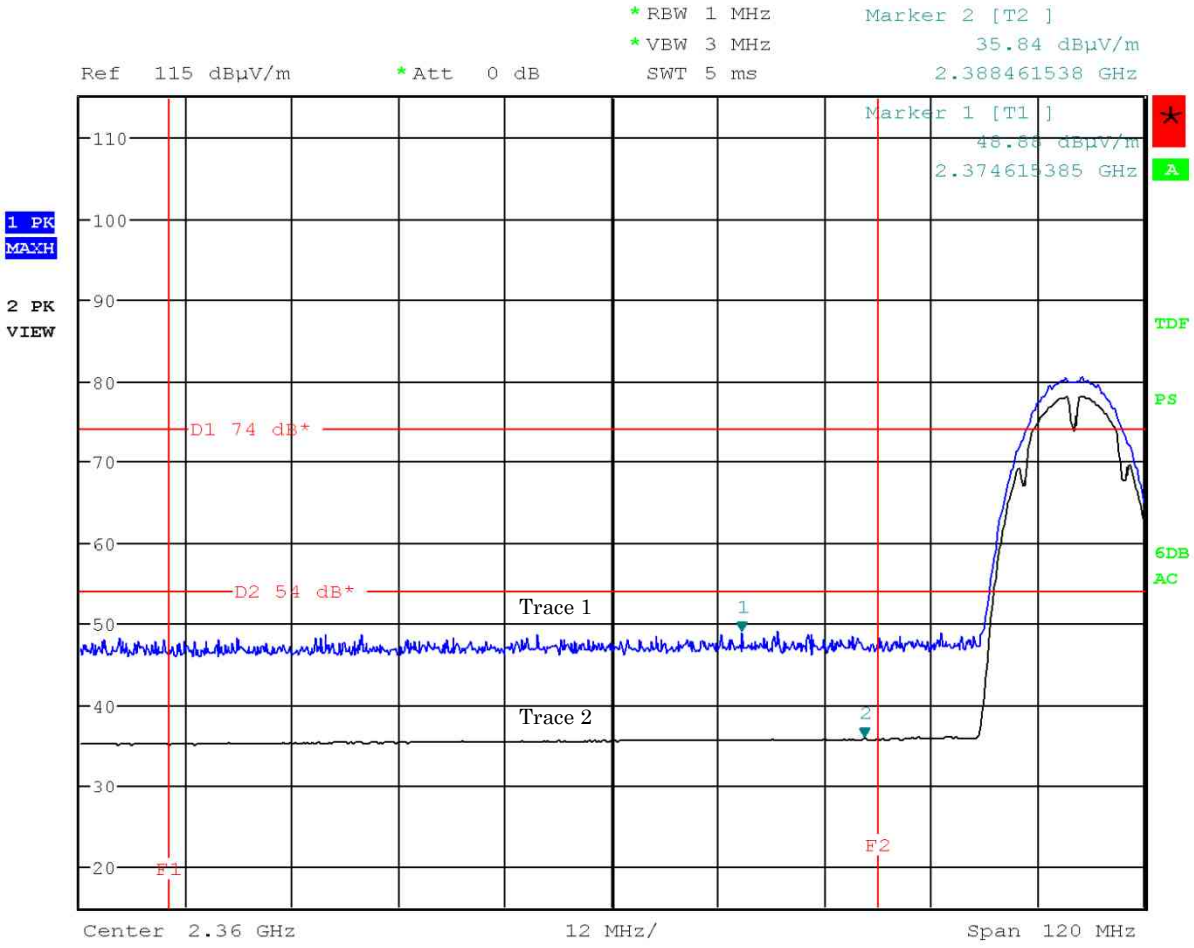
Test Date : August 7, 2015
Temp.:27°C, Humi:70%

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11b)
Antenna Polarization : Horizontal



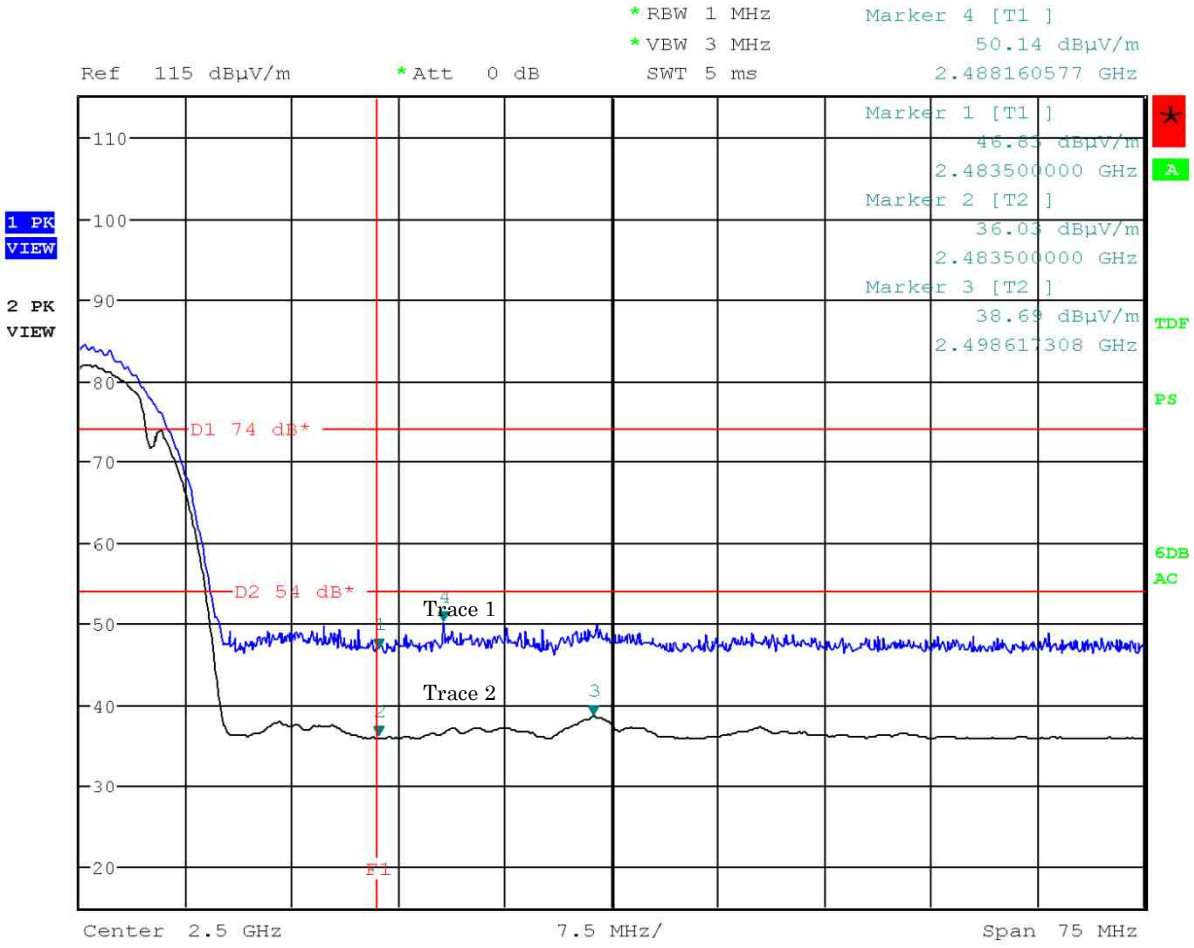
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11b)
Antenna Polarization : Vertical



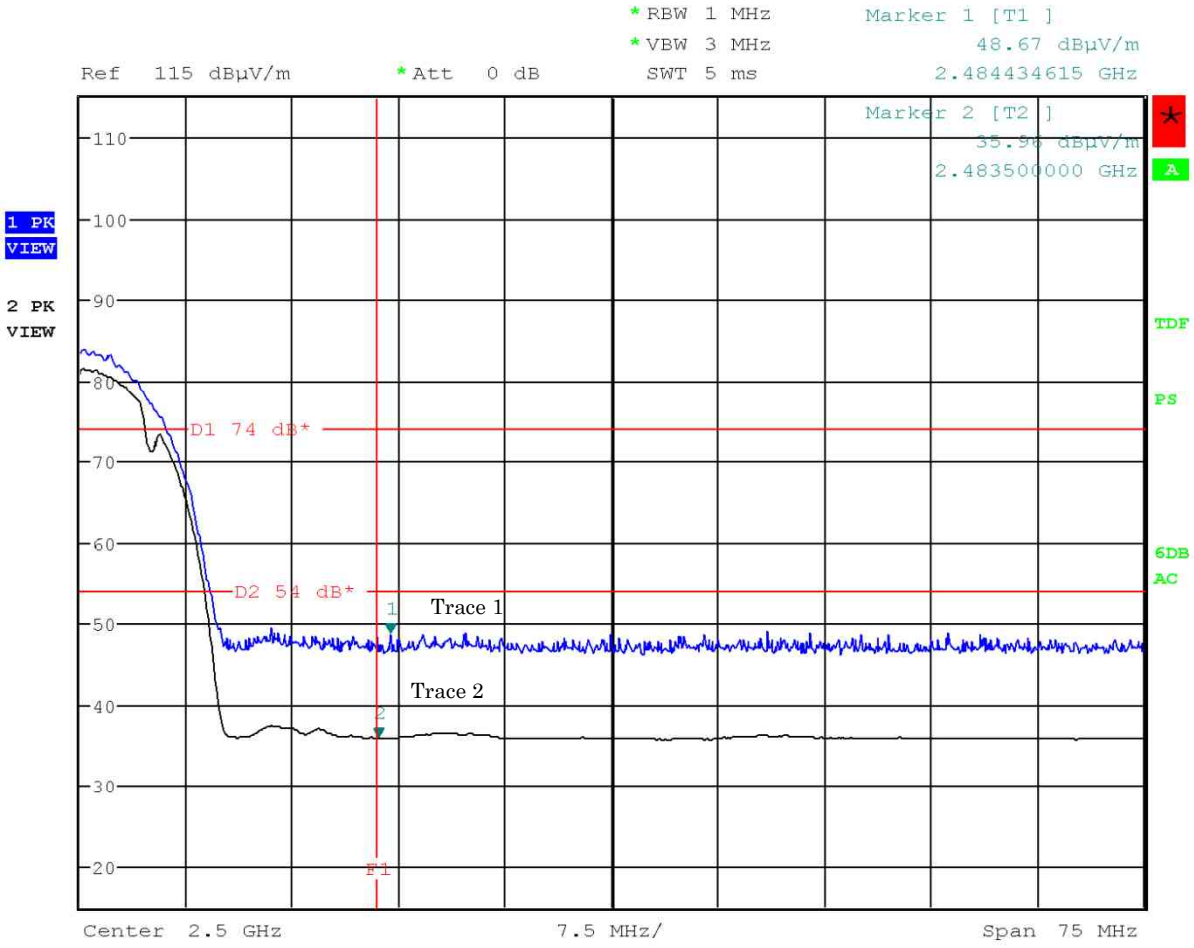
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11b)
Antenna Polarization : Horizontal



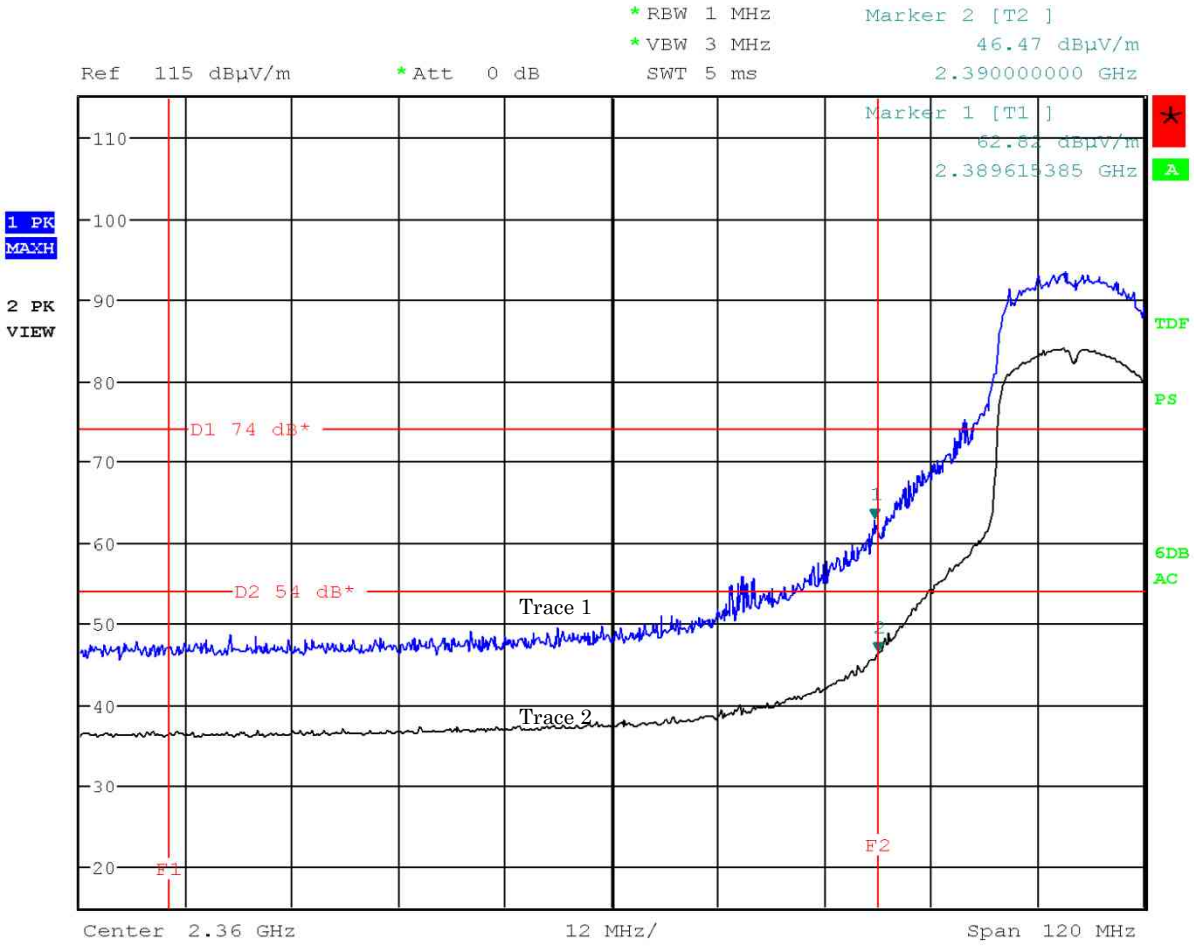
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11b)
Antenna Polarization : Vertical



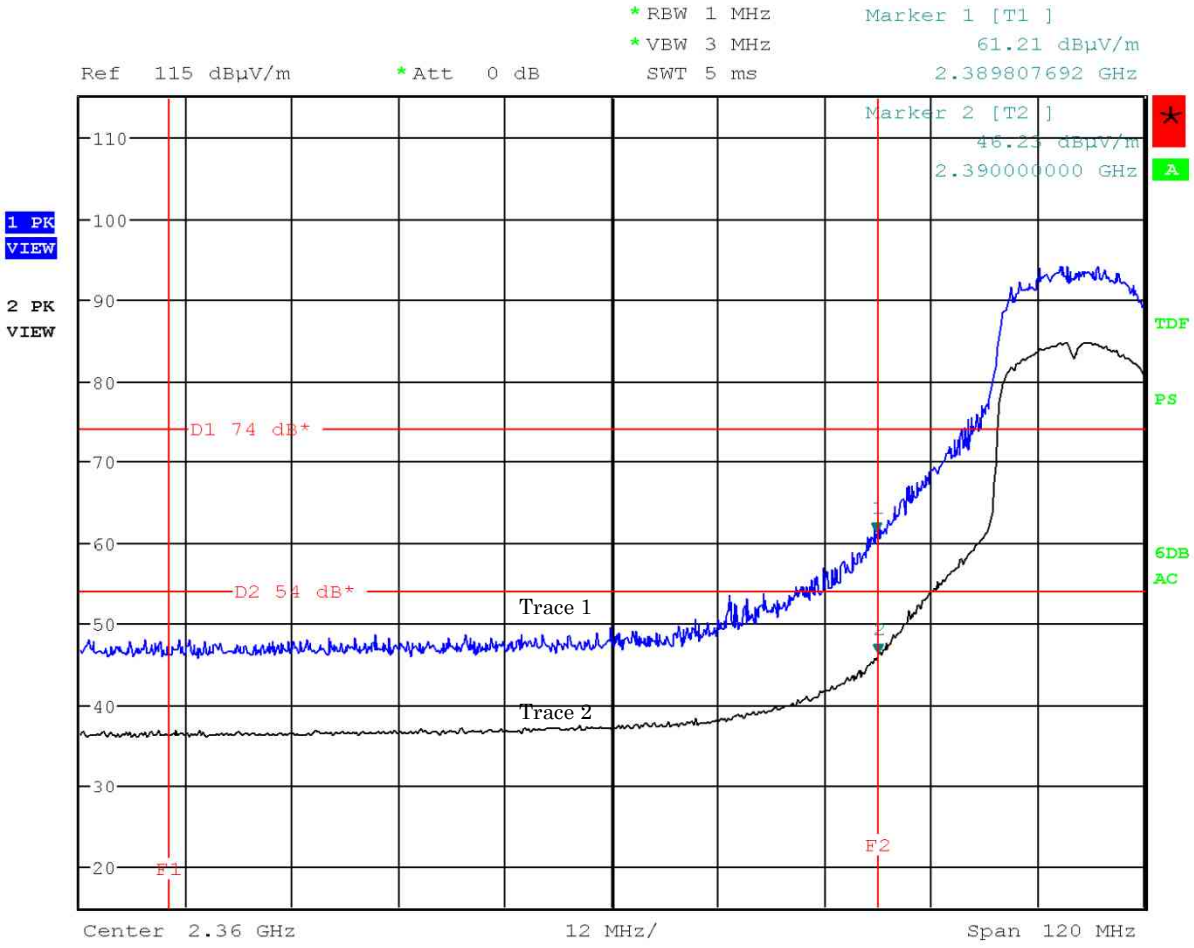
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11g)
Antenna Polarization : Horizontal



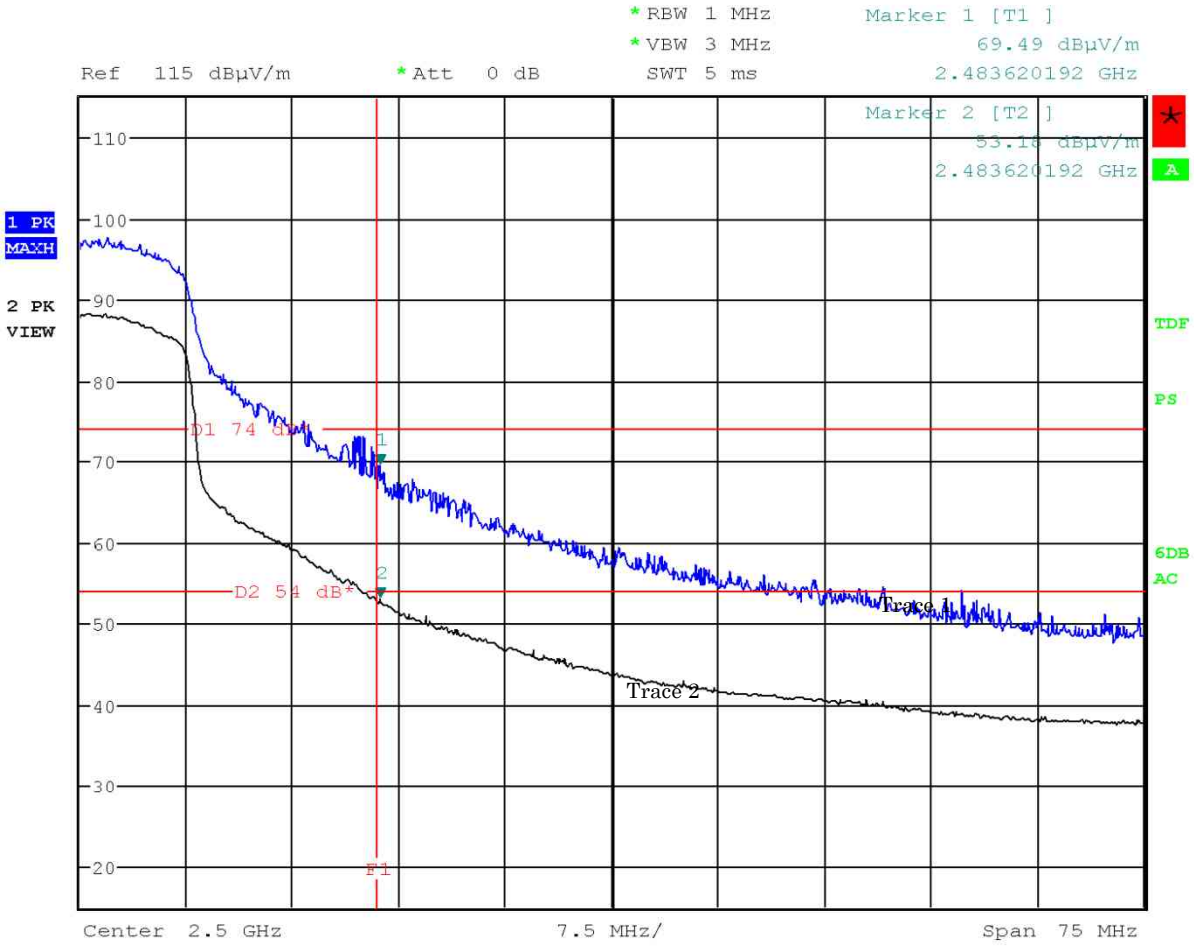
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11g)
Antenna Polarization : Vertical



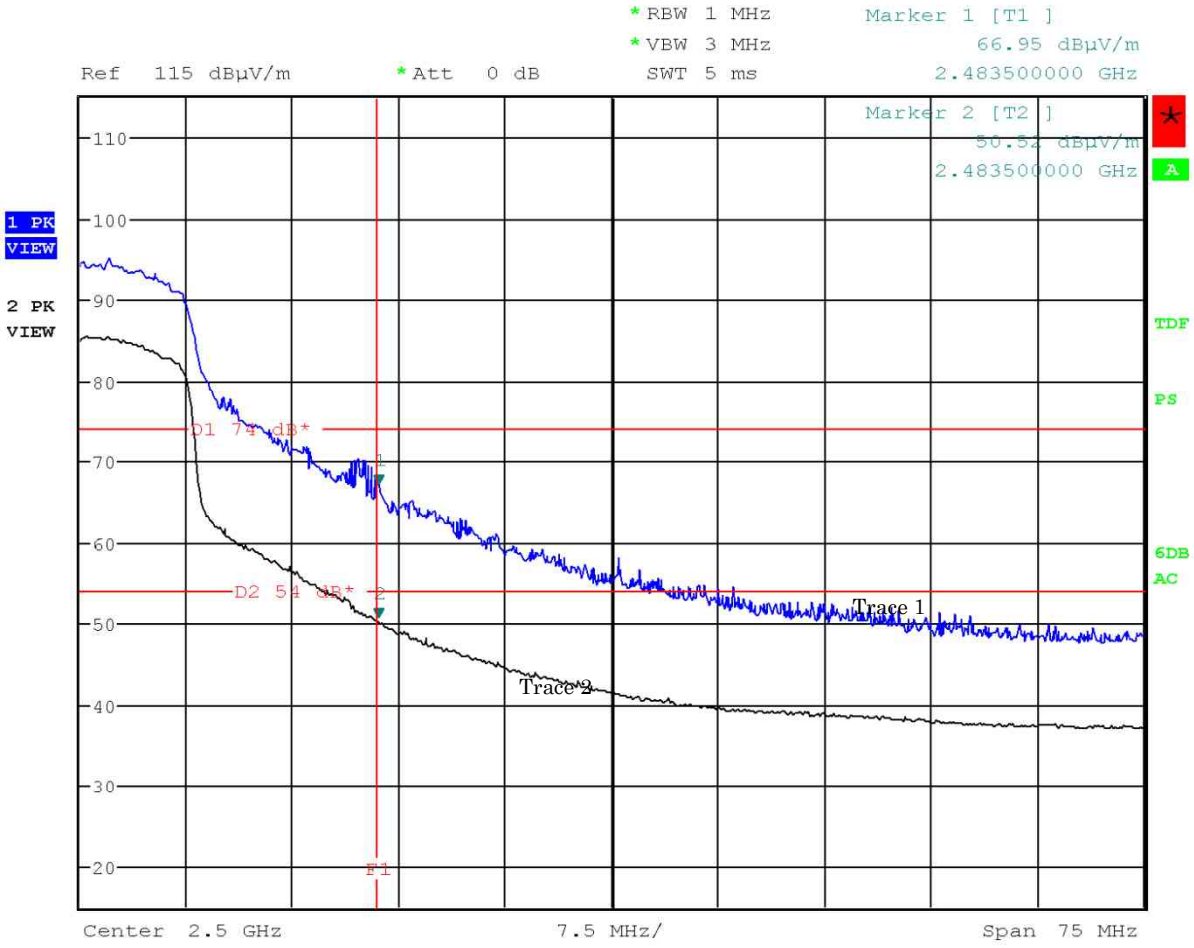
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11g)
Antenna Polarization : Horizontal



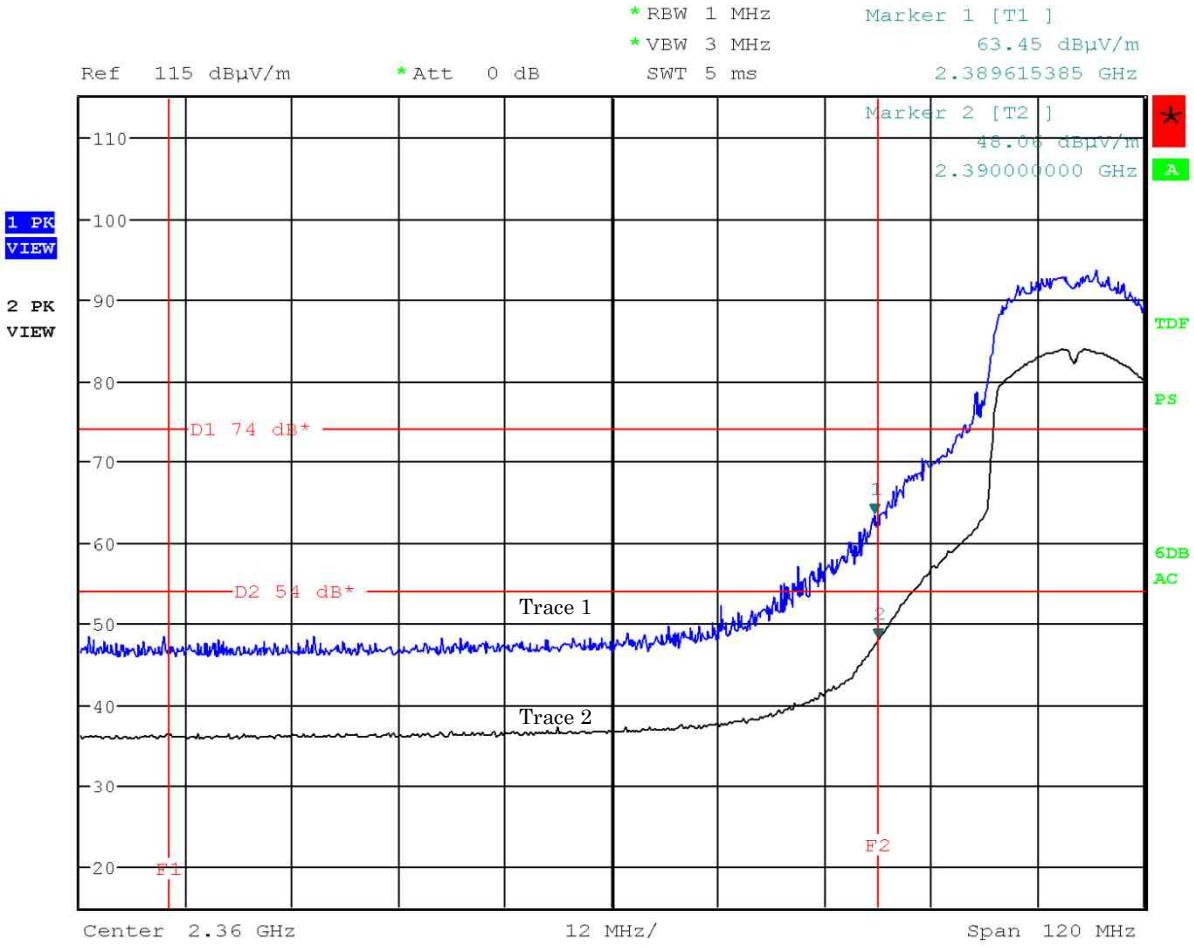
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11g)
Antenna Polarization : Vertical



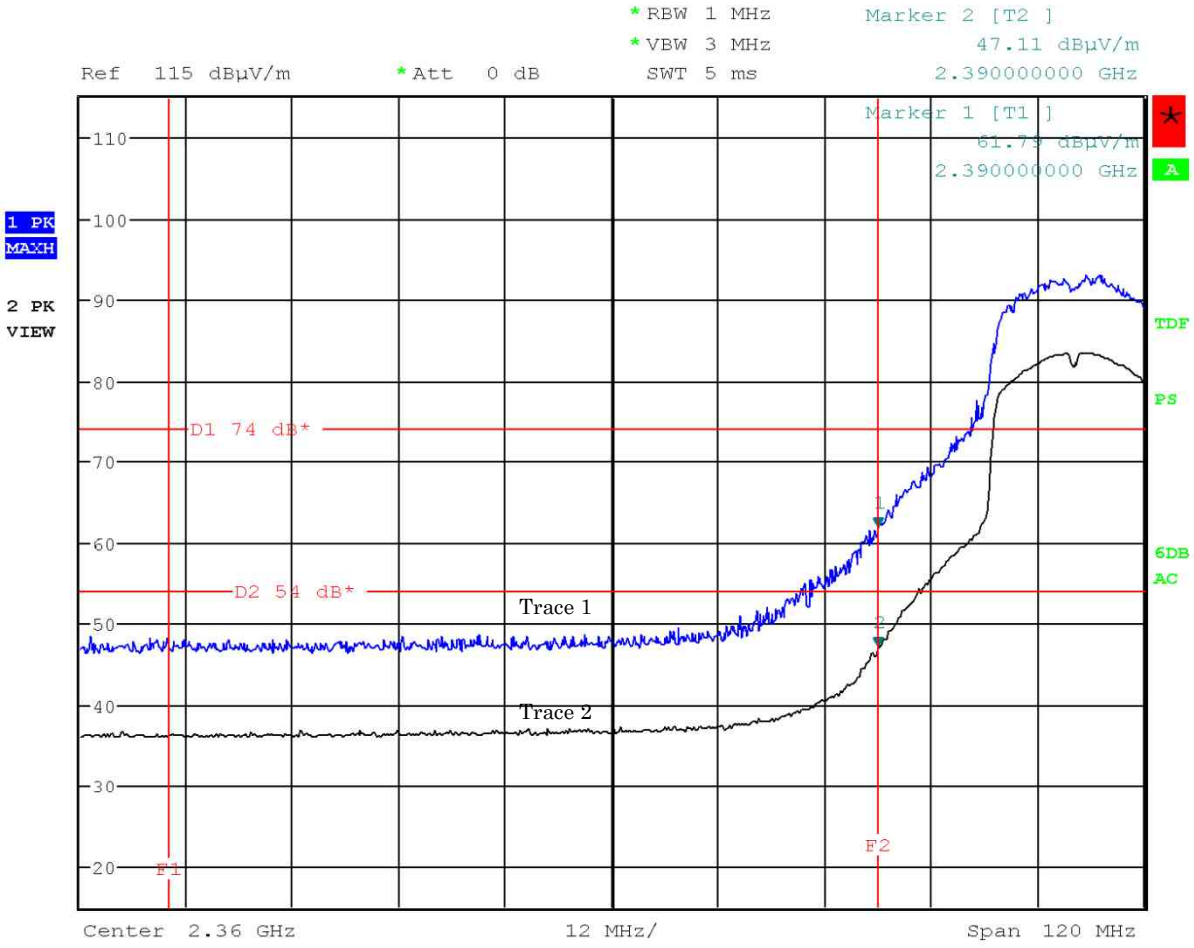
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11n HT20)
Antenna Polarization : Horizontal



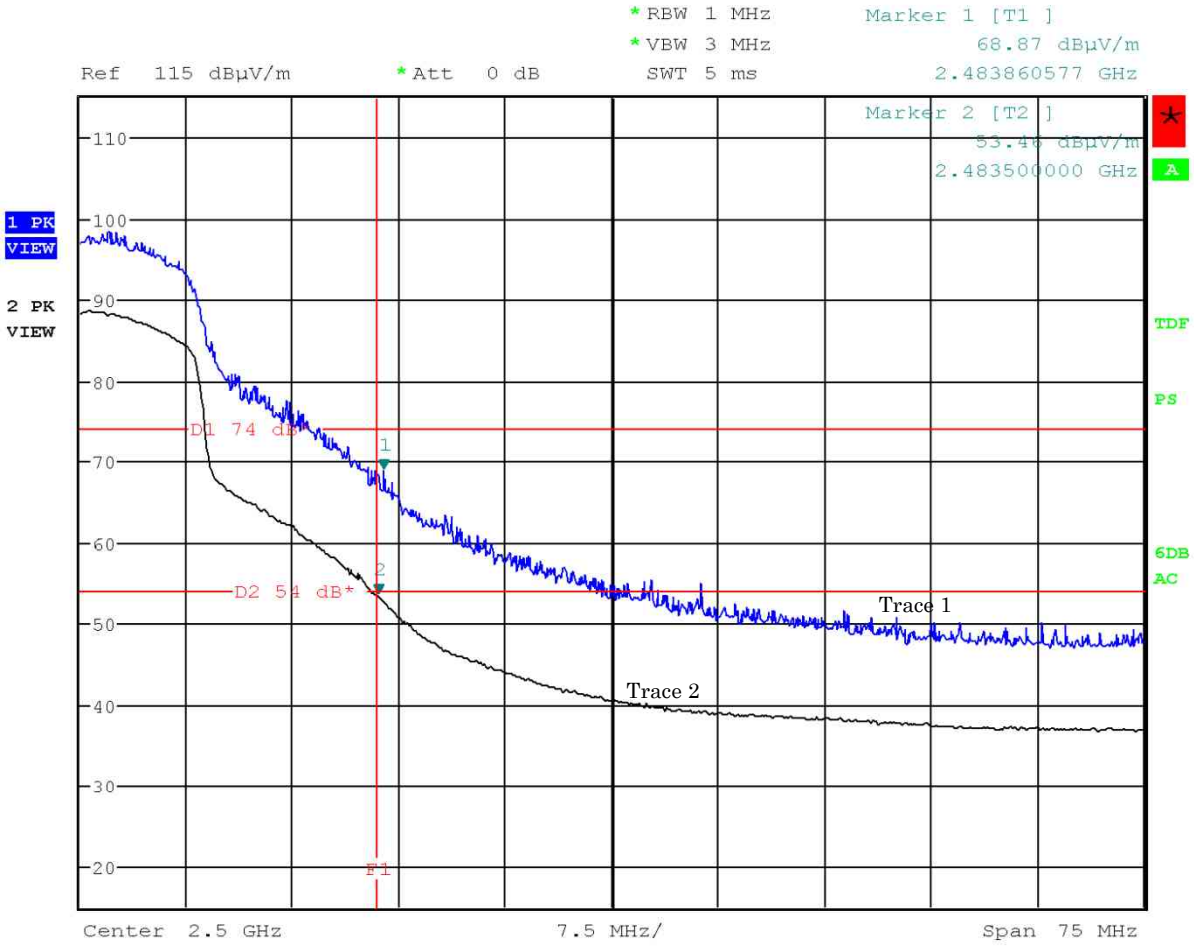
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2412 MHz, (IEEE 802.11n HT20)
Antenna Polarization : Vertical



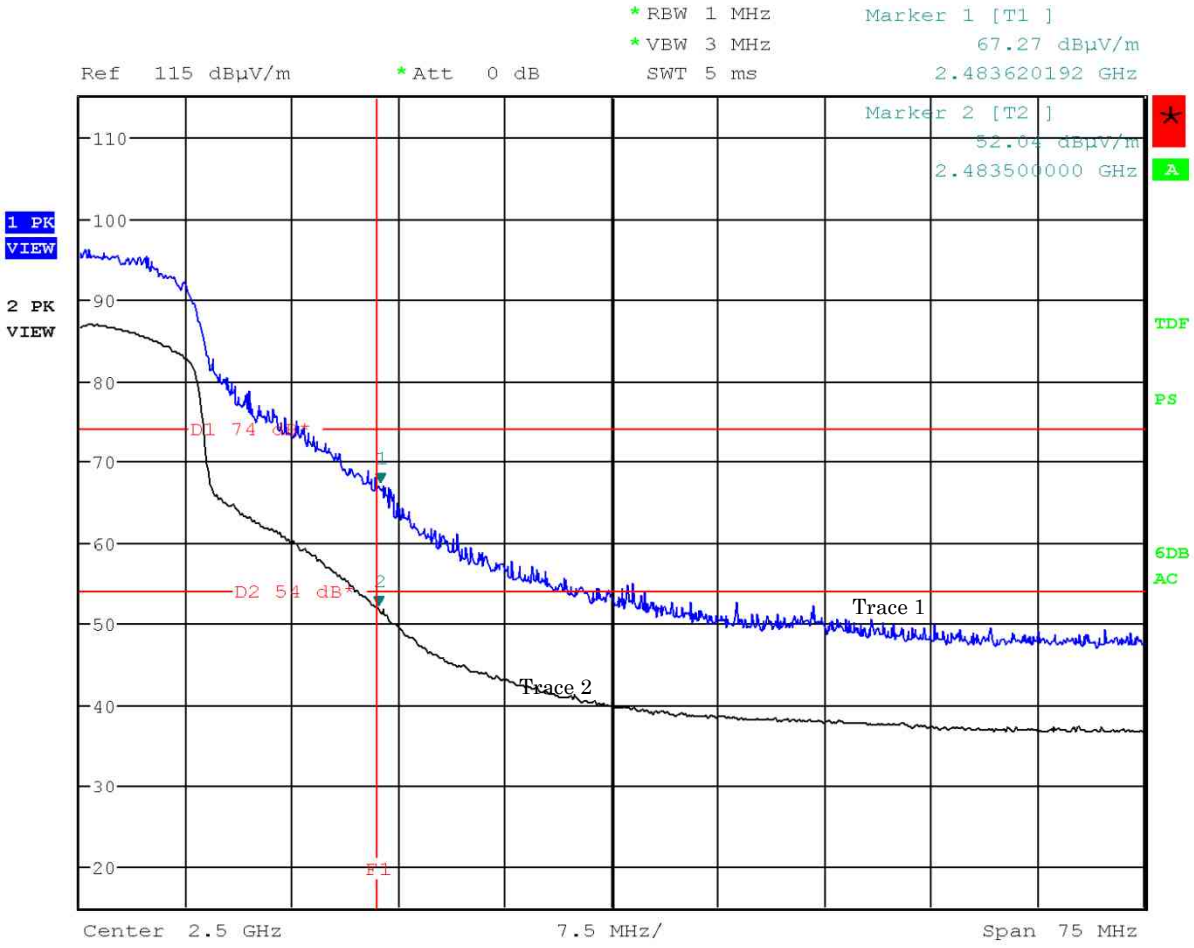
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11n HT20)
Antenna Polarization : Horizontal



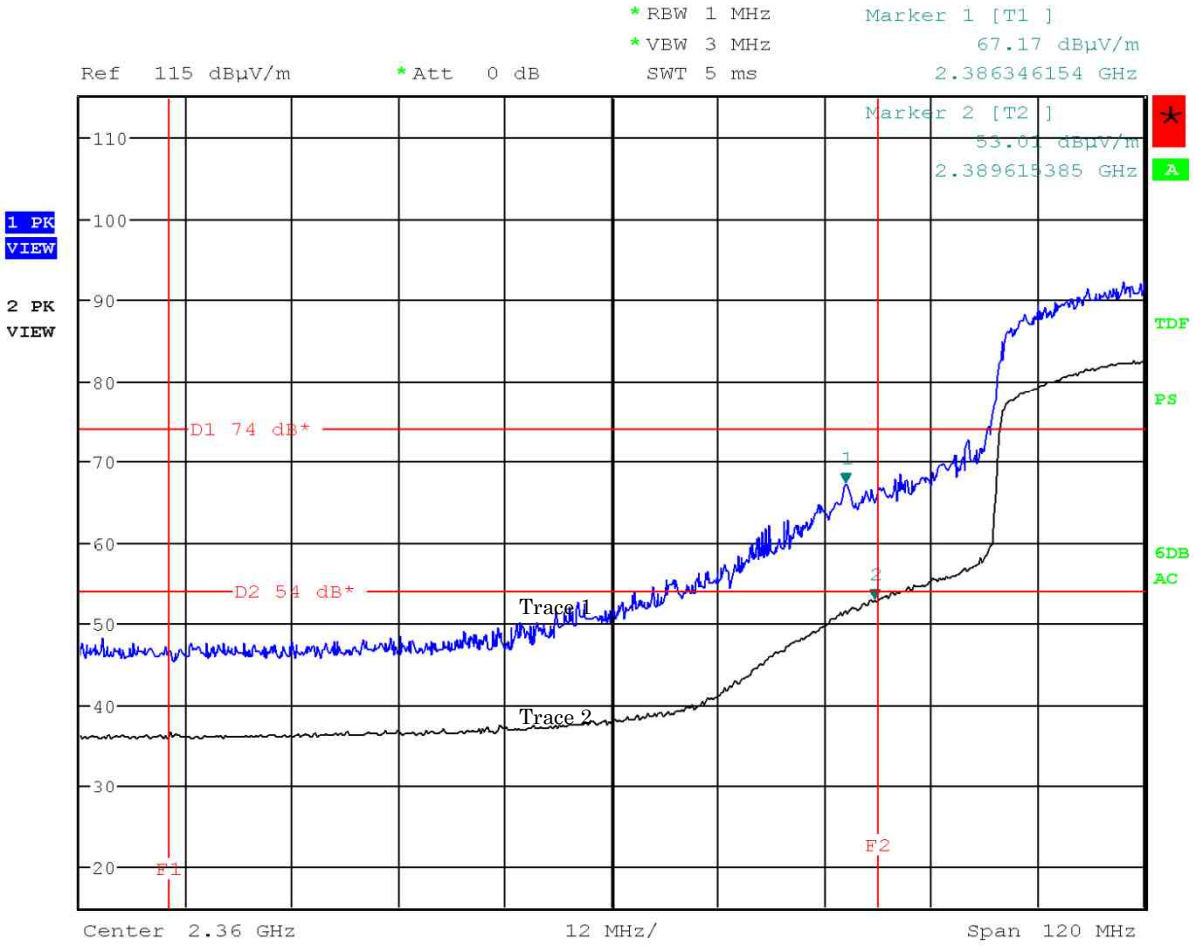
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 11ch: 2462 MHz, (IEEE 802.11n HT20)
Antenna Polarization : Vertical



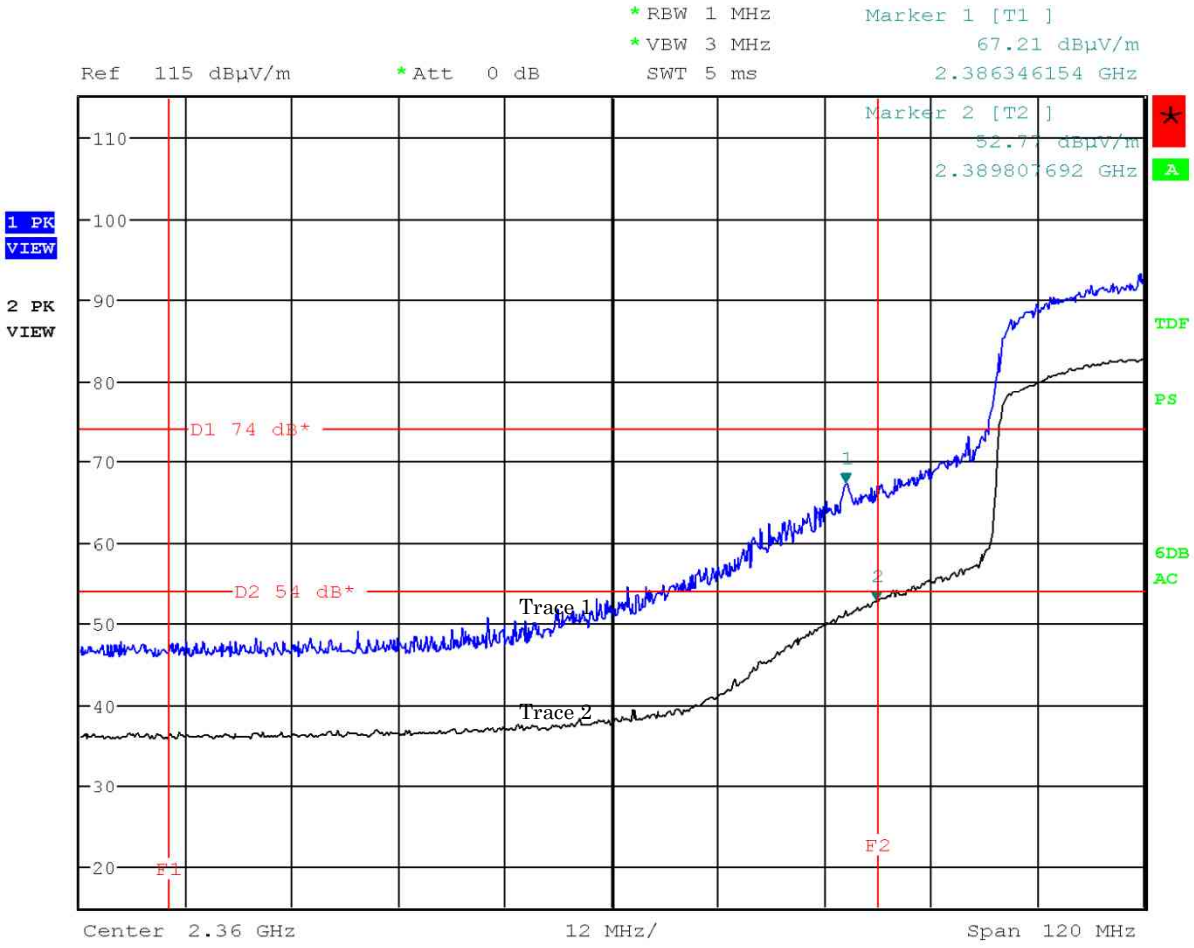
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 1ch: 2422 MHz, (IEEE 802.11n HT40)
Antenna Polarization : Horizontal



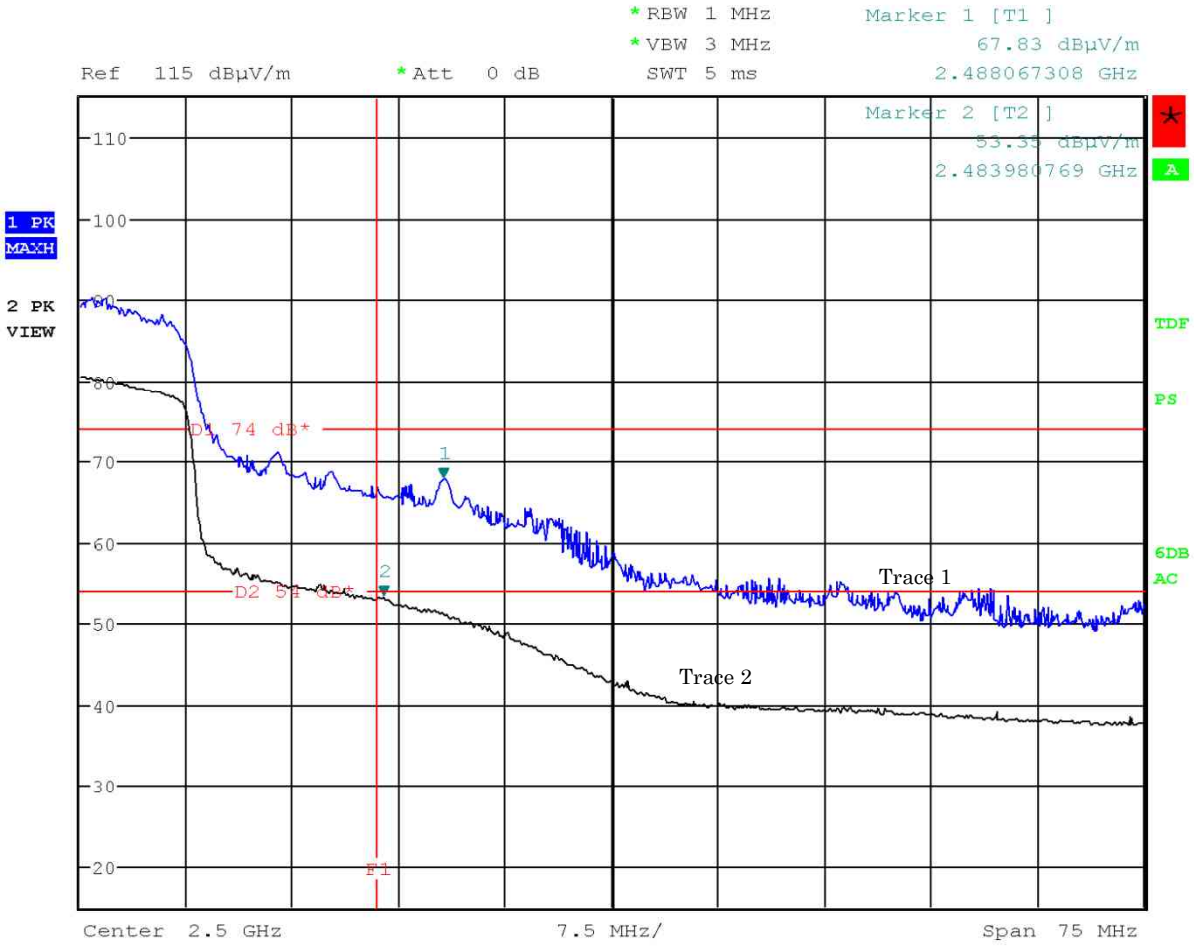
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 3ch: 2422 MHz, (IEEE 802.11n HT40)
Antenna Polarization : Vertical



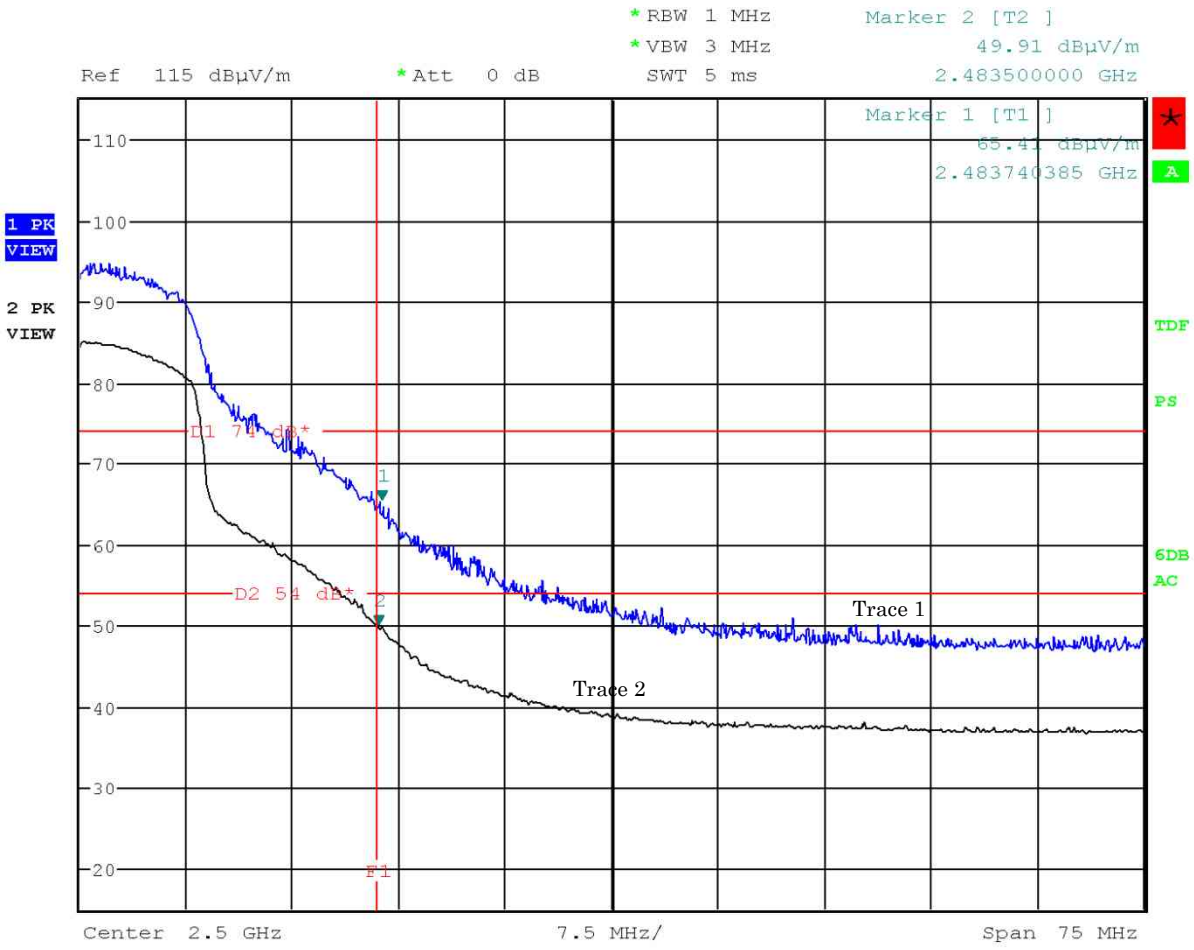
Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 9ch: 2452 MHz, (IEEE 802.11n HT40)
Antenna Polarization : Horizontal



Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : 9ch: 2452 MHz, (IEEE 802.11n HT40)
Antenna Polarization : Vertical



Note: The trace 1 is Peak . The trace 2 is Average.

7.9.4.2 Other Spurious Emission (9kHz – 30MHz)

Test Date : August 11, 2015
Temp.:26°C, Humi:71%

Mode of EUT : WLAN
Results : No spurious emissions in the range 20dB below the limit.

7.9.4.3 Other Spurious Emission (30MHz – 1000MHz)

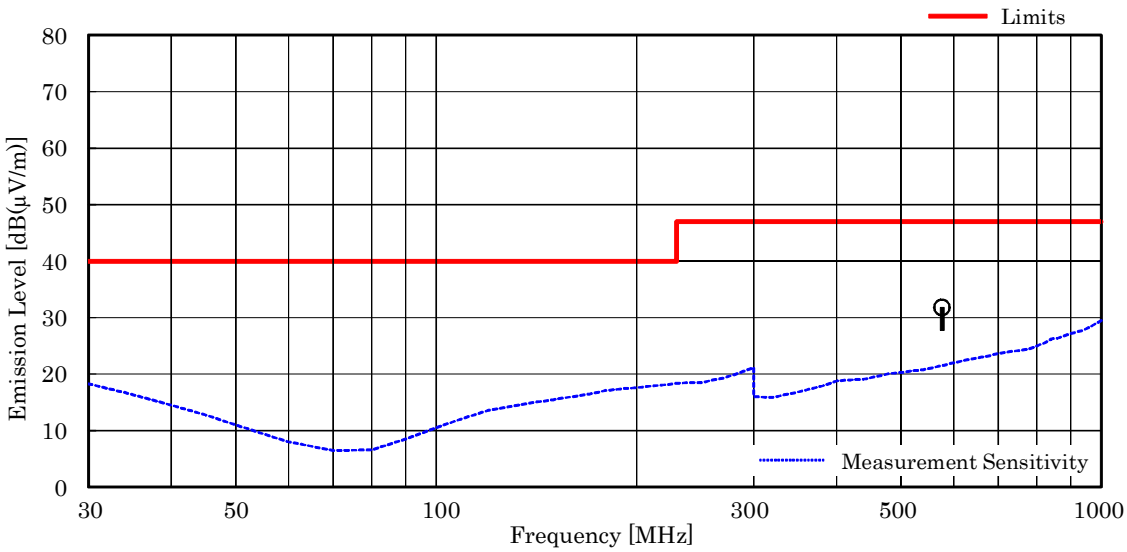
Mode of EUT : (WLAN) All modes have been investigated and the worst case mode for channel (06ch: 2437MHz / IEEE802.11b, IEEE802.11g and IEEE802.11n) has been listed.

Test voltage : 120VAC 60Hz

Test Date: August 11, 2015
Temp.: 26 °C, Humi: 71 %

Antenna pole : Horizontal

Frequency [MHz]	Antenna Factor [dB(1/m)]	Corr. Factor [dB]	Meter Readings [dB(μV)]	Limits [dB(μV/m)]	Results [dB(μV/m)]	Margin [dB]	Remarks
63.43	7.4	-27.1	< 27.0	40.0	< 7.3	> +32.7	-
575.99	18.7	-24.2	37.3	47.0	31.8	+15.2	-



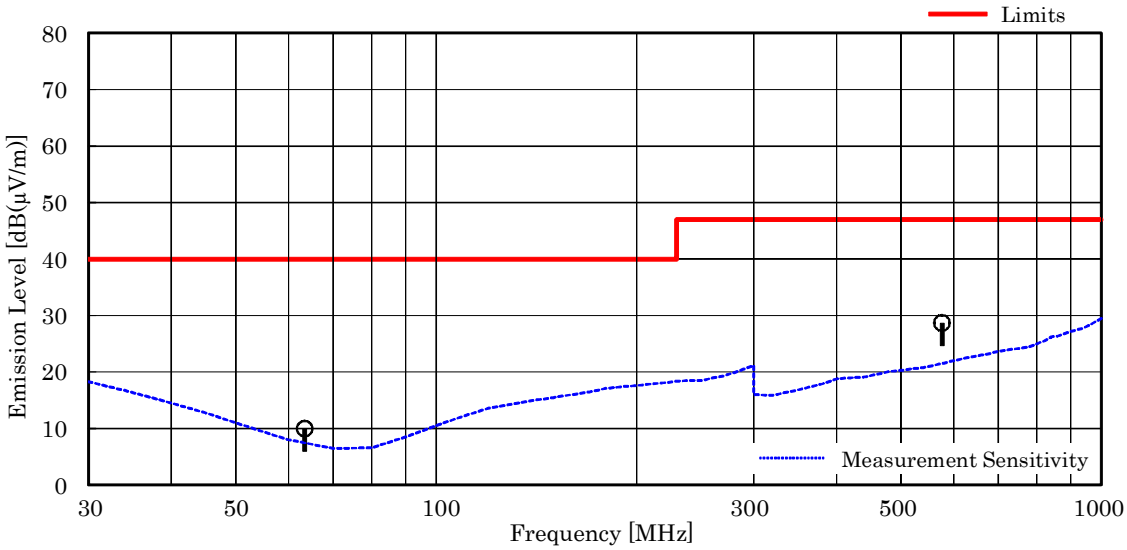
NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The correction factor is composed of cable loss, pad attenuation and/or amplifier gain.
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. Calculated result at 575.99 MHz, as the worst point shown on underline:
   Antenna Factor + Coorection Factor + Meter Reading = 18.7 + (-24.2) + 37.3 = 31.8 dB(μV/m)
   Antenna Height : 1.56 m, Turntable Angle : 187 °
7. Test receiver setting(s) : CISPR QP 120 kHz (QP : Quasi-Peak)

Test voltage : 120VAC 60Hz

Test Date: August 11, 2015
Temp.: 26 °C, Humi: 71 %

Antenna pole : Vertical

Frequency [MHz]	Antenna Factor [dB(1/m)]	Corr. Factor [dB]	Meter Readings [dB(μV)]	Limits [dB(μV/m)]	Results [dB(μV/m)]	Margin [dB]	Remarks
63.43	7.4	-27.1	29.7	40.0	10.0	+30.0	-
575.99	18.7	-24.2	34.2	47.0	28.7	+18.3	-



NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The correction factor is composed of cable loss, pad attenuation and/or amplifier gain.
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. Calculated result at 575.99 MHz, as the worst point shown on underline:
   Antenna Factor + Coorection Factor + Meter Reading = 18.7 + (-24.2) + 34.2 = 28.7 dB(μV/m)
   Antenna Height : 1.83 m, Turntable Angle : 155 °
7. Test receiver setting(s) : CISPR QP 120 kHz (QP : Quasi-Peak)

7.9.4.4 Other Spurious Emission (Above 1000MHz)

7.9.4.4.1 Mode of TX

7.9.4.4.1.1 IEEE802.11b

Test Date: August 10, 2015
Temp.: 27 °C, Humi: 68 %

Frequency [MHz]	Antenna Factor [dB(1/m)]	Corr. Factor [dB]	Meter Readings [dB(μV)] Horizontal PK	Horizontal AVE	Vertical PK	Vertical AVE	Limits [dB(μV/m)] PK	Limits AVE	Results [dB(μV/m)] PK	Results AVE	Margin [dB]	Remarks
Test condition : Tx Low Ch												
4824.0	27.3	-35.6	52.1	50.5	54.3	51.2	74.0	54.0	46.0	42.9	+11.1	
7718.3	29.9	-36.3	48.9	43.8	48.9	43.8	74.0	54.0	42.5	37.4	+16.6	
12060.0	33.6	-35.6	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 46.0	< 36.0	> +18.0	
14472.0	37.0	-36.3	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 48.7	< 38.7	> +15.3	
19296.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
Test condition : TX Middle Ch												
4874.0	27.3	-35.5	52.2	49.7	49.5	45.5	74.0	54.0	44.0	41.5	+12.5	
7311.0	29.9	-36.1	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.8	< 31.8	> +22.2	
12185.0	33.5	-35.4	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 46.1	< 36.1	> +17.9	
19496.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
Test condition : TX High Ch												
4924.0	27.3	-35.4	52.8	50.3	51.8	46.2	74.0	54.0	44.7	42.2	+11.8	
7386.0	29.8	-36.2	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.6	< 31.6	> +22.4	
12310.0	33.4	-35.7	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 45.7	< 35.7	> +18.3	
19696.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
22158.0	40.6	-35.4	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.2	< 45.2	> + 8.8	

Calculated result at 22158.0 MHz, as the worst point shown on underline:

	Antenna Factor	=	40.6 dB(1/m)
	Corr. Factor	=	-35.4 dB
+)	Meter Reading	=	<40.0 dB(μV)
	Result	=	<45.2 dB(μV/m)

Minimum Margin: 54.0 - <45.2 = >8.8 (dB)

NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 1 GHz to 25 GHz (10th harmonic of the highest fundamental frequency).
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (over 18 GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

7.9.4.4.1.2 IEEE802.11g

Test Date: August 10, 2015
Temp.: 27 °C, Humi: 68 %

Frequency	Antenna Factor	Corr. Factor	Meter Readings [dB(μV)] Horizontal		Vertical		Limits [dB(μV/m)]		Results [dB(μV/m)]		Margin	Remarks
[MHz]	[dB(1/m)]	[dB]	PK	AVE	PK	AVE	PK	AVE	PK	AVE	[dB]	
Test condition : Tx Low Ch												
4824.0	27.3	-35.6	59.8	48.9	55.7	45.3	74.0	54.0	51.5	40.6	+13.4	
7718.3	29.9	-36.3	48.9	43.8	48.9	43.8	74.0	54.0	42.5	37.4	+16.6	
12060.0	33.6	-35.1	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 46.5	< 36.5	> +17.5	
14472.0	37.0	-35.7	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 49.3	< 39.3	> +14.7	
19296.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
Test condition : TX Middle Ch												
4874.0	27.3	-35.5	60.0	50.0	55.2	45.2	74.0	54.0	51.8	41.8	+12.2	
7311.0	29.9	-36.1	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.8	< 31.8	> +22.2	
12185.0	33.5	-35.4	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 46.1	< 36.1	> +17.9	
19496.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
Test condition : TX High Ch												
4924.0	27.3	-35.4	60.9	50.5	57.4	46.3	74.0	54.0	52.8	42.4	+11.6	
7386.0	29.8	-36.2	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.6	< 31.6	> +22.4	
12310.0	33.4	-35.7	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 45.7	< 35.7	> +18.3	
19696.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
22158.0	40.6	-35.4	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.2	< 45.2	> + 8.8	

Calculated result at 22158.0 MHz, as the worst point shown on underline:

	Antenna Factor	=	40.6 dB(1/m)
	Corr. Factor	=	-35.4 dB
+)	Meter Reading	=	<40.0 dB(μV)
	Result	=	<45.2 dB(μV/m)

Minimum Margin: 54.0 - <45.2 = >8.8 (dB)

NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 1 GHz to 25 GHz (10th harmonic of the highest fundamental frequency).
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (over 18 GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

7.9.4.4.1.3 IEEE802.11n HT20

Test Date: August 10, 2015
Temp.: 27 °C, Humi: 68 %

Frequency [MHz]	Antenna Factor [dB(1/m)]	Corr. Factor [dB]	Meter Readings [dB(μV)] Horizontal PK	Horizontal AVE	Vertical PK	Vertical AVE	Limits [dB(μV/m)] PK	Limits AVE	Results [dB(μV/m)] PK	Results AVE	Margin [dB]	Remarks
Test condition : Tx Low Ch												
4824.0	27.3	-35.6	60.1	49.4	56.8	46.2	74.0	54.0	51.8	41.1	+12.9	
7718.3	29.9	-36.3	48.9	43.8	48.9	43.8	74.0	54.0	42.5	37.4	+16.6	
12060.0	33.6	-35.1	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 46.5	< 36.5	> +17.5	
14472.0	37.0	-35.7	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 49.3	< 39.3	> +14.7	
19296.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
Test condition : TX Middle Ch												
4874.0	27.3	-35.5	61.1	50.1	56.6	46.9	74.0	54.0	52.9	41.9	+12.1	
7311.0	29.9	-36.1	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.8	< 31.8	> +22.2	
12185.0	33.5	-35.4	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 46.1	< 36.1	> +17.9	
19496.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
Test condition : TX High Ch												
4924.0	27.3	-35.4	62.0	51.4	57.8	47.3	74.0	54.0	53.9	43.3	+10.7	
7386.0	29.8	-36.2	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.6	< 31.6	> +22.4	
12310.0	33.4	-35.7	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 45.7	< 35.7	> +18.3	
19696.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
22158.0	40.6	-35.4	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.2	< 45.2	> + 8.8	

Calculated result at 22158.0 MHz, as the worst point shown on underline:

	Antenna Factor	=	40.6 dB(1/m)
	Corr. Factor	=	-35.4 dB
+)	Meter Reading	=	<40.0 dB(μV)
	Result	=	<45.2 dB(μV/m)

Minimum Margin: 54.0 - <45.2 = >8.8 (dB)

NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 1 GHz to 25 GHz (10th harmonic of the highest fundamental frequency).
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (over 18 GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

7.9.4.4.1.4 IEEE802.11n HT40

Test Date: August 10, 2015
Temp.: 27 °C, Humi: 68 %

Frequency [MHz]	Antenna Factor [dB(1/m)]	Corr. Factor [dB]	Meter Readings [dB(μV)] Horizontal PK	Horizontal AVE	Vertical PK	Vertical AVE	Limits [dB(μV/m)] PK	Limits AVE	Results [dB(μV/m)] PK	Results AVE	Margin [dB]	Remarks
Test condition : Tx Low Ch												
4844.0	27.3	-35.5	56.8	46.2	52.7	41.9	74.0	54.0	48.6	38.0	+16.0	
7266.0	29.9	-36.1	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.8	< 31.8	> +22.2	
7718.3	29.9	-36.3	48.9	43.8	48.9	43.8	74.0	54.0	42.5	37.4	+16.6	
12110.0	33.5	-35.2	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 46.3	< 36.3	> +17.7	
19376.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
Test condition : TX Middle Ch												
4874.0	27.3	-35.5	61.3	50.6	52.9	42.3	74.0	54.0	53.1	42.4	+11.6	
7311.0	29.9	-36.1	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.8	< 31.8	> +22.2	
12185.0	33.5	-35.4	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 46.1	< 36.1	> +17.9	
19496.0	40.5	-35.5	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 55.0	< 45.0	> + 9.0	
Test condition : TX High Ch												
4904.0	27.3	-35.4	57.9	47.3	52.9	42.2	74.0	54.0	49.8	39.2	+14.8	
7356.0	29.9	-36.2	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.7	< 31.7	> +22.3	
12260.0	33.5	-35.6	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 45.9	< 35.9	> +18.1	
19616.0	40.5	-42.6	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 47.9	< 37.9	> +16.1	
22068.0	40.6	-43.1	< 50.0	< 40.0	< 50.0	< 40.0	74.0	54.0	< 47.5	< 37.5	> +16.5	

Calculated result at 19376.0 MHz, as the worst point shown on underline:

	Antenna Factor	=	40.5 dB(1/m)
	Corr. Factor	=	-35.5 dB
+)	Meter Reading	=	<40.0 dB(μV)
	Result	=	<45.0 dB(μV/m)

Minimum Margin: 54.0 - <45.0 = >9.0 (dB)

NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 1 GHz to 25 GHz (10th harmonic of the highest fundamental frequency).
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (over 18 GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

7.9.4.4.2 Mode of RX (WLAN)

Test Date: August 11, 2015
Temp.: 26 °C, Humi: 71 %

Frequency	Antenna Factor	Corr. Factor	Meter Readings [dB(μV)] Horizontal		Vertical		Limits [dB(μV/m)]		Results [dB(μV/m)]		Margin [dB]	Remarks
[MHz]	[dB(1/m)]	[dB]	PK	AVE	PK	AVE	PK	AVE	PK	AVE		
Test condition : RX Middle Ch												
2437.0	21.5	-38.0	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 31.5	< 21.5	> +32.5	
4874.0	27.3	-35.8	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 39.5	< 29.5	> +24.5	
7311.0	29.9	-36.4	< 48.0	< 38.0	< 48.0	< 38.0	74.0	54.0	< 41.5	< 31.5	> +22.5	

Calculated result at 4874.0 MHz, as the worst point shown on underline:

	Antenna Factor	=	29.9 dB(1/m)
	Corr. Factor	=	-36.4 dB
+)	Meter Reading	=	<38.0 dB(μV)
	Result	=	<31.5 dB(μV/m)

Minimum Margin: 54.0 - <29.5 = >22.5 (dB)

NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 1 GHz to 7.5 GHz .
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average