JQA File No. : KL80130485
Issue Date : December 6, 2013

TEST REPORT

Applicant	:	Sharp Corporation, Communication Systems Division
Address	:	2-13-1, Iida Hachihonmatsu, Higashi-Hiroshima City, Hiroshima, 739-0192, JAPAN
Products	:	Cellular Phone
Model No.	:	SH-02F
SERIAL NO.	:	004401114985183 004401114985134
FCC ID	:	APYHRO00202
Test Standard	:	CFR 47 FCC Rules and Regulations Part 15
Test Results	:	**Passed**
Date of Test	:	November 12 ~27, 2013

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.
- VLAC does not approve, certify or warrant the product by this test report.

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DEFINITIONS FOR ABBREVIATION AND SYMBOLS USED IN THIS TEST REPORT

EUT	: Equipment Under Test	**EMC**	: Electromagnetic Compatibility
AE	: Associated Equipment	**EMI**	: Electromagnetic Interference
N/A	: Not Applicable	**EMS**	: Electromagnetic Susceptibility
N/T	: Not Tested		

☒ - 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	:	Sharp Corporation, Communication Systems Division 2-13-1, Iida Hachihonmatsu, Higashi-Hiroshima City, Hiroshima, 739-0192, JAPAN
2.	Products	:	Cellular Phone
3.	Model No.	:	SH-02F
4.	Serial No.	:	004401114985183
		:	004401114985134
5.	Product Type	:	Pre-production
6.	Date of Manufacture	:	November, 2013
7.	Power Rating	:	4.0VDC (Lithium-ion Battery UBATIA234AFN1 2120mAh)
8.	EUT Grounding	:	None
9.	Transmitting Frequency	:	2412.0 MHz(01CH) –2462.0MHz(11CH)
10.	Receiving Frequency	:	2412.0 MHz(01CH) –2462.0MHz(11CH)
11.	Max. RF Output Power	:	15.57dBm(Measure Value of IEEE802.11b)
		:	21.65dBm(Measure Value of IEEE802.11g)
		:	21.61dBm(Measure Value of IEEE802.11n)
12.	Category	:	DTS
13.	EUT Authorization	:	Certification
14.	Received Date of EUT	:	November 8, 2013

15. Channel Plan

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:

S. Kino

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

Tested by:

Shigeru Osawa

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

3 Test Procedure

Test Requirements : §15.247, §15.207 and §15.209

Test Procedure : ANSI C63.4–2003
The tests were performed with reference to FCC KDB 558074 D01 DTS Meas Guidance v03r01, released April 9, 2013. The test set-up was made in accordance to the general provisions of ANSI C63.4-2003.

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, 2014)
VCCI Registration No. : A-0002 (Expiry date : March 30, 2014)
IC Registration No. : 2079E-3, 2079E-4 (Expiry date : July 20, 2014)

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

6 Details of the Equipment Under Test

6.1 Operating Condition

Transmitting/Receiving

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 : OFDM

Other Clock Frequency
32.768 kHz, 19.2 MHz, 27 MHz, 27.12 MHz, 37.4 MHz

The tests were performed in the following worst condition.

Mode	Condition
IEEE802.11b	11 Mbps
IEEE802.11g	54 Mbps
IEEE802.11n	MCS7 (65 Mbps)

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

6.2 Test Configuration

The equipment under test (EUT) consists of :

	Item	Manufacturer	Model No.	Serial No.	FCC ID
A	Cellular Phone	Sharp	SH-02F	004401114985183*1) 004401114985134*2)	APYHRO00202
B	AC Adapter	Fujitsu Corporation	04	WFA	N/A
C	Stereo Earphone	Sharp	HDH0281-010060	--	N/A

*1) Used for AC Powerline Conducted Emission and Field Strength of Spurious Emission
*2) Used for Antenna Conducted Emission

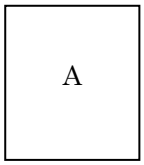
The auxiliary equipment used for testing :
None

Type of Cable:

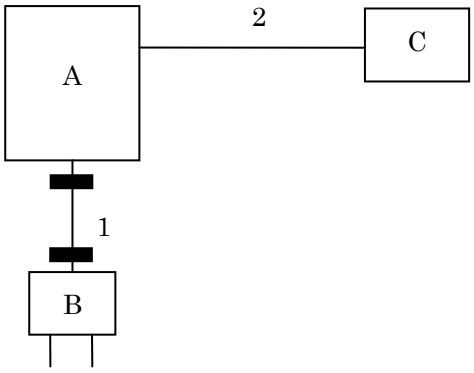
No.	Description	Identification (Manu. etc.)	Connector Shielded	Cable Shielded	Ferrite Core	Length (m)
1	USB conversion cable	--	--	NO	YES	1.1
2	Earphone Cable	--	--	NO	NO	1.2

6.3 Test Arrangement (Drawings)

a) Single Unit

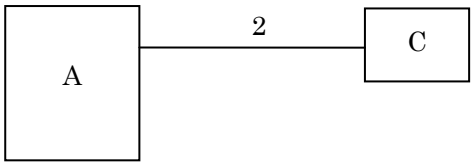


b) AC Adapter used



120VAC 60Hz

c) Earphone used



▌: Ferrite Core

7 Details of the Test Item

7.0 Summary of the Test Results

Test Item	FCC Specification	Reference of the Test Report	Results	Remarks
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

For the limits, ☐ - **Passed** ☐ - **Failed** ☐ - **Not judged**

7.2 Minimum Hopping Channel

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

For the limits, ☐ - **Passed** ☐ - **Failed** ☐ - **Not judged**

7.3 Occupied Bandwidth

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

For the limits, ☒ - **Passed** ☐ - **Failed** ☐ - **Not judged**

7.3.1 Worst Point and Measurement Uncertainty

The 99% Bandwidth of IEEE802.11b is	13.038	MHz	at	2437.0 MHz
The 99% Bandwidth of IEEE802.11g is	16.487	MHz	at	2437.0 MHz
The 99% Bandwidth of IEEE802.11n is	17.688	MHz	at	2437.0 MHz
The 6dB Bandwidth of IEEE802.11b is	8.791	MHz	at	2412.0 MHz
The 6dB Bandwidth of IEEE802.11g is	16.514	MHz	at	2437.0 MHz
The 6dB Bandwidth of IEEE802.11n is	17.757	MHz	at	2437.0 MHz

Uncertainty of Measurement Results +/-0.9 %(2σ)

Remarks : _____

7.3.2 Test Site

KITA-KANSAI Testing Center

Test site : SAITO

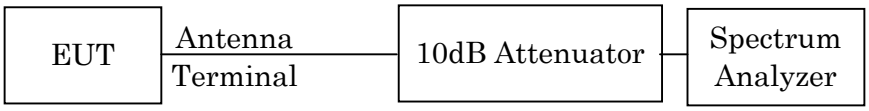
☐ - Anechoic chamber (A1) ☐ - Measurement room (M1)
☐ - Measurement room (M2) ☐ - Measurement room (M3)
☐ - Shielded room (S1) ☐ - Shielded room (S2)
☐ - Shielded room (S3) ☒ - Shielded room (S4)

7.3.3 Test Instruments

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Spectrum Analyzer	E4446A	Agilent	A-39	2013/9	1 Year
Attenuator	54A-10	Weinschel	D-28	2013/9	1 Year
RF Cable	SUCOFLEX102	SUHNER	C-52	2013/7	1 Year

7.3.4 Test Method and Test Setup (Diagrammatic illustration)

The test system is shown as follows:



The setting of the spectrum analyzer are shown as follows:

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

7.3.5 Test Data

Test Date : November 13, 2013
Temp.:27°C, Humi:54%

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	12.934	8.791	500
06	2437.0	13.038	8.694	500
11	2462.0	12.984	8.635	500

B) IEEE 802.11g

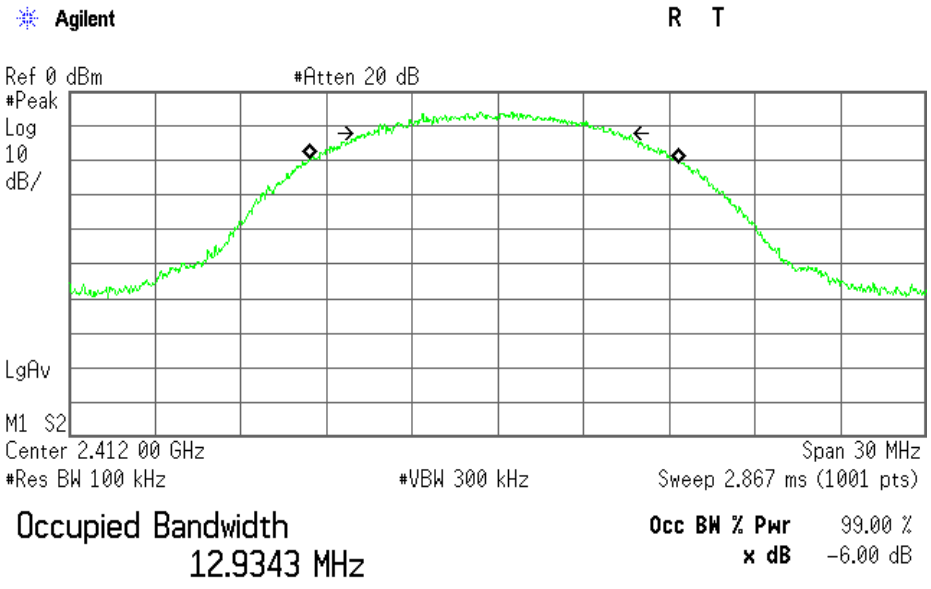
Channel	Frequency (MHz)	99% Bandwidth (MHz)	-6dBc Bandwidth (MHz)	Minimum -6dBc Bandwidth Limit (kHz)
01	2412.0	16.451	16.494	500
06	2437.0	16.487	16.514	500
11	2462.0	16.469	16.493	500

C) IEEE 802.11n

Channel	Frequency (MHz)	99% Bandwidth (MHz)	-6dBc Bandwidth (MHz)	Minimum -6dBc Bandwidth Limit (kHz)
01	2412.0	17.659	17.745	500
06	2437.0	17.688	17.757	500
11	2462.0	17.639	17.691	500

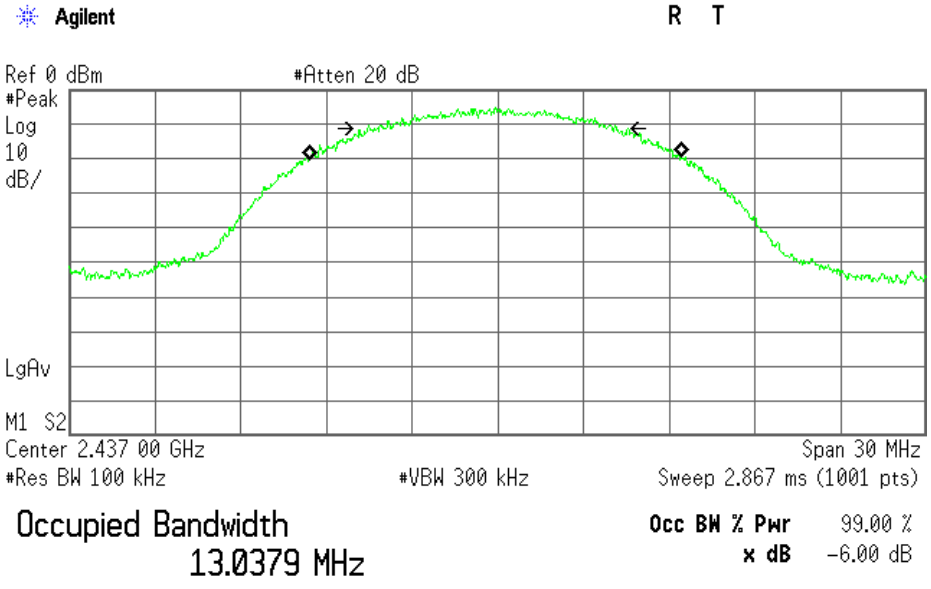
A) IEEE 802.11b

Low Channel



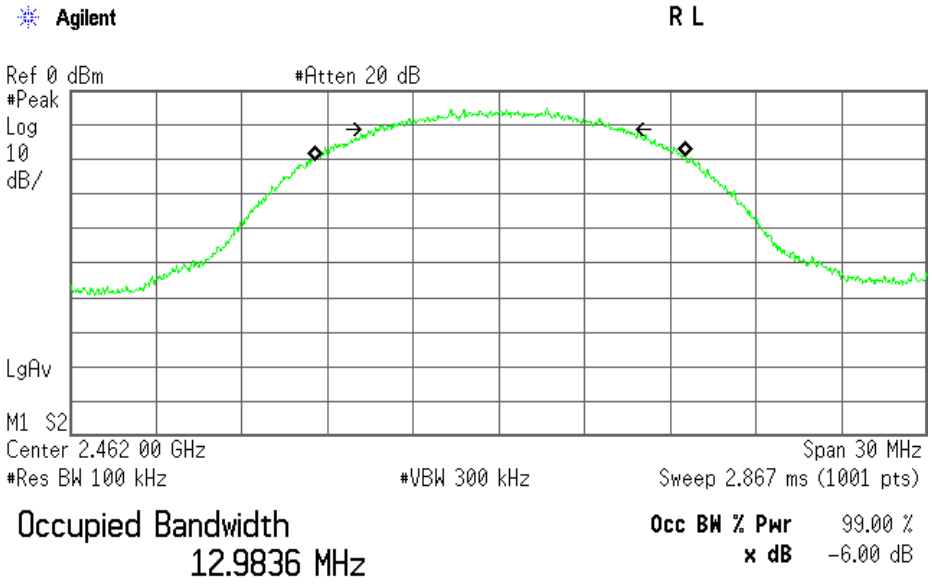
Transmit Freq Error	-128.173 kHz
Occupied Bandwidth	8.791 MHz

Middle Channel



Transmit Freq Error	-84.709 kHz
Occupied Bandwidth	8.694 MHz

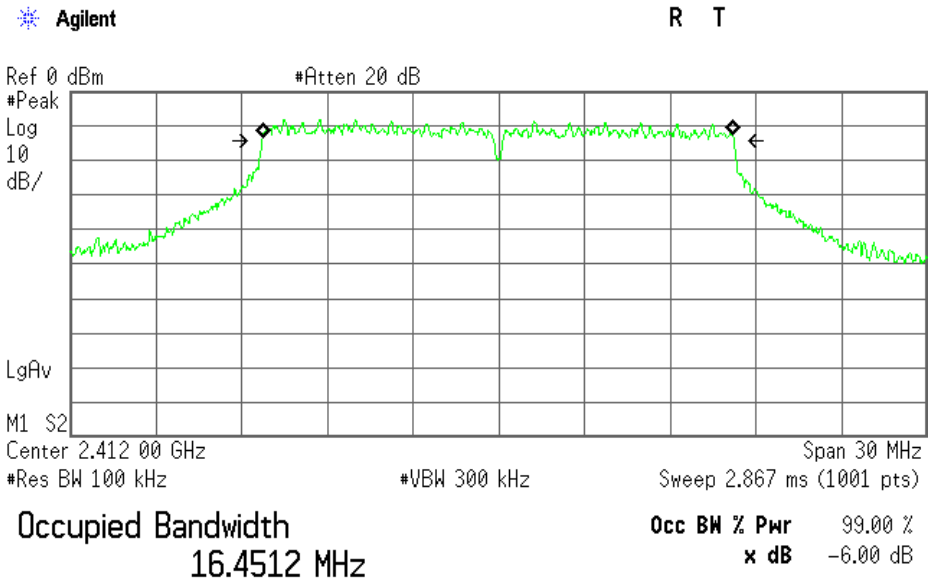
High Channel



Transmit Freq Error	43.878 kHz
Occupied Bandwidth	8.635 MHz

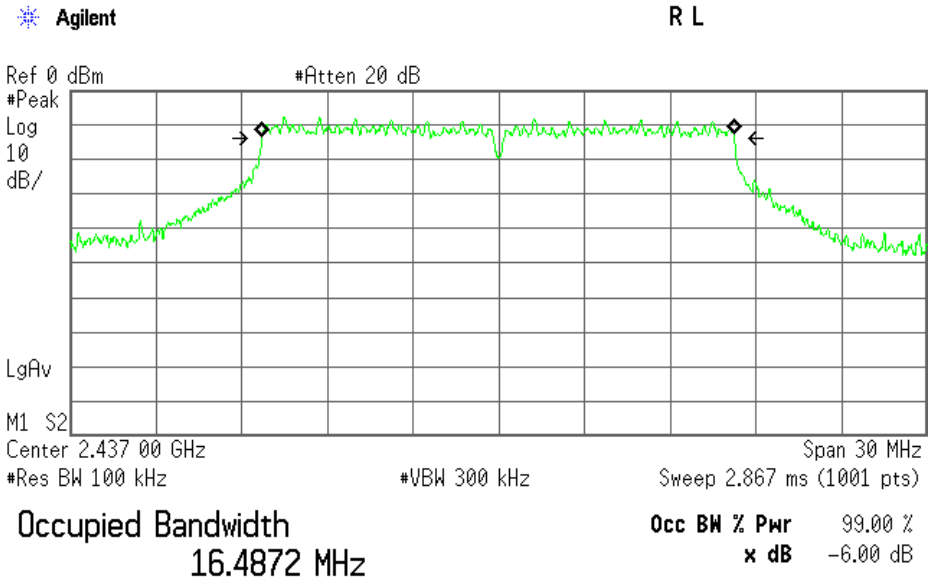
B) IEEE 802.11g

Low Channel



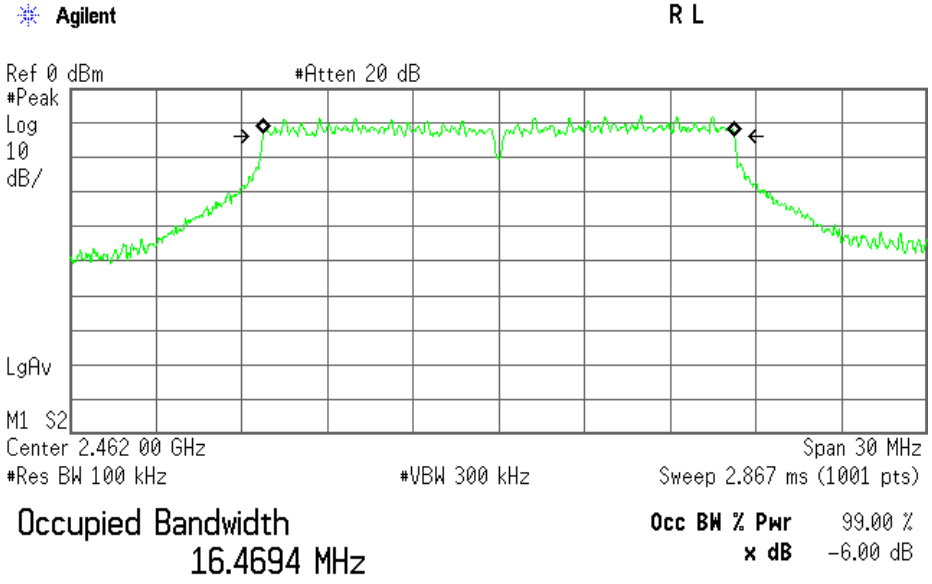
Transmit Freq Error	-33.586 kHz
Occupied Bandwidth	16.494 MHz

Middle Channel



Transmit Freq Error	-26.319 kHz
Occupied Bandwidth	16.514 MHz

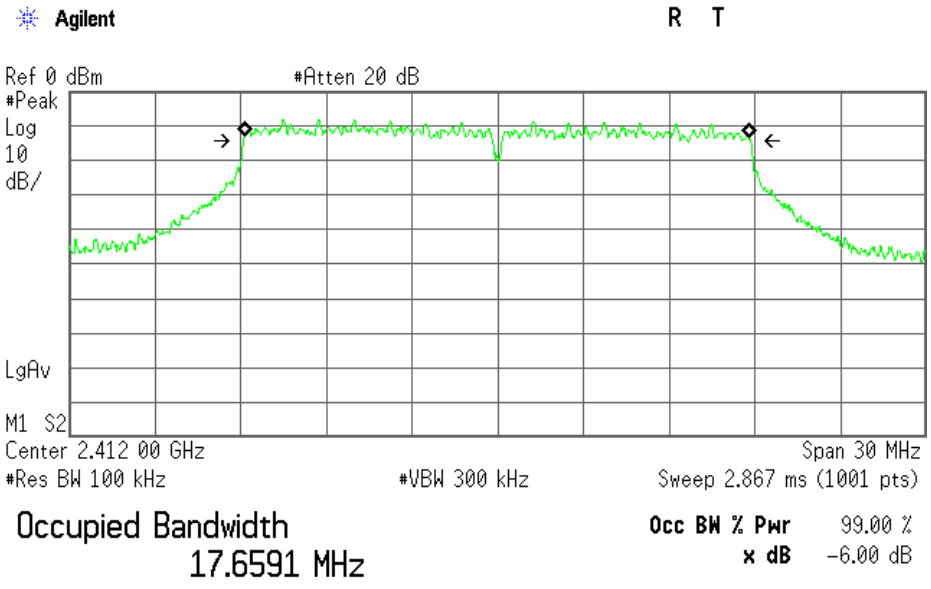
High Channel



Transmit Freq Error	6.396 kHz
Occupied Bandwidth	16.493 MHz

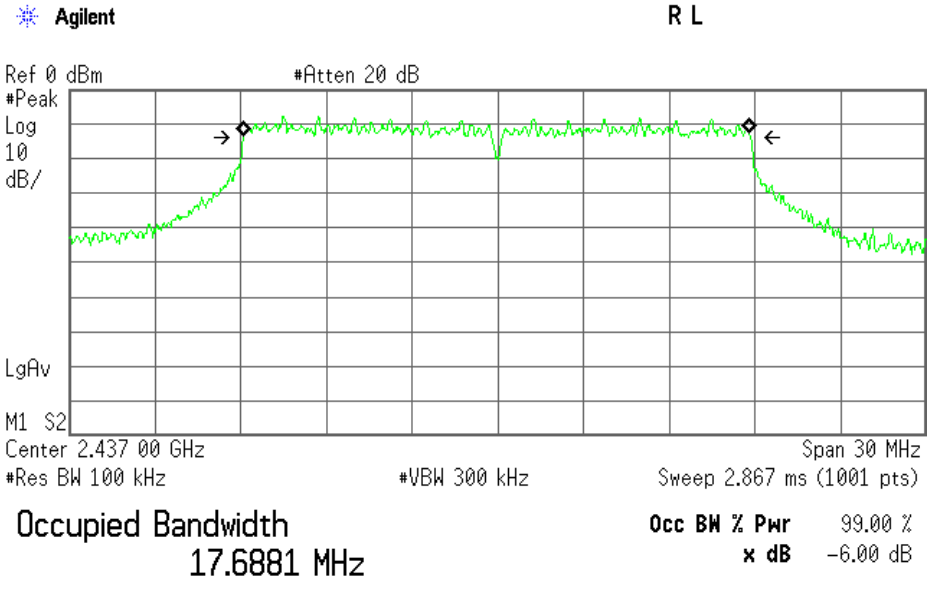
C) IEEE 802.11n

Low Channel



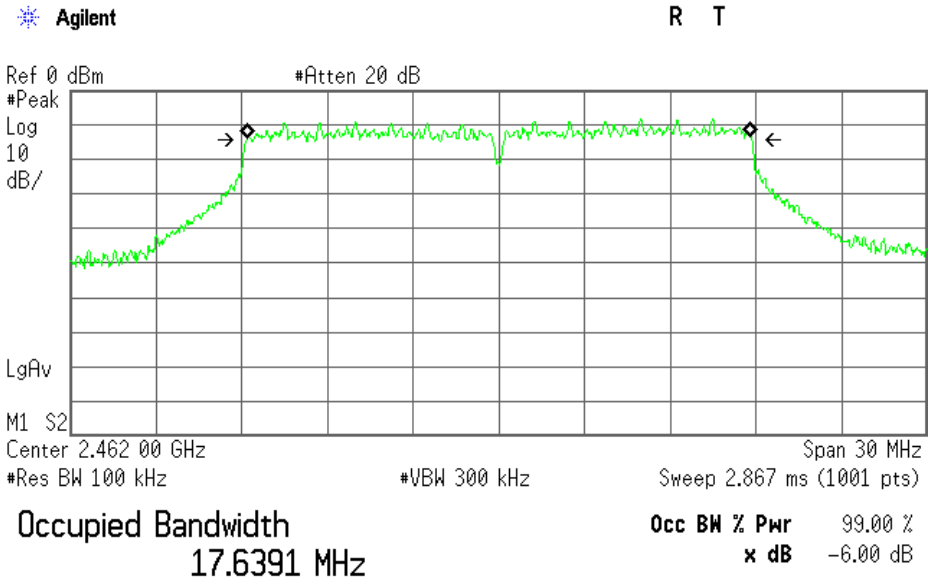
Transmit Freq Error	-30.046 kHz
Occupied Bandwidth	17.745 MHz

Middle Channel



Transmit Freq Error	-33.407 kHz
Occupied Bandwidth	17.757 MHz

High Channel



Transmit Freq Error	8.484 kHz
Occupied Bandwidth	17.691 MHz

7.4 Dwell Time

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

For the limits, ☐ - **Passed** ☐ - **Failed** ☐ - **Not judged**

7.5 Peak Output Power(Conduction)

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

For the limits, ☒ - **Passed** ☐ - **Failed** ☐ - **Not judged**

7.5.1 Worst Point and Measurement Uncertainty

Peak Output Power of IEEE802.11b is	15.57	dBm	at	2437.0	MHz
Peak Output Power of IEEE802.11g is	21.65	dBm	at	2437.0	MHz
Peak Output Power of IEEE802.11n is	21.61	dBm	at	2437.0	MHz

Uncertainty of Measurement Results at Amplitude +/-1.2 dB(2σ)

Remarks : _____

7.5.2 Test Site

KITA-KANSAI Testing Center

Test site : SAITO

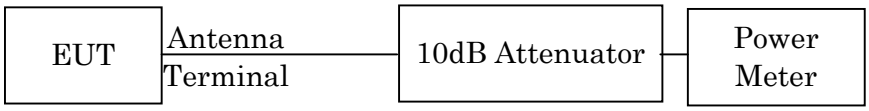
☐ - Anechoic chamber (A1) ☐ - Measurement room (M1)
☐ - Measurement room (M2) ☐ - Measurement room (M3)
☐ - Shielded room (S1) ☐ - Shielded room (S2)
☐ - Shielded room (S3) ☒ - Shielded room (S4)

7.5.3 Test Instruments

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Power Meter	N1911A	Agilent	B-63	2013/7	1 Year
Power Sensor	N1921A	Agilent	B-64	2013/7	1 Year
Attenuator	54A-10	Weinschel	D-28	2013/9	1 Year
RF Cable	SUCOFLEX102	SUHNER	C-52	2013/7	1 Year

7.5.4 Test Method and Test Setup (Diagrammatic illustration)

The Conducted RF Power Output was measured with a power meter, one 10dB attenuator and a short, low loss cable.



7.5.5 Test Data

1) IEEE 802.11b

Test Date: November 12, 2013
Temp.: 22 °C, Humi: 38 %

Data Rate : 11Mbps

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Output Power		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	9.95	5.42	15.37	34.43	30.00	+14.63
06	2437	9.96	5.61	15.57	36.06	30.00	+14.43
11	2462	9.96	5.50	15.46	35.16	30.00	+14.54

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

	Correction Factor	=	9.96 dB
+)	Meter Reading	=	5.61 dBm
	Result	=	15.57 dBm = 36.06 mW

Minimum Margin: 30.00 - 15.57 = 14.43 (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]
06	2437

Rate	Meter Reading [dBm]	Remark
1Mbps	5.38	
2Mbps	5.42	
5.5Mbps	5.49	
11Mbps	5.61	*

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

2) IEEE 802.11g

Test Date: November 12, 2013
Temp.: 22 °C, Humi: 38 %

Data Rate : 54Mbps

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Output Power		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	9.95	11.68	21.63	145.55	30.00	+ 8.37
06	2437	9.96	11.69	21.65	146.22	30.00	+ 8.35
11	2462	9.96	11.67	21.63	145.55	30.00	+ 8.37

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

	Correction Factor	=	9.96 dB
+)	Meter Reading	=	11.69 dBm
	Result	=	21.65 dBm = 146.22 mW

Minimum Margin: 30.00 - 21.65 = 8.35 (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]
06	2437

Rate	Meter Reading [dBm]	Remark
6Mbps	11.51	
9Mbps	11.32	
12Mbps	11.36	
18Mbps	11.30	
24Mbps	11.28	
36Mbps	11.51	
48Mbps	11.65	
54Mbps	11.69	*

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

3) IEEE 802.11n

Test Date: November 12, 2013
Temp.: 22 °C, Humi: 38 %

Data Rate : MCS7(65Mbps)

Transmitting Frequency		Correction Factor	Meter Reading	Conducted Peak Output Power		Limits	Margin
CH	[MHz]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	9.95	11.55	21.50	141.25	30.00	+ 8.50
06	2437	9.96	11.65	21.61	144.88	30.00	+ 8.39
11	2462	9.96	11.52	21.48	140.60	30.00	+ 8.52

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

	Correction Factor	=	9.96 dB
+)	Meter Reading	=	11.65 dBm
	Result	=	21.61 dBm = 144.88 mW

Minimum Margin: 30.00 - 21.61 = 8.39 (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]
06	2437

Rate	Meter Reading [dBm]	Remark
MCS0(6.5Mbps)	11.22	
MCS1(13Mbps)	11.33	
MCS2(19.5Mbps)	11.56	
MCS3(26Mbps)	11.44	
MCS4(39Mbps)	11.28	
MCS5(52Mbps)	11.52	
MCS6(58.5Mbps)	11.58	
MCS7(65Mbps)	11.65	*

* : 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

For the limits, ☒ **- Passed** ☐ **- Failed** ☐ **- Not judged**

7.6.1 Worst Point and Measurement Uncertainty

Peak Power Density of IEEE802.11b is	-9.69	dBm	at	2437.0	MHz
Peak Power Density of IEEE802.11g is	-11.86	dBm	at	2437.0	MHz
Peak Power Density of IEEE802.11n is	-12.64	dBm	at	2462.0	MHz

Uncertainty of Measurement Results at Amplitude +/-1.2 dB(2σ)

Remarks :

7.6.2 Test Site

KITA-KANSAI Testing Center

Test site : SAITO

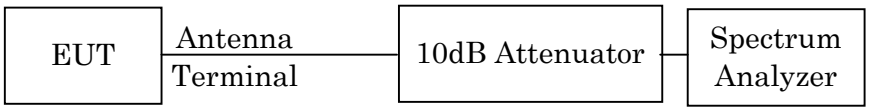
☐ - Anechoic chamber (A1) ☐ - Measurement room (M1)
☐ - Measurement room (M2) ☐ - Measurement room (M3)
☐ - Shielded room (S1) ☐ - Shielded room (S2)
☐ - Shielded room (S3) ☒ - Shielded room (S4)

7.6.3 Test Instruments

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Spectrum Analyzer	E4446A	Agilent	A-39	2013/9	1 Year
Attenuator	54A-10	Weinschel	D-28	2013/9	1 Year
RF Cable	SUCOFLEX102	SUHNER	C-52	2013/7	1 Year

7.6.4 Test Method and Test Setup (Diagrammatic illustration)

The Conducted RF Power Output was measured with a power meter, one 10dB attenuator and a short, low loss cable.



7.6.5 Test Data

1) IEEE 802.11b

Test Date: November 13, 2013
Temp.: 20 °C, Humi: 39 %

Data Rate : 11Mbps

Transmitting Frequency		Correction Factor	BWCF	Meter Reading	Conducted Peak Power Density		Limits	Margin
CH	[MHz]	[dB]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	9.95	-10.00	-9.86	-9.91	0.10	8.00	+17.91
06	2437	9.96	-10.00	-9.65	-9.69	0.11	8.00	+17.69
11	2462	9.96	-10.00	-9.81	-9.85	0.10	8.00	+17.85

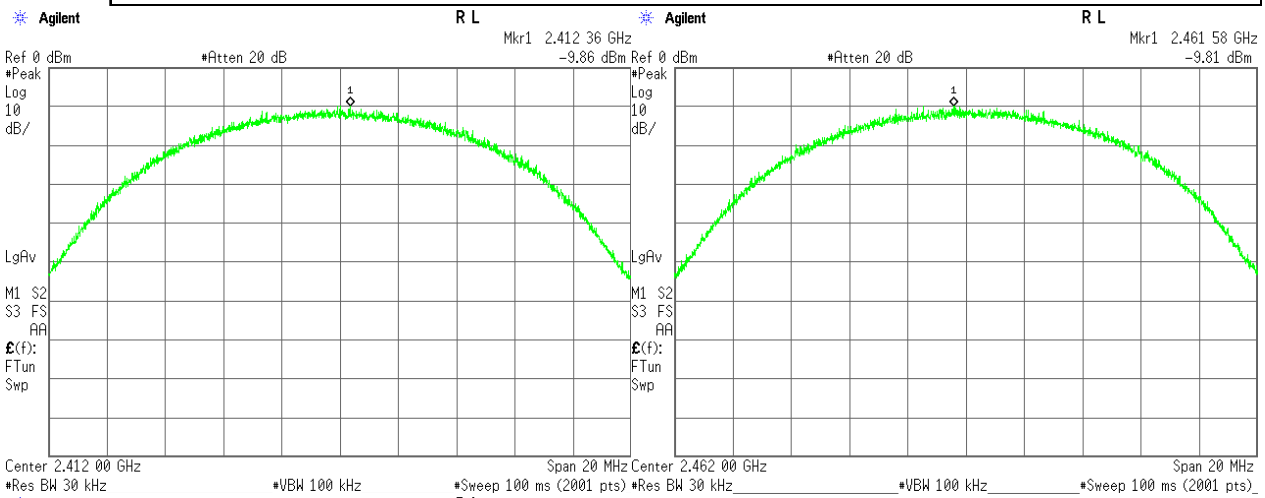
Calculated result at 2437.000 MHz, as the worst point shown on underline:

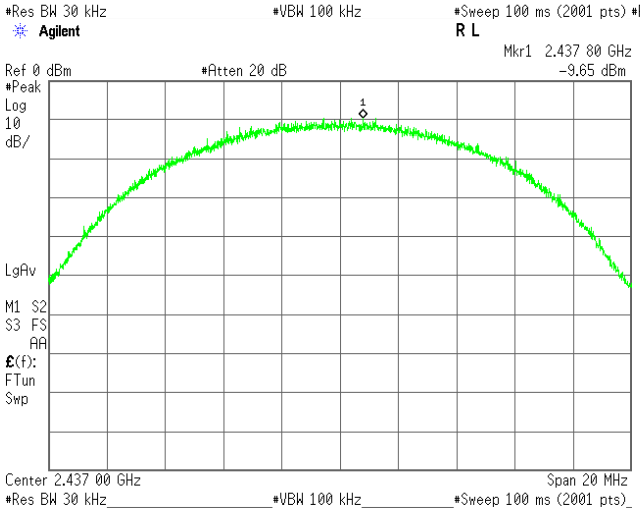
	Correction Factor	=	9.96 dB
	BWCF	=	-10.00 dB
+)	Meter Reading	=	-9.65 dBm
	Result	=	-9.69 dBm = 0.11 mW

Minimum Margin: 8.00 - -9.69 = 17.69 (dB)

NOTES
1. The peak power density complied with the limit without BWCF.
2. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
3. BWCF(bandwidth correction factor) = 10 log (3 kHz/30 kHz) = -10.0 dB
4. Setting of measuring instrument(s) :

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





2) IEEE 802.11g

Test Date: November 13, 2013
Temp.: 20 °C, Humi: 39 %

Data Rate : 54Mbps

Transmitting Frequency		Correction Factor	BWCF	Meter Reading	Conducted Peak Power Density		Limits	Margin
CH	[MHz]	[dB]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	9.95	-10.00	-12.69	-12.74	0.05	8.00	+20.74
06	2437	9.96	-10.00	-11.82	-11.86	0.07	8.00	+19.86
11	2462	9.96	-10.00	-12.06	-12.10	0.06	8.00	+20.10

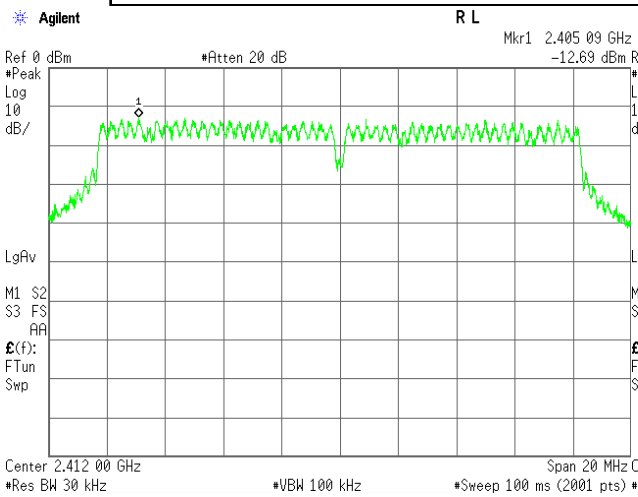
Calculated result at 2437.000 MHz, as the worst point shown on underline:

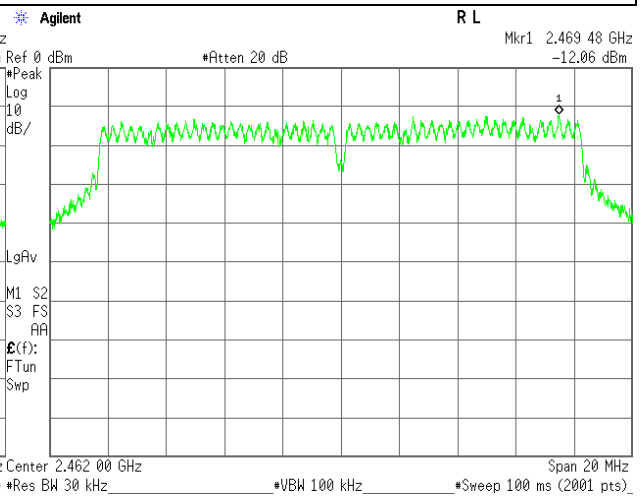
	Correction Factor	=	9.96 dB
	BWCF	=	-10.00 dB
+)	Meter Reading	=	-11.82 dBm
	Result	=	-11.86 dBm = 0.07 mW

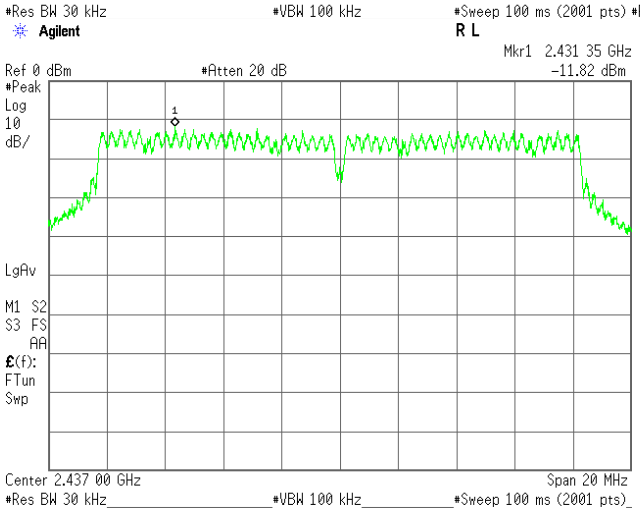
Minimum Margin: 8.00 - -11.86 = 19.86 (dB)

NOTES
1. The peak power density complied with the limit without BWCF.
2. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
3. BWCF(bandwidth correction factor) = 10 log (3 kHz/30 kHz) = -10.0 dB
4. Setting of measuring instrument(s) :

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







3) IEEE 802.11n

Test Date: November 13, 2013
Temp.: 20 °C, Humi: 39 %

Data Rate : MCS7(65Mbps)

Transmitting Frequency		Correction Factor	BWCF	Meter Reading	Conducted Peak Power Density		Limits	Margin
CH	[MHz]	[dB]	[dB]	[dBm]	[dBm]	[mW]	[dBm]	[dB]
01	2412	9.95	-10.00	-12.91	-12.96	0.05	8.00	+20.96
06	2437	9.96	-10.00	-12.74	-12.78	0.05	8.00	+20.78
11	2462	9.96	-10.00	-12.60	-12.64	0.05	8.00	+20.64

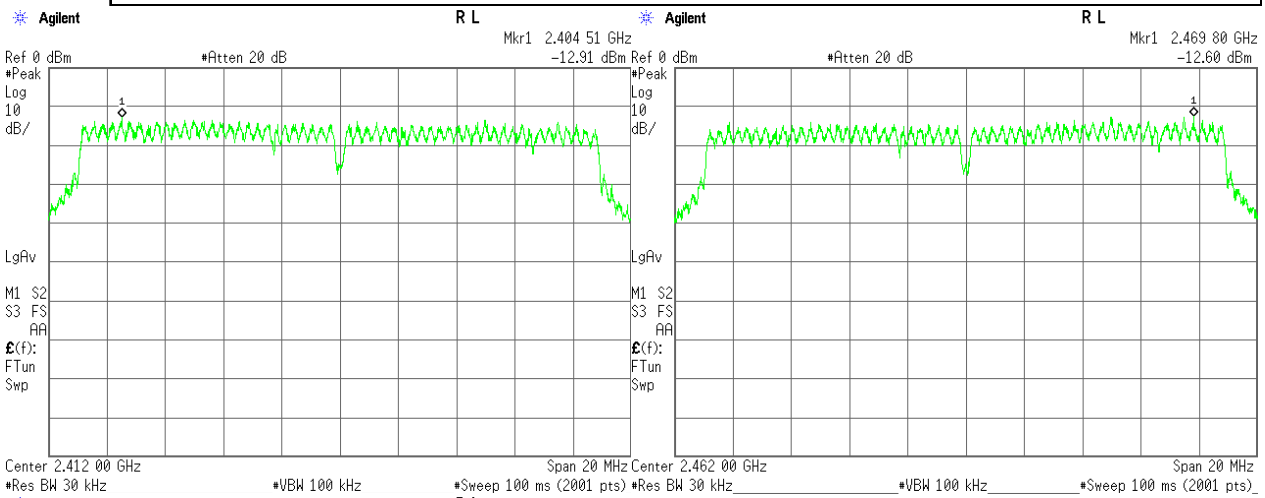
Calculated result at 2462.000 MHz, as the worst point shown on underline:

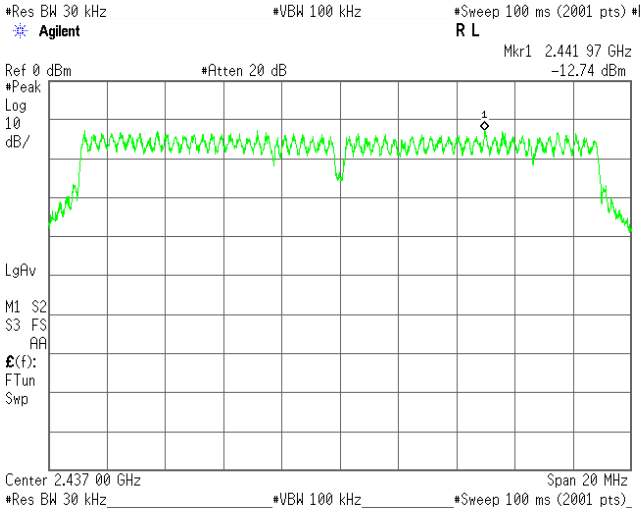
	Correction Factor	=	9.96 dB
	BWCF	=	-10.00 dB
+)	Meter Reading	=	-12.60 dBm
	Result	=	-12.64 dBm = 0.05 mW

Minimum Margin: 8.00 - -12.64 = 20.64 (dB)

NOTES
1. The peak power density complied with the limit without BWCF.
2. The correction factor shows the attenuation pad loss including the short, low loss cable or adapter.
3. BWCF(bandwidth correction factor) = 10 log (3 kHz/30 kHz) = -10.0 dB
4. Setting of measuring instrument(s) :

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





7.7 Spurious Emissions(Conduction)

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

For the limits, ☒ **- Passed** ☐ **- Failed** ☐ **- Not judged**

7.7.1 Worst Point and Measurement Uncertainty

Uncertainty of Measurement Results

9 kHz – 1GHz	+/-1.0	dB(2σ)
1GHz – 18GHz	+/-1.2	dB(2σ)
18GHz – 40GHz	+/-1.6	dB(2σ)

Remarks : _____

7.7.2 Test Site

KITA-KANSAI Testing Center

Test site : SAITO

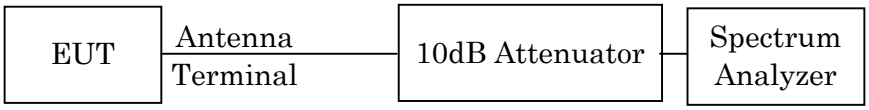
☐ - Anechoic chamber (A1)
☐ - Measurement room (M1)
☐ - Measurement room (M2)
☐ - Measurement room (M3)
☐ - Shielded room (S1)
☐ - Shielded room (S2)
☐ - Shielded room (S3)
☒ - Shielded room (S4)

7.7.3 Test Instruments

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Spectrum Analyzer	E4446A	Agilent	A-39	2013/9	1 Year
Attenuator	54A-10	Weinschel	D-28	2013/9	1 Year
RF Cable	SUCOFLEX102	SUHNER	C-52	2013/7	1 Year

7.7.4 Test Method and Test Setup (Diagrammatic illustration)

The test system is shown as follows:



The setting of the spectrum analyzer are shown as follows:

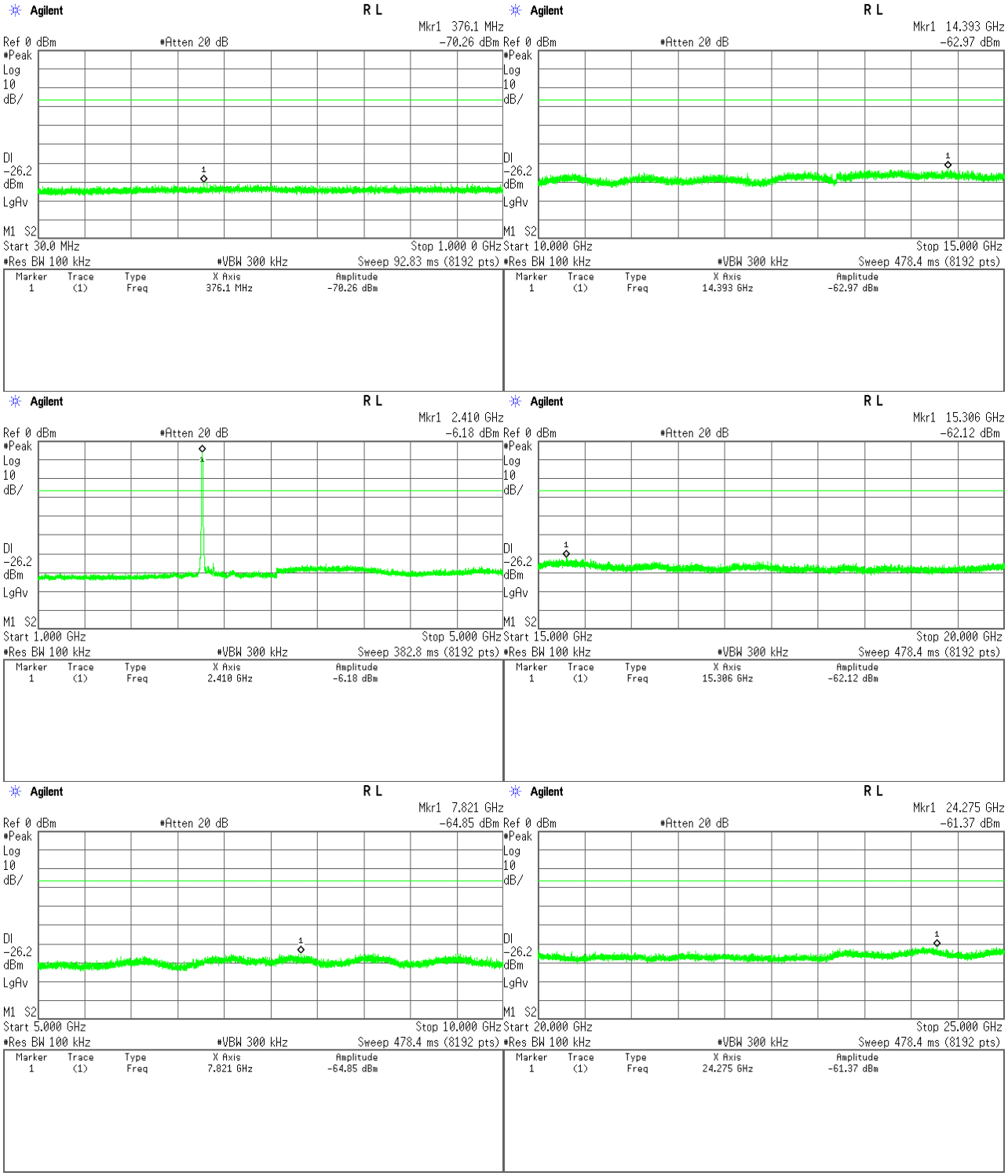
Frequency Range	30 MHz - 25 GHz	Band-Edge
Res. Bandwidth	100 kHz	100 kHz
Video Bandwidth	300 kHz	300 kHz
Sweep Time	AUTO	AUTO
Trace	Maxhold	Maxhold

7.7.5 Test Data

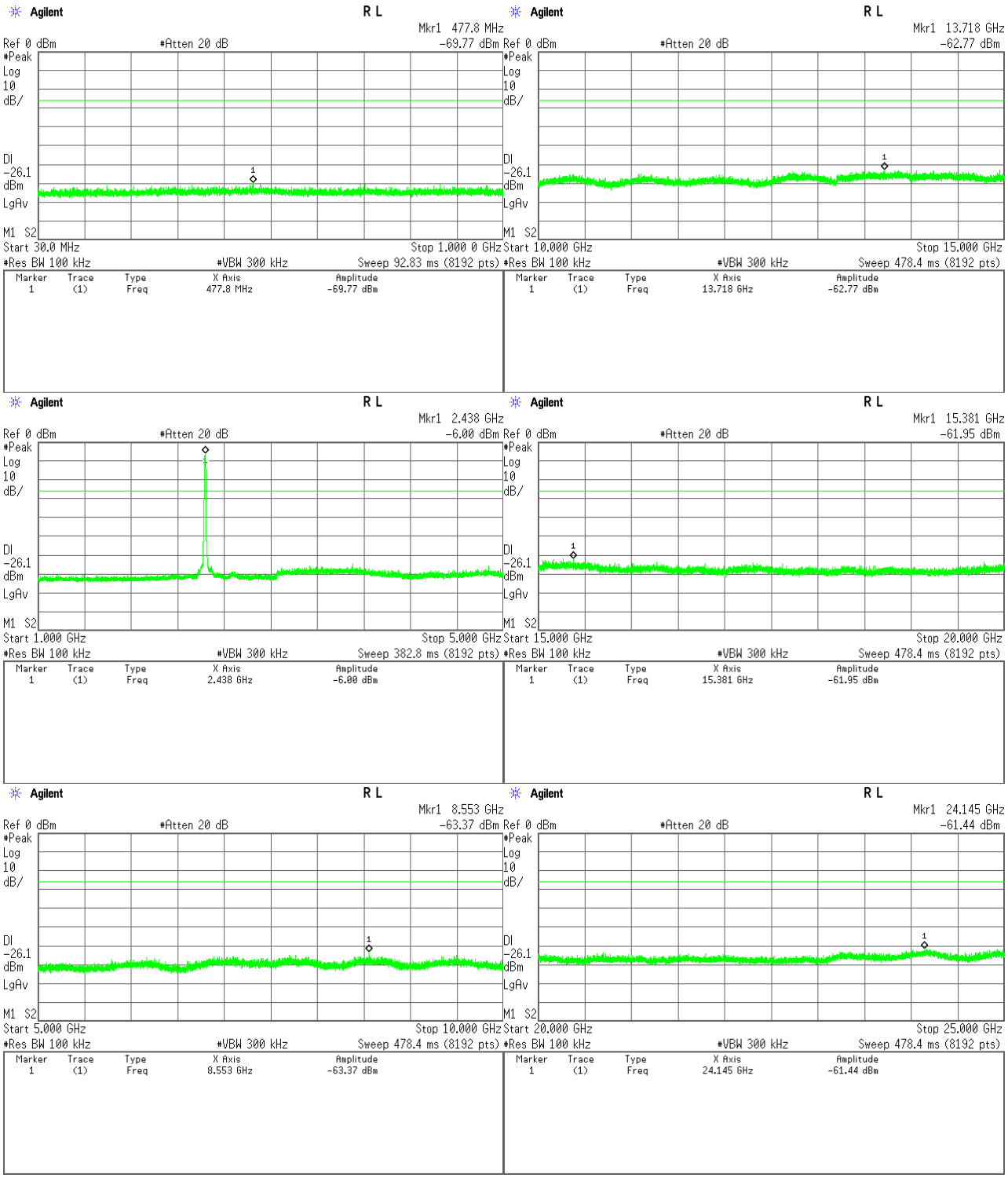
Test Date : November 13, 2013
Temp.:20°C, Humi:39%

1) IEEE 802.11b

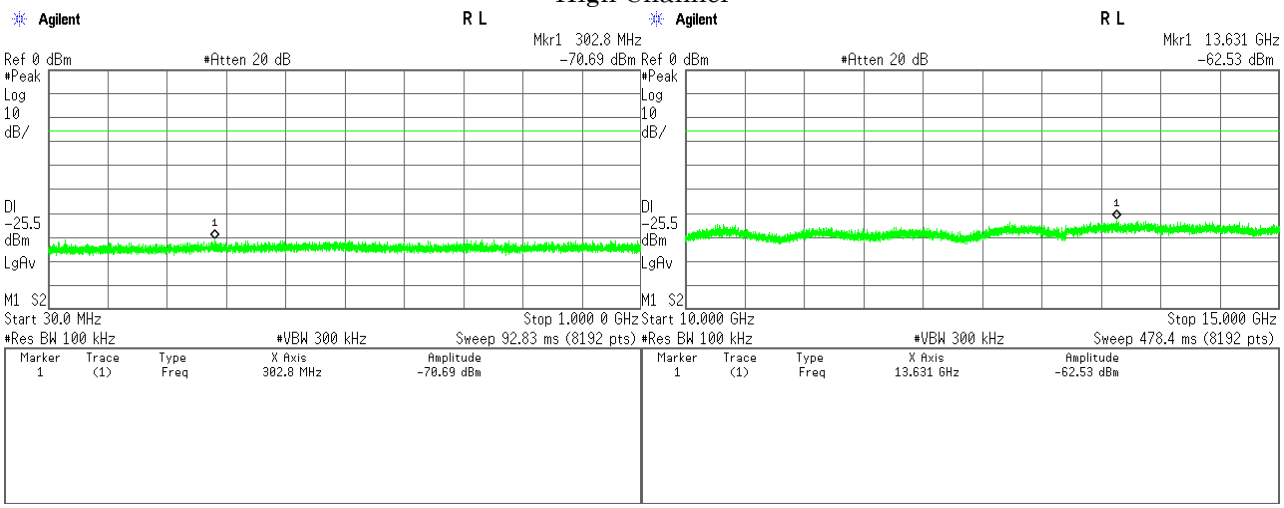
Low Channel

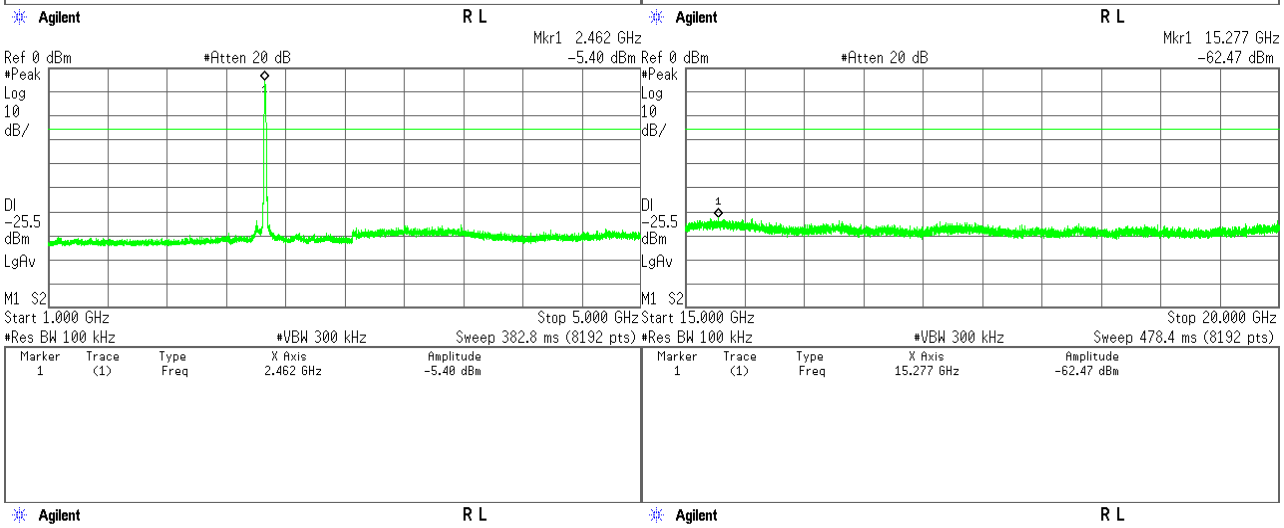


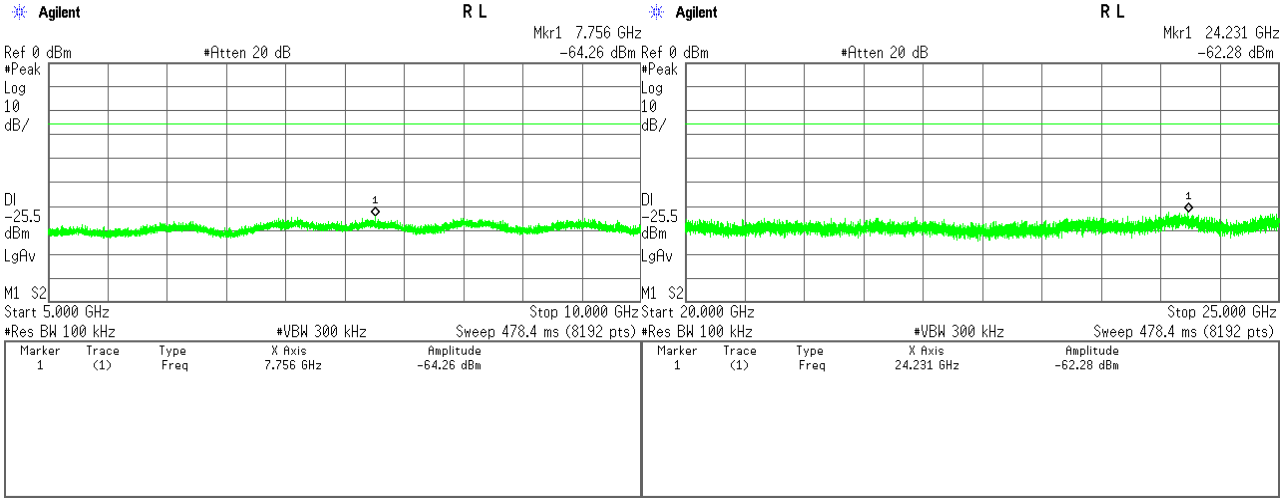
Middle Channel



High Channel

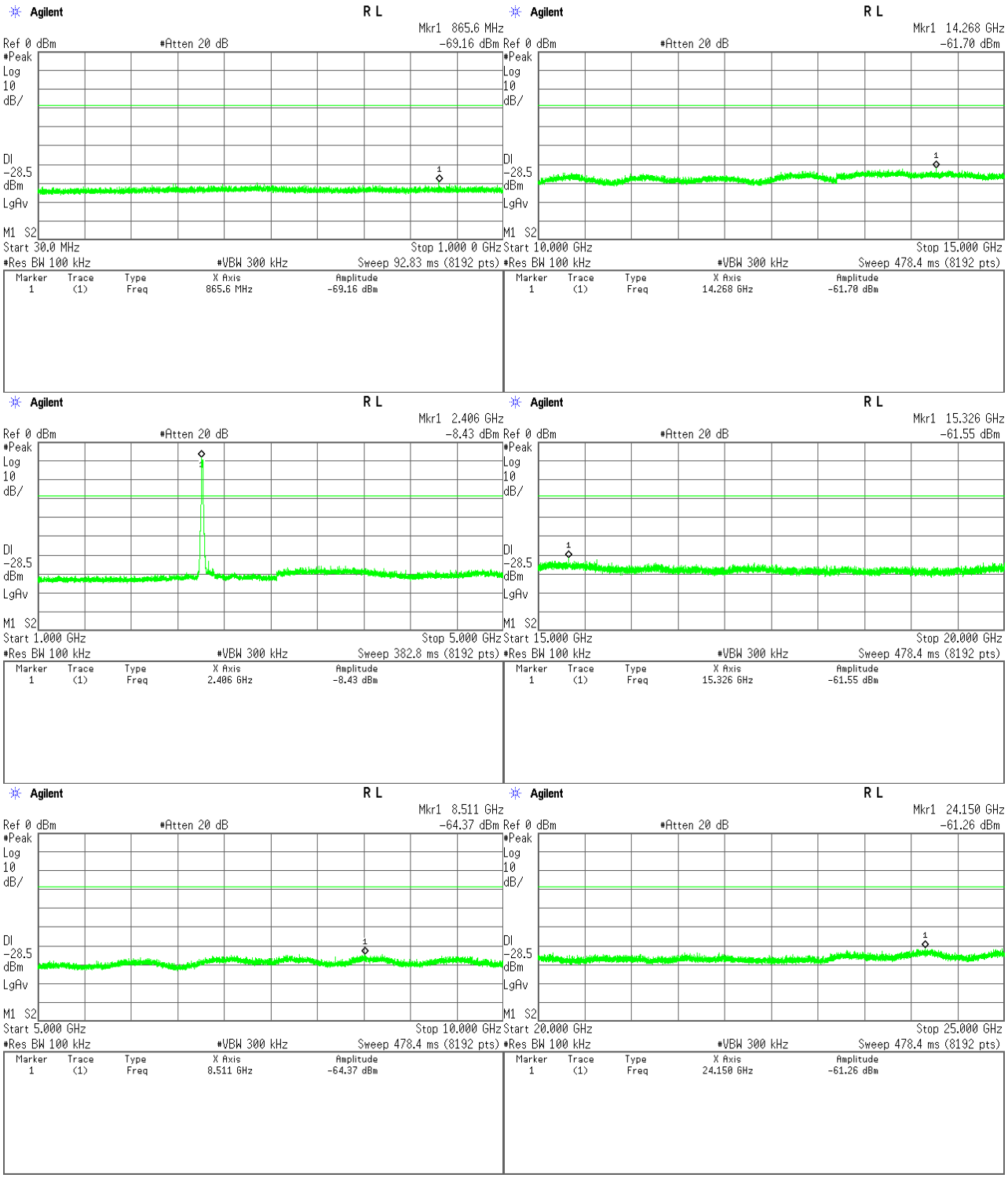




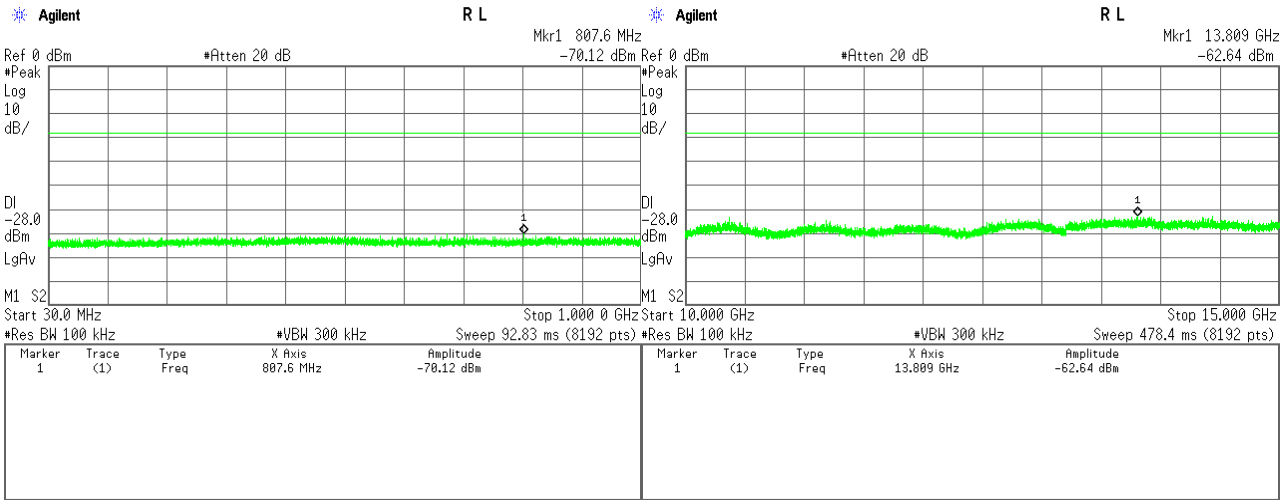


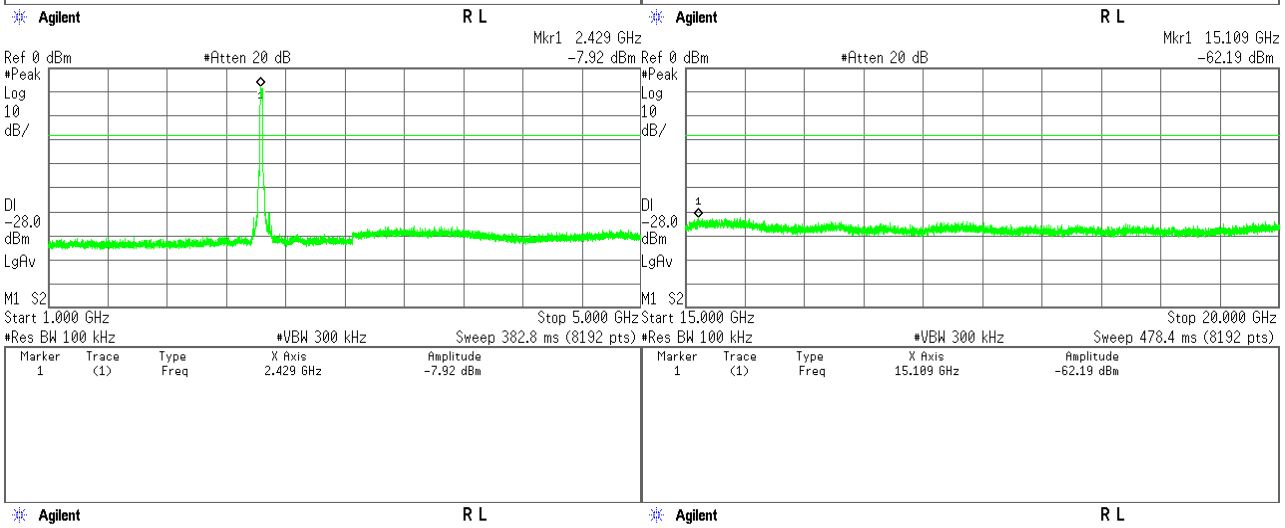
2) IEEE 802.11g

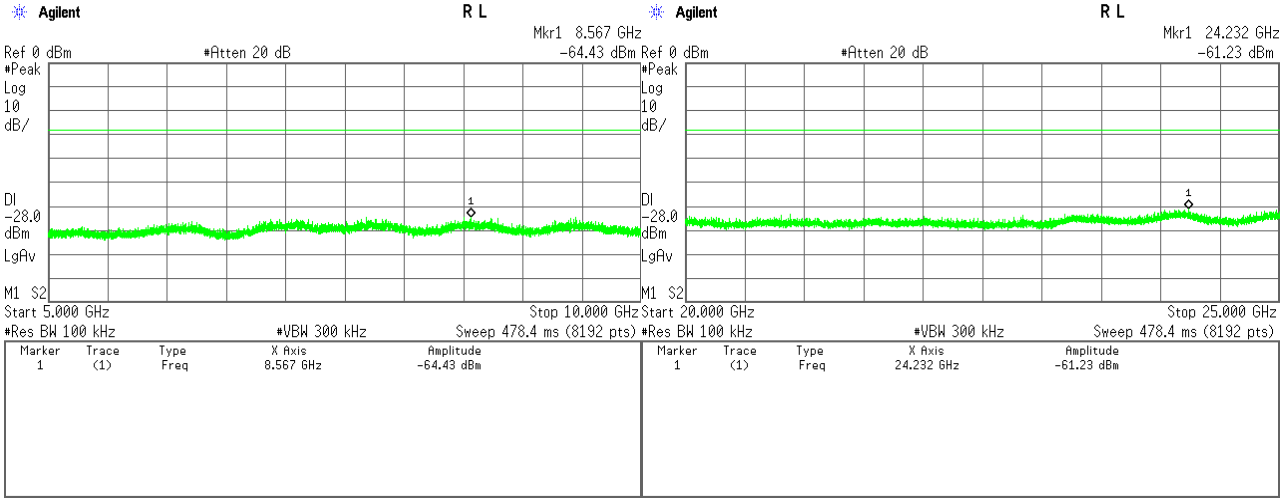
Low Channel



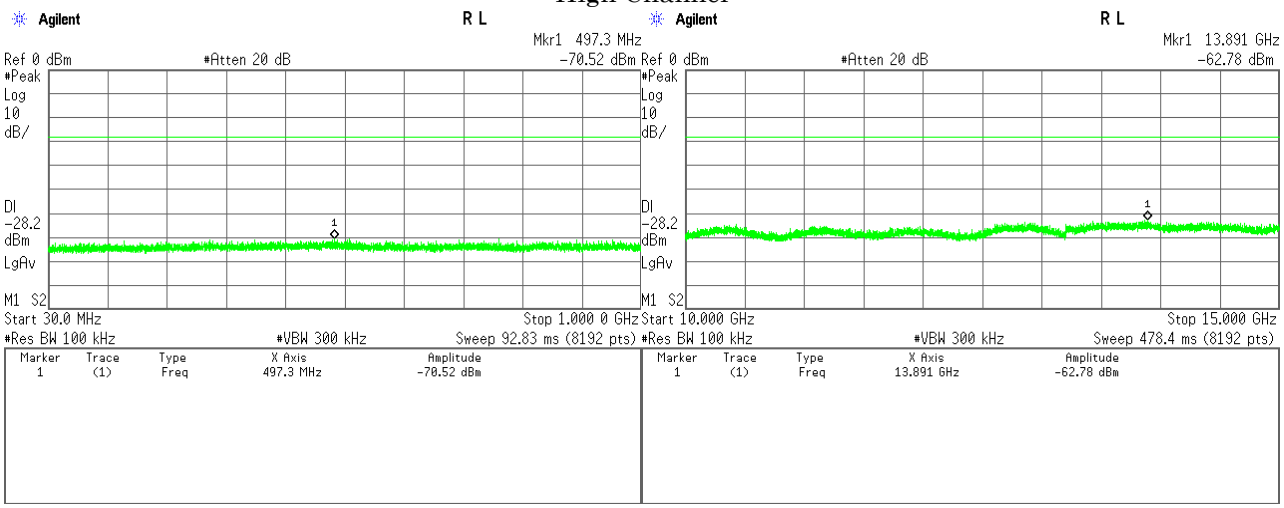
Middle channel

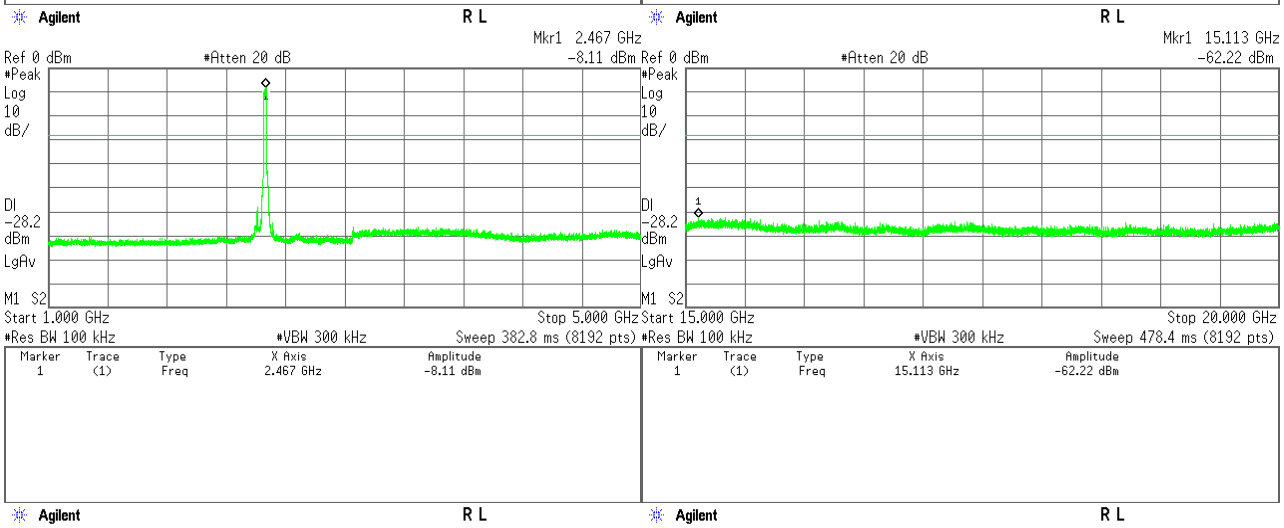


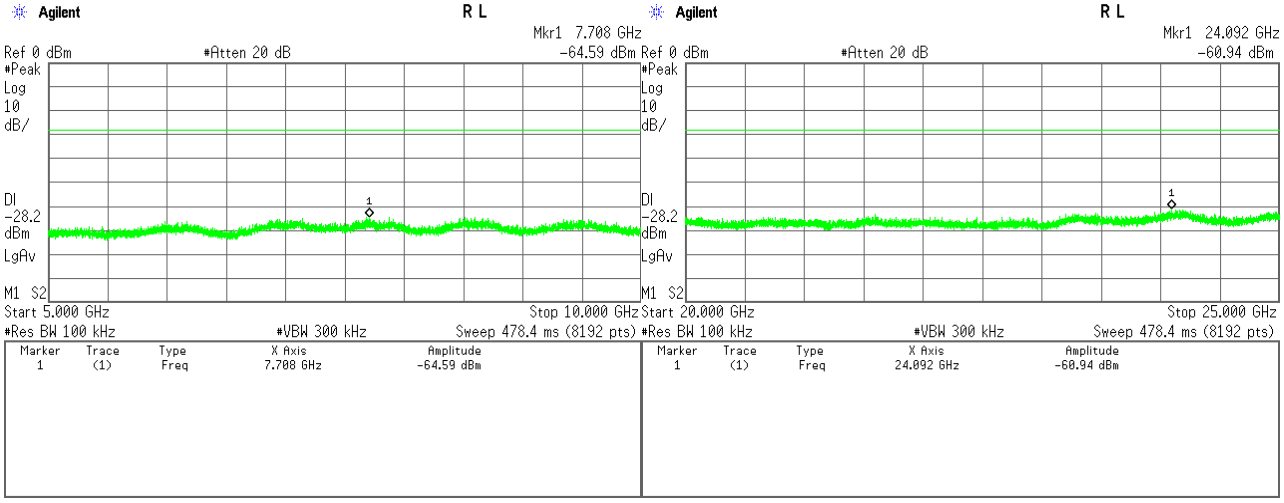




High Channel

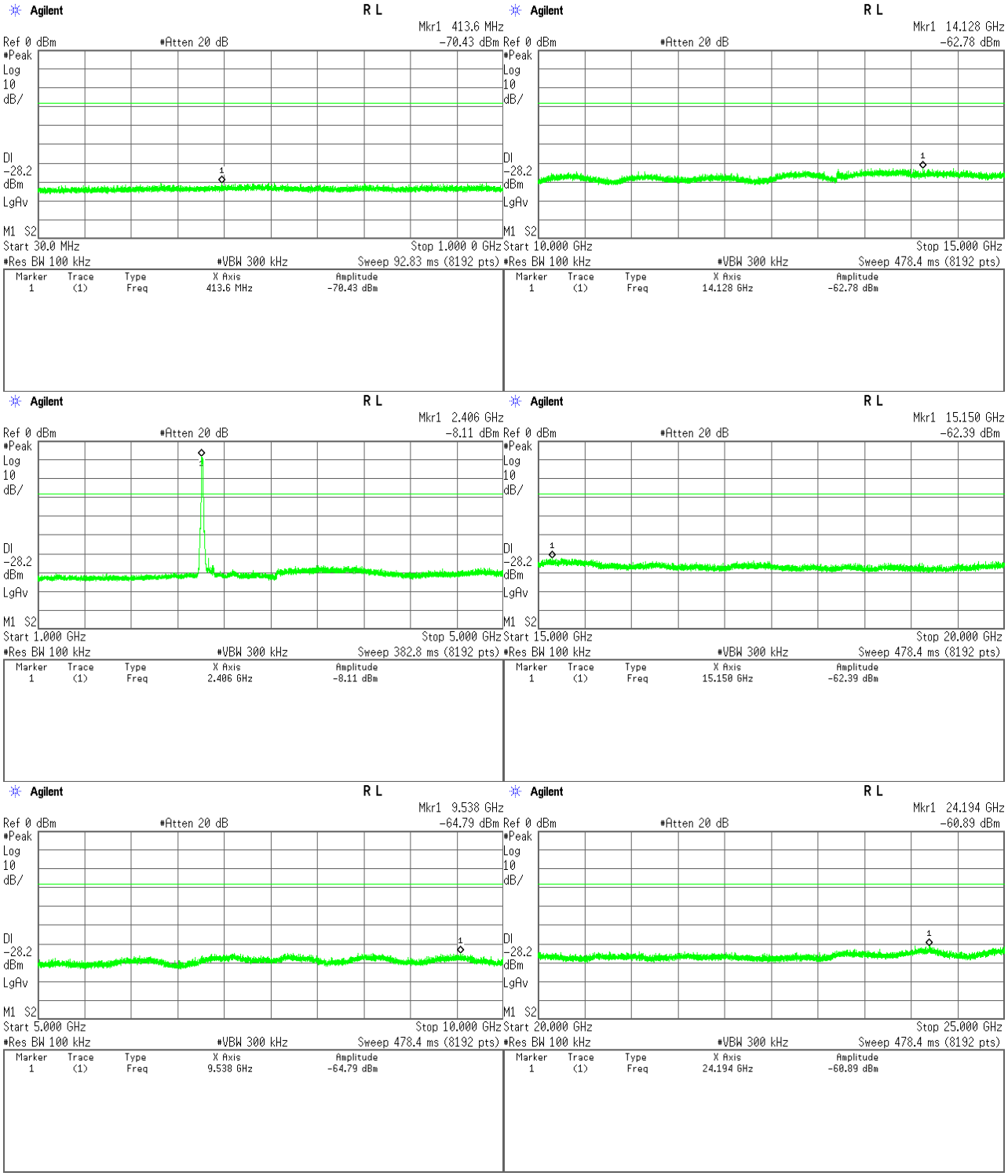




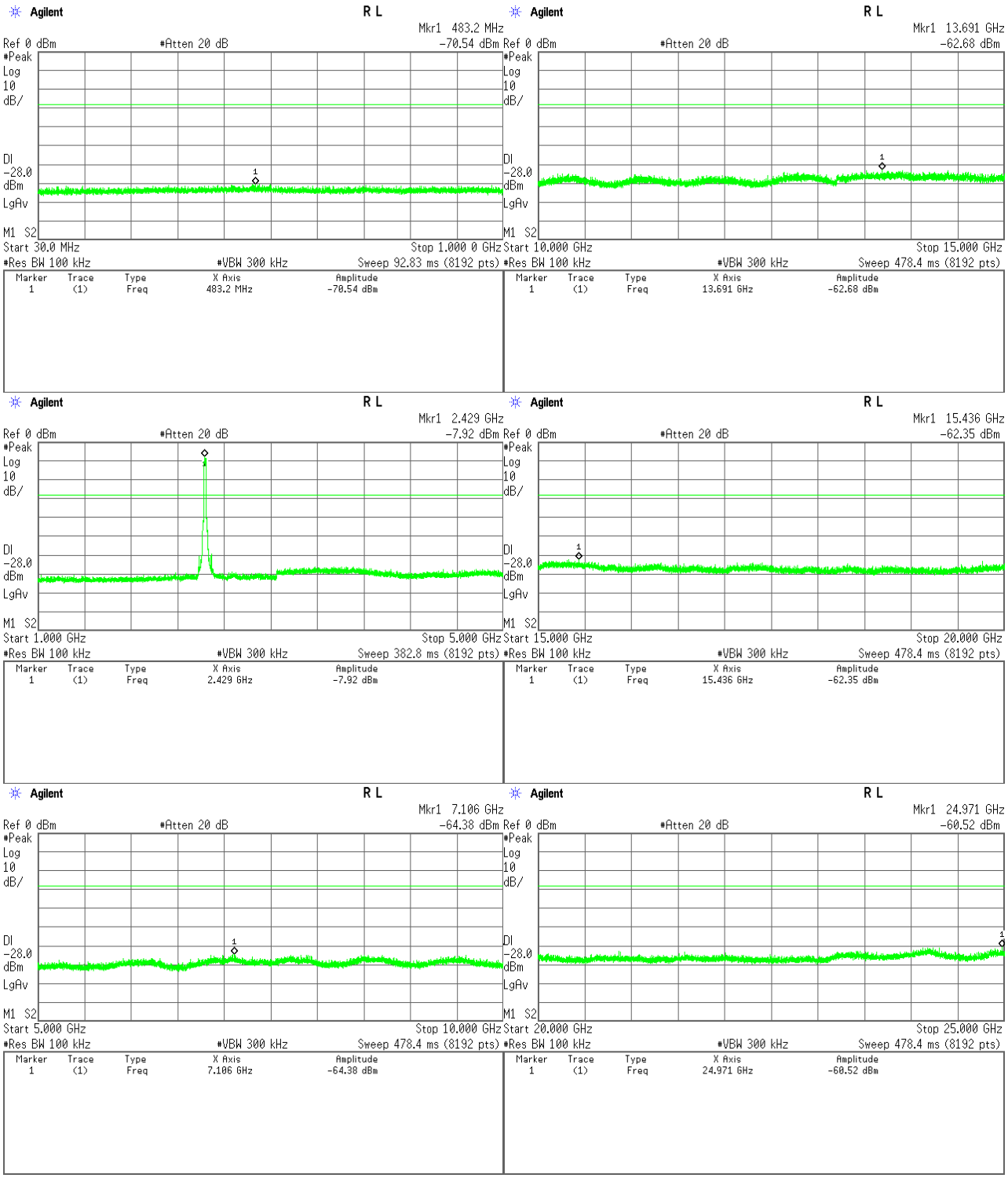


3) IEEE 802.11n

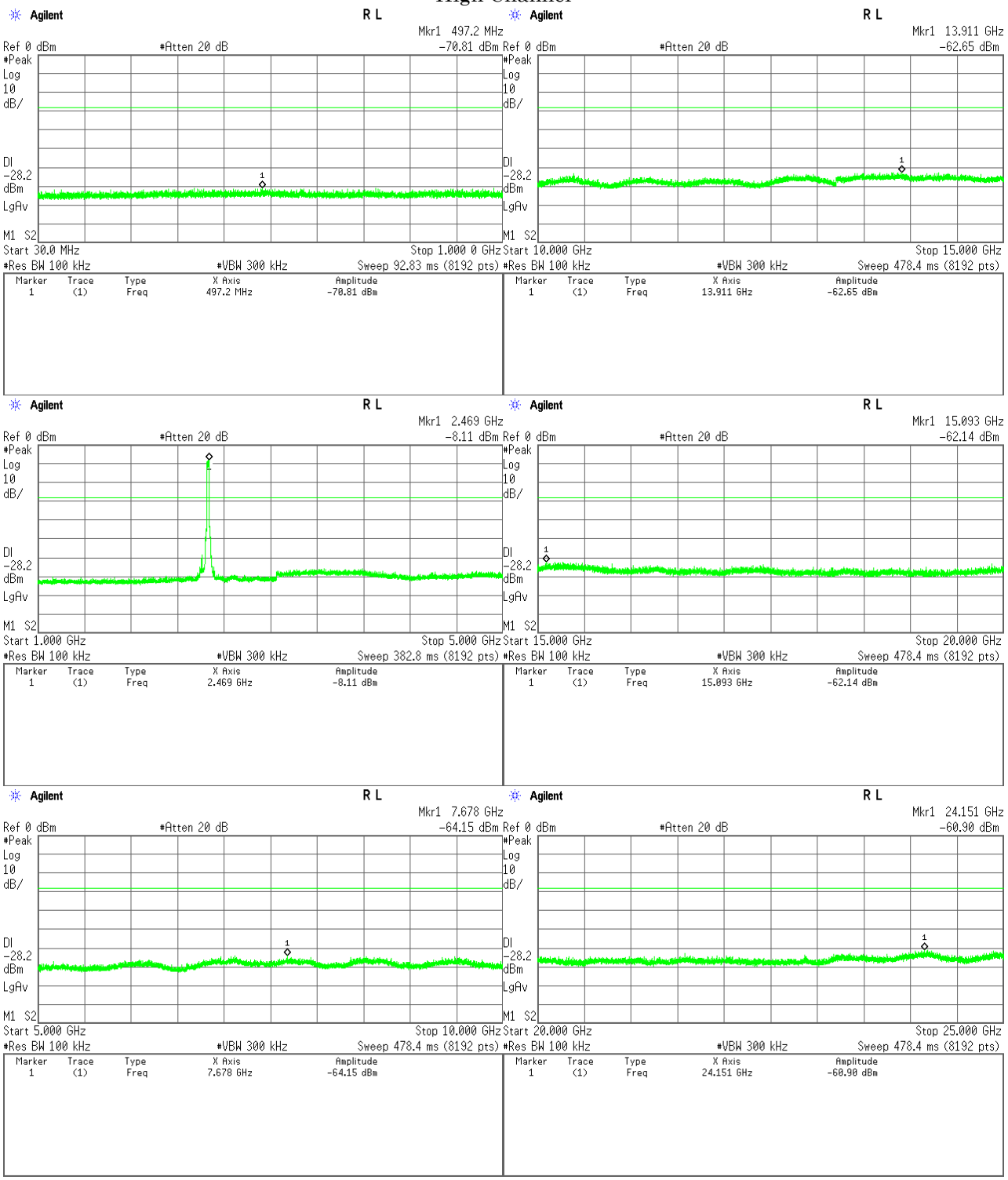
Low Channel



Middle Channel



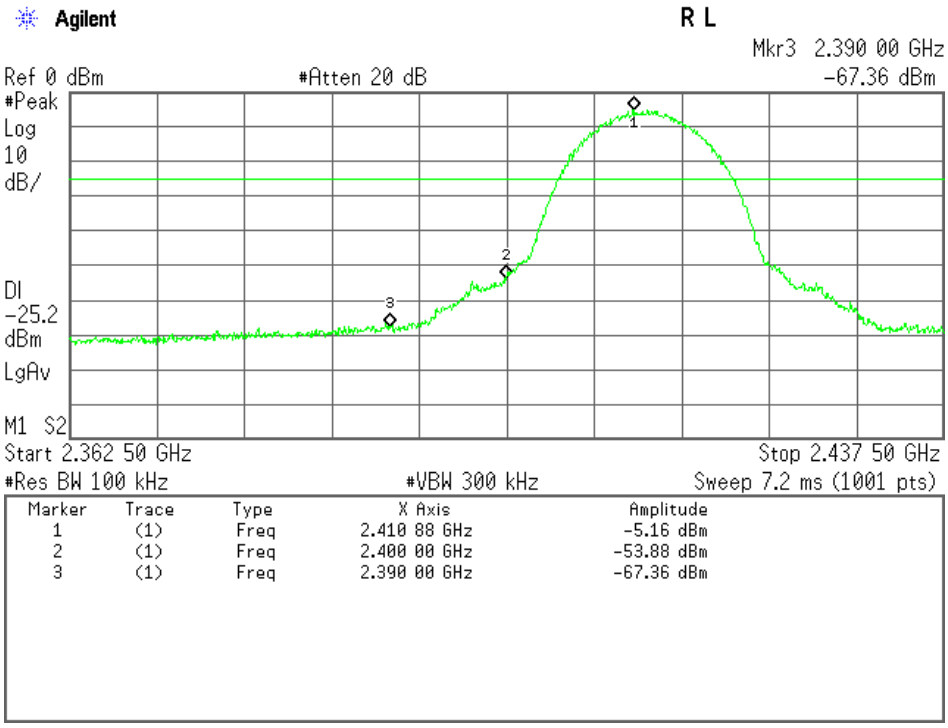
High Channel



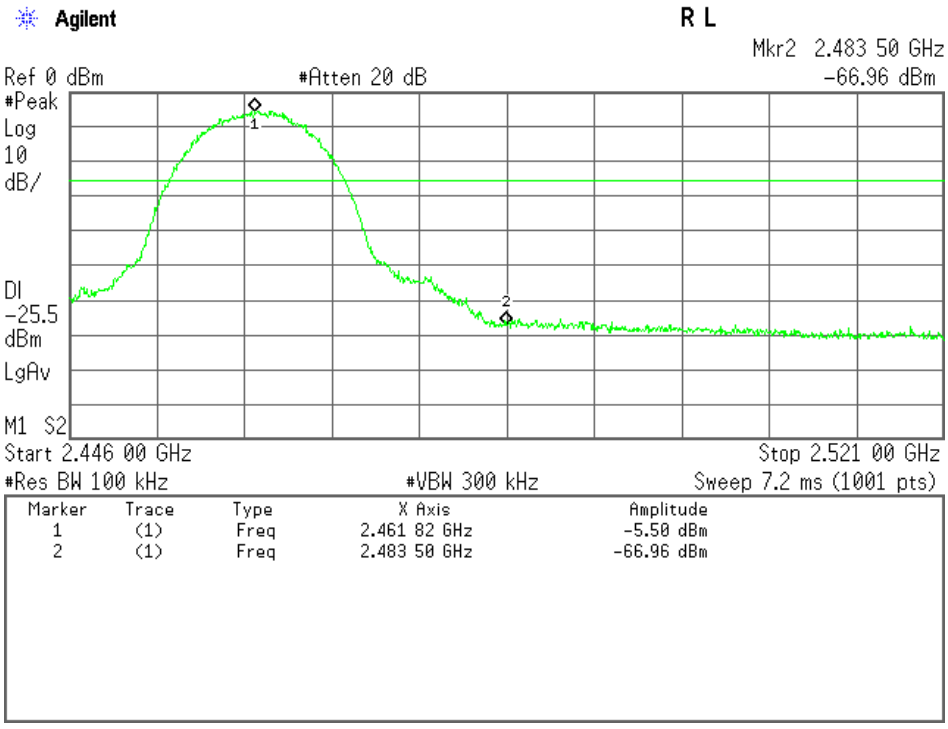
Band-Edge Emission

1) IEEE 802.11b

Low Channel

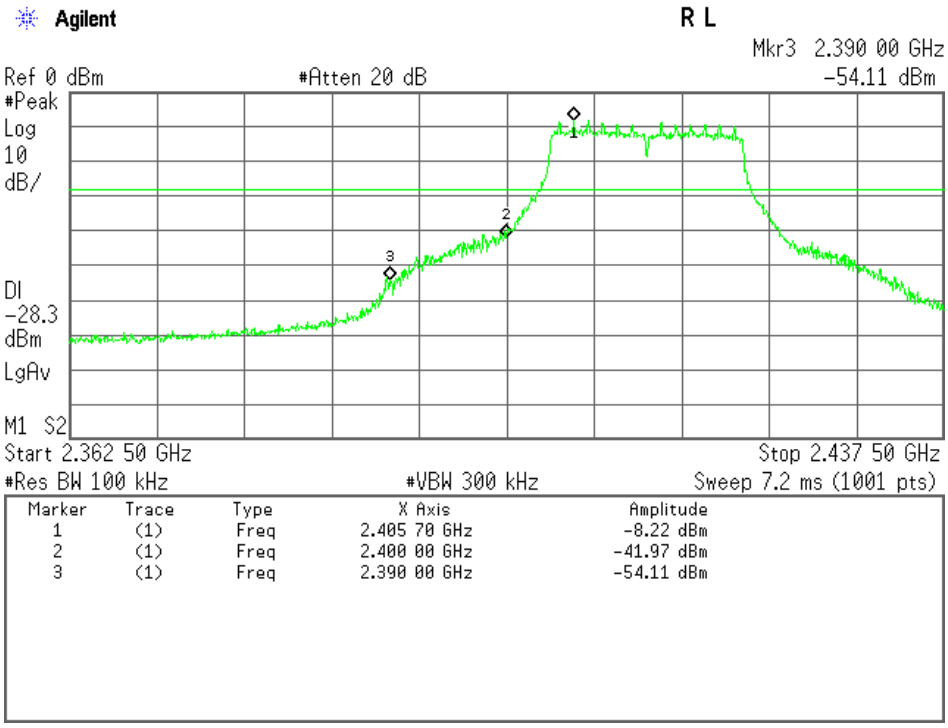


High Channel

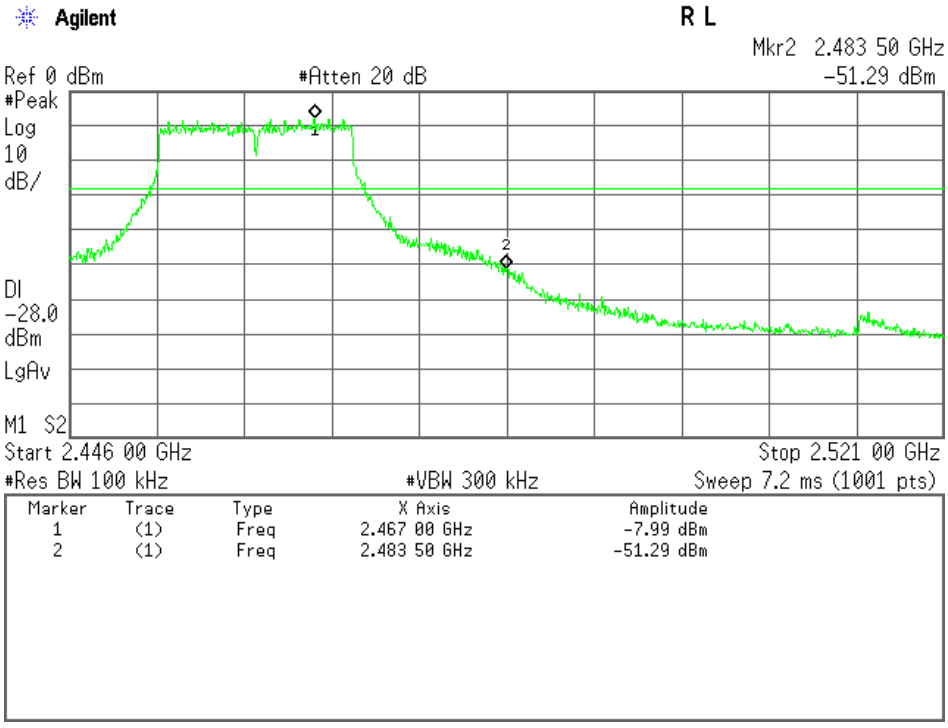


2) IEEE 802.11g

Low Channel

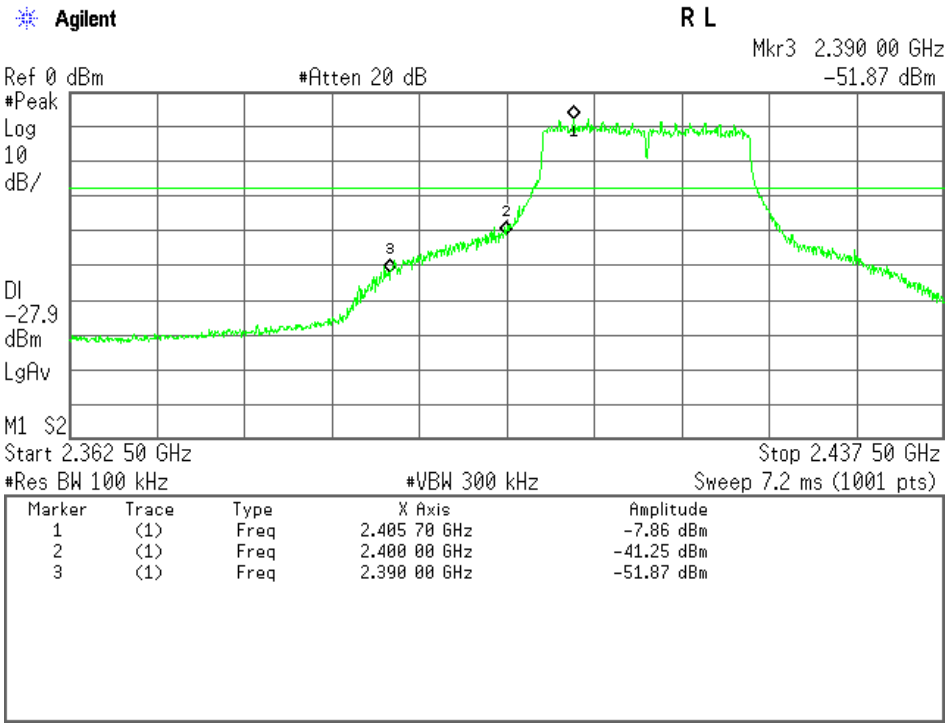


High Channel

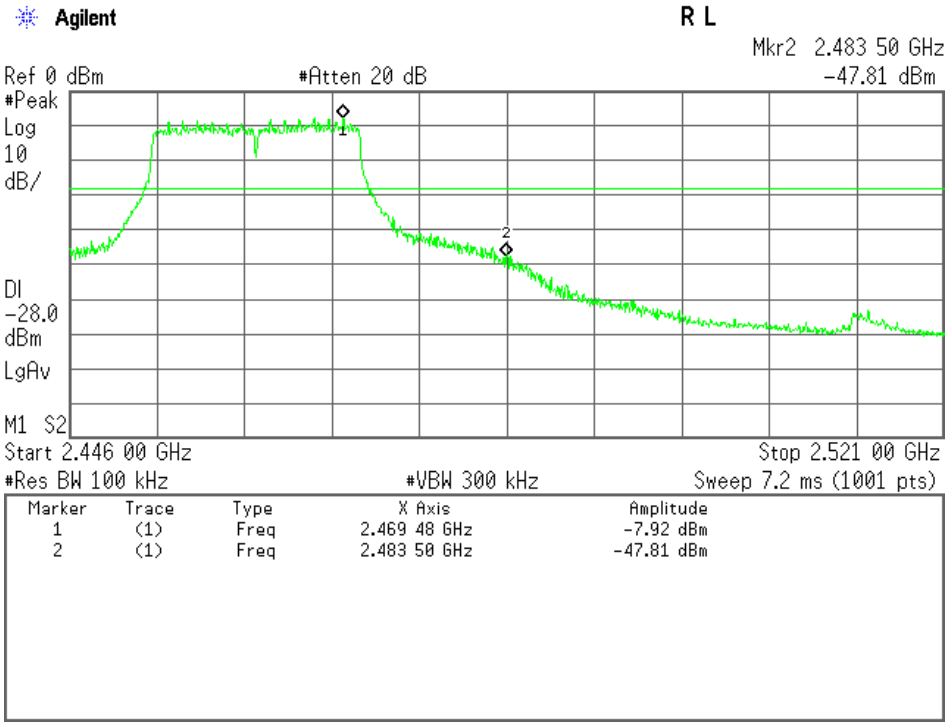


3) IEEE 802.11n

Low Channel



High Channel



7.8 AC Powerline Conducted Emission

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

For the limits, ☒ - **Passed** ☐ - **Failed** ☐ - **Not judged**

7.8.1 Worst Point and Measurement Uncertainty

Min. Limit Margin (Quasi-Peak) 9.9 dB at 2.64 MHz

Uncertainty of Measurement Results +/-2.7 dB(2σ)

Remarks :

7.8.2 Test Site

KITA-KANSAI Testing Center

Test site : SAITO

☐ - Anechoic chamber (A1) ☐ - Measurement room (M1)
☒ - Measurement room (M2) ☐ - Measurement room (M3)
☐ - Shielded room (S1) ☐ - Shielded room (S2)
☐ - Shielded room (S3) ☐ - Shielded room (S4)

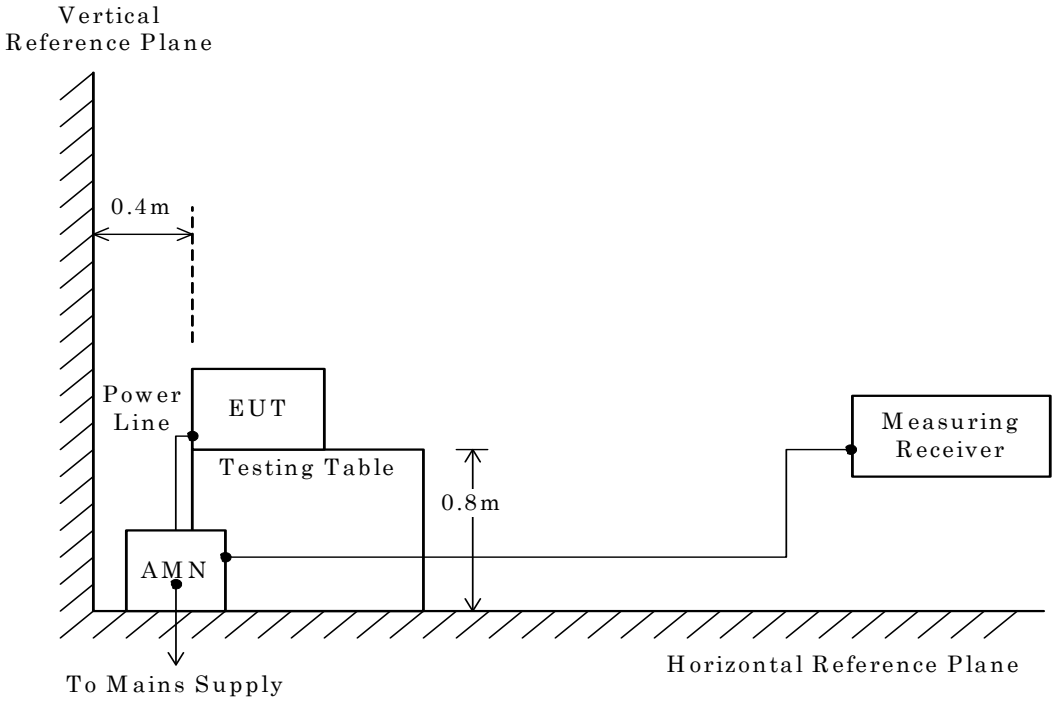
7.8.3 Test Instruments

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Test Receiver	ESU 26	Rohde & Schwarz	A-6	2013/4	1 Year
AMN (main)	KNW-407FR	Kyoritsu	D-103	2013/10	1 Year
RF Cable	RG223/U	SUHNER	H-35	2013/6	1 Year

7.8.4 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 –



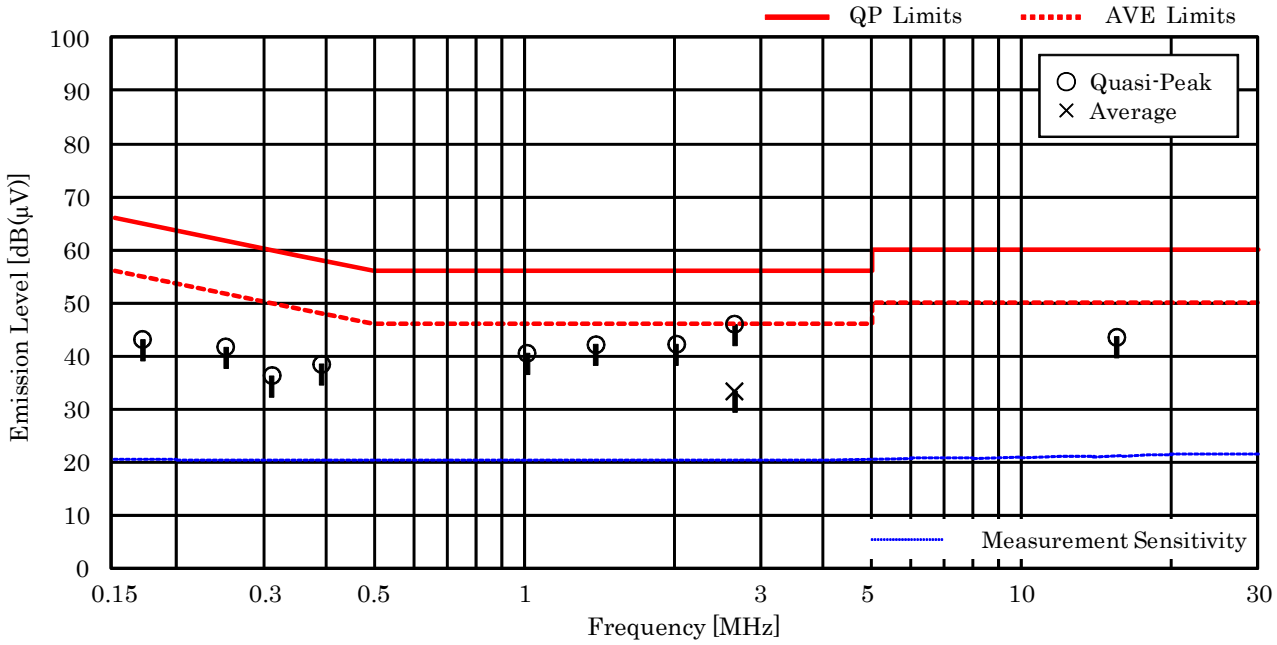
NOTE
AMN : Artificial Mains Network

7.8.5 Test Data

Mode of EUT : 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 Date: November 23, 2013
Temp.: 22 °C, Humi.: 42 %

Frequency	Corr. Factor	Meter Readings [dB(μV)] VA		VB		Limits [dB(μV)]		Results [dB(μV)]		Margin	Remarks
[MHz]	[dB]	QP	AVE	QP	AVE	QP	AVE	QP	AVE	[dB]	
0.17	10.3	25.5	--	32.9	--	65.0	55.0	43.2	--	+21.8	-
0.25	10.2	26.9	--	31.6	--	61.8	51.8	41.8	--	+20.0	-
0.31	10.2	26.2	--	19.6	--	60.0	50.0	36.4	--	+23.6	-
0.39	10.2	28.3	--	22.2	--	58.1	48.1	38.5	--	+19.6	-
1.01	10.3	24.7	--	30.3	--	56.0	46.0	40.6	--	+15.4	-
1.39	10.3	26.7	--	31.9	--	56.0	46.0	42.2	--	+13.8	-
2.02	10.4	26.1	--	31.9	--	56.0	46.0	42.3	--	+13.7	-
2.64	10.4	32.6	21.0	35.7	23.0	56.0	46.0	46.1	33.4	+ 9.9	-
15.52	11.0	32.6	--	30.1	--	60.0	50.0	43.6	--	+16.4	-



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 2.64 MHz, as the worst point shown on underline:
   Correction Factor + Meter Reading = 10.4 + 35.7 = 46.1 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

The requirements are ☒ - Applicable [☒ - Tested. ☐ - Not tested by applicant request.]
☐ - Not Applicable

☒ - **Passed** ☐ - **Failed** ☐ - **Not judged**

7.9.1 Worst Point and Measurement Uncertainty

Min. Limit Margin (Average) >5.6 dB at 22158.0 MHz

Uncertainty of Measurement Results

9 kHz – 30 MHz	+/-1.9	dB(2σ)
30 MHz – 300 MHz	+/-4.3	dB(2σ)
300 MHz – 1000 MHz	+/-5.4	dB(2σ)
1 GHz – 6 GHz	+/-4.6	dB(2σ)
6 GHz – 18 GHz	+/-5.2	dB(2σ)
18 GHz – 40 GHz	+/-5.4	dB(2σ)

Remarks :

7.9.2 Test Site

KITA-KANSAI Testing Center SAITO EMC Branch

☐ - Anechoic chamber A1 ☒ - Anechoic chamber A2

7.9.3 Test Instruments

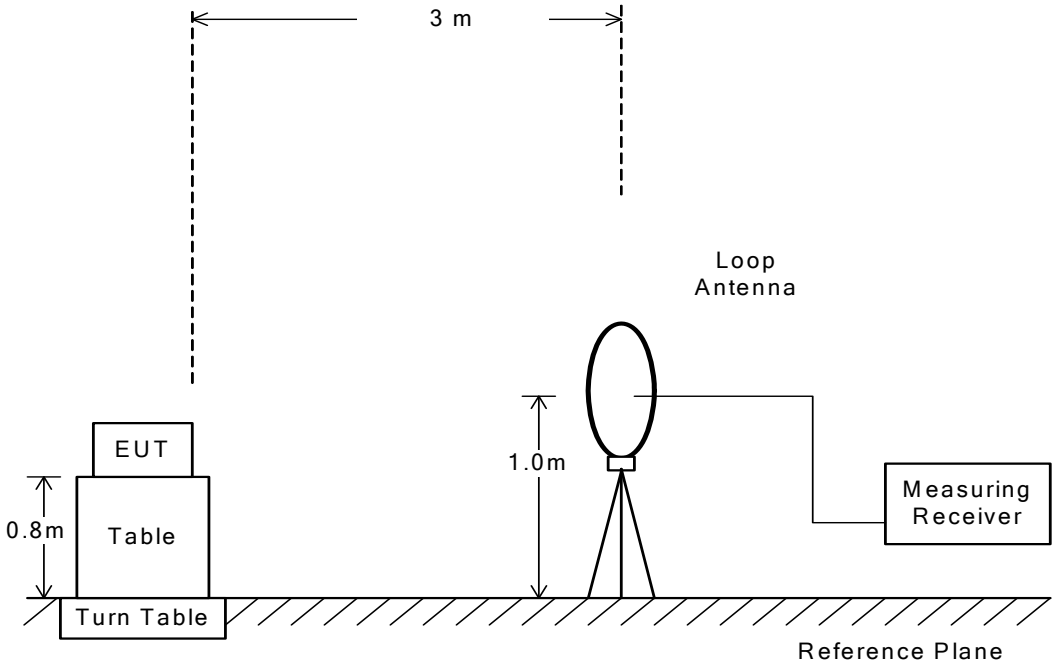
Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Test Receiver	ESU 26	Rohde & Schwarz	A-6	2013/4	1 Year
Loop Antenna	HFH2-Z2	Rohde & Schwarz	C-2	2013/8	1 Year
RF Cable	RG213/U	SUHNER	H-28	2013/8	1 Year
Biconical Antenna	VHA9103/BBA9106	Schwarzbeck	C-30	2013/5	1 Year
Log-periodic Antenna	UHALP9108-A1	Schwarzbeck	C-31	2013/5	1 Year
RF Cable	S 10162 B-11 etc.	SUHNER	H-4	2013/4	1 Year
Site Attenuation	--	----	H-15	2013/2	1 Year
Pre-Amplifier	WJ-6882-824	Watkins Johnson	A-21	2013/2	1 Year
Pre-Amplifier	WJ-6611-513	Watkins Johnson	A-23	2013/2	1 Year
Pre-Amplifier	BZ1840LD1	B&Z	A-29	2013/2	1 Year
Pre-Amplifier	DBL-0618N515	DBS Microwave	A-33	2013/2	1 Year
Horn Antenna	91888-2	EATON	C-41-1	2013/6	1 Year
Horn Antenna	91889-2	EATON	C-41-2	2013/6	1 Year
Horn Antenna	3160-04	EMCO	C-55	2013/7	1 Year
Horn Antenna	3160-05	EMCO	C-56	2013/7	1 Year
Horn Antenna	3160-06	EMCO	C-57	2013/7	1 Year
Horn Antenna	3160-07	EMCO	C-58	2013/7	1 Year
Horn Antenna	3160-08	EMCO	C-59	2013/7	1 Year
Horn Antenna	3160-09	EMCO	C-48	2013/7	1 Year
Attenuator	54A-10	Weinschel	D-29	2013/9	1 Year
Attenuator	2-10	Weinschel	D-79	2013/11	1 Year
Band Rejection Filter	BRM50701	MICRO-TRONICS	D-93	2013/2	1 Year
RF Cable	SUCOFLEX102	SUHNER	C-52	2013/7	1 Year
RF Cable	SUCOFLEX104	SUHNER	C-66	2013/2	1 Year
RF Cable	SUCOFLEX104	SUHNER	C-67	2013/2	1 Year
RF Cable	SUCOFLEX102EA	SUHNER	C-69	2013/2	1 Year
SVSWR	--	----	H-19	2013/2	1 Year
Pre-Amplifier	310N	SONOMA	A-17	2013/4	1 Year

7.9.4 Test Method and Test Setup (Diagrammatic illustration)

7.9.4.1 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.

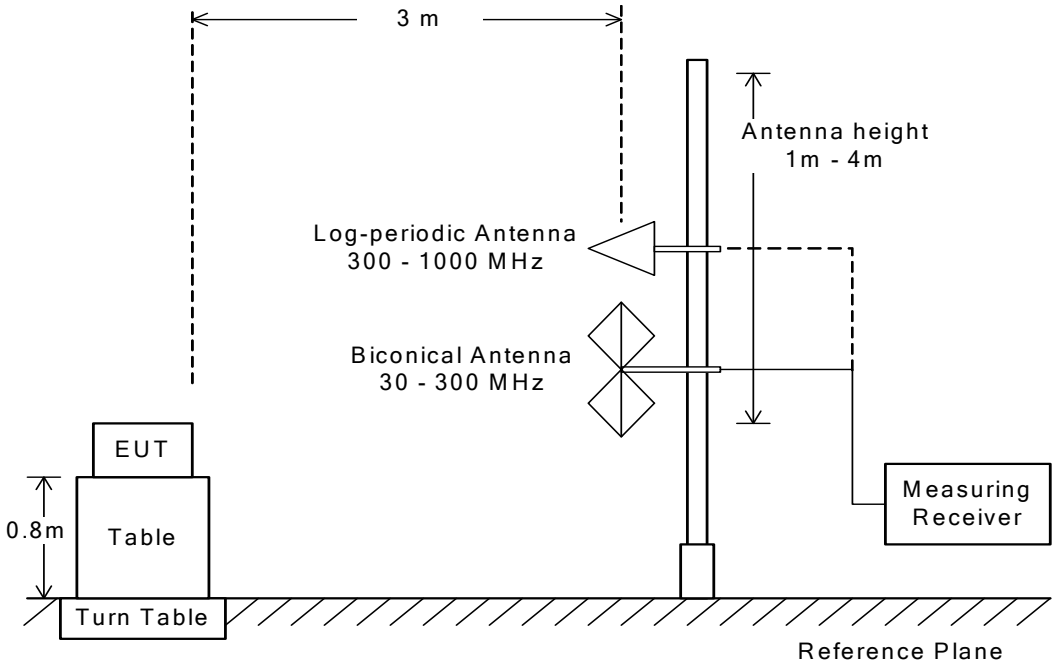
– Side View –



7.9.4.2 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.

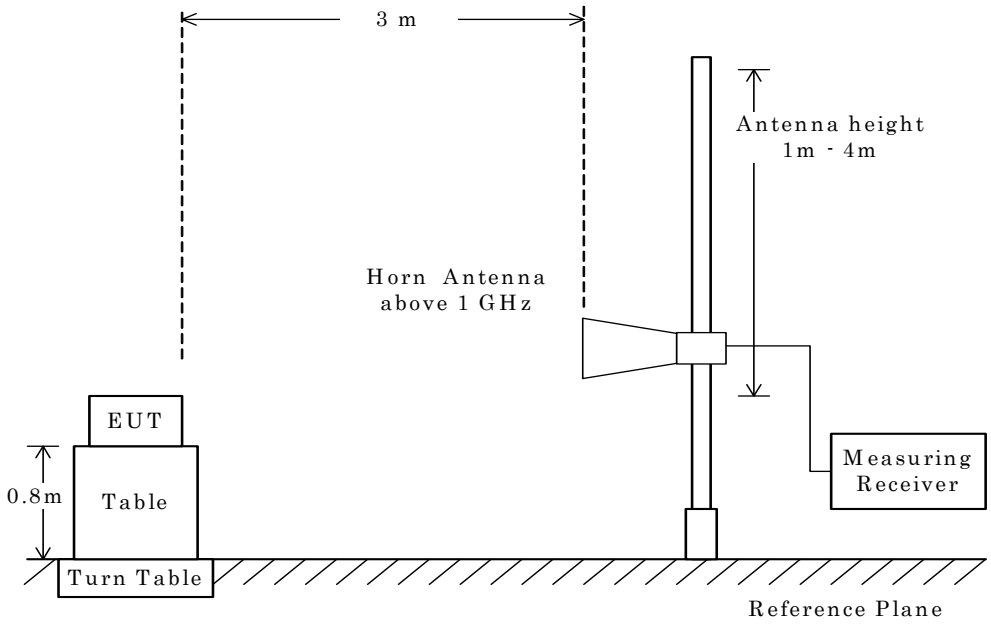
– Side View –



7.9.4.3 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.

– Side View –



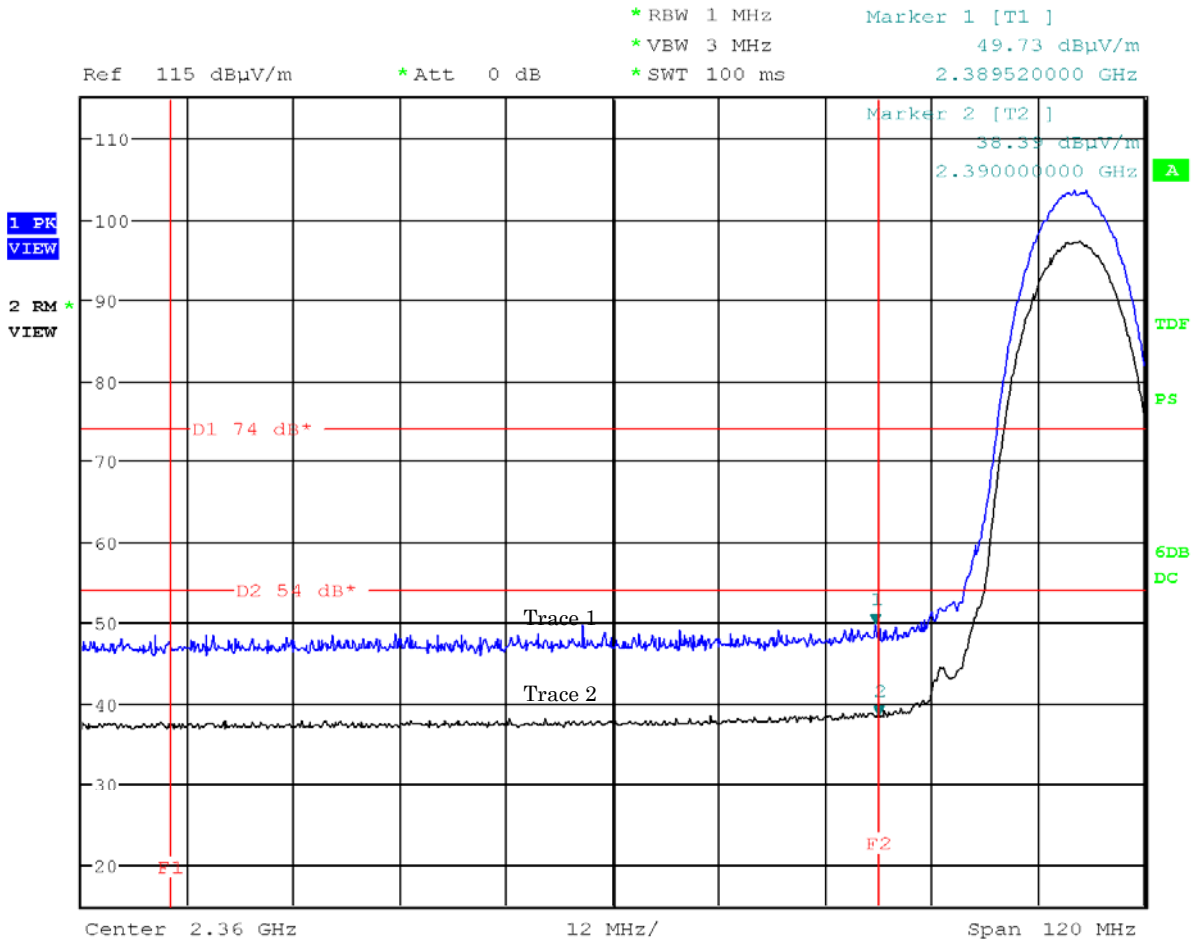
NOTE
The antenna height is scanned depending on the EUT's size and mounting height.

7.9.5 Test Data

7.9.5.1 Band-edge Compliance

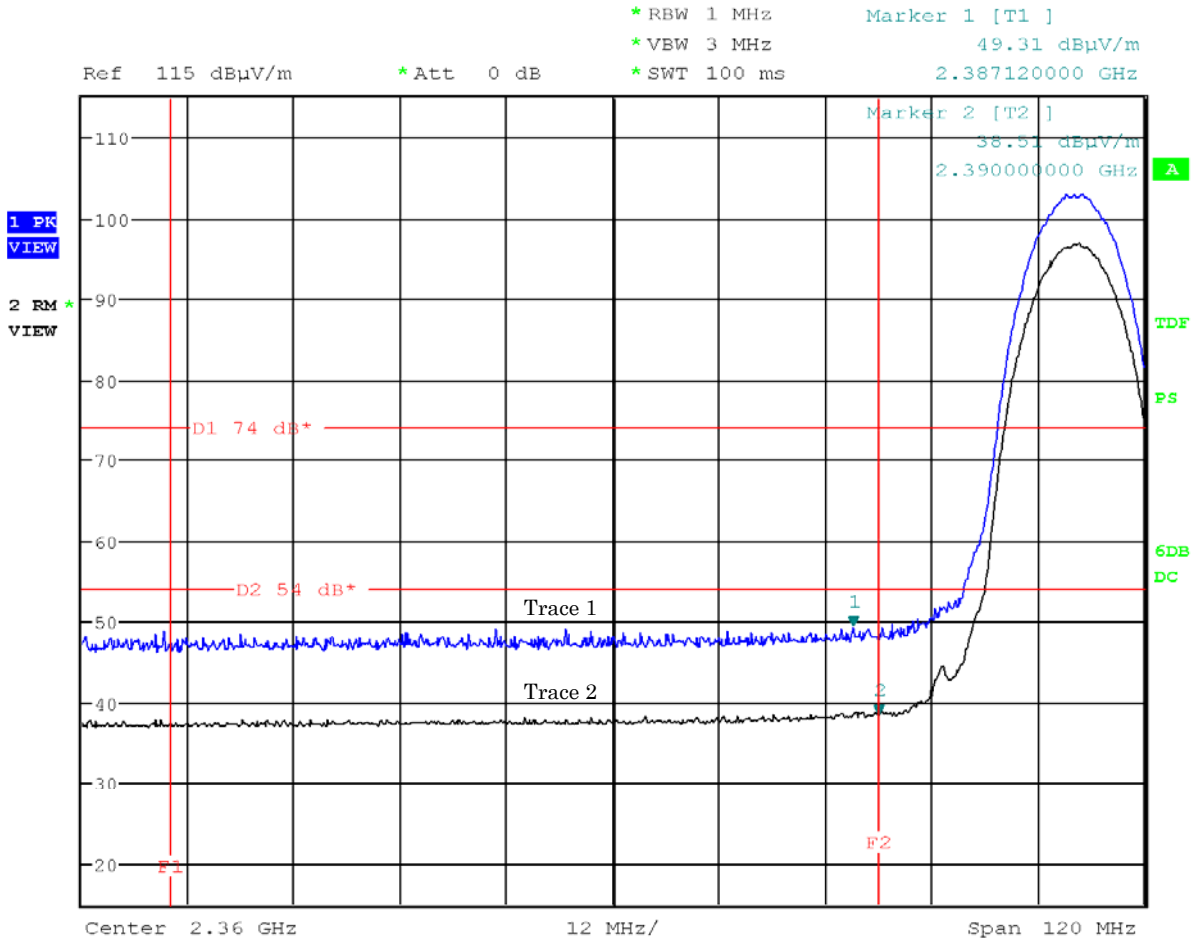
Test Date : November 22, 2013
Temp.:22°C, Humi:38%

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



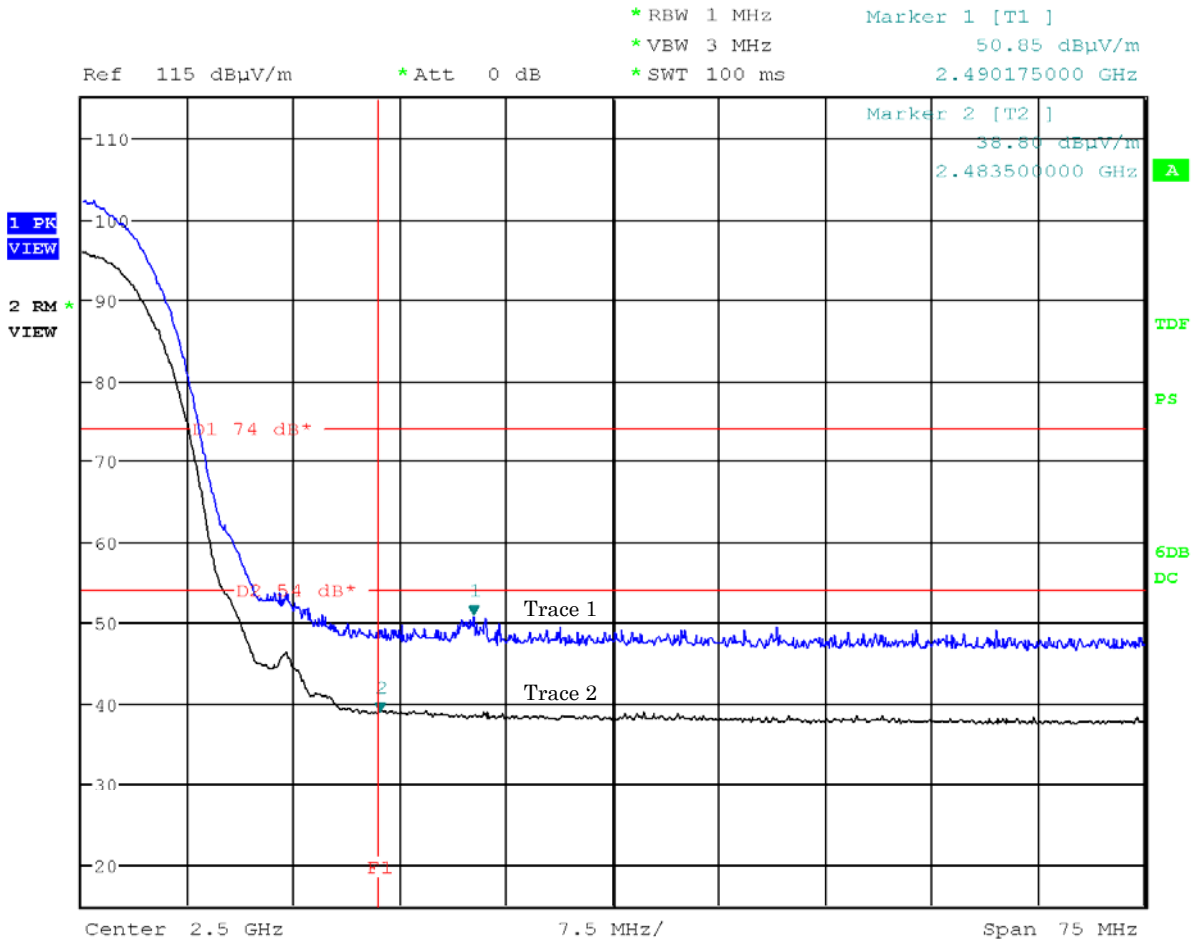
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



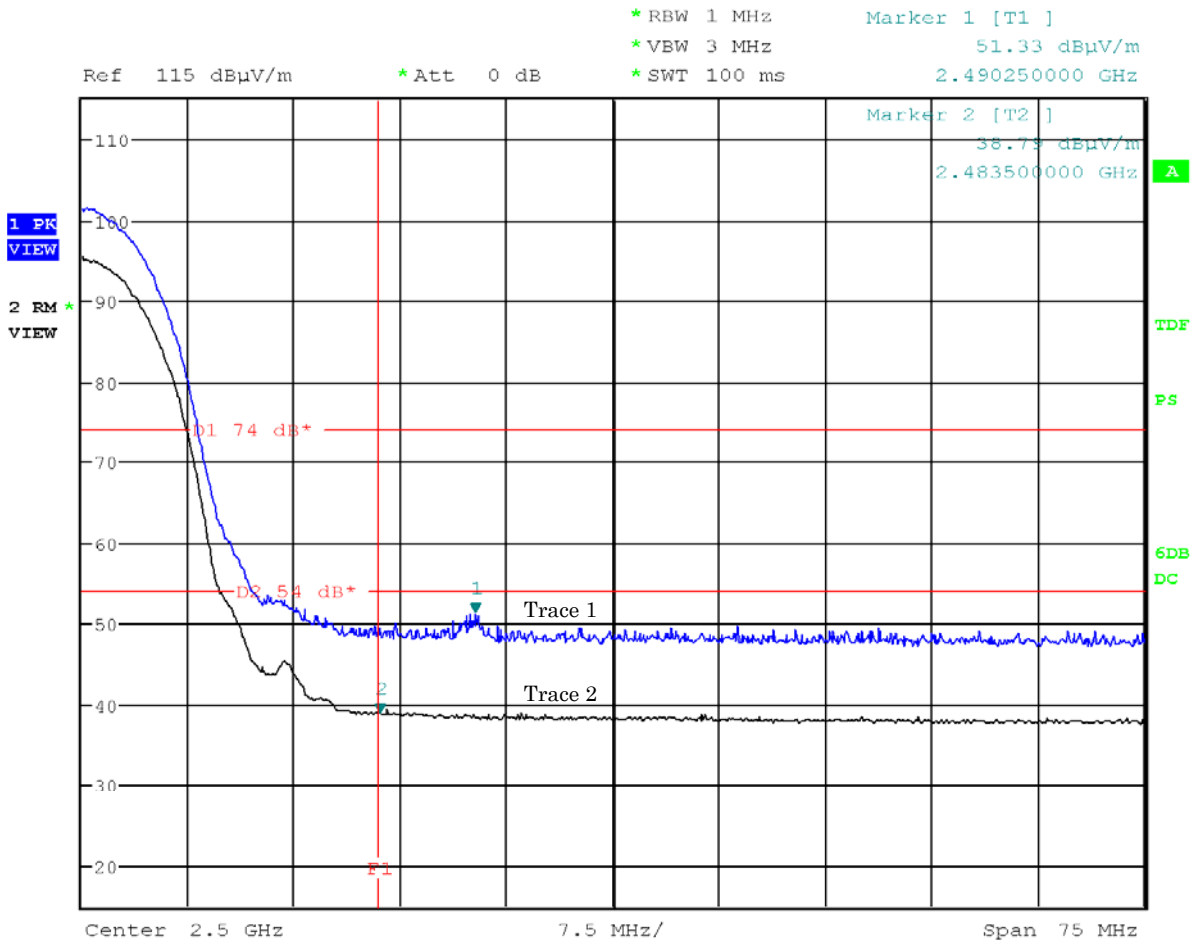
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



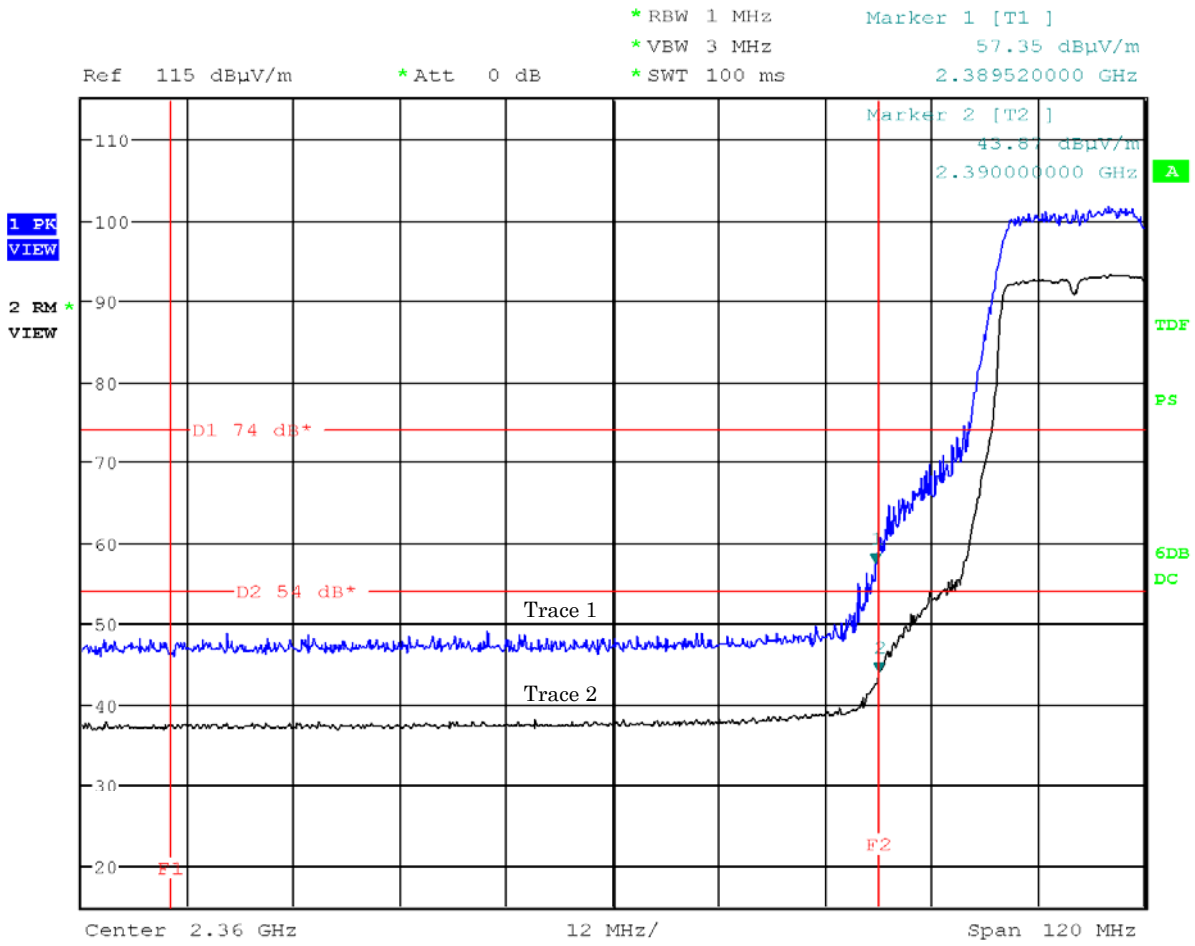
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



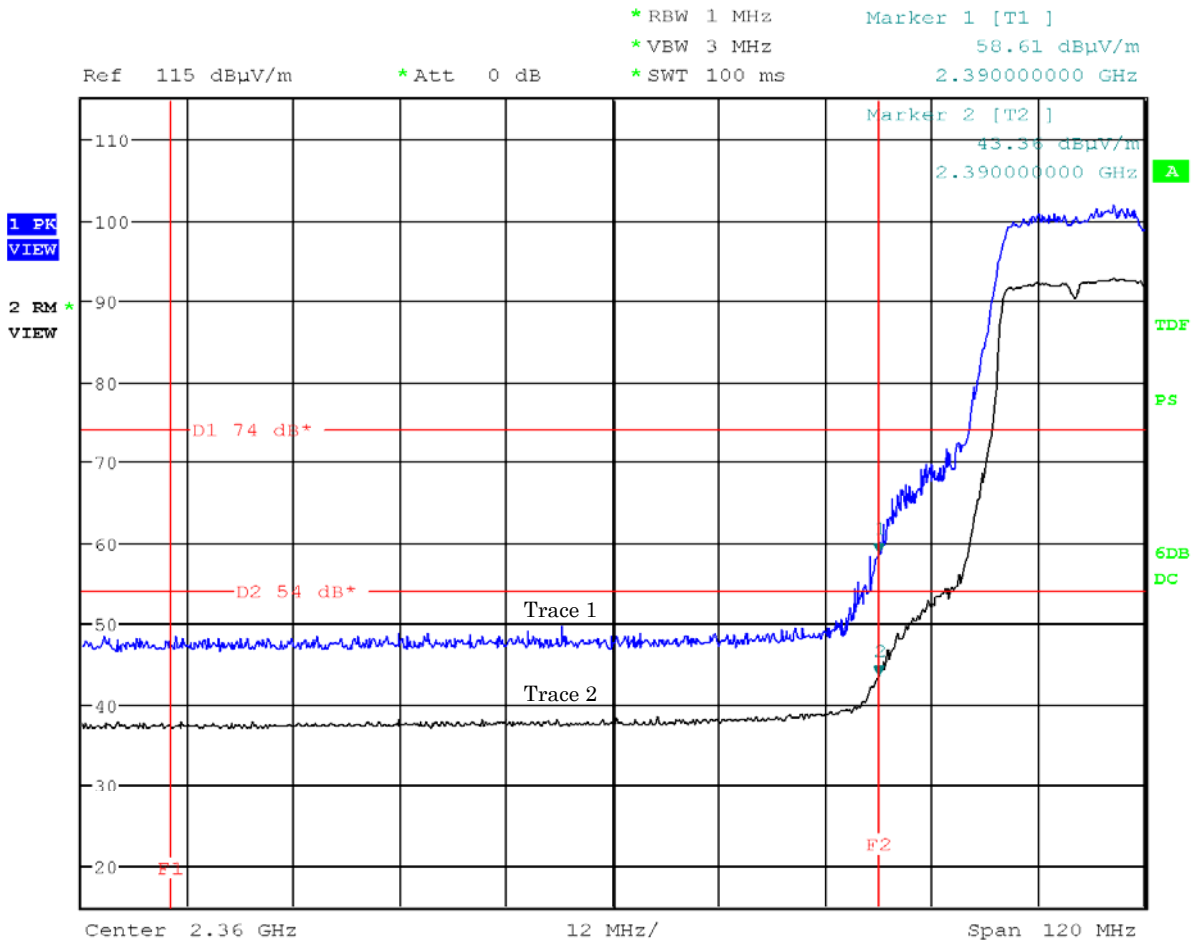
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



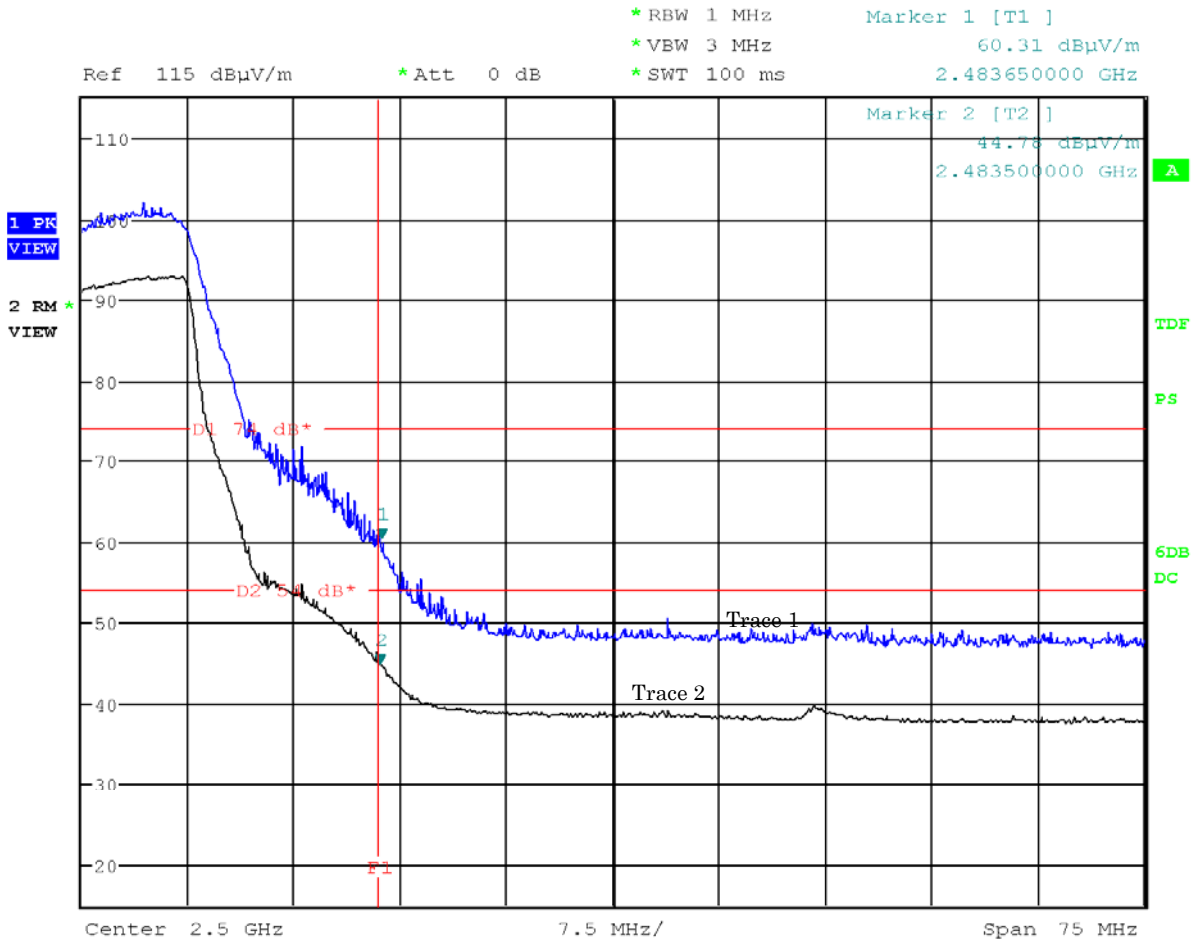
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



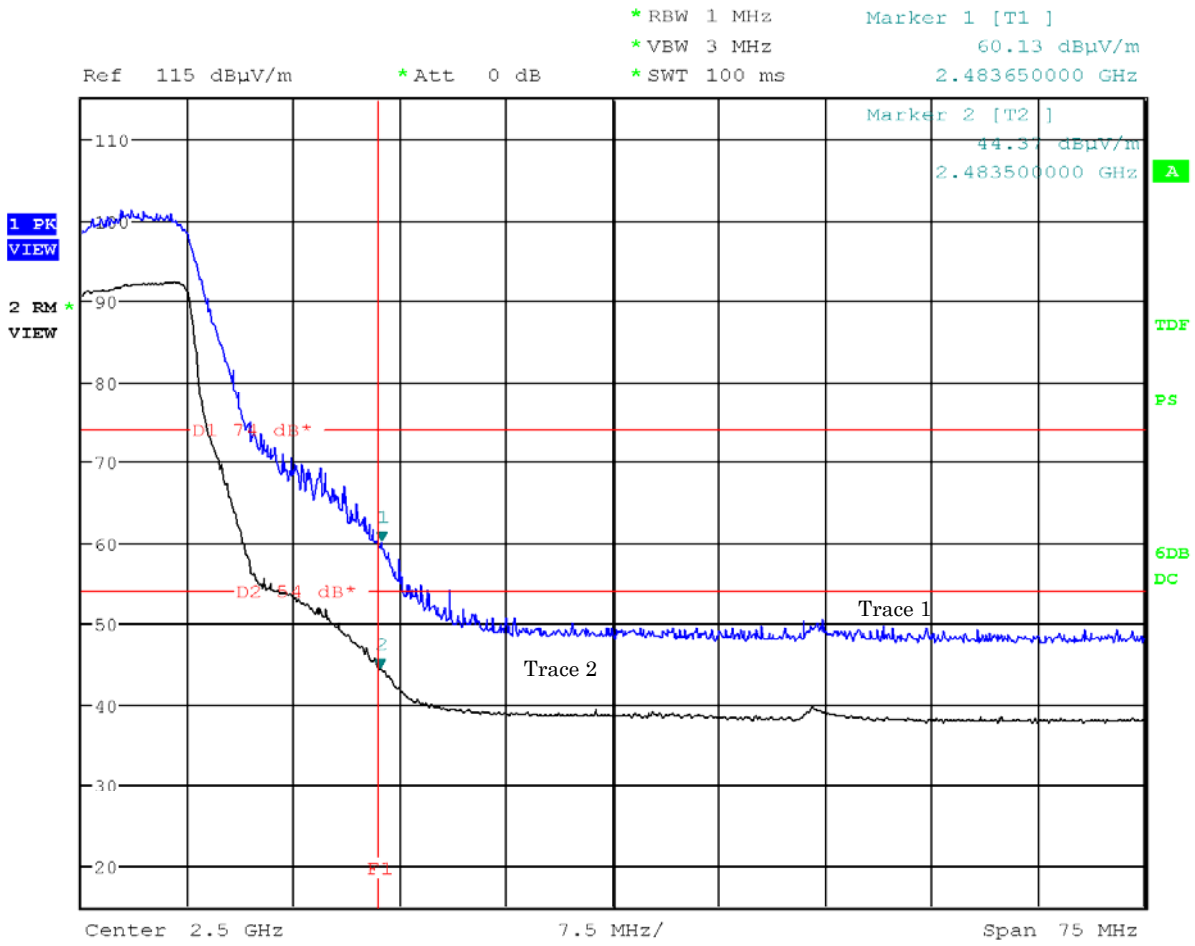
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



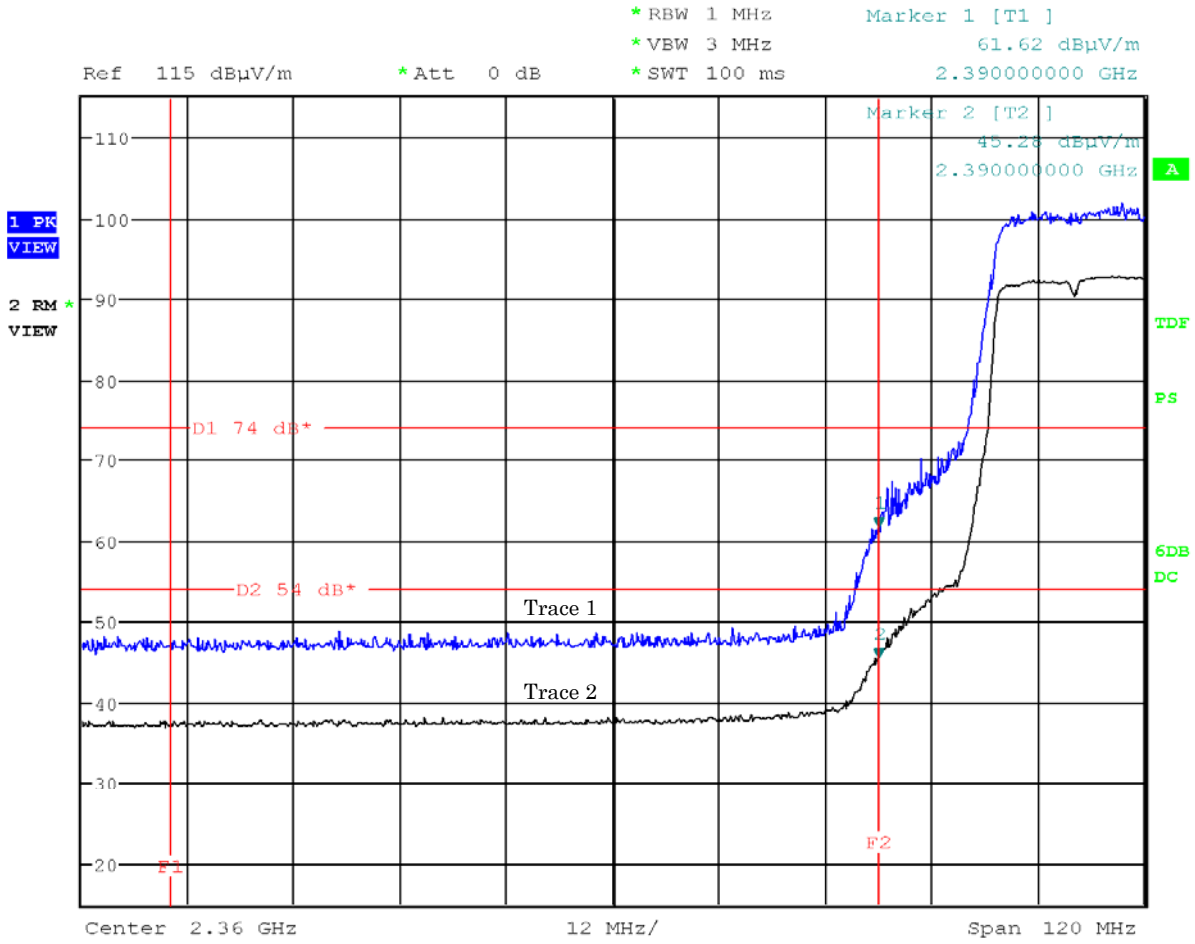
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



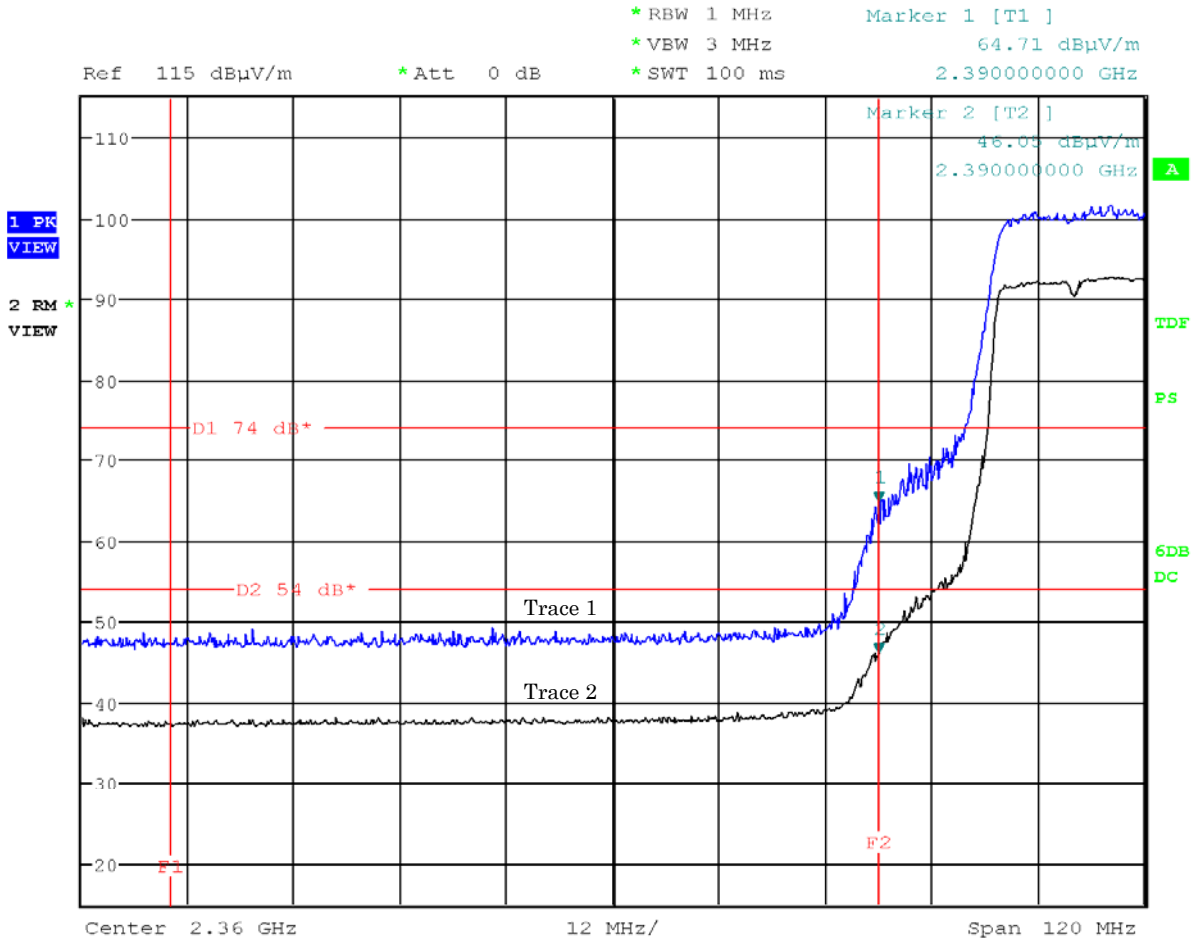
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



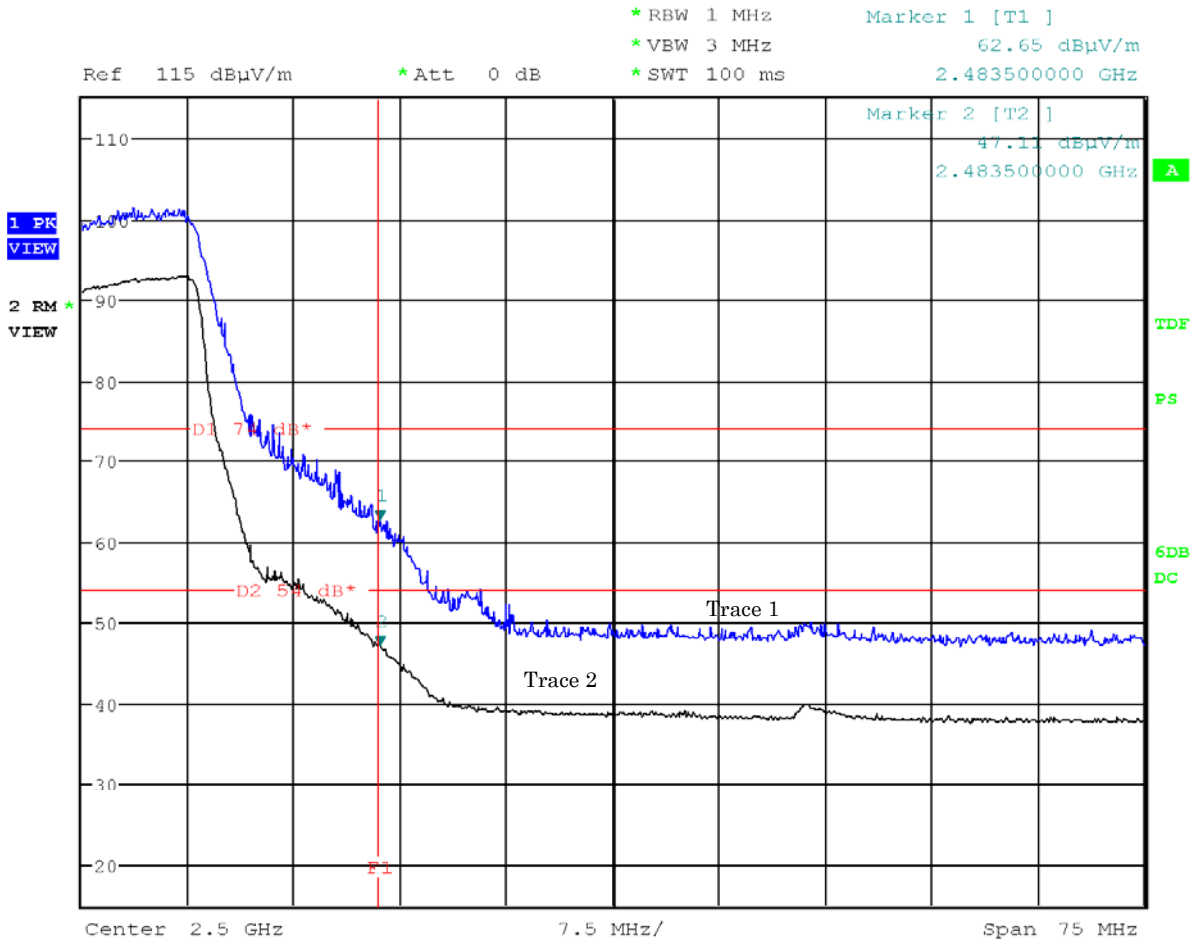
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



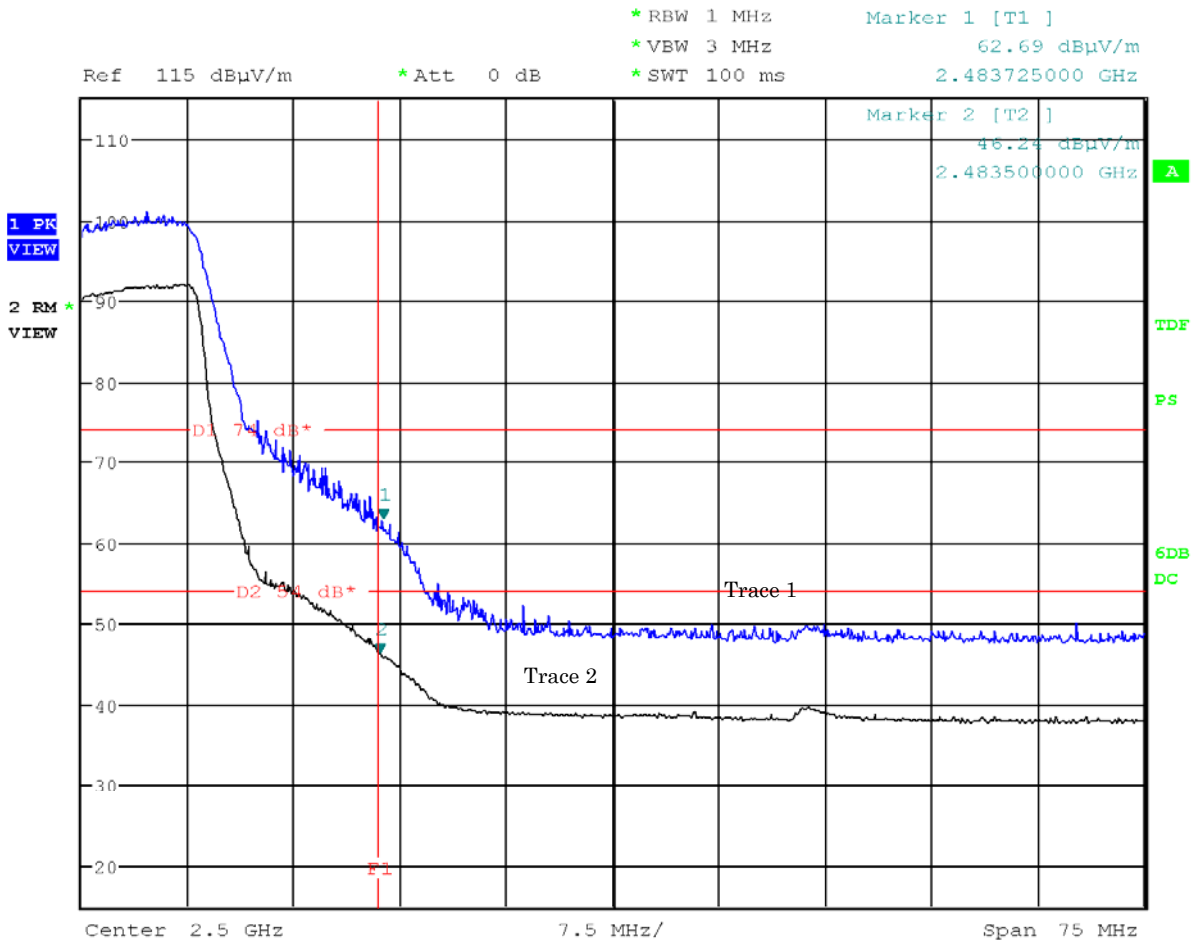
Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

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



Note: The trace 1 is Peak detection. The trace 2 is RMS detection.

7.9.5.2 Other Spurious Emission (9kHz – 30MHz)

Test Date : November 27, 2013
Temp.:21°C, Humi:36%

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

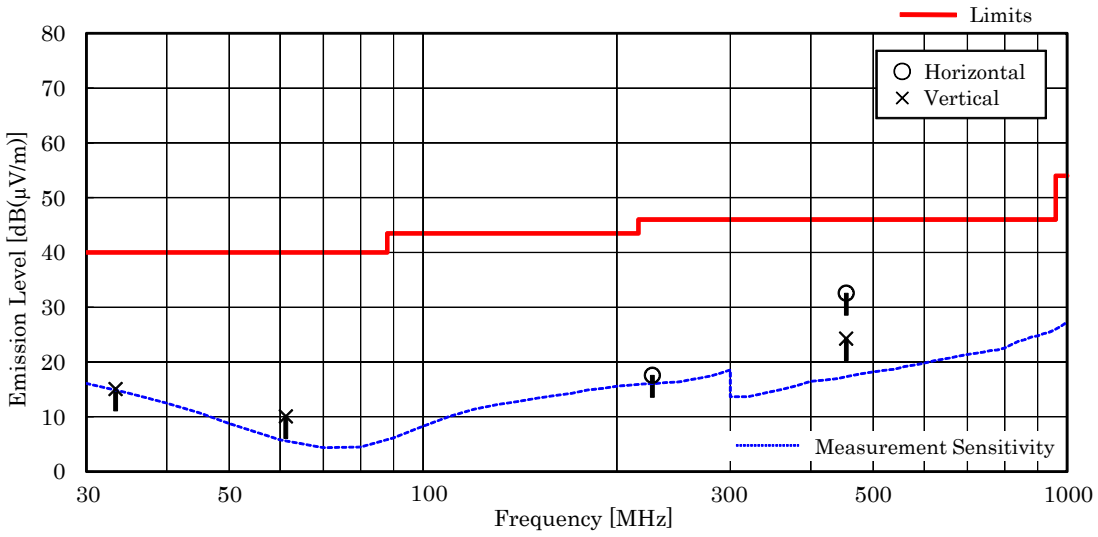
Results : No spurious emissions in the range 20dB below the limit.

7.9.5.3 Other Spurious Emission (30MHz – 1000MHz)

Mode of EUT : 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 Date: November 27, 2013
Temp.: 21 °C, Humi: 36 %

Frequency [MHz]	Antenna Factor [dB(1/m)]	Cable Loss [dB]	Meter Readings [dB(μV)] Hori.	Meter Readings [dB(μV)] Vert.	Limits [dB(μV/m)]	Results [dB(μV/m)] Hori.	Results [dB(μV/m)] Vert.	Margin [dB]	Remarks
33.3	17.5	-27.6	< 25.0	25.2	40.0	< 14.9	15.1	+24.9	-
61.2	7.9	-27.2	< 25.0	29.4	40.0	< 5.7	10.1	+29.9	-
227.0	16.9	-25.8	26.5	< 25.0	46.0	17.6	< 16.1	+28.4	-
454.0	17.0	-24.6	40.2	31.9	46.0	32.6	24.3	+13.4	-



NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The symbol of "<" means "or less".
4. The symbol of ">" means "more than".
5. Calculated result at 454.0 MHz, as the worst point shown on underline:
   Antenna Factor + Cable Loss + Meter Reading = 17.0 + -24.6 + 40.2 = 32.6 dB(μV/m)
6. Test receiver setting(s) : CISPR QP 120 kHz (QP : Quasi-Peak)

7.9.5.4 Other Spurious Emission (Above 1000MHz)
7.9.5.4.1 Mode of TX
7.9.5.4.1.1 IEEE802.11b

Test Date: November 25, 2013
Temp.: 21 °C, Humi: 52 %

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 : Tx Low Ch												
4824.0	27.2	-21.1	< 40.0	32.4	< 40.0	30.7	74.0	54.0	< 46.1	38.5	+15.5	A/B
12060.0	33.7	-27.1	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.6	< 36.6	> +17.4	A/B
19296.0	40.5	-23.0	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 57.5	< 47.5	> + 6.5	A/B
Test condition : TX Middle Ch												
4874.0	27.2	-21.2	42.5	34.4	42.5	35.5	74.0	54.0	48.5	41.5	+12.5	A/B
7311.0	30.0	-19.7	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 50.3	< 40.3	> +13.7	A/B
12185.0	33.5	-27.0	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.5	< 36.5	> +17.5	A/B
19496.0	40.5	-22.9	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 57.6	< 47.6	> + 6.4	A/B
Test condition : TX High Ch												
4924.0	27.2	-21.3	< 40.0	32.5	< 40.0	33.3	74.0	54.0	< 45.9	39.2	+14.8	A/B
7386.0	29.9	-19.6	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 50.3	< 40.3	> +13.7	A/B
12310.0	33.5	-26.8	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.7	< 36.7	> +17.3	A/B
19696.0	40.5	-22.9	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 57.6	< 47.6	> + 6.4	A/B
22158.0	40.6	-22.2	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 58.4	< 48.4	> + 5.6	A/B

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

	Antenna Factor	=	40.6 dB(1/m)
	Corr. Factor	=	-22.2 dB
+)	Meter Reading	=	<30.0 dB(μV)
	Result	=	<48.4 dB(μV/m)

Minimum Margin: 54.0 - <48.4 = >5.6 (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 + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - 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 Detector / AVE : Average Detector
7. Setting of measuring instrument(s) :

	Detector Function	Resolution B.W.	Video B.W.	Sweep Time
A	Peak	1 MHz	3 MHz	AUTO
B	RMS	1 MHz	3 MHz	AUTO

7.9.5.4.1.2 IEEE802.11g

Test Date: November 25, 2013
Temp.: 21 °C, Humi: 52 %

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	27.2	-21.1	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.1	< 36.1	> +17.9	A/B
12060.0	33.7	-27.1	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.6	< 36.6	> +17.4	A/B
19296.0	40.5	-23.0	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 57.5	< 47.5	> + 6.5	A/B
Test condition : TX Middle Ch												
4874.0	27.2	-21.2	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.0	< 36.0	> +18.0	A/B
7311.0	30.0	-19.7	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 50.3	< 40.3	> +13.7	A/B
12185.0	33.5	-27.0	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.5	< 36.5	> +17.5	A/B
19496.0	40.5	-22.9	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 57.6	< 47.6	> + 6.4	A/B
Test condition : TX High Ch												
4924.0	27.2	-21.3	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 45.9	< 35.9	> +18.1	A/B
7386.0	29.9	-19.6	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 50.3	< 40.3	> +13.7	A/B
12310.0	33.5	-26.8	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.7	< 36.7	> +17.3	A/B
19696.0	40.5	-22.9	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 57.6	< 47.6	> + 6.4	A/B
22158.0	40.6	-22.2	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 58.4	< 48.4	> + 5.6	A/B

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

	Antenna Factor	=	40.6 dB(1/m)
	Corr. Factor	=	-22.2 dB
+)	Meter Reading	=	<30.0 dB(μV)
	Result	=	<48.4 dB(μV/m)

Minimum Margin: 54.0 - <48.4 = >5.6 (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 + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - 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 Detector / AVE : Average Detector
7. Setting of measuring instrument(s) :

	Detector Function	Resolution B.W.	Video B.W.	Sweep Time
A	Peak	1 MHz	3 MHz	AUTO
B	RMS	1 MHz	3 MHz	AUTO

7.9.5.4.1.3 IEEE802.11n

Test Date: November 25, 2013
Temp.: 21 °C, Humi: 52 %

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	27.2	-21.1	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.1	< 36.1	> +17.9	A/B
12060.0	33.7	-27.1	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.6	< 36.6	> +17.4	A/B
19296.0	40.5	-23.0	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 57.5	< 47.5	> + 6.5	A/B
Test condition : TX Middle Ch												
4874.0	27.2	-21.2	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.0	< 36.0	> +18.0	A/B
7311.0	30.0	-19.7	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 50.3	< 40.3	> +13.7	A/B
12185.0	33.5	-27.0	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.5	< 36.5	> +17.5	A/B
19496.0	40.5	-22.9	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 57.6	< 47.6	> + 6.4	A/B
Test condition : TX High Ch												
4924.0	27.2	-21.3	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 45.9	< 35.9	> +18.1	A/B
7386.0	29.9	-19.6	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 50.3	< 40.3	> +13.7	A/B
12310.0	33.5	-26.8	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 46.7	< 36.7	> +17.3	A/B
19696.0	40.5	-22.9	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 57.6	< 47.6	> + 6.4	A/B
22158.0	40.6	-22.2	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 58.4	< 48.4	> + 5.6	A/B

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

	Antenna Factor	=	40.6 dB(1/m)
	Corr. Factor	=	-22.2 dB
+)	Meter Reading	=	<30.0 dB(μV)
	Result	=	<48.4 dB(μV/m)

Minimum Margin: 54.0 - <48.4 = >5.6 (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 + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - 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 Detector / AVE : Average Detector
7. Setting of measuring instrument(s) :

	Detector Function	Resolution B.W.	Video B.W.	Sweep Time
A	Peak	1 MHz	3 MHz	AUTO
B	RMS	1 MHz	3 MHz	AUTO

7.9.5.4.2 Mode of RX

Test Date: November 25, 2013
Temp.: 21 °C, Humi: 52 %

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 : RX Middle Ch												
2437.0	21.6	-21.8	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 39.8	< 29.8	> +24.2	A/B
4874.0	27.2	-21.5	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 45.7	< 35.7	> +18.3	A/B
7311.0	30.0	-20.0	< 40.0	< 30.0	< 40.0	< 30.0	74.0	54.0	< 50.0	< 40.0	> +14.0	A/B

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

	Antenna Factor	=	27.2 dB(1/m)
	Corr. Factor	=	-21.5 dB
+)	Meter Reading	=	<30.0 dB(μV)
	Result	=	<35.7 dB(μV/m)

Minimum Margin: 54.0 - <35.7 = >14.0 (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 + 20dB Pad Att. - 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 Detector / AVE : Average Detector
7. Setting of measuring instrument(s) :

	Detector Function	Resolution B.W.	Video B.W.	Sweep Time
A	Peak	1 MHz	3 MHz	AUTO
B	RMS	1 MHz	3 MHz	AUTO