RADIO TEST REPORT

Test Report No. : 32BE0317-SH-02-A-R1

Applicant	:	**Sony Corporation.**
Type of Equipment	:	**Digital Still Camera**
Model No.	:	**DSC-HX30V**
FCC ID	:	**AK8DSCHX30V**
Test regulation	:	**FCC Part15 Subpart C: 2011**
Test result	:	**Complied**

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by any agency of the Federal Government.
6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
7. This report is a revised version of 32BE0317-SH-02-A. 32BE0317-SH-02-A is replaced with this report.

Date of test: October 22 to 27, 2011

Representative test engineer:

Hikaru Shirasawa
Engineer of WiSE Japan,
UL Verification Service

Approved by :

Ichiro Isozaki
Leader of WiSE Japan,
UL Verification Service

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".

JAB Testing
RTL02610

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN
Telephone : +81 463 50 6400
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Contents

Page

SECTION 1: Customer information

Company Name	:	Sony Corporation
Brand Name	:	SONY
Address	:	Shinagawa INTERCITY C Tower 2-15-3, Konan Minato-ku, Tokyo, 108-6201 Japan
Telephone Number	:	+81- 3-5769-5640
Facsimile Number	:	+81- 3-5769-5996
Contact Person	:	Keizo Tsuneki

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Digital Still Camera
Model No.	:	DSC-HX30V
Serial No.	:	Refer to 4.2 in this report.
Rating	:	AC adaptor: AC 120V / 60Hz (for testing) AC 100V – 240V / 50Hz, 60Hz (for EUT specification) (EUT's specification: DC 3.6V)
Receipt Date of Sample	:	October 21, 2011
Country of Mass-production	:	Japan or Thailand
Condition of EUT	:	Engineer prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No modification by the test lab.

2.2 Product description

Model: DSC-HX30V (referred to as the EUT in this report) is a Digital Still Camera.

Clock frequency(ies) in the system	:	26MHz; WLAN part 16.368MHz; GPS part

Radio specification

Equipment type	:	Transceiver
Frequency of operation	:	2412-2462MHz (IEEE 802.11b, 11g, 11n-HT20)
Bandwidth & channel spacing	:	Bandwidth : 20MHz Channel spacing : 5MHz
Type of modulation	:	DSSS (IEEE 802.11b) OFDM (IEEE 802.11g/n)
Antenna type	:	Chip antenna
Antenna connector type	:	None
Antenna gain with cable loss	:	-4.93dBi
ITU code	:	D1D, G1D
Operation temperature range	:	0 to 40 deg.C.

FCC Part15.31 (e)
The RF part is provided with stable power supply DC 3.3V and DC 1.8V from the camera, therefore, the equipment complies power supply regulation.

FCC Part15.203
The antenna is not removable from the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification	:	FCC Part 15 Subpart C: 2011, final revised on July 8, 2011 and effective August 8, 2011
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.209 Radiated emission limits, general requirements Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

3.2 Procedures & Results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.4:2003 7. AC powerline conducted emission measurements	FCC 15.207	-	N/A	11.7dB Freq.: 0.20060MHz Detector: QP Phase: L Mode: Tx 2437MHz, IEEE 802.11g	Complied
6dB bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	FCC 15.247 (a)(2)	Conducted	N/A	* See data	Complied
Maximum peak output power	ANSI C63.4:2003 13. Measurement of intentional radiators	FCC 15.247 (b)(3)	Conducted	N/A		Complied
Spurious emission & Restricted band edges	ANSI C63.4:2003 13. Measurement of intentional radiators	FCC 15.109, 15.247 (d) & 15.209	Conducted / Radiated	N/A	6.5dB Freq.: 2390MHz Detector: AV Polarization: Vertical Mode: Tx 2412MHz, IEEE 802.11n	Complied
Power density	ANSI C63.4:2003 13. Measurement of intentional radiators	FCC 15.247 (e)	Conducted	N/A	* See data	Complied
Note: UL Japan's EMI Work Procedures No.13-EM-W0420 and 13-EM-W0422. These tests were also referred to "Guidance on Measurement for Digital Transmission Systems Section15.247".						

3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied bandwidth (99%)	ANSI C63.4:2003 13. Measurement of intentional radiators,RSS-Gen 4.6.1	RSS-Gen 4.6.1	Conducted	-	-
Note: UL Japan's EMI Work Procedures No.13-EM-W0420 and 13-EM-W0422.					

* Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Item	Frequency range	No.1 SAC*1/SR*2 (±)	No.2 SAC/SR (±)	No.3 SAC/SR (±)
Conducted emission (AC Mains) AMN/LISN	150kHz-30MHz	3.6 dB	3.6 dB	3.6 dB
Radiated emission (Measurement distance: 3m)	9kHz-30MHz	3.7 dB	3.7 dB	3.6 dB
	30MHz-300MHz	4.9 dB	5.1 dB	5.0 dB
	300MHz-1GHz	5.0 dB	5.2 dB	5.0 dB
	1GHz-13GHz	4.8 dB	4.8 dB	4.9 dB
Radiated emission (Measurement distance: 1m)	13GHz-18GHz	5.6 dB	5.6 dB	5.6 dB
	18GHz-40GHz	4.8 dB	4.3 dB	4.4 dB

*1: SAC=Semi-Anechoic Chamber
*2: SR= Shielded Room is applied besides radiated emission

Conducted emission test
The data listed in this test report has enough margin, more than site margin.

Radiated emission test
The data listed in this test report has enough margin, more than site margin.

Antenna port conducted test
Power Measurement uncertainty above 1GHz for this test was: (±) 1.9dB
Spurious emission (Conducted) Measurement (below 1GHz) uncertainty for this test was: (±) 1.8dB
Spurious emission (Conducted) Measurement (1G-3GHz) uncertainty for this test was: (±) 2.3dB
Spurious emission (Conducted) Measurement (3G-18GHz) uncertainty for this test was: (±) 3.6dB
Spurious emission (Conducted) Measurement (18G-26.5GHz) uncertainty for this test was: (±) 4.0dB
Bandwidth Measurement uncertainty for this test was: (±) 5.4%

3.5 Test location

UL Japan, Inc. Shonan EMC Lab.
1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN
Telephone number : +81 463 50 6400
Facsimile number : +81 463 50 6401
JAB Accreditation No. : RTL02610

	FCC Registration No.	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
☐ No.1 Semi-anechoic chamber	697847	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.2 Semi-anechoic chamber	697847	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 Semi-anechoic chamber	697847	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 Full-anechoic chamber	-	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
☐ No.1 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.2 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.3 shielded room	-	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
☐ No.4 shielded room	-	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
☒ No.5 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☐ No.6 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-

3.6 Test setup, Data of test & Test instruments
Refer to APPENDIX 1 to 3.

SECTION 4: Operation of E.U.T. during testing

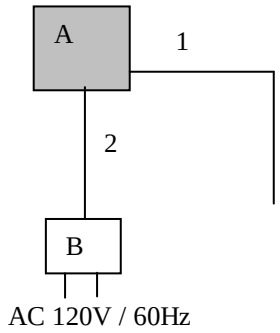
4.1 Operating mode

The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

Test item	Mode	Tested frequency	Power setting *1)	Worst data rate *2)
All items	Transmitting IEEE 802.11b	2412MHz, 2437MHz, 2462MHz	Fixed	11Mbps, PN9
	Transmitting IEEE 802.11g	2412MHz, 2437MHz, 2462MHz	Fixed	24Mbps, PN9
	Transmitting IEEE 802.11n-20	2412MHz, 2437MHz, 2462MHz	Fixed	MCS6, PN9
*1) End users cannot change the settings of the output power of the product. Software: HX30V_TestMode.dat (Ver.1010) *2) The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel)				

Justification: The system was configured in typical fashion (as customer would normally use it) for testing.

4.2 Configuration and peripherals



* Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remark
A	Digital Still Camera	DSC-HX30V	17 1), 36 & 49 2)	Sony Corporation	EUT
B	AC adaptor	AC-UB10	10118000152	Sony Corporation	-

*1) Used for Antenna terminal tests
*2) Used for Radiated emission tests

List of cables used

No.	Cable Name	Length (m)	Shield		Remark
			Cable	Connector	
1	HDMI	2.0	Shielded	Shielded	-
2	USB	1.0	Shielded	Shielded	-

SECTION 5: Conducted emission

5.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.
The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from LISN and excess AC cable was bundled in center. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane.
Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. All unused 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.
Photographs of the set up are shown in APPENDIX 3.

5.3 Test conditions

Frequency range : 0.15 - 30MHz
EUT position : Table top

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT via AC adaptor within a shielded room. The AC adaptor was connected to a Line Impedance Stabilization Network (LISN).
An overview sweep with peak detection has been performed.
The measurements had been performed with a quasi-peak detector and if required, an average detector.
The conducted emission measurements were made with the following detector of the test receiver.

Detector Type : Quasi-Peak/ Average
IF Bandwidth : 9kHz

5.5 Results

Summary of the test results : Pass
Refer to APPENDIX 1

SECTION 6: 6dB bandwidth & Occupied bandwidth (99%)

Test procedure
The bandwidth was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass
Refer to APPENDIX 1

SECTION 7: Maximum peak output power

Test procedure
The Maximum Peak Output Power was measured with a power meter connected to the antenna port.

Summary of the test results: Pass
Refer to APPENDIX 1

SECTION 8: Spurious emission (Antenna port conducted)

Test procedure
The spurious emission was measured with a spectrum analyzer connected to the antenna port.
In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.
In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.
Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.
(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=10kHz)

Summary of the test results: Pass
Refer to APPENDIX 1

SECTION 9: Radiated emission

9.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

9.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.
Photographs of the set up are shown in APPENDIX 3.

9.3 Test conditions

Frequency range : 30MHz to 25GHz
EUT position : Table top

9.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3m (below 13GHz) / 1m (above 13GHz). Measurements were performed with quasi-peak, peak and average detector. The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization.
The radiated emission measurements were made with the following detection of the test receiver and Spectrum Analyzer.

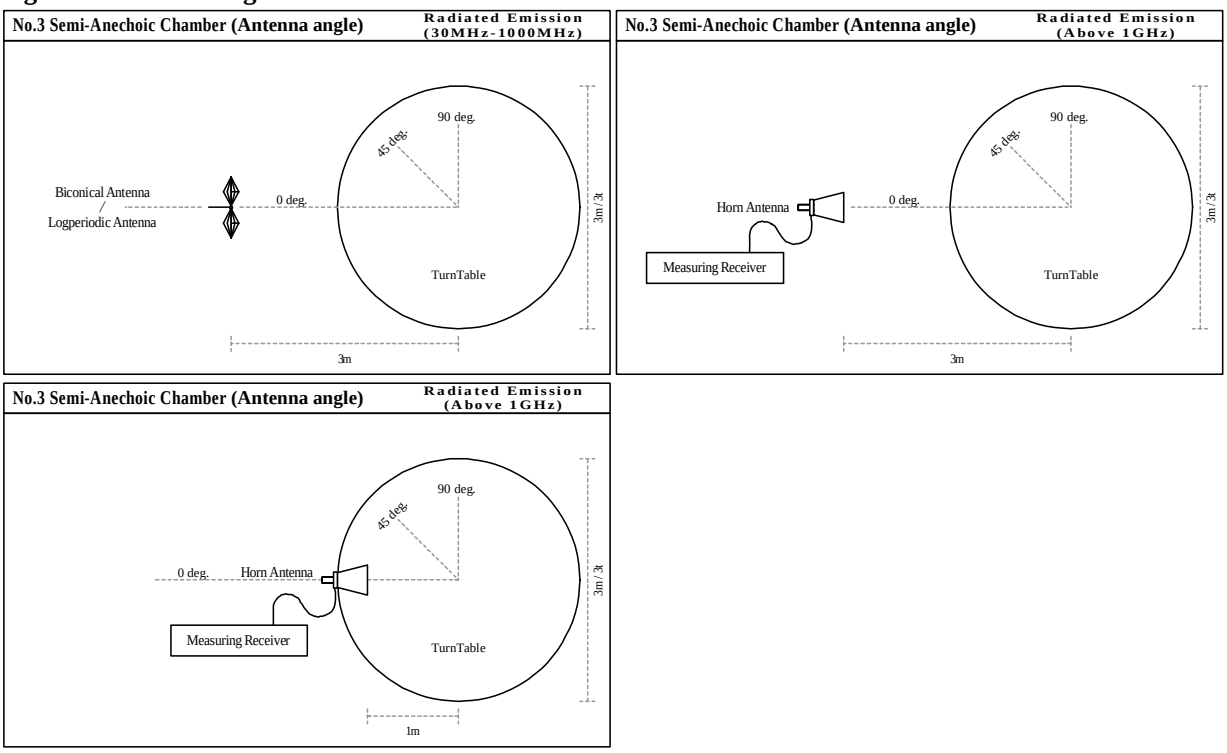
Frequency	Below 1GHz	Above 1GHz		20dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV *	PK
IF Bandwidth	BW 120kHz(T/R)	RBW: 1MHz VBW: 3MHz	RBW: 1MHz VBW: 10Hz	RBW: 100kHz VBW: 300kHz

* When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.
* When measured Average, VBW is not subject of changing value. Therefore, AV has been measured with VBW=10Hz.

The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Frequency	Worst position
Below 1GHz	Horizontal: Z, Vertical: Y
Above 1GHz	Horizontal: Y, Vertical: Z

Figure 1. Antenna angle



9.5 Band edge

Band edge level at 2400MHz is less than 20dB of peak point of the carrier. Refer to the data of Spurious missions (Antenna port conducted). Band edge level at 2390MHz and 2483.5MHz is below the limits of FCC 15.209. Refer to the data of Radiated emission.

9.6 Results

Summary of the test results : Pass *No noise was detected above the 2nd order harmonics.
Refer to APPENDIX 1

SECTION 10: Peak Power density

Test procedure
The peak power density was measured with a spectrum analyzer connected to the antenna port.

Instrument used : Spectrum Analyzer *1)
RBW / VBW : 30kHz / 100kHz *2)

*1) PSD Option 1 of " Measurement of Digital Transmission Systems Operating under Section 15.247".
*2) The test was not performed at RBW: 3kHz that was stated in the Regulation. However, the measurement value with RBW: 3kHz is less than the value of RBW: 30kHz and the test data met the limit with RBW: 30kHz.

Summary of the test results: Pass
Refer to APPENDIX 1

Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

Conducted emission
6dB bandwidth
Maximum peak output power
Radiated emission
Spurious emission (Antenna port conducted)
Peak power density
99% Occupied bandwidth

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Conducted emission
Radiated emission
Pre-check of the worst position

DATA OF CONDUCTED EMISSION TEST

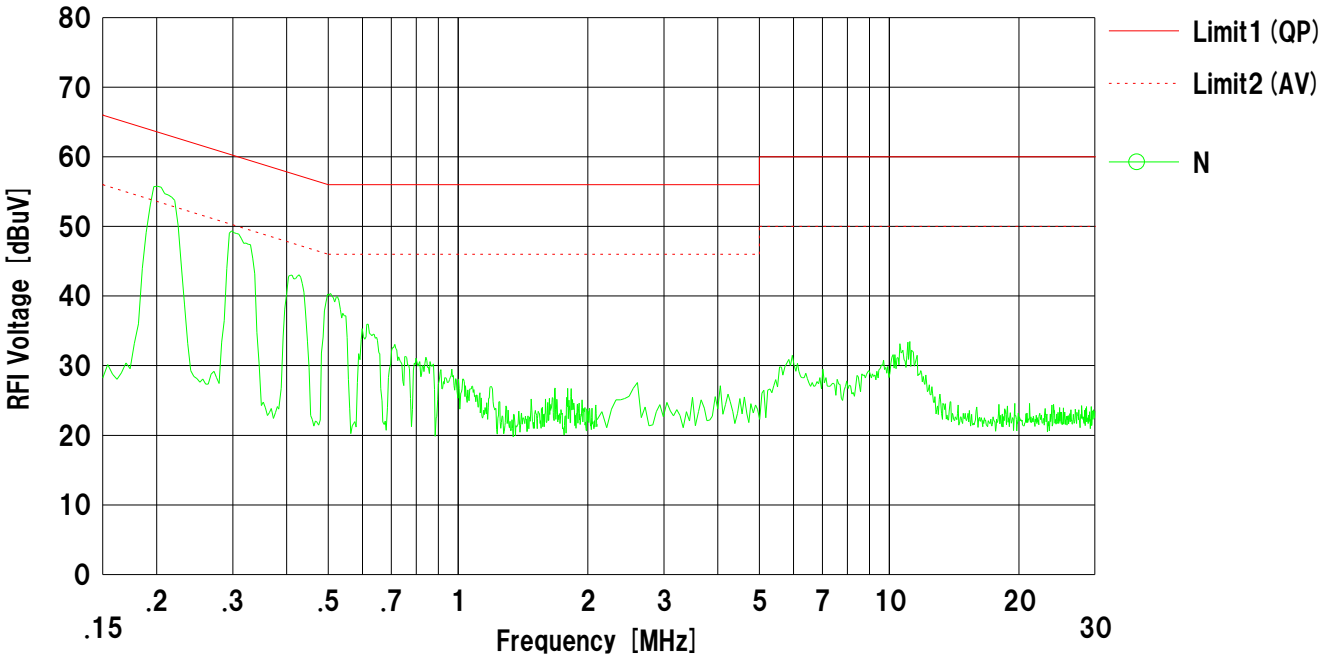
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/10/27

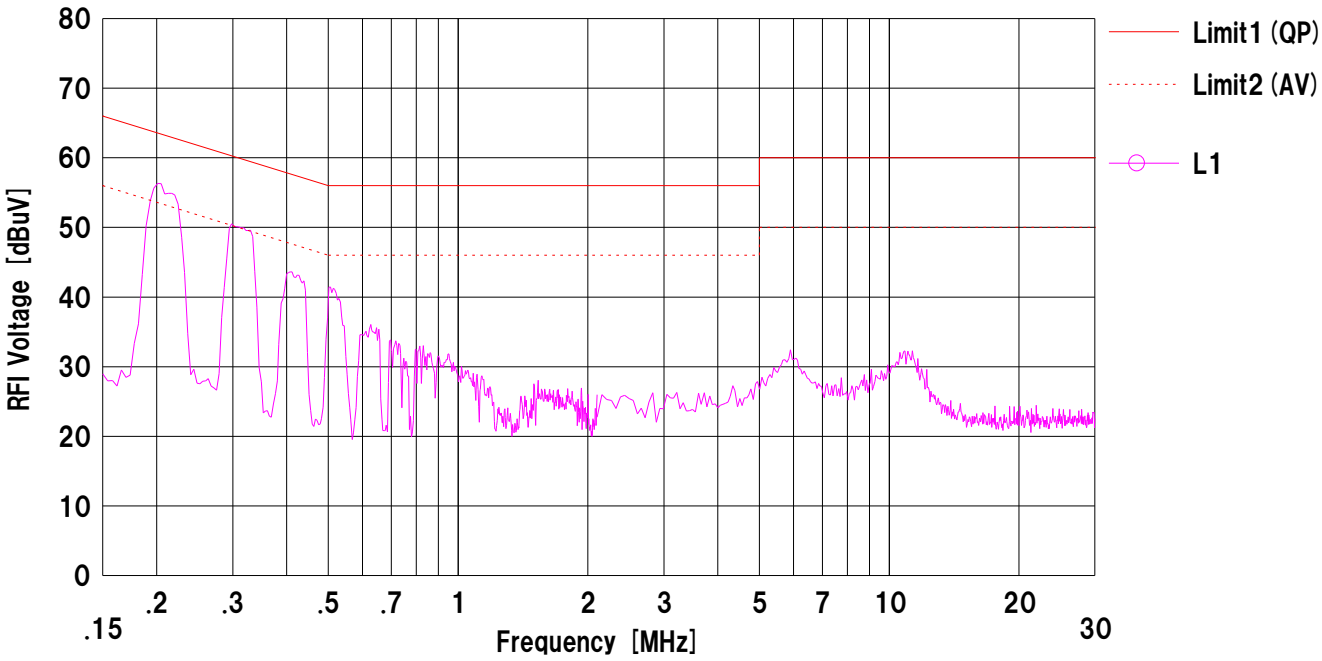
Company	: Sony Corporation	Mode	: IEEE802.11b, 11Mbps, Tx 2412MHz
Kind of EUT	: Digital Still Camera	Report No.	: 32BE0317-SH-02-A-R1
Model No.	: DSC-HX30V	Power	: AC120V / 60Hz (battery DC3.6V)
Serial No.	: 49	Temp./Humi.	: 25deg.C / 55%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Kenichi Adachi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/10/27

Company	: Sony Corporation	Mode	: IEEE802.11b, 11Mbps, Tx 2437MHz
Kind of EUT	: Digital Still Camera	Report No.	: 32BE0317-SH-02-A-R1
Model No.	: DSC-HX30V	Power	: AC120V / 60Hz (battery DC3.6V)
Serial No.	: 49	Temp./Humi.	: 25deg.C / 55%RH

Remarks :

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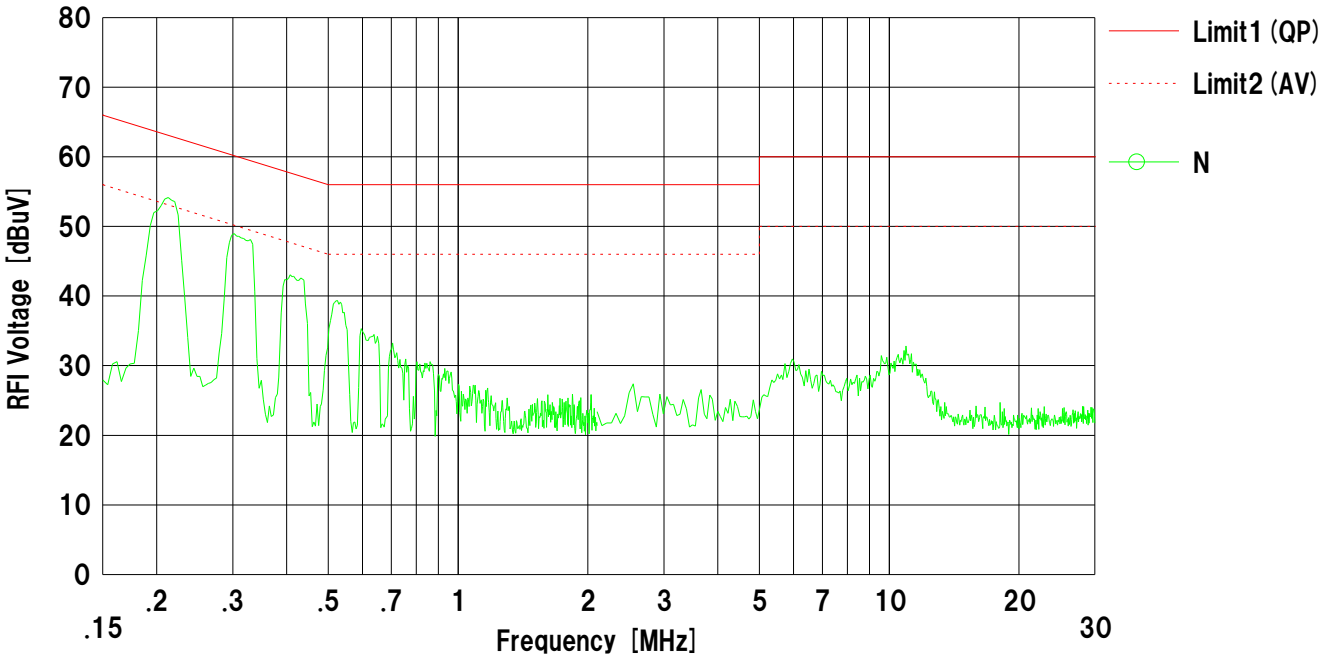

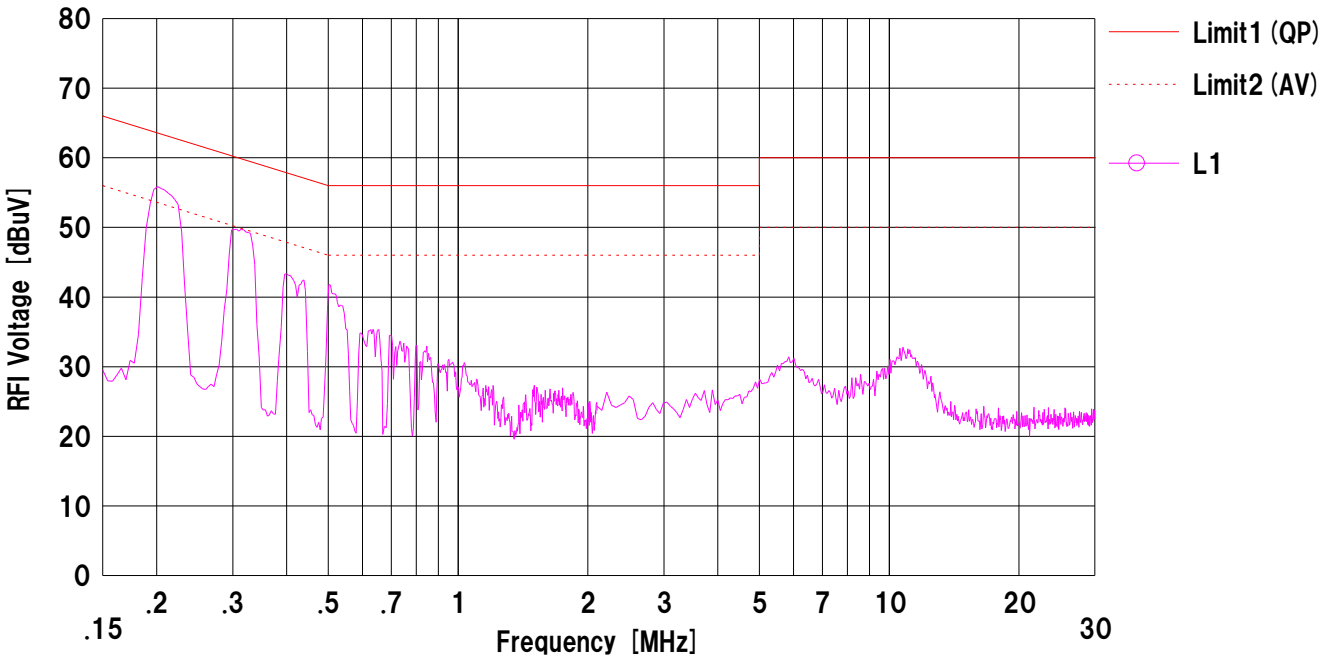

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Date : 2011/10/27

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Kind of EUT	: Digital Still Camera	Report No.	: 32BE0317-SH-02-A-R1
Model No.	: DSC-HX30V	Power	: AC120V / 60Hz (battery DC3.6V)
Serial No.	: 49	Temp./Humi.	: 25deg.C / 55%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
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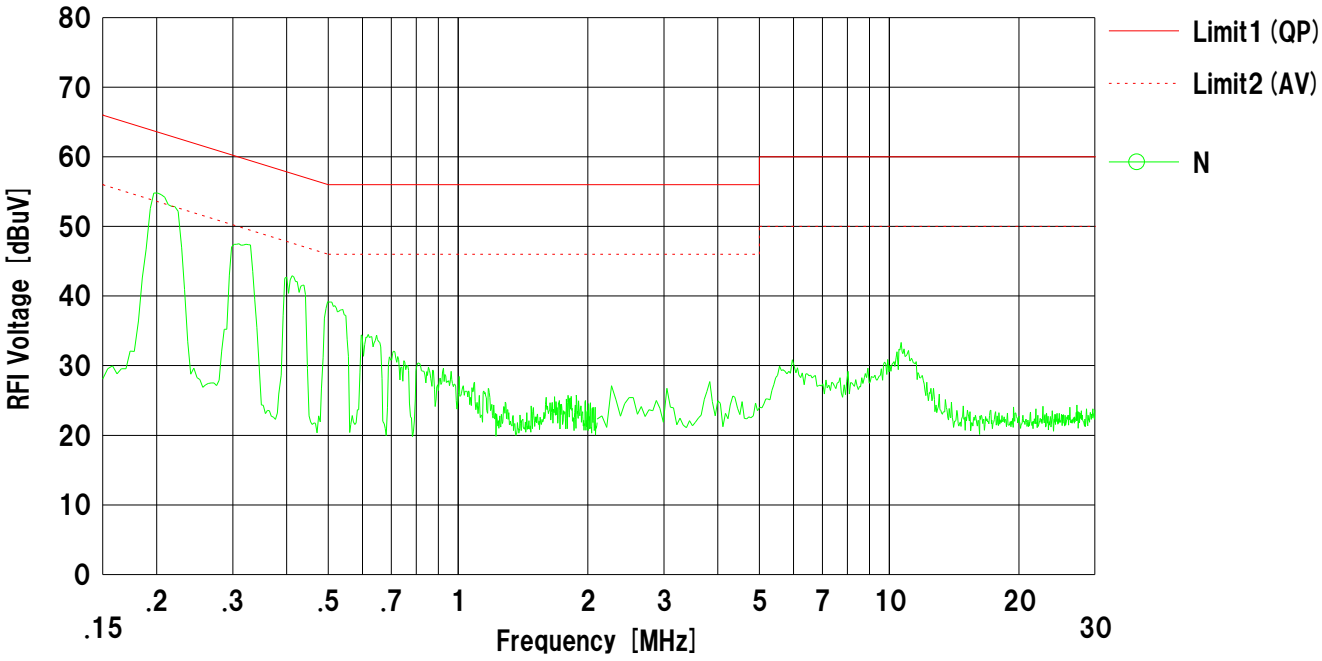

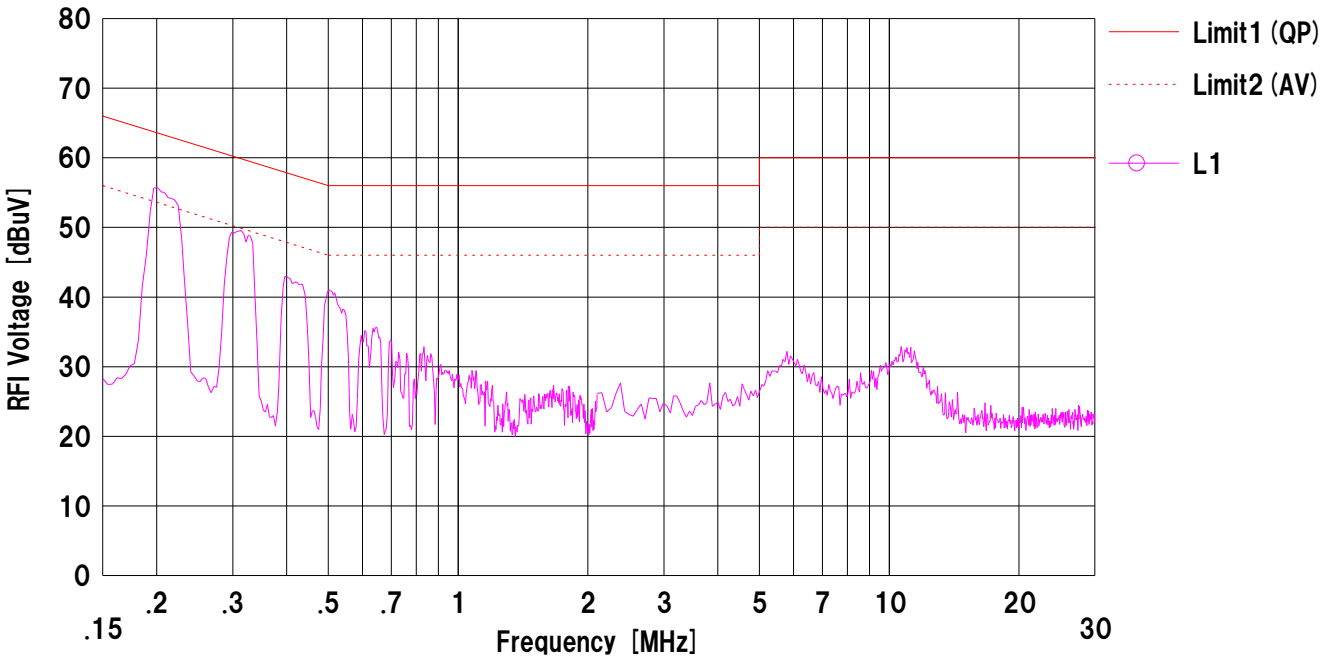

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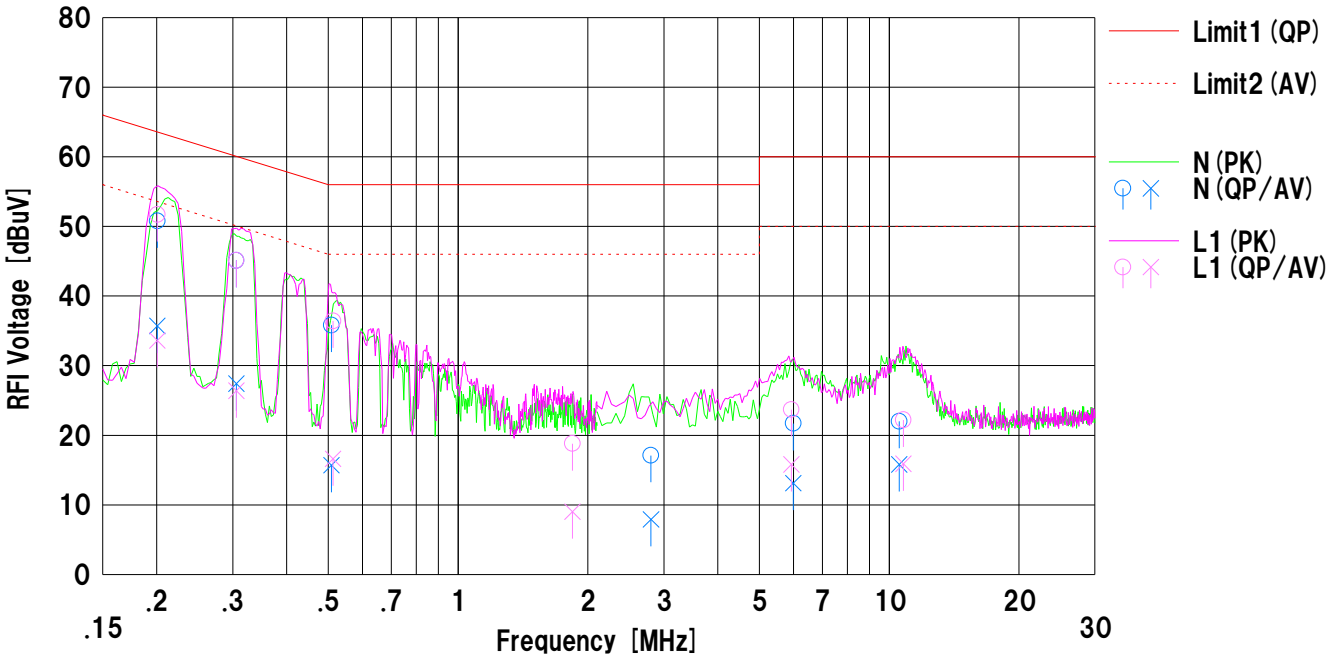

No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.20058	38.3	23.2	12.5	50.8	35.7	63.5	53.5	12.7	17.8	N	
2	0.30574	32.5	14.8	12.6	45.1	27.4	60.0	50.0	14.9	22.6	N	
3	0.50876	23.2	3.1	12.6	35.8	15.7	56.0	46.0	20.2	30.3	N	
4	2.80342	4.4	-4.8	12.7	17.1	7.9	56.0	46.0	38.9	38.1	N	
5	5.99468	8.9	0.3	12.8	21.7	13.1	60.0	50.0	38.3	36.9	N	
6	10.55638	9.0	2.8	13.0	22.0	15.8	60.0	50.0	38.0	34.2	N	
7	0.20058	39.2	21.1	12.5	51.7	33.6	63.5	53.5	11.8	19.9	L1	
8	0.30574	32.5	13.8	12.6	45.1	26.4	60.0	50.0	14.9	23.6	L1	
9	0.51279	23.8	4.0	12.6	36.4	16.6	56.0	46.0	19.6	29.4	L1	
10	1.84157	6.1	-3.7	12.7	18.8	9.0	56.0	46.0	37.2	37.0	L1	
11	5.93283	10.9	3.0	12.8	23.7	15.8	60.0	50.0	36.3	34.2	L1	
12	10.79083	9.2	2.9	13.0	22.2	15.9	60.0	50.0	37.8	34.1	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
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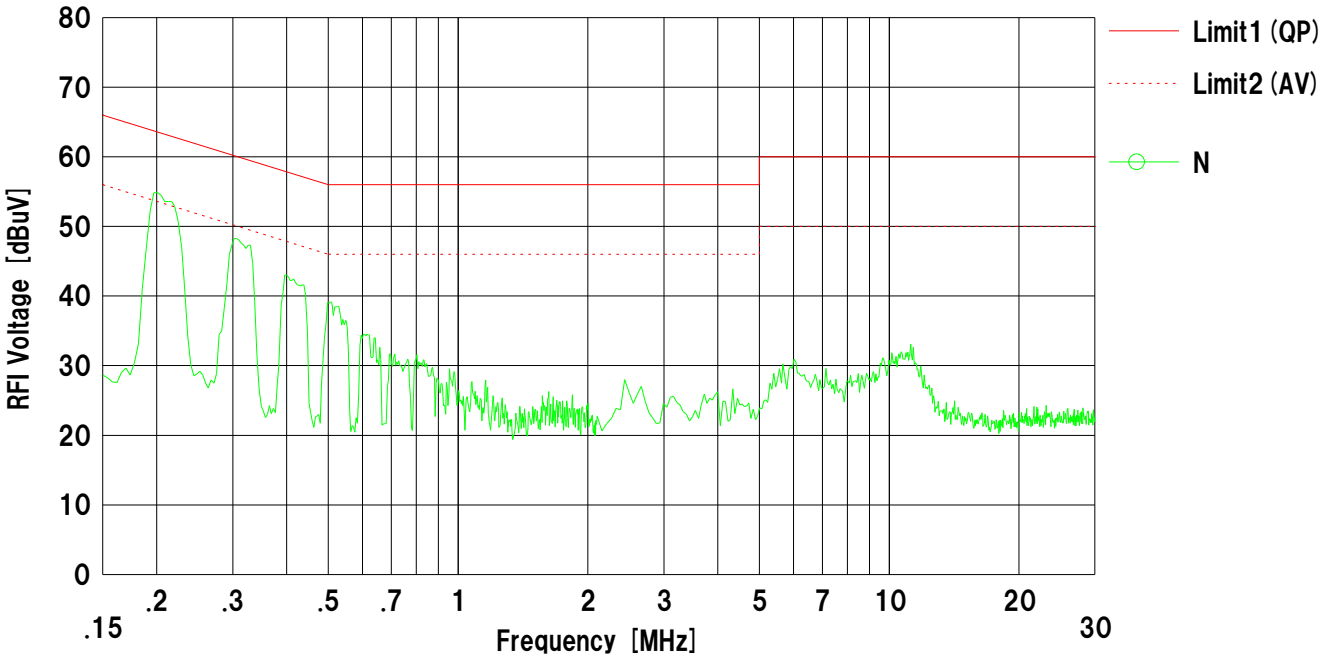
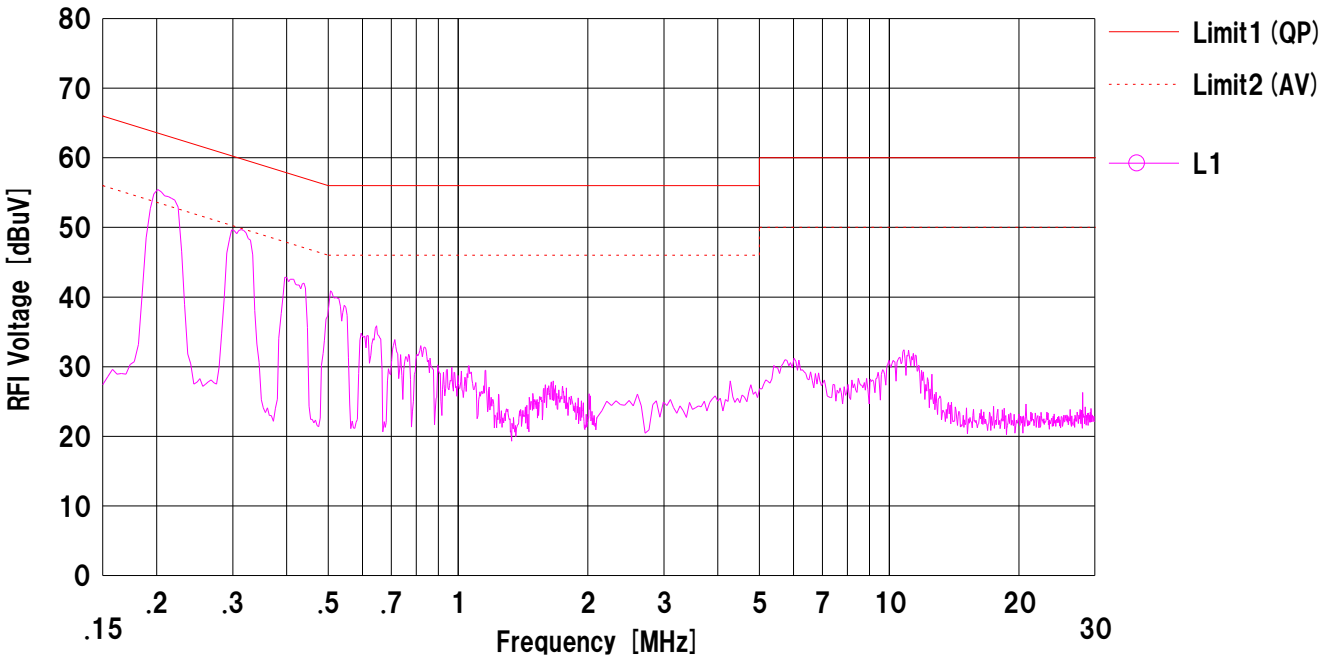
Engineer : Kenichi Adachi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

DATA OF CONDUCTED EMISSION TEST

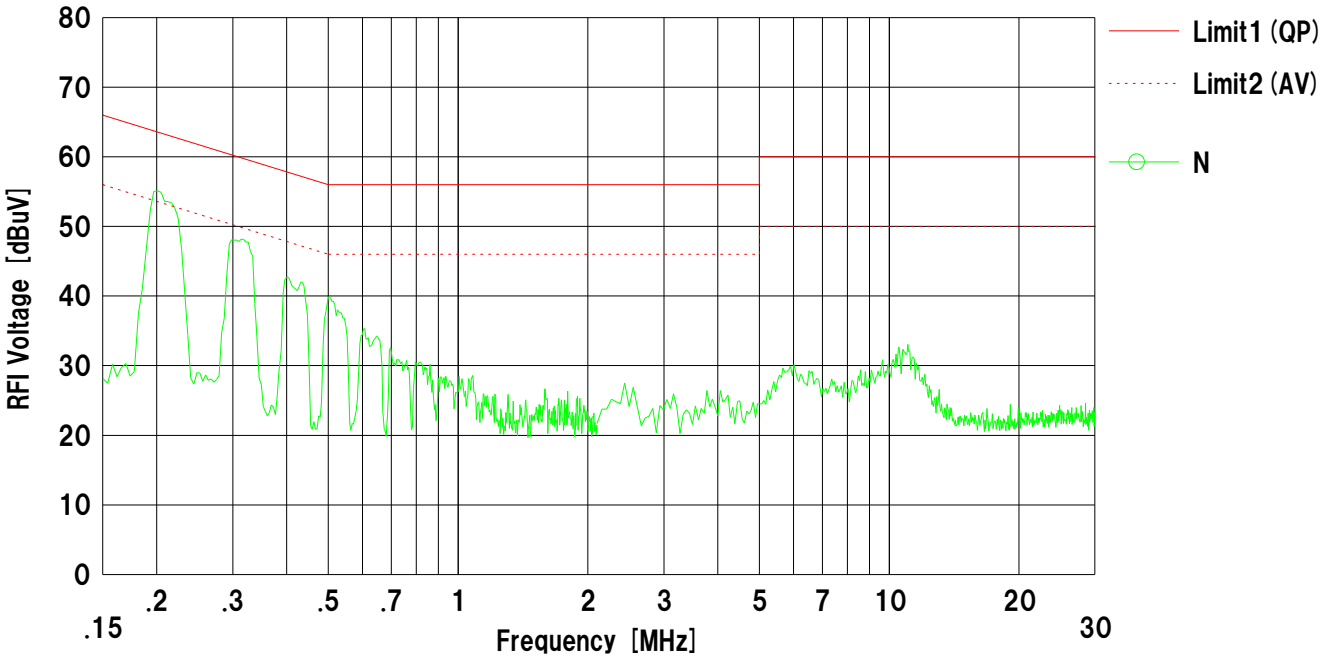
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/10/27

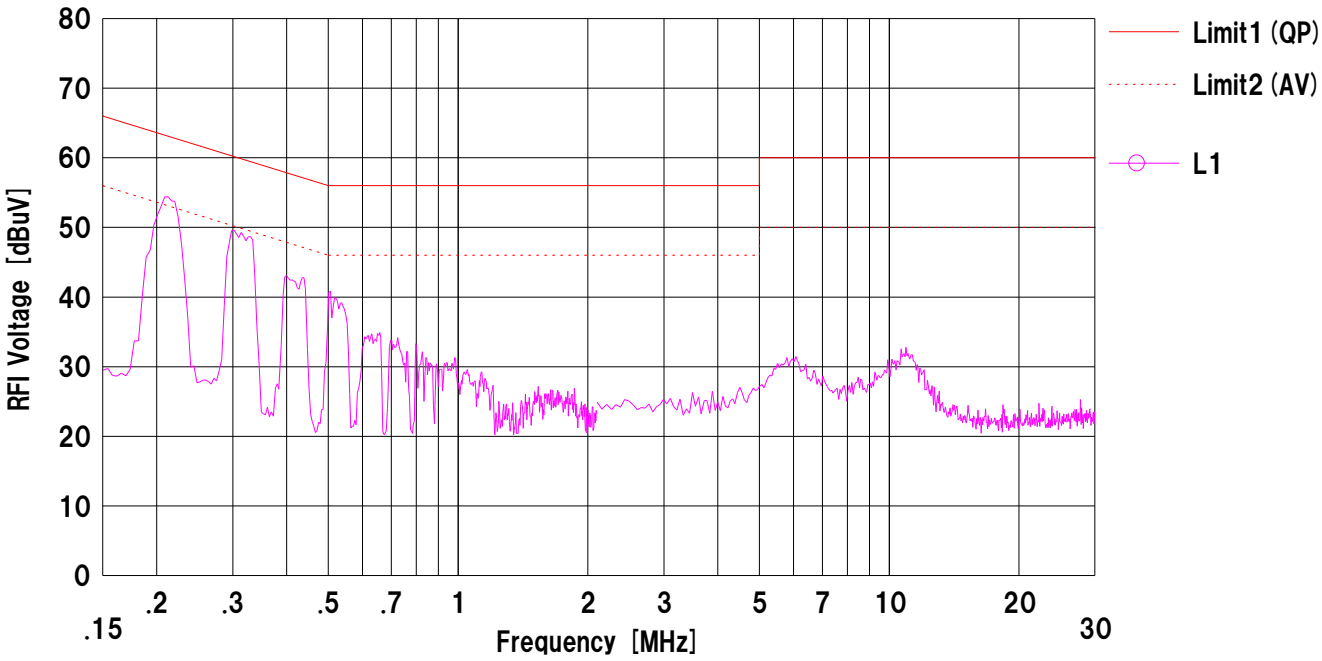
Company	: Sony Corporation	Mode	: IEEE802.11g, 24Mbps, Tx 2437MHz
Kind of EUT	: Digital Still Camera	Report No.	: 32BE0317-SH-02-A-R1
Model No.	: DSC-HX30V	Power	: AC120V / 60Hz (battery DC3.6V)
Serial No.	: 49	Temp./Humi.	: 25deg.C / 55%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Kenichi Adachi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

DATA OF CONDUCTED EMISSION TEST

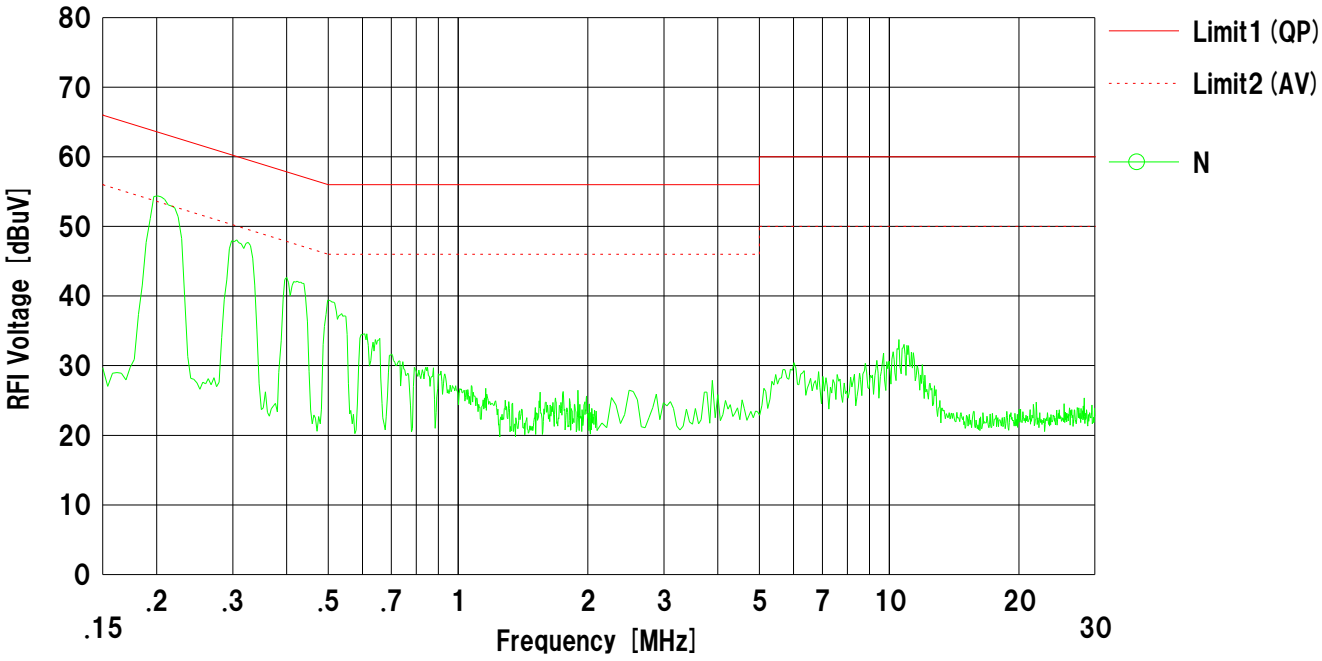
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/10/27

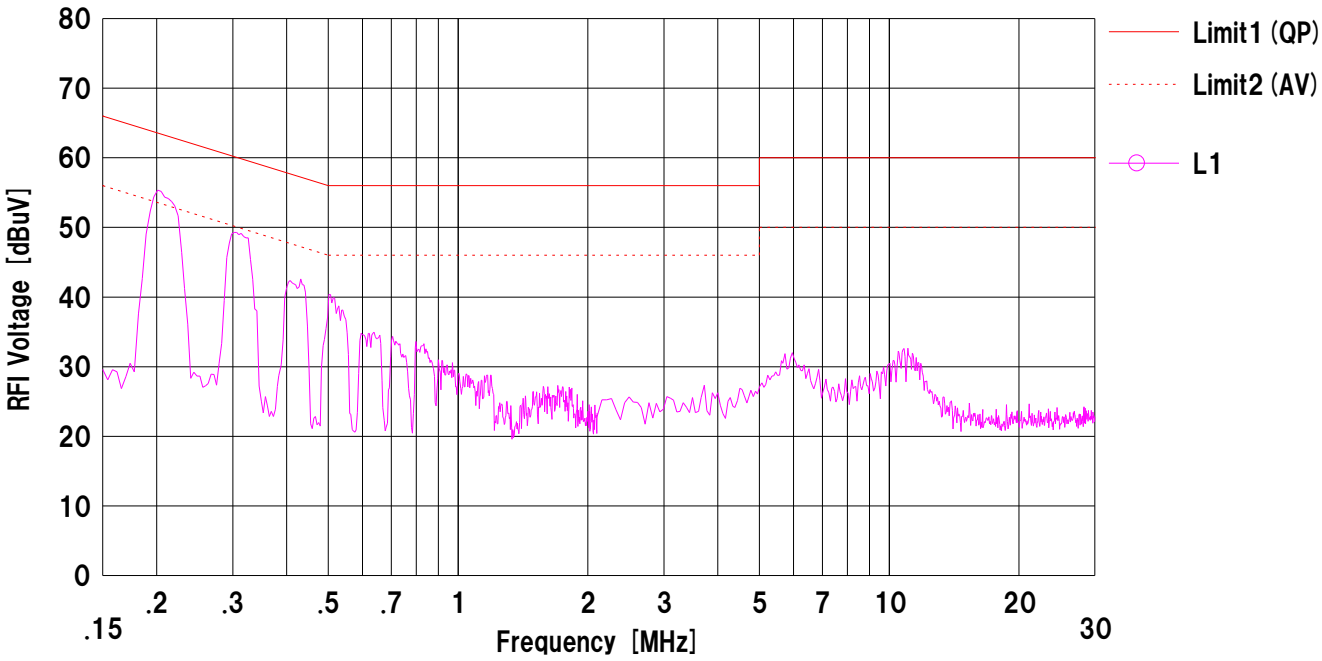
Company	: Sony Corporation	Mode	: IEEE802.11g, 24Mbps, Tx 2462MHz
Kind of EUT	: Digital Still Camera	Report No.	: 32BE0317-SH-02-A-R1
Model No.	: DSC-HX30V	Power	: AC120V / 60Hz (battery DC3.6V)
Serial No.	: 49	Temp./Humi.	: 25deg.C / 55%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Kenichi Adachi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/10/27

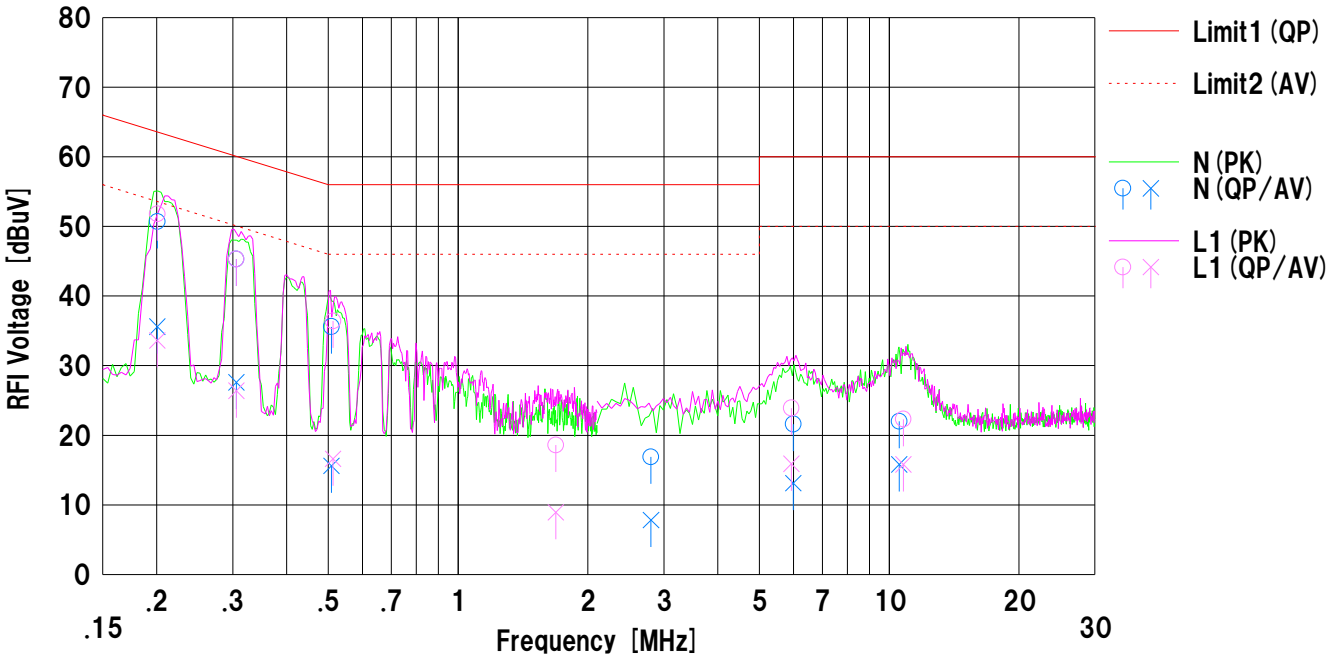
Company : Sony Corporation
Kind of EUT : Digital Still Camera
Model No. : DSC-HX30V
Serial No. : 49

Mode : IEEE802.11g, 24Mbps, Tx 2437MHz
Report No. : 32BE0317-SH-02-A-R1
Power : AC120V / 60Hz (battery DC3.6V)
Temp./Humi. : 25deg.C / 55%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Kenichi Adachi



No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.20060	38.2	23.1	12.5	50.7	35.6	63.5	53.5	12.8	17.9	N	
2	0.30579	32.7	15.0	12.6	45.3	27.6	60.0	50.0	14.7	22.4	N	
3	0.50879	23.0	3.0	12.6	35.6	15.6	56.0	46.0	20.4	30.4	N	
4	2.80339	4.2	-4.9	12.7	16.9	7.8	56.0	46.0	39.1	38.2	N	
5	5.99475	8.8	0.3	12.8	21.6	13.1	60.0	50.0	38.4	36.9	N	
6	10.55649	9.0	2.8	13.0	22.0	15.8	60.0	50.0	38.0	34.2	N	
7	0.20060	39.3	21.1	12.5	51.8	33.6	63.5	53.5	11.7	19.9	L1	
8	0.30579	32.7	13.8	12.6	45.3	26.4	60.0	50.0	14.7	23.6	L1	
9	0.51294	23.8	4.0	12.6	36.4	16.6	56.0	46.0	19.6	29.4	L1	
10	1.68548	6.0	-3.7	12.6	18.6	8.9	56.0	46.0	37.4	37.1	L1	
11	5.93274	11.1	3.1	12.8	23.9	15.9	60.0	50.0	36.1	34.1	L1	
12	10.79138	9.3	2.8	13.0	22.3	15.8	60.0	50.0	37.7	34.2	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

DATA OF CONDUCTED EMISSION TEST

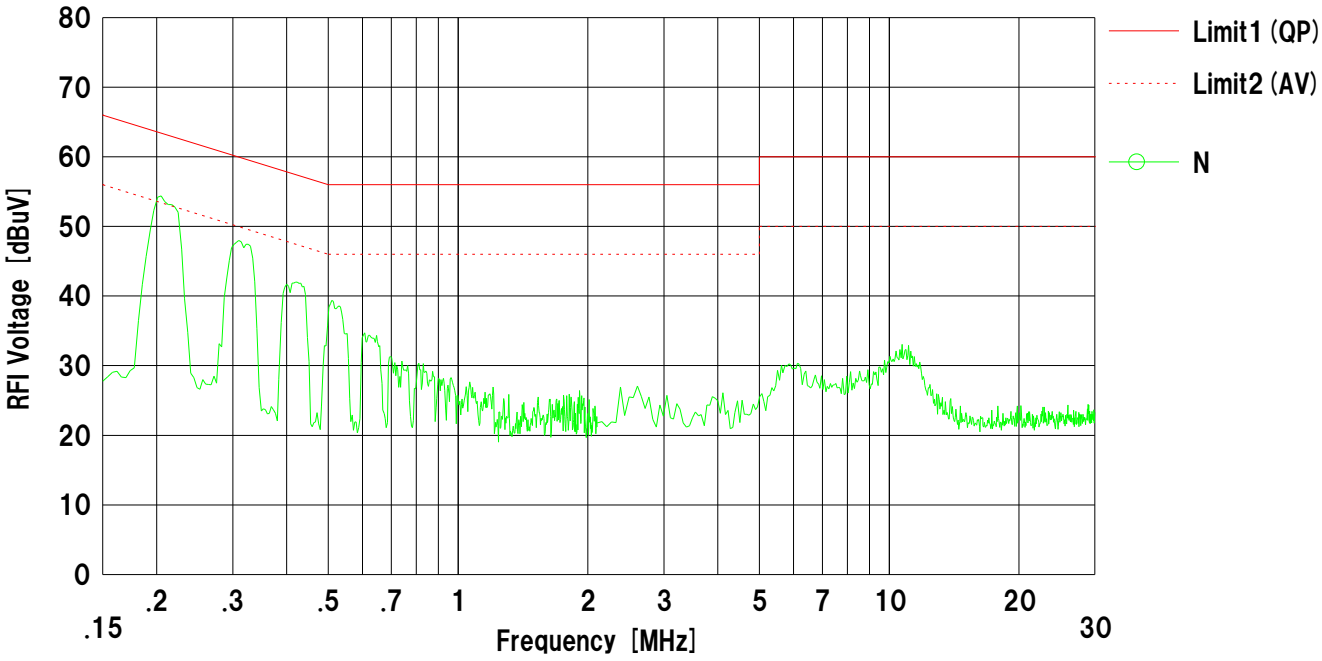
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/10/27

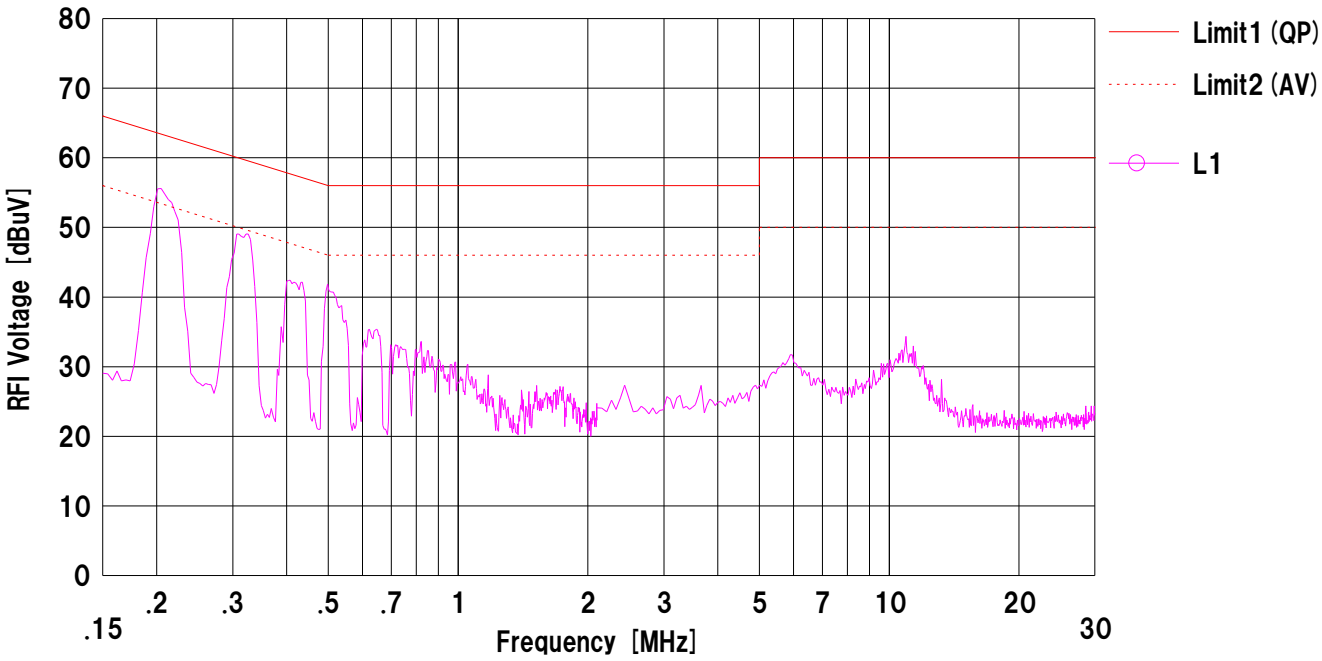
Company	: Sony Corporation	Mode	: IEEE802.11n HT20, MCS6, Tx 2412MHz
Kind of EUT	: Digital Still Camera	Report No.	: 32BE0317-SH-02-A-R1
Model No.	: DSC-HX30V	Power	: AC120V / 60Hz (battery DC3.6V)
Serial No.	: 49	Temp./Humi.	: 25deg.C / 55%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Kenichi Adachi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

DATA OF CONDUCTED EMISSION TEST

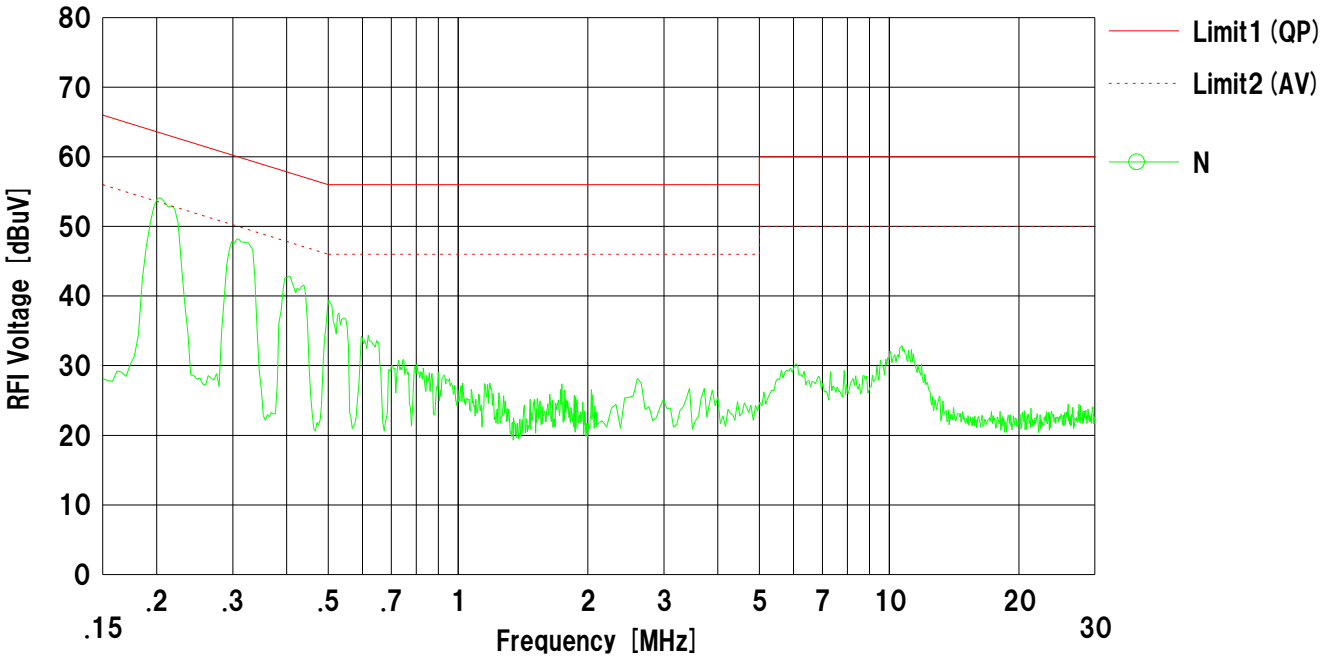
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/10/27

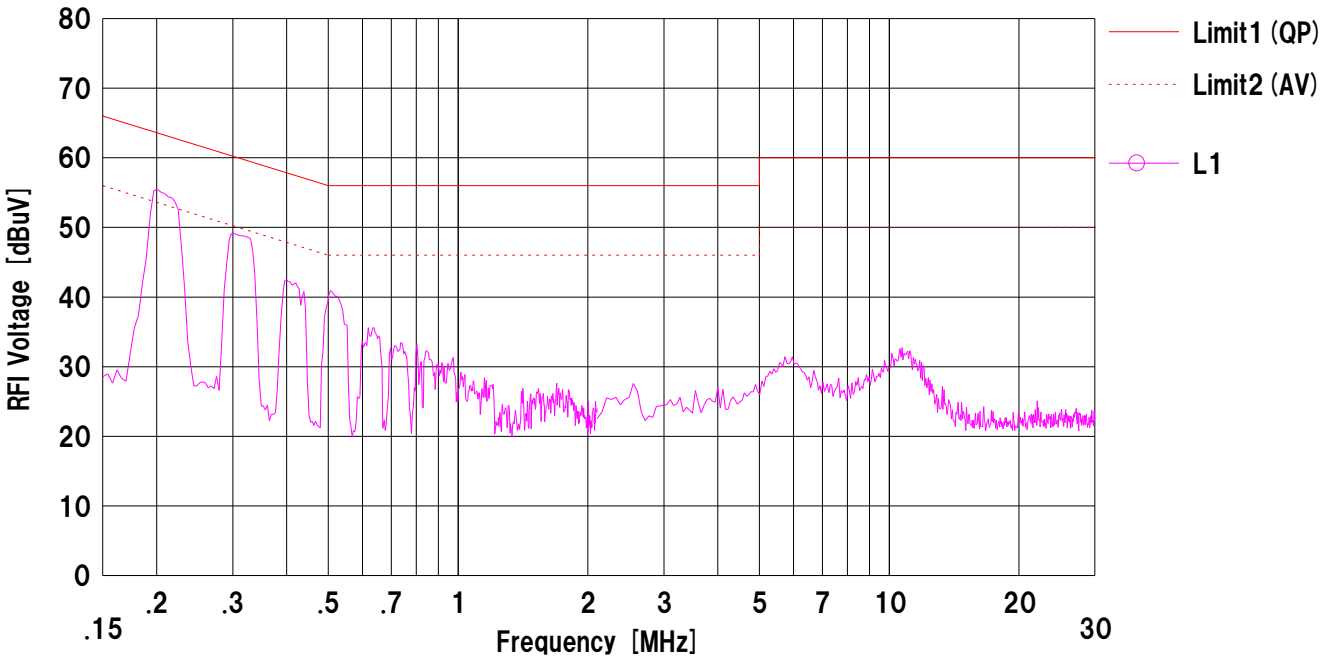
Company	: Sony Corporation	Mode	: IEEE802.11n HT20, MCS6, Tx 2437MHz
Kind of EUT	: Digital Still Camera	Report No.	: 32BE0317-SH-02-A-R1
Model No.	: DSC-HX30V	Power	: AC120V / 60Hz (battery DC3.6V)
Serial No.	: 49	Temp./Humi.	: 25deg.C / 55%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Kenichi Adachi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

DATA OF CONDUCTED EMISSION TEST

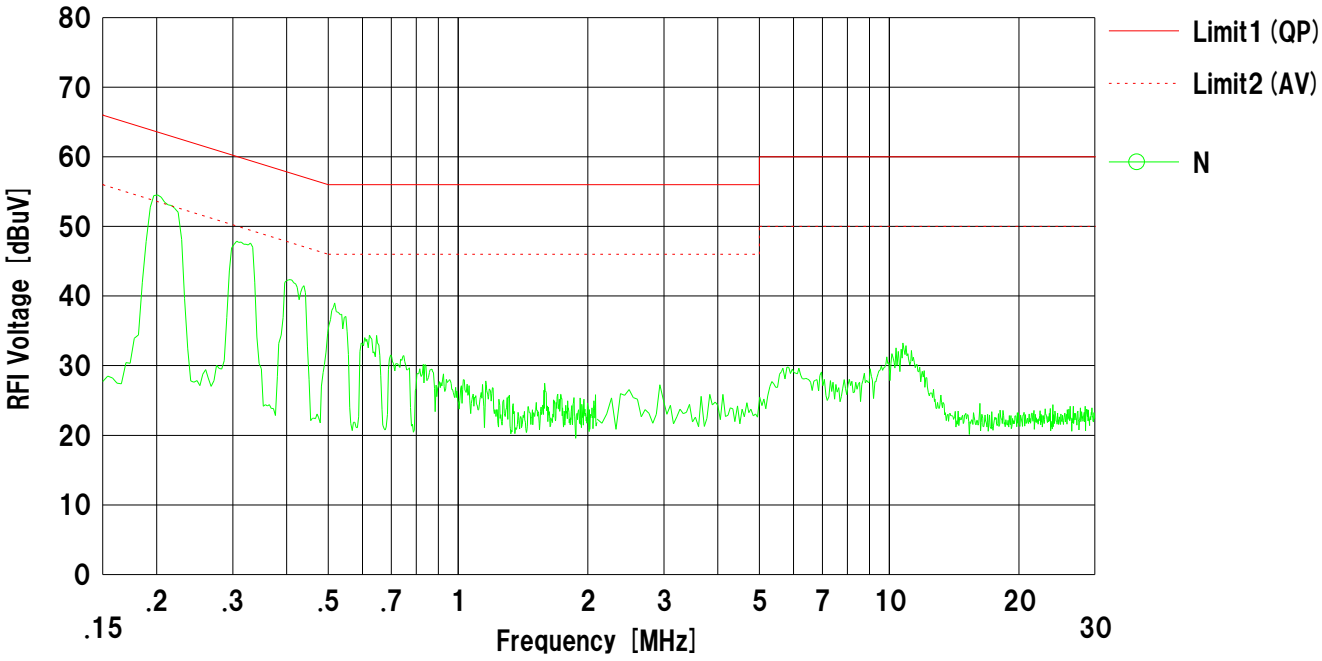
UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/10/27

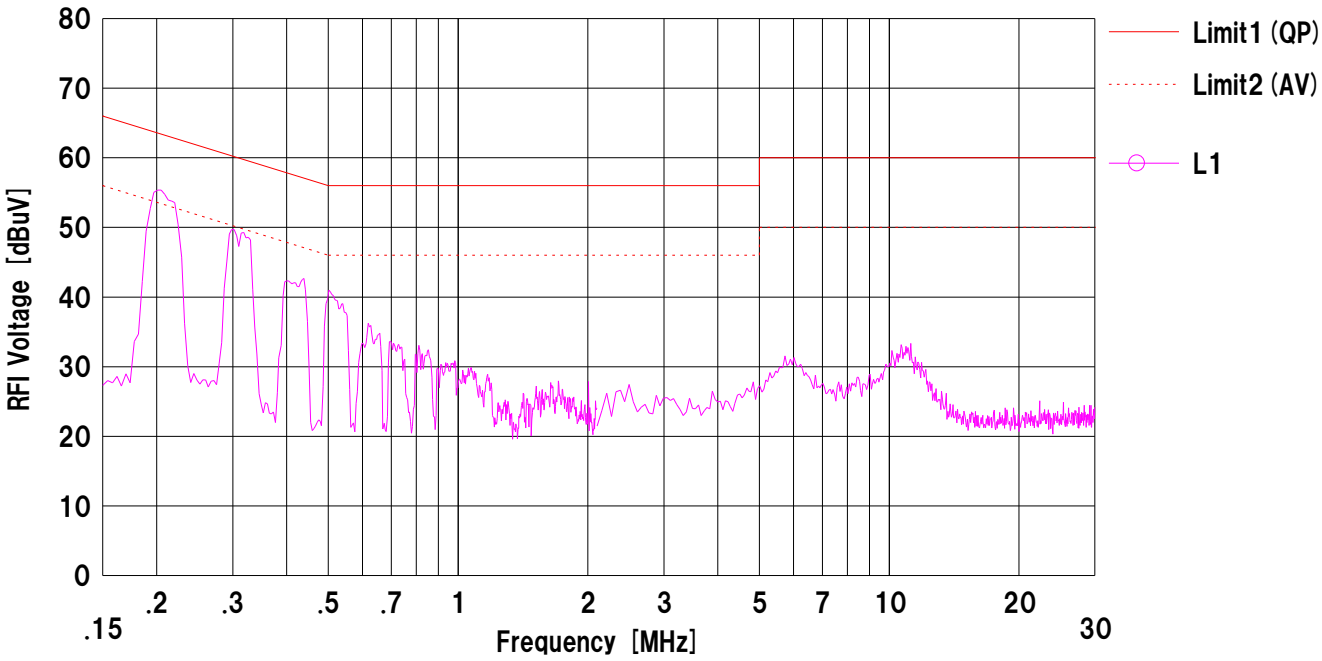
Company	: Sony Corporation	Mode	: IEEE802.11n HT20, MCS6, Tx 2462MHz
Kind of EUT	: Digital Still Camera	Report No.	: 32BE0317-SH-02-A-R1
Model No.	: DSC-HX30V	Power	: AC120V / 60Hz (battery DC3.6V)
Serial No.	: 49	Temp./Humi.	: 25deg.C / 55%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Kenichi Adachi





Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2011/10/27

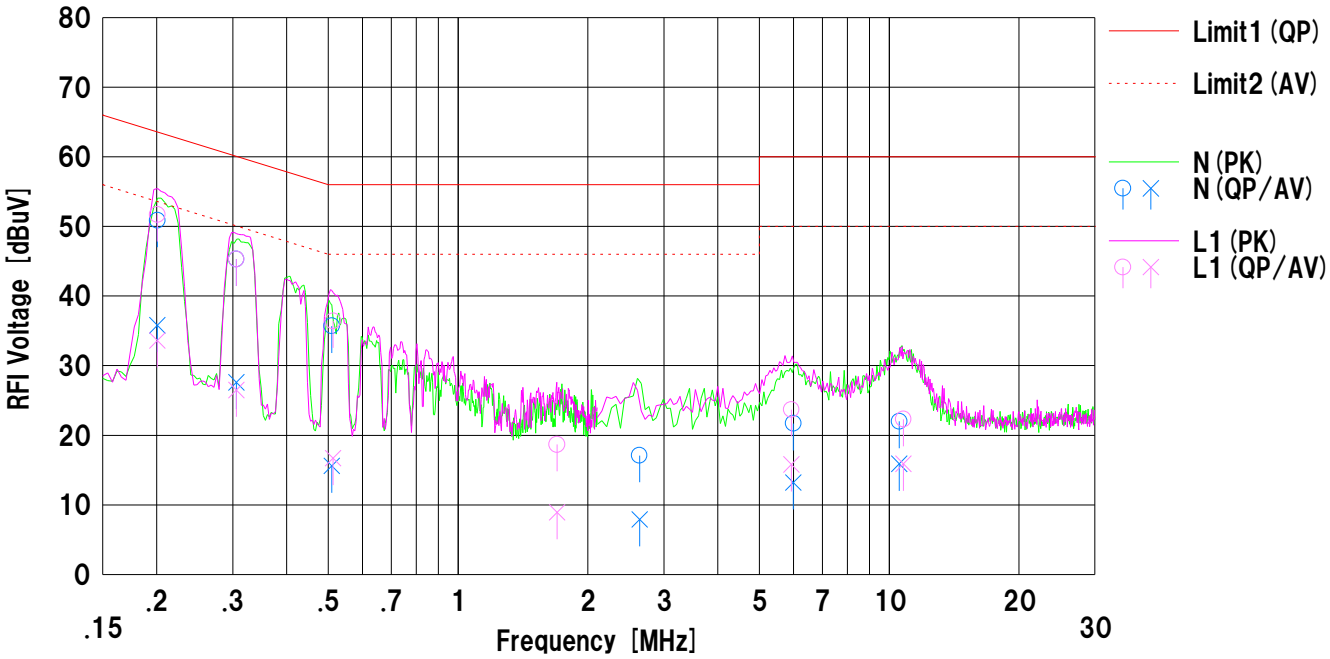
Company : Sony Corporation
Kind of EUT : Digital Still Camera
Model No. : DSC-HX30V
Serial No. : 49

Mode : IEEE802.11n HT20, MCS6, Tx 2437MHz
Report No. : 32BE0317-SH-02-A-R1
Power : AC120V / 60Hz (battery DC3.6V)
Temp./Humi. : 25deg.C / 55%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Kenichi Adachi



No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.20056	38.4	23.3	12.5	50.9	35.8	63.5	53.5	12.6	17.7	N	
2	0.30568	32.7	15.0	12.6	45.3	27.6	60.0	50.0	14.7	22.4	N	
3	0.50893	23.1	3.0	12.6	35.7	15.6	56.0	46.0	20.3	30.4	N	
4	2.63551	4.4	-4.8	12.7	17.1	7.9	56.0	46.0	38.9	38.1	N	
5	5.99454	8.9	0.4	12.8	21.7	13.2	60.0	50.0	38.3	36.8	N	
6	10.55644	9.0	2.9	13.0	22.0	15.9	60.0	50.0	38.0	34.1	N	
7	0.20056	39.2	21.1	12.5	51.7	33.6	63.5	53.5	11.8	19.9	L1	
8	0.30568	32.7	13.9	12.6	45.3	26.5	60.0	50.0	14.7	23.5	L1	
9	0.51298	23.8	4.1	12.6	36.4	16.7	56.0	46.0	19.6	29.3	L1	
10	1.69650	6.1	-3.7	12.6	18.7	8.9	56.0	46.0	37.3	37.1	L1	
11	5.93293	10.9	3.0	12.8	23.7	15.8	60.0	50.0	36.3	34.2	L1	
12	10.79095	9.3	2.9	13.0	22.3	15.9	60.0	50.0	37.7	34.1	L1	

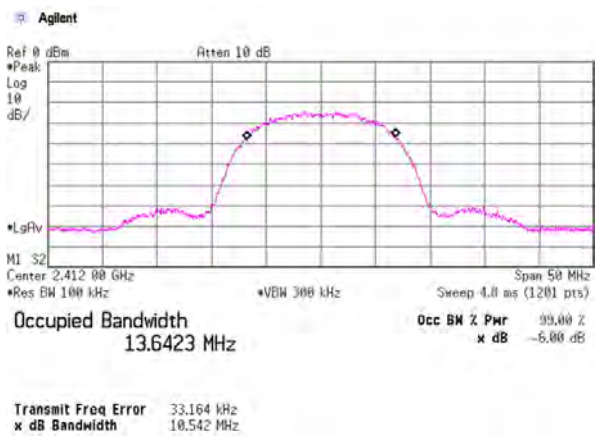
Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+HighPassFilter) [dB]
LISN: SLS-05

-6dB Bandwidth

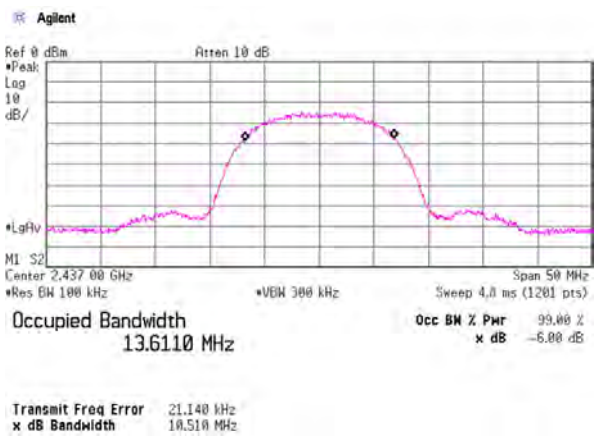
Test place	UL Japan, Inc. Shonan EMC Lab.	No.3 Shilded room
Date	2011/10/26	
Temperature / Humidity	25deg.C. , 36%RH	
Engineer	Hikaru Shirasawa	
Mode	IEEE802.11b, 11Mbps	
Serial Number	17	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	10.542	> 0.500
2437.0000	10.510	> 0.500
2462.0000	10.530	> 0.500

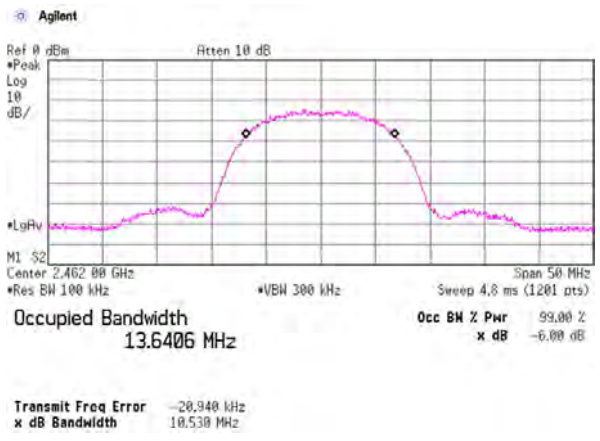
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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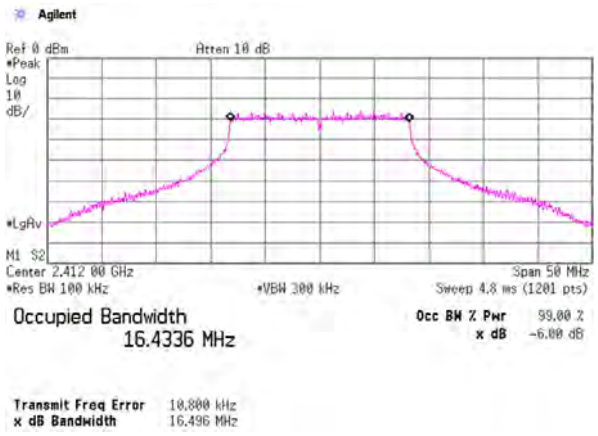
-6dB Bandwidth

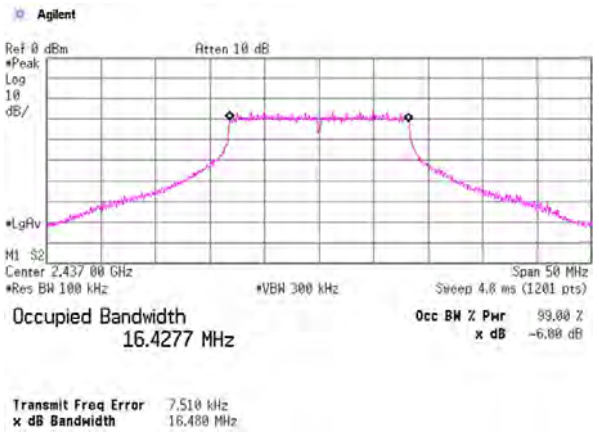
Test place	UL Japan, Inc. Shonan EMC Lab.	No.3 Shilded room
Date	2011/10/26	
Temperature / Humidity	25deg.C. , 36%RH	
Engineer	Hikaru Shirasawa	
Mode	IEEE802.11g, 24Mbps	
Serial Number	17	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	16.496	> 0.500
2437.0000	16.480	> 0.500
2462.0000	16.475	> 0.500

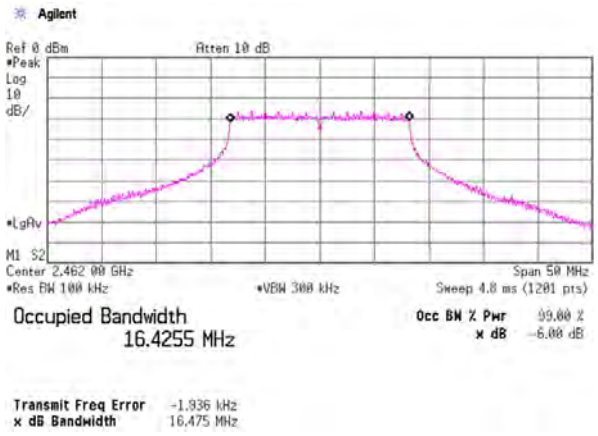
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



UL Japan, Inc.
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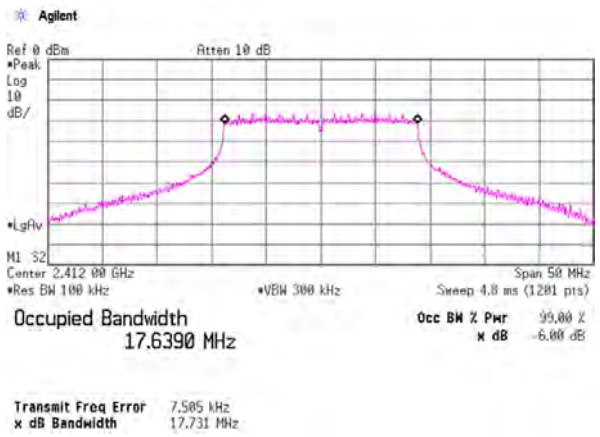
Facsimile : +81 463 50 6401

-6dB Bandwidth

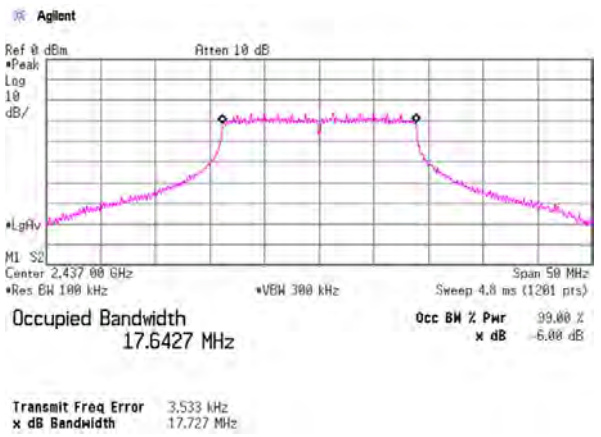
Test place	UL Japan, Inc. Shonan EMC Lab.	No.3 Shilded room
Date	2011/10/26	
Temperature / Humidity	25deg.C. , 36%RH	
Engineer	Hikaru Shirasawa	
Mode	IEEE802.11n, MCS6	
Serial Number	17	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	17.731	> 0.500
2437.0000	17.727	> 0.500
2462.0000	17.733	> 0.500

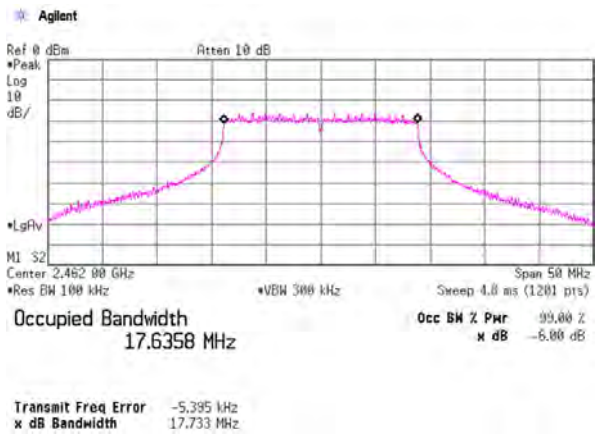
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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Peak Output Power (Conducted)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	2011/10/22		
Temperature / Humidity	25deg.C. , 55%RH		
Engineer	Akira Sto		
Mode	Tx, IEEE802.11b	worst antenna : -	worst data mode : 11 Mbps
Serial Number	17		

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (PK) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	-12.09	1.27	20.16	9.34	8.59	30.00	1000	20.66
Mid	2437.0	-12.45	1.24	20.15	8.94	7.83	30.00	1000	21.06
High	2462.0	-12.28	1.24	20.15	9.11	8.15	30.00	1000	20.89

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

[Pre check]

(* P/M: Power Meter with power sensor)

	Data rate	Freq.	P/M (PK) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[Mbps]	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
A	1	2437.0	-12.51	1.24	20.15	8.88	7.73	30.00	1000	21.12
A	2	2437.0	-12.52	1.24	20.15	8.87	7.71	30.00	1000	21.13
A	5.5	2437.0	-12.50	1.24	20.15	8.89	7.74	30.00	1000	21.11
A	11	2437.0	-12.45	1.24	20.15	**8.94**	7.83	30.00	1000	**21.06**

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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Facsimile : +81 463 50 6401

Peak Output Power (Conducted)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	2011/10/22		
Temperature / Humidity	25deg.C. , 55%RH		
Engineer	Akira Sato		
Mode	Tx, IEEE802.11g	worst antenna : -	worst data mode : 24 Mbps
Serial Number	17		

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (PK) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	-5.76	1.27	20.16	15.67	36.90	30.00	1000	14.33
Mid	2437.0	-5.47	1.24	20.15	15.92	39.08	30.00	1000	14.08
High	2462.0	-5.26	1.24	20.15	16.13	41.02	30.00	1000	13.87

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

[Pre check]

(* P/M: Power Meter with power sensor)

	Data rate	Freq.	P/M (PK) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[Mbps]	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
A	6	2437.0	-5.84	1.24	20.15	15.55	35.89	30.00	1000	14.45
A	9	2437.0	-6.05	1.24	20.15	15.34	34.20	30.00	1000	14.66
A	12	2437.0	-5.96	1.24	20.15	15.43	34.91	30.00	1000	14.57
A	18	2437.0	-5.76	1.24	20.15	15.63	36.56	30.00	1000	14.37
A	24	2437.0	-5.47	1.24	20.15	**15.92**	39.08	30.00	1000	**14.08**
A	36	2437.0	-6.11	1.24	20.15	15.28	33.73	30.00	1000	14.72
A	48	2437.0	-5.94	1.24	20.15	15.45	35.08	30.00	1000	14.55
A	54	2437.0	-6.06	1.24	20.15	15.33	34.12	30.00	1000	14.67

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Peak Output Power (Conducted)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	2011/6/23		
Temperature / Humidity	25deg.C. , 55%RH		
Engineer	Akira Sato		
Mode	Tx, IEEE802.11n(20HT)	worst antenna : -	worst data mode : 6 (MCS)
Serial Number	17		

(* P/M: Power Meter with power sensor)

Ch	Freq.	P/M (PK) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	-5.84	1.27	20.16	15.59	36.22	30.00	1000	14.41
Mid	2437.0	-5.58	1.24	20.15	15.81	38.11	30.00	1000	14.19
High	2462.0	-5.32	1.24	20.15	16.07	40.46	30.00	1000	13.93

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

[Pre check]

(* P/M: Power Meter with power sensor)

	Mode	Freq.	P/M (PK) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	(MCS)	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
A	0	2437.0	-6.04	1.24	20.15	15.35	34.28	30.00	1000	14.65
A	1	2437.0	-5.89	1.24	20.15	15.50	35.48	30.00	1000	14.50
A	2	2437.0	-5.63	1.24	20.15	15.76	37.67	30.00	1000	14.24
A	3	2437.0	-5.96	1.24	20.15	15.43	34.91	30.00	1000	14.57
A	4	2437.0	-6.06	1.24	20.15	15.33	34.12	30.00	1000	14.67
A	5	2437.0	-5.76	1.24	20.15	15.63	36.56	30.00	1000	14.37
A	6	2437.0	-5.58	1.24	20.15	**15.81**	38.11	30.00	1000	**14.19**
A	7	2437.0	-5.93	1.24	20.15	15.46	35.16	30.00	1000	14.54

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	October 24, 2011	October 25, 2011	October 25, 2011
Temperature / Humidity	25deg.C , 60%RH	24deg.C , 65%RH	25deg.C , 55%RH
Engineer	Kenichi Adachi	Hikaru Shirasawa	Kenichi Adachi
Mode	Tx, 2412.0 MHz		
	Tx, IEEE802.11b, PN9, worst data mode 11Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	335.992	QP	42.3	14.9	7.1	31.8	32.5	46	13.5	100	197	
Hori.	911.99	QP	32.1	22.3	10.1	31.3	33.2	46	12.8	100	354	
Hori.	2390	PK	47.7	28.2	13.8	40.6	49.1	73.9	24.8	105	125	
Hori.	4824	PK	48	31.2	6	41.5	43.7	73.9	30.2	100	0	
Hori.	7236	PK	47	36.1	7.6	40.7	50	73.9	23.9	100	0	
Hori.	9648	PK	45.3	38.6	8.7	40.5	52.1	73.9	21.8	100	0	
Hori.	12060	PK	44.4	39.5	10.3	39.5	54.7	73.9	19.2	100	0	
Hori.	2390	AV	36.6	28.2	13.8	40.6	38	53.9	15.9	105	125	
Hori.	4824	AV	35	31.2	6	41.5	30.7	53.9	23.2	100	0	
Hori.	7236	AV	34.7	36.1	7.6	40.7	37.7	53.9	16.2	100	0	
Hori.	9648	AV	32.5	38.6	8.7	40.5	39.3	53.9	14.6	100	0	
Hori.	12060	AV	32.3	39.5	10.3	39.5	42.6	53.9	11.3	100	0	
Vert.	51.759	QP	38.6	10.6	7.3	31.8	24.7	40	15.3	100	206	
Vert.	239.993	QP	32.7	17.1	9.3	31.7	27.4	46	18.6	100	201	
Vert.	287.998	QP	31.9	18.5	9.7	31.8	28.3	46	17.7	100	186	
Vert.	335.995	QP	41.7	14.9	7.1	31.8	31.9	46	14.1	157	230	
Vert.	431.995	QP	35.7	16.6	7.8	31.8	28.3	46	17.7	141	266	
Vert.	2390	PK	48.5	28.2	13.8	40.6	49.9	73.9	24	100	148	
Vert.	4824	PK	48.2	31.2	6	41.5	43.9	73.9	30	100	0	
Vert.	7236	PK	46.5	36.1	7.6	40.7	49.5	73.9	24.4	100	0	
Vert.	9648	PK	44.4	38.6	8.7	40.5	51.2	73.9	22.7	100	0	
Vert.	12060	PK	45.6	39.5	10.3	39.5	55.9	73.9	18	100	0	
Vert.	2390	AV	36.9	28.2	13.8	40.6	38.3	53.9	15.6	100	148	
Vert.	4824	AV	35.1	31.2	6	41.5	30.8	53.9	23.1	100	0	
Vert.	7236	AV	34.3	36.1	7.6	40.7	37.3	53.9	16.6	100	0	
Vert.	9648	AV	32.3	38.6	8.7	40.5	39.1	53.9	14.8	100	0	
Vert.	12060	AV	32.6	39.5	10.3	39.5	42.9	53.9	**11**	100	0	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	92.3	28.3	13.8	40.6	93.8	-	-	carrier
Hori.	2398.408	PK	46.5	28.2	13.8	40.6	47.9	73.8	25.9	
Hori.	2400.000	PK	43.7	28.2	13.8	40.6	45.1	73.8	28.7	
Vert.	2412.000	PK	93.1	28.3	13.8	40.6	94.6	-	-	carrier
Vert.	2398.408	PK	47.4	28.2	13.8	40.6	48.8	74.6	25.8	
Vert.	2400.000	PK	44.5	28.2	13.8	40.6	45.9	74.6	28.7	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	October 24, 2011	October 25, 2011	October 25, 2011
Temperature / Humidity	25deg.C , 60%RH	24deg.C , 65%RH	25deg.C , 55%RH
Engineer	Kenichi Adachi	Hikaru Shirasawa	Kenichi Adachi
Mode	Tx, 2437.0 MHz		
	Tx, IEEE802.11b, PN9, worst data mode 11Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	431.743	QP	35.9	16.6	7.8	31.8	28.5	46	17.5	100	106	
Hori.	815.9	QP	33	21.1	9.6	31.8	31.9	46	14.1	100	336	
Hori.	4874	PK	47.7	31.4	6	41.5	43.6	73.9	30.3	100	0	
Hori.	7311	PK	46.6	36.2	7.6	40.7	49.7	73.9	24.2	100	0	
Hori.	9748	PK	45	38.7	8.7	40.5	51.9	73.9	22	100	0	
Hori.	12185	PK	44.9	39.6	10.3	39.5	55.3	73.9	18.6	100	0	
Hori.	4874	AV	35.3	31.4	6	41.5	31.2	53.9	22.7	100	0	
Hori.	7311	AV	34.6	36.2	7.6	40.7	37.7	53.9	16.2	100	0	
Hori.	9748	AV	32.5	38.7	8.7	40.5	39.4	53.9	14.5	100	0	
Hori.	12185	AV	32.3	39.6	10.3	39.5	42.7	53.9	11.2	100	0	
Vert.	52.592	QP	38.7	10.3	7.3	31.8	24.5	40	15.5	100	204	
Vert.	239.993	QP	33.5	17.1	9.3	31.7	28.2	46	17.8	100	22	
Vert.	335.994	QP	43	14.9	7.1	31.8	33.2	46	12.8	221	315	
Vert.	527.987	QP	32.4	17.9	8.2	31.9	26.6	46	19.4	100	278	
Vert.	623.984	QP	29.4	19.3	8.7	32	25.4	46	20.6	100	11	
Vert.	4874	PK	47	31.4	6	41.5	42.9	73.9	31	100	0	
Vert.	7311	PK	45.8	36.2	7.6	40.7	48.9	73.9	25	100	0	
Vert.	9748	PK	45.1	38.7	8.7	40.5	52	73.9	21.9	100	0	
Vert.	12185	PK	44.7	39.6	10.3	39.5	55.1	73.9	18.8	100	0	
Vert.	4874	AV	34.9	31.4	6	41.5	30.8	53.9	23.1	100	0	
Vert.	7311	AV	34	36.2	7.6	40.7	37.1	53.9	16.8	100	0	
Vert.	9748	AV	32.9	38.7	8.7	40.5	39.8	53.9	14.1	100	0	
Vert.	12185	AV	32.4	39.6	10.3	39.5	42.8	53.9	**11.1**	100	0	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	October 24, 2011	October 25, 2011	October 25, 2011
Temperature / Humidity	25deg.C , 60%RH	24deg.C , 65%RH	25deg.C , 55%RH
Engineer	Kenichi Adachi	Hikaru Shirasawa	Kenichi Adachi
Mode	Tx, 2462.0 MHz		
	Tx, IEEE802.11b, PN9, worst data mode 11Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	335.997	QP	42	14.9	7.1	31.8	32.2	46	13.8	104	351	
Hori.	2483.5	PK	47.6	28.7	13.7	40.5	49.5	73.9	24.4	103	116	
Hori.	4924	PK	47.4	31.5	6.1	41.5	43.5	73.9	30.4	100	0	
Hori.	7386	PK	47.6	36.3	7.5	40.7	50.7	73.9	23.2	100	0	
Hori.	9848	PK	44.9	38.8	8.7	40.5	51.9	73.9	22	100	0	
Hori.	12310	PK	43.9	39.6	10.3	39.5	54.3	73.9	19.6	100	0	
Hori.	2483.5	AV	35	28.7	13.7	40.5	36.9	53.9	17	103	116	
Hori.	4924	AV	35	31.5	6.1	41.5	31.1	53.9	22.8	100	0	
Hori.	7386	AV	34.9	36.3	7.5	40.7	38	53.9	15.9	100	0	
Hori.	9848	AV	32.8	38.8	8.7	40.5	39.8	53.9	14.1	100	0	
Hori.	12310	AV	31.2	39.6	10.3	39.5	41.6	53.9	12.3	100	0	
Vert.	51.521	QP	38.6	10.7	7.3	31.8	24.8	40	15.2	100	309	
Vert.	212.148	QP	29.1	16.5	9.1	31.7	23	43.5	20.5	100	7	
Vert.	239.988	QP	33.8	17.1	9.3	31.7	28.5	46	17.5	100	275	
Vert.	335.677	QP	44.3	14.9	7.1	31.8	34.5	46	**11.5**	216	291	
Vert.	527.986	QP	32.8	17.9	8.2	31.9	27	46	19	100	245	
Vert.	671.985	QP	29.9	20	8.9	32	26.8	46	19.2	100	309	
Vert.	2483.5	PK	48	28.7	13.7	40.5	49.9	73.9	24	100	156	
Vert.	4924	PK	46.9	31.5	6.1	41.5	43	73.9	30.9	100	0	
Vert.	7386	PK	46.8	36.3	7.5	40.7	49.9	73.9	24	100	0	
Vert.	9848	PK	45.2	38.8	8.7	40.5	52.2	73.9	21.7	100	0	
Vert.	12310	PK	43.9	39.6	10.3	39.5	54.3	73.9	19.6	100	0	
Vert.	2483.5	AV	35.8	28.7	13.7	40.5	37.7	53.9	16.2	100	156	
Vert.	4924	AV	34.8	31.5	6.1	41.5	30.9	53.9	23	100	0	
Vert.	7386	AV	34.4	36.3	7.5	40.7	37.5	53.9	16.4	100	0	
Vert.	9848	AV	32.9	38.8	8.7	40.5	39.9	53.9	14	100	0	
Vert.	12310	AV	31.4	39.6	10.3	39.5	41.8	53.9	12.1	100	0	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	October 24, 2011	October 25, 2011	October 25, 2011
Temperature / Humidity	25deg.C , 60%RH	24deg.C , 65%RH	25deg.C , 55%RH
Engineer	Kenichi Adachi	Hikaru Shirasawa	Kenichi Adachi
Mode	Tx, 2412.0 MHz		
	Tx, IEEE802.11g, PN9, worst data mode 24Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	912.525	QP	32.5	22.3	10.1	31.3	33.6	46	12.4	100	147	
Hori.	2390	PK	57.2	28.2	13.8	40.6	58.6	73.9	15.3	108	138	
Hori.	4824	PK	47.8	31.2	6	41.5	43.5	73.9	30.4	100	0	
Hori.	7236	PK	47.1	36.1	7.6	40.7	50.1	73.9	23.8	100	0	
Hori.	9648	PK	45.4	38.6	8.7	40.5	52.2	73.9	21.7	100	0	
Hori.	12060	PK	45	39.5	10.3	39.5	55.3	73.9	18.6	100	0	
Hori.	2390	AV	41.8	28.2	13.8	40.6	43.2	53.9	10.7	108	138	
Hori.	4824	AV	35.1	31.2	6	41.5	30.8	53.9	23.1	100	0	
Hori.	7236	AV	34.7	36.1	7.6	40.7	37.7	53.9	16.2	100	0	
Hori.	9648	AV	32.5	38.6	8.7	40.5	39.3	53.9	14.6	100	0	
Hori.	12060	AV	32.2	39.5	10.3	39.5	42.5	53.9	11.4	100	0	
Vert.	51.536	QP	38.8	10.7	7.3	31.8	25	40	15	100	310	
Vert.	212.153	QP	29.3	16.5	9.1	31.7	23.2	43.5	20.3	100	14	
Vert.	239.986	QP	34	17.1	9.3	31.7	28.7	46	17.3	100	53	
Vert.	335.576	QP	44.7	14.9	7.1	31.8	34.9	46	11.1	220	290	
Vert.	431.993	QP	34.4	16.6	7.8	31.8	27	46	19	145	170	
Vert.	528.219	QP	32.8	17.9	8.2	31.9	27	46	19	100	354	
Vert.	2390	PK	58.9	28.2	13.8	40.6	60.3	73.9	13.6	100	150	
Vert.	4824	PK	47.4	31.2	6	41.5	43.1	73.9	30.8	100	0	
Vert.	7236	PK	46.9	36.1	7.6	40.7	49.9	73.9	24	100	0	
Vert.	9648	PK	45.3	38.6	8.7	40.5	52.1	73.9	21.8	100	0	
Vert.	12060	PK	45.1	39.5	10.3	39.5	55.4	73.9	18.5	100	0	
Vert.	2390	AV	41.9	28.2	13.8	40.6	43.3	53.9	**10.6**	100	150	
Vert.	4824	AV	35	31.2	6	41.5	30.7	53.9	23.2	100	0	
Vert.	7236	AV	34.2	36.1	7.6	40.7	37.2	53.9	16.7	100	0	
Vert.	9648	AV	32.2	38.6	8.7	40.5	39	53.9	14.9	100	0	
Vert.	12060	AV	32.5	39.5	10.3	39.5	42.8	53.9	11.1	100	0	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	89.7	28.3	13.8	40.6	91.2	-	-	carrier
Hori.	2400.000	PK	58.8	28.2	13.8	40.6	60.2	71.2	11.0	
Vert.	2412.000	PK	90.8	28.3	13.8	40.6	92.3	-	-	carrier
Vert.	2400.000	PK	59.4	28.2	13.8	40.6	60.8	72.3	11.5	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	October 24, 2011	October 25, 2011	October 25, 2011
Temperature / Humidity	25deg.C , 60%RH	24deg.C , 65%RH	25deg.C , 55%RH
Engineer	Kenichi Adachi	Hikaru Shirasawa	Kenichi Adachi
Mode	Tx, 2437.0 MHz		
	Tx, IEEE802.11g, PN9, worst data mode 24Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	335.712	QP	43.5	14.9	7.1	31.8	33.7	46	12.3	106	5	
Hori.	4874	PK	47.6	31.4	6	41.5	43.5	73.9	30.4	100	0	
Hori.	7311	PK	47	36.2	7.6	40.7	50.1	73.9	23.8	100	0	
Hori.	9748	PK	44.7	38.7	8.7	40.5	51.6	73.9	22.3	100	0	
Hori.	12185	PK	44.3	39.6	10.3	39.5	54.7	73.9	19.2	100	0	
Hori.	4874	AV	35	31.4	6	41.5	30.9	53.9	23	100	0	
Hori.	7311	AV	34.5	36.2	7.6	40.7	37.6	53.9	16.3	100	0	
Hori.	9748	AV	33	38.7	8.7	40.5	39.9	53.9	14	100	0	
Hori.	12185	AV	32.2	39.6	10.3	39.5	42.6	53.9	11.3	100	0	
Vert.	52.133	QP	38.9	10.5	7.3	31.8	24.9	40	15.1	100	116	
Vert.	210.214	QP	30.1	16.5	9.1	31.7	24	43.5	19.5	100	38	
Vert.	239.99	QP	34.8	17.1	9.3	31.7	29.5	46	16.5	100	242	
Vert.	335.994	QP	43.7	14.9	7.1	31.8	33.9	46	12.1	198	230	
Vert.	431.993	QP	35.5	16.6	7.8	31.8	28.1	46	17.9	161	277	
Vert.	528.144	QP	33.1	17.9	8.2	31.9	27.3	46	18.7	100	260	
Vert.	4874	PK	47	31.4	6	41.5	42.9	73.9	31	100	0	
Vert.	7311	PK	46	36.2	7.6	40.7	49.1	73.9	24.8	100	0	
Vert.	9748	PK	45.1	38.7	8.7	40.5	52	73.9	21.9	100	0	
Vert.	12185	PK	44.5	39.6	10.3	39.5	54.9	73.9	19	100	0	
Vert.	4874	AV	34.8	31.4	6	41.5	30.7	53.9	23.2	100	0	
Vert.	7311	AV	33.9	36.2	7.6	40.7	37	53.9	16.9	100	0	
Vert.	9748	AV	32.8	38.7	8.7	40.5	39.7	53.9	14.2	100	0	
Vert.	12185	AV	32.3	39.6	10.3	39.5	42.7	53.9	**11.2**	100	0	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	October 24, 2011	October 25, 2011	October 25, 2011
Temperature / Humidity	25deg.C , 60%RH	24deg.C , 65%RH	25deg.C , 55%RH
Engineer	Kenichi Adachi	Hikaru Shirasawa	Kenichi Adachi
Mode	Tx, 2462.0 MHz		
	Tx, IEEE802.11g, PN9, worst data mode 24Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	335.992	QP	42.2	14.9	7.1	31.8	32.4	46	13.6	100	12	
Hori.	2483.5	PK	50.9	28.7	13.7	40.5	52.8	73.9	21.1	102	133	
Hori.	4924	PK	47.8	31.5	6.1	41.5	43.9	73.9	30	100	0	
Hori.	7386	PK	46.6	36.3	7.5	40.7	49.7	73.9	24.2	100	0	
Hori.	9848	PK	45.4	38.8	8.7	40.5	52.4	73.9	21.5	100	0	
Hori.	12310	PK	43.5	39.6	10.3	39.5	53.9	73.9	20	100	0	
Hori.	2483.5	AV	37.2	28.7	13.7	40.5	39.1	53.9	14.8	102	133	
Hori.	4924	AV	35	31.5	6.1	41.5	31.1	53.9	22.8	100	0	
Hori.	7386	AV	34.9	36.3	7.5	40.7	38	53.9	15.9	100	0	
Hori.	9848	AV	32.8	38.8	8.7	40.5	39.8	53.9	14.1	100	0	
Hori.	12310	AV	31.2	39.6	10.3	39.5	41.6	53.9	12.3	100	0	
Vert.	53.127	QP	39.7	10.2	7.3	31.8	25.4	40	14.6	100	195	
Vert.	221.752	QP	30.5	16.7	9.2	31.7	24.7	46	21.3	100	29	
Vert.	240.067	QP	34.9	17.1	9.3	31.7	29.6	46	16.4	100	240	
Vert.	335.991	QP	45.8	14.9	7.1	31.8	36	46	**10**	235	313	
Vert.	431.996	QP	32	16.6	7.8	31.8	24.6	46	21.4	103	70	
Vert.	527.983	QP	33.4	17.9	8.2	31.9	27.6	46	18.4	100	259	
Vert.	2483.5	PK	53.7	28.7	13.7	40.5	55.6	73.9	18.3	100	151	
Vert.	4924	PK	47.1	31.5	6.1	41.5	43.2	73.9	30.7	100	0	
Vert.	7386	PK	46.9	36.3	7.5	40.7	50	73.9	23.9	100	0	
Vert.	9848	PK	46.1	38.8	8.7	40.5	53.1	73.9	20.8	100	0	
Vert.	12310	PK	44.2	39.6	10.3	39.5	54.6	73.9	19.3	100	0	
Vert.	2483.5	AV	38.5	28.7	13.7	40.5	40.4	53.9	13.5	100	151	
Vert.	4924	AV	34.9	31.5	6.1	41.5	31	53.9	22.9	100	0	
Vert.	7386	AV	34.5	36.3	7.5	40.7	37.6	53.9	16.3	100	0	
Vert.	9848	AV	32.9	38.8	8.7	40.5	39.9	53.9	14	100	0	
Vert.	12310	AV	31.4	39.6	10.3	39.5	41.8	53.9	12.1	100	0	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	October 24, 2011	October 25, 2011	October 25, 2011
Temperature / Humidity	25deg.C , 60%RH	24deg.C , 65%RH	25deg.C , 55%RH
Engineer	Kenichi Adachi	Hikaru Shirasawa	Kenichi Adachi
Mode	Tx, 2412.0 MHz		
	Tx, IEEE802.11n (HT20), PN9, worst data mode MCS6		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	335.695	QP	42.9	14.9	7.1	31.8	33.1	46	12.9	100	18	
Hori.	912.456	QP	31.8	22.3	10.1	31.3	32.9	46	13.1	100	162	
Hori.	2390	PK	60.3	28.2	13.8	40.6	61.7	73.9	12.2	103	128	
Hori.	4824	PK	47.6	31.2	6	41.5	43.3	73.9	30.6	100	0	
Hori.	7236	PK	46.9	36.1	7.6	40.7	49.9	73.9	24	100	0	
Hori.	9648	PK	44.8	38.6	8.7	40.5	51.6	73.9	22.3	100	0	
Hori.	12060	PK	45	39.5	10.3	39.5	55.3	73.9	18.6	100	0	
Hori.	2390	AV	44.6	28.2	13.8	40.6	46	53.9	7.9	103	128	
Hori.	4824	AV	35	31.2	6	41.5	30.7	53.9	23.2	100	0	
Hori.	7236	AV	34.7	36.1	7.6	40.7	37.7	53.9	16.2	100	0	
Hori.	9648	AV	32.4	38.6	8.7	40.5	39.2	53.9	14.7	100	0	
Hori.	12060	AV	32.3	39.5	10.3	39.5	42.6	53.9	11.3	100	0	
Vert.	52.161	QP	38.8	10.5	7.3	31.8	24.8	40	15.2	100	200	
Vert.	220.662	QP	33.2	16.7	9.2	31.7	27.4	46	18.6	100	28	
Vert.	239.998	QP	35	17.1	9.3	31.7	29.7	46	16.3	100	230	
Vert.	335.997	QP	45.8	14.9	7.1	31.8	36	46	10	217	308	
Vert.	431.99	QP	32.6	16.6	7.8	31.8	25.2	46	20.8	100	110	
Vert.	528.149	QP	33.7	17.9	8.2	31.9	27.9	46	18.1	100	284	
Vert.	2390	PK	64.2	28.2	13.8	40.6	65.6	73.9	8.3	100	151	
Vert.	4824	PK	46.8	31.2	6	41.5	42.5	73.9	31.4	100	0	
Vert.	7236	PK	46.8	36.1	7.6	40.7	49.8	73.9	24.1	100	0	
Vert.	9648	PK	44.3	38.6	8.7	40.5	51.1	73.9	22.8	100	0	
Vert.	12060	PK	44.9	39.5	10.3	39.5	55.2	73.9	18.7	100	0	
Vert.	2390	AV	46	28.2	13.8	40.6	47.4	53.9	**6.5**	100	151	
Vert.	4824	AV	35	31.2	6	41.5	30.7	53.9	23.2	100	0	
Vert.	7236	AV	34.3	36.1	7.6	40.7	37.3	53.9	16.6	100	0	
Vert.	9648	AV	32.4	38.6	8.7	40.5	39.2	53.9	14.7	100	0	
Vert.	12060	AV	32.6	39.5	10.3	39.5	42.9	53.9	11	100	0	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	90.4	28.3	13.8	40.6	91.9	-	-	carrier
Hori.	2400.000	PK	59.0	28.2	13.8	40.6	60.4	71.9	11.5	
Vert.	2412.000	PK	90.8	28.3	13.8	40.6	92.3	-	-	carrier
Vert.	2400.000	PK	61.0	28.2	13.8	40.6	62.4	72.3	9.9	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	October 24, 2011	October 25, 2011	October 25, 2011
Temperature / Humidity	25deg.C , 60%RH	24deg.C , 65%RH	25deg.C , 55%RH
Engineer	Kenichi Adachi	Hikaru Shirasawa	Kenichi Adachi
Mode	Tx, 2437.0 MHz		
	Tx, IEEE802.11n (HT20), PN9, worst data mode MCS6		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	335.997	QP	43	14.9	7.1	31.8	33.2	46	12.8	100	20	
Hori.	912.537	QP	32	22.3	10.1	31.3	33.1	46	12.9	100	191	
Hori.	4874	PK	47	31.4	6	41.5	42.9	73.9	31	100	0	
Hori.	7311	PK	46.2	36.2	7.6	40.7	49.3	73.9	24.6	100	0	
Hori.	9748	PK	44.3	38.7	8.7	40.5	51.2	73.9	22.7	100	0	
Hori.	12185	PK	45.3	39.6	10.3	39.5	55.7	73.9	18.2	100	0	
Hori.	4874	AV	35	31.4	6	41.5	30.9	53.9	23	100	0	
Hori.	7311	AV	34.6	36.2	7.6	40.7	37.7	53.9	16.2	100	0	
Hori.	9748	AV	33	38.7	8.7	40.5	39.9	53.9	14	100	0	
Hori.	12185	AV	32.3	39.6	10.3	39.5	42.7	53.9	11.2	100	0	
Vert.	52.534	QP	38.7	10.4	7.3	31.8	24.6	40	15.4	100	224	
Vert.	212.142	QP	33.3	16.5	9.1	31.7	27.2	43.5	16.3	100	347	
Vert.	239.99	QP	35.4	17.1	9.3	31.7	30.1	46	15.9	100	233	
Vert.	335.995	QP	45.8	14.9	7.1	31.8	36	46	**10**	224	299	
Vert.	431.99	QP	32.8	16.6	7.8	31.8	25.4	46	20.6	143	111	
Vert.	4874	PK	47.6	31.4	6	41.5	43.5	73.9	30.4	100	0	
Vert.	7311	PK	46.4	36.2	7.6	40.7	49.5	73.9	24.4	100	0	
Vert.	9748	PK	45	38.7	8.7	40.5	51.9	73.9	22	100	0	
Vert.	12185	PK	44.4	39.6	10.3	39.5	54.8	73.9	19.1	100	0	
Vert.	4874	AV	35.1	31.4	6	41.5	31	53.9	22.9	100	0	
Vert.	7311	AV	33.9	36.2	7.6	40.7	37	53.9	16.9	100	0	
Vert.	9748	AV	32.9	38.7	8.7	40.5	39.8	53.9	14.1	100	0	
Vert.	12185	AV	32.3	39.6	10.3	39.5	42.7	53.9	11.2	100	0	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	October 24, 2011	October 25, 2011	October 25, 2011
Temperature / Humidity	25deg.C , 60%RH	24deg.C , 65%RH	25deg.C , 55%RH
Engineer	Kenichi Adachi	Hikaru Shirasawa	Kenichi Adachi
Mode	Tx, 2462.0 MHz		

Tx, IEEE802.11n (HT20), PN9, worst data mode MCS6

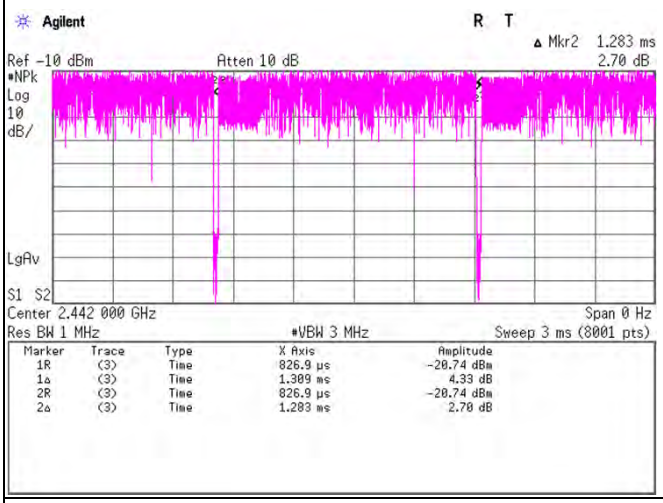
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	335.711	QP	43.2	14.9	7.1	31.8	33.4	46.0	12.6	100	357	
Hori.	912.572	QP	32.6	22.3	10.1	31.3	33.7	46.0	12.3	100	8	
Hori.	2483.500	PK	52.6	28.7	13.7	40.5	54.5	73.9	19.4	104	122	
Hori.	4924.000	PK	47.6	31.5	6.1	41.5	43.7	73.9	30.2	100	0	
Hori.	7386.000	PK	46.2	36.3	7.5	40.7	49.3	73.9	24.6	100	0	
Hori.	9848.000	PK	44.7	38.8	8.7	40.5	51.7	73.9	22.2	100	0	
Hori.	12310.000	PK	43.9	39.6	10.3	39.5	54.3	73.9	19.6	100	0	
Hori.	2483.500	AV	36.8	28.7	13.7	40.5	38.7	53.9	15.2	104	122	
Hori.	4924.000	AV	35.0	31.5	6.1	41.5	31.1	53.9	22.8	100	0	
Hori.	7386.000	AV	34.8	36.3	7.5	40.7	37.9	53.9	16.0	100	0	
Hori.	9848.000	AV	32.8	38.8	8.7	40.5	39.8	53.9	14.1	100	0	
Hori.	12310.000	AV	31.2	39.6	10.3	39.5	41.6	53.9	12.3	100	0	
Vert.	52.299	QP	38.9	10.4	7.3	31.8	24.8	40.0	15.2	100	198	
Vert.	211.793	QP	32.9	16.5	9.1	31.7	26.8	43.5	16.7	100	346	
Vert.	239.989	QP	35.6	17.1	9.3	31.7	30.3	46.0	15.7	100	232	
Vert.	335.995	QP	45.6	14.9	7.1	31.8	35.8	46.0	**10.2**	221	278	
Vert.	431.992	QP	33.2	16.6	7.8	31.8	25.8	46.0	20.2	140	120	
Vert.	528.003	QP	32.6	17.9	8.2	31.9	26.8	46.0	19.2	100	214	
Vert.	2483.500	PK	53.0	28.7	13.7	40.5	54.9	73.9	19.0	100	152	
Vert.	4924.000	PK	46.5	31.5	6.1	41.5	42.6	73.9	31.3	100	0	
Vert.	7386.000	PK	46.8	36.3	7.5	40.7	49.9	73.9	24.0	100	0	
Vert.	9848.000	PK	45.4	38.8	8.7	40.5	52.4	73.9	21.5	100	0	
Vert.	12310.000	PK	44.4	39.6	10.3	39.5	54.8	73.9	19.1	100	0	
Vert.	2483.500	AV	37.4	28.7	13.7	40.5	39.3	53.9	14.6	100	152	
Vert.	4924.000	AV	34.9	31.5	6.1	41.5	31.0	53.9	22.9	100	0	
Vert.	7386.000	AV	34.6	36.3	7.5	40.7	37.7	53.9	16.2	100	0	
Vert.	9848.000	AV	32.9	38.8	8.7	40.5	39.9	53.9	14.0	100	0	
Vert.	12310.000	AV	31.5	39.6	10.3	39.5	41.9	53.9	12.0	100	0	

Result = Reading + Ant Factor + Loss(Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

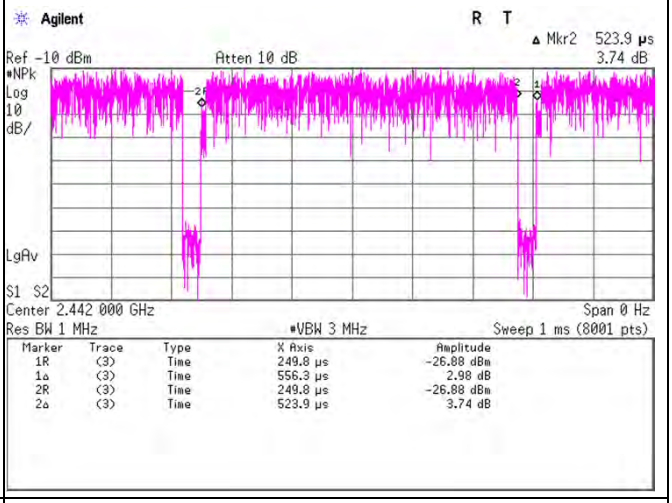
Spurious emission (Radiated)

Duty Rate

Tx, IEEE802.11b, PN9, worst rate: 11Mbps



Tx, IEEE802.11g, PN9, worst rate: 24Mbps



Tx, IEEE802.11n, PN9, worst rate: MCS6

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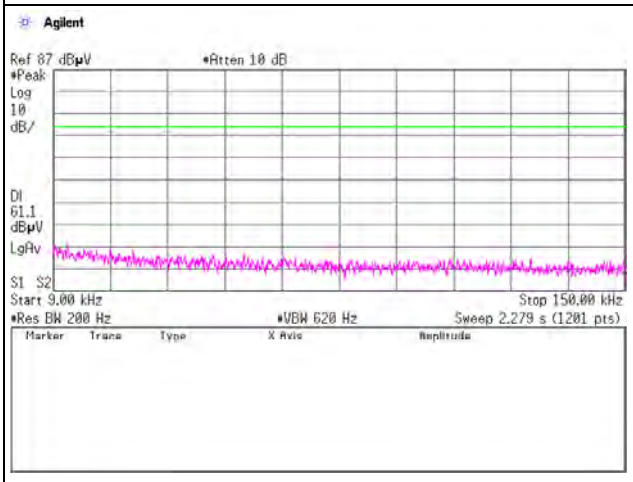
Spurious emission (Conducted)

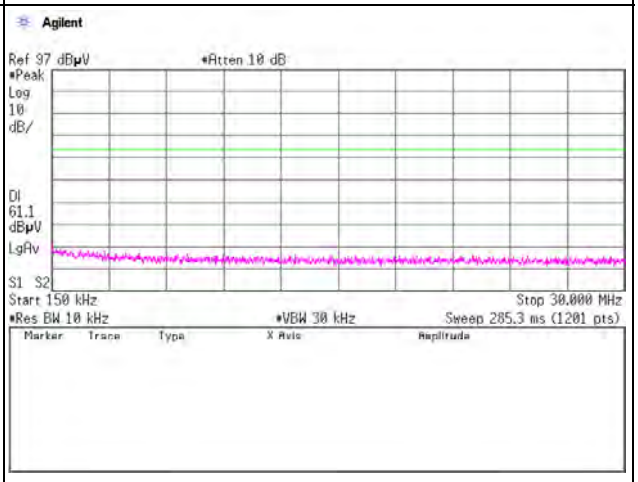
IEEE802.11b, 11Mbps

Tx 2412MHz (1/2)

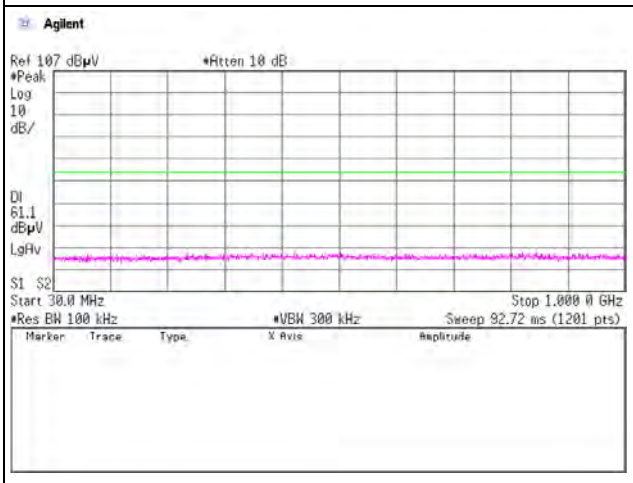
9kHz - 150kHz



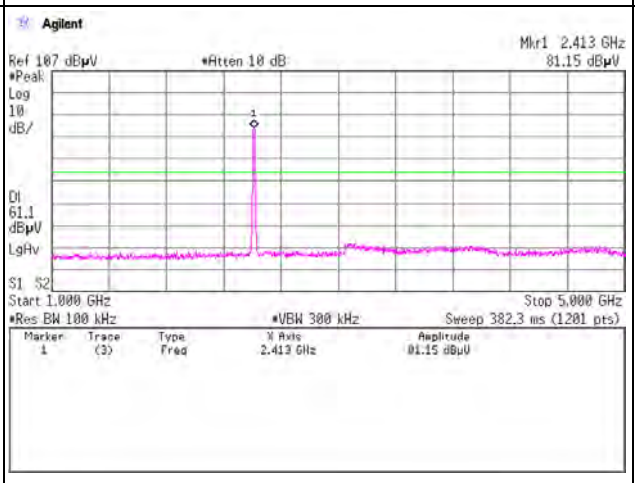
150kHz - 30MHz



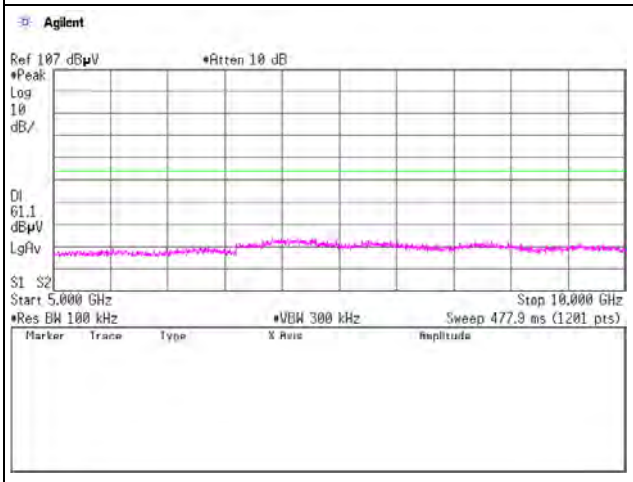
30MHz - 1GHz



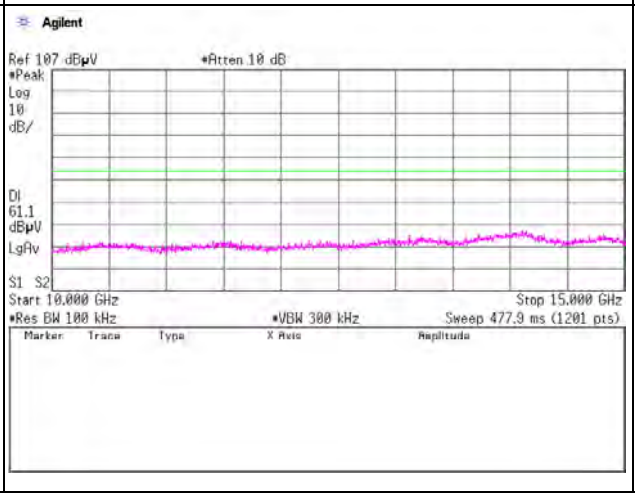
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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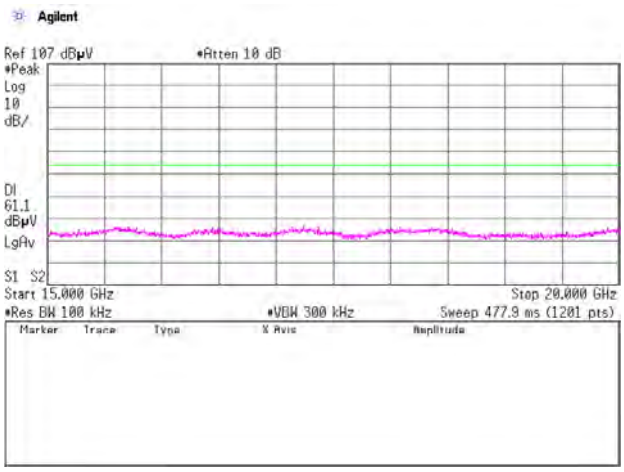
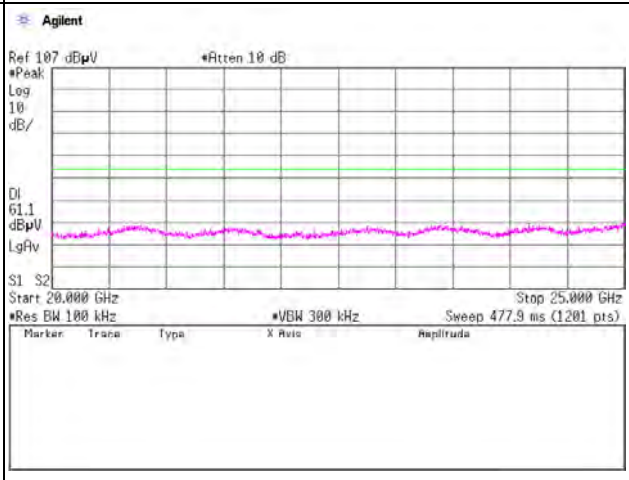
Spurious emission (Conducted)

IEEE802.11b, 11Mbps

Tx 2412MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
	

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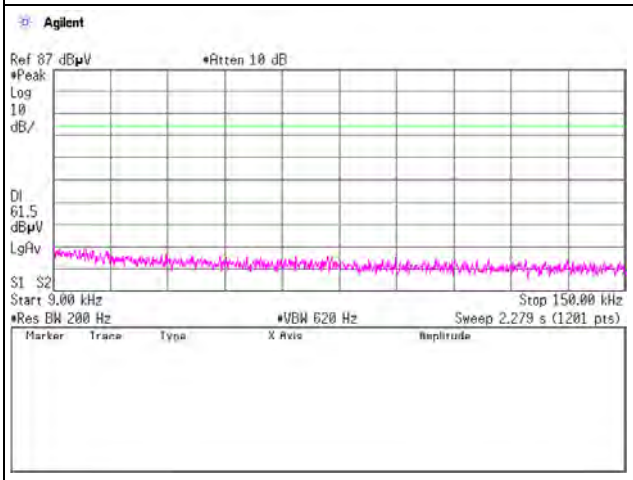
Spurious emission (Conducted)

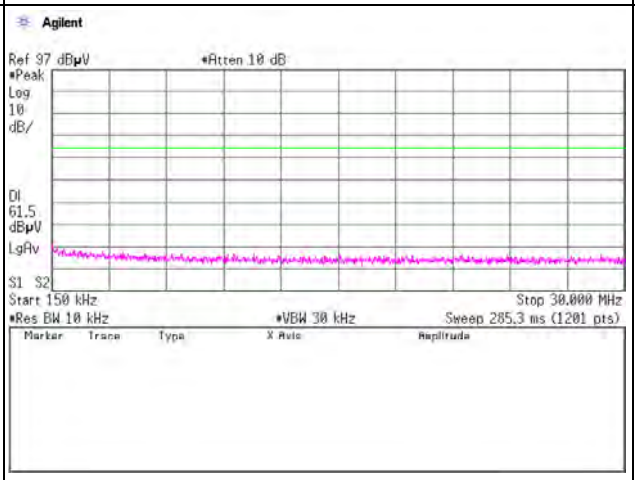
IEEE802.11b, 11Mbps

Tx 2437MHz (1/2)

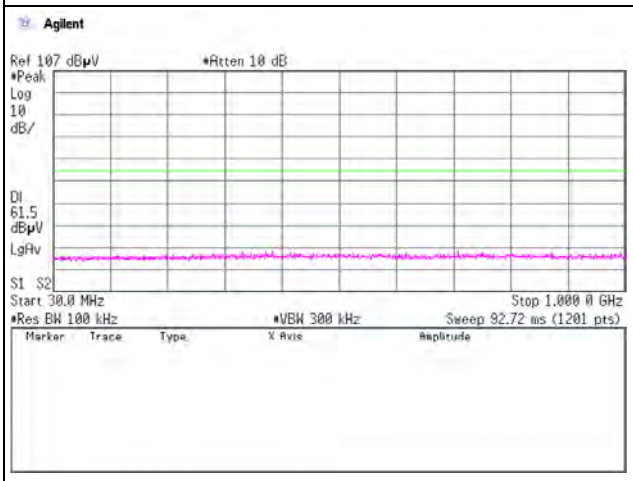
9kHz - 150kHz



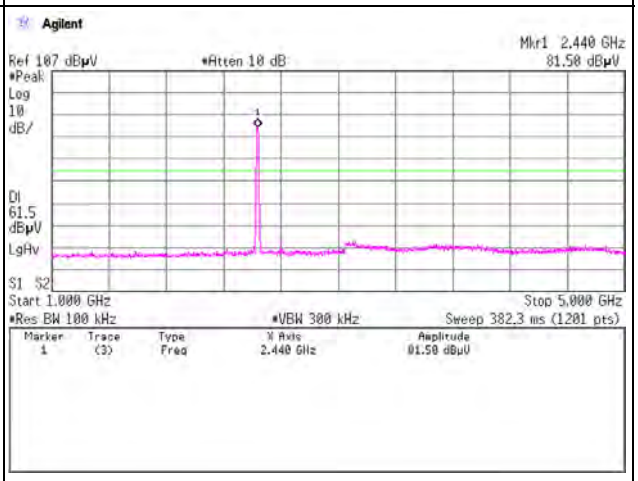
150kHz - 30MHz



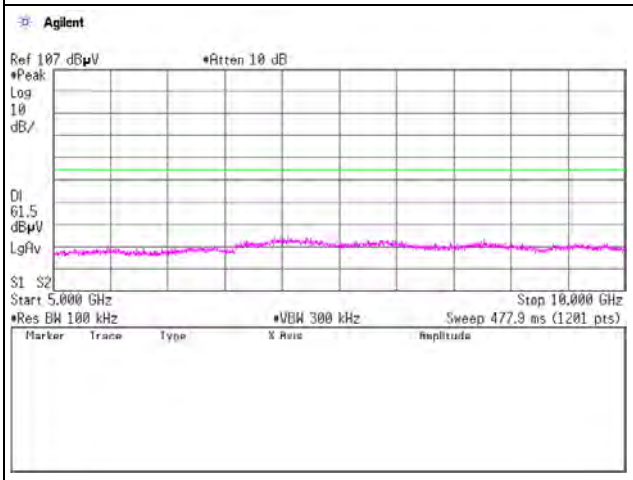
30MHz - 1GHz



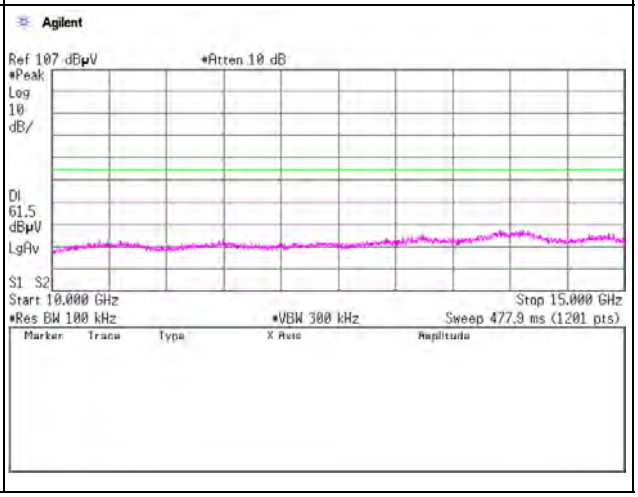
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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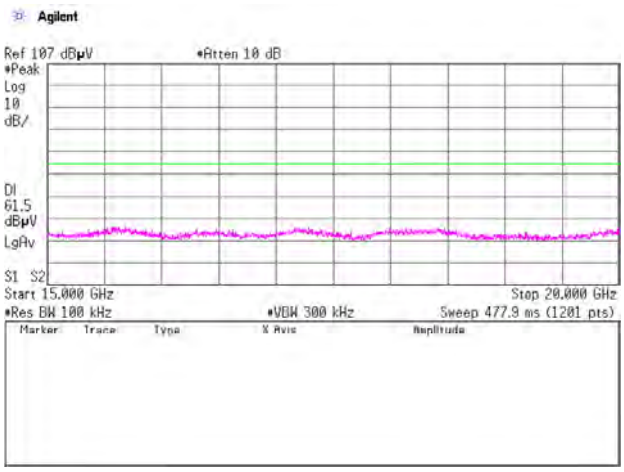
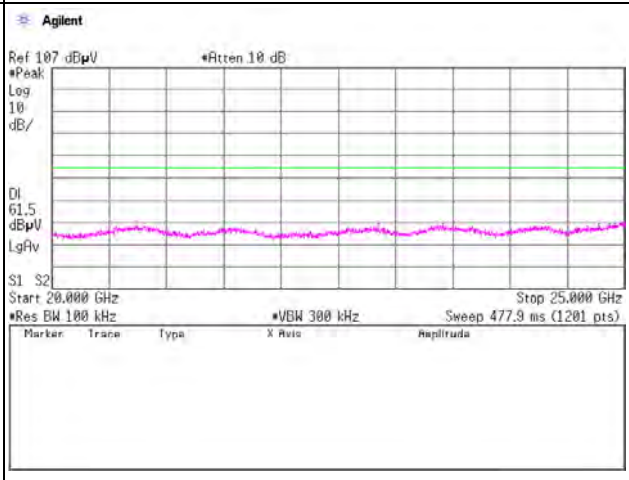
Spurious emission (Conducted)

IEEE802.11b, 11Mbps

Tx 2437MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
	

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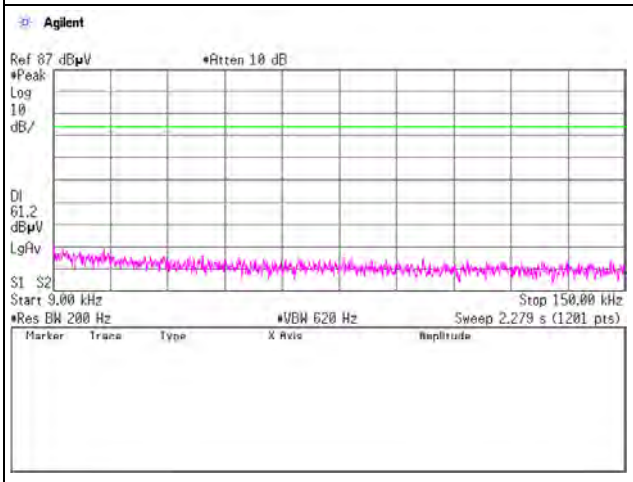
Spurious emission (Conducted)

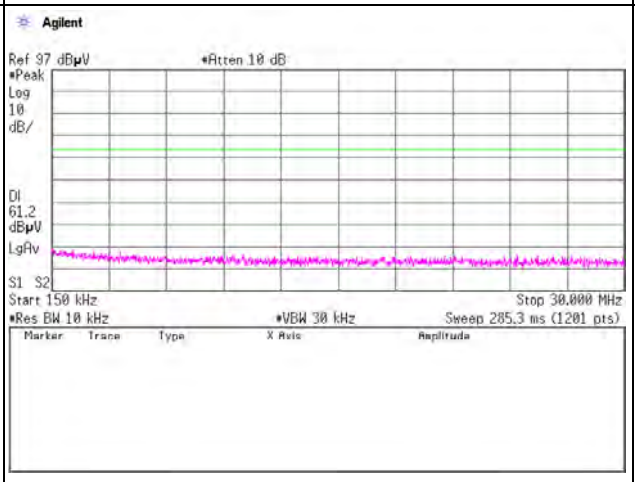
IEEE802.11b, 11Mbps

Tx 2462MHz (1/2)

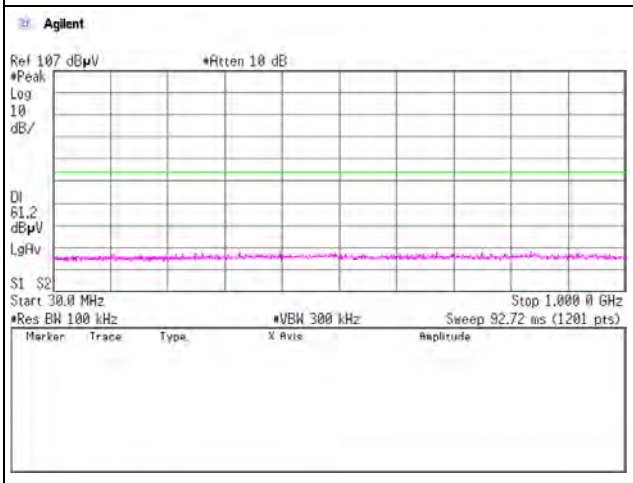
9kHz - 150kHz



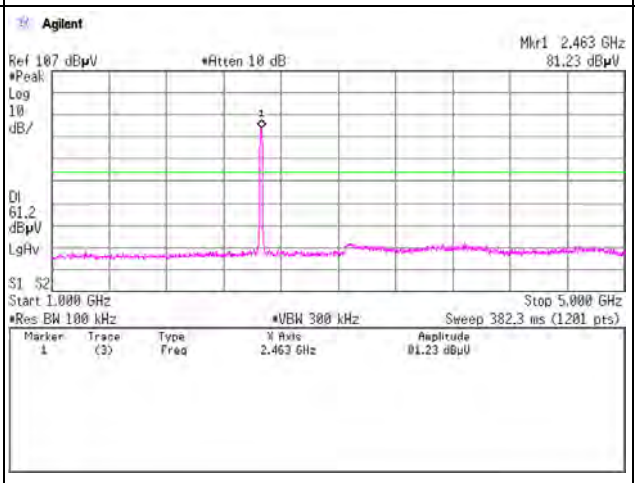
150kHz - 30MHz



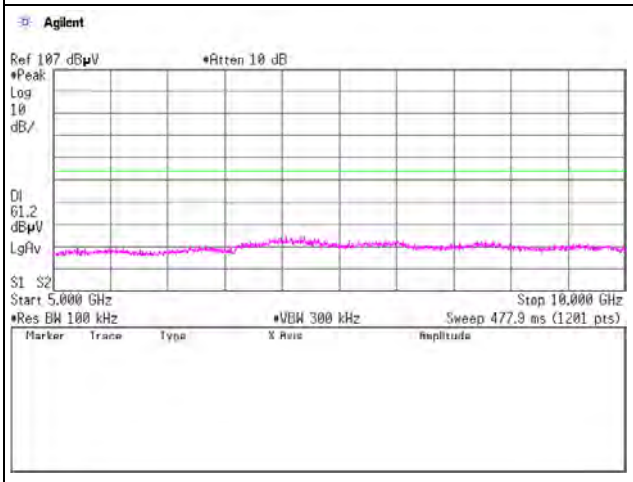
30MHz - 1GHz



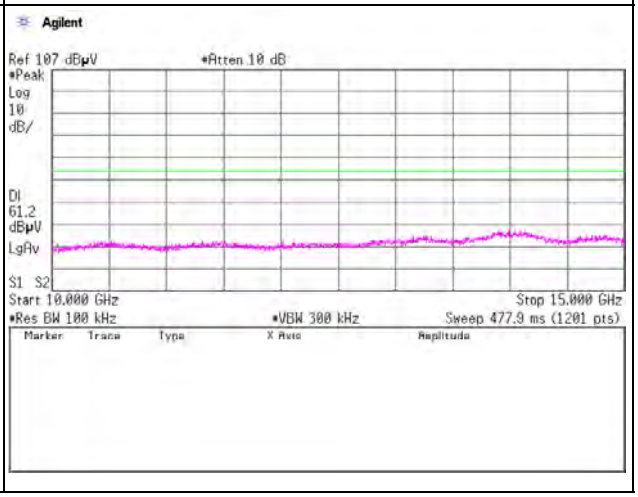
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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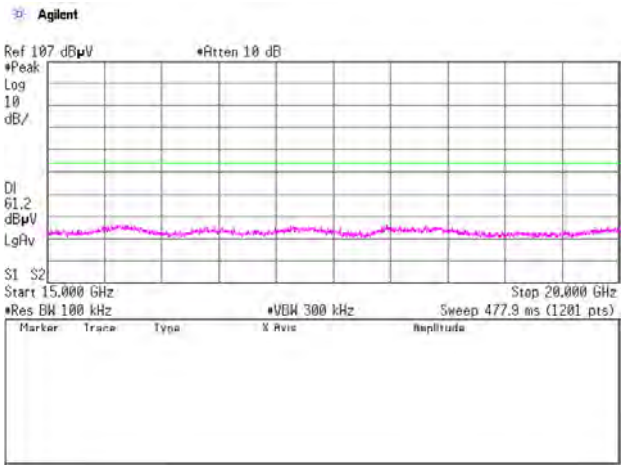
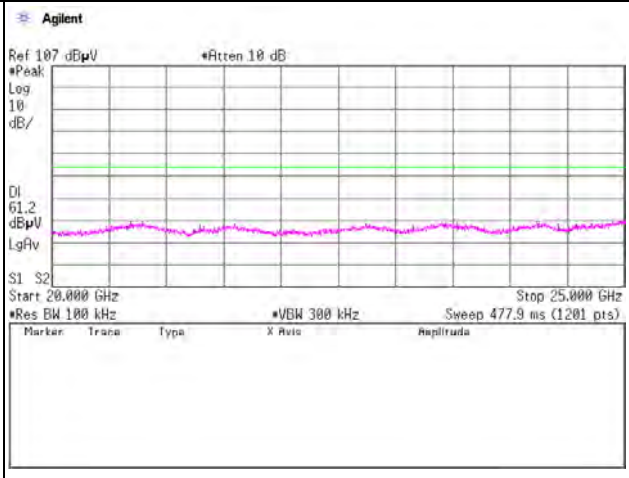
Spurious emission (Conducted)

IEEE802.11b, 11Mbps

Tx 2462MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
	

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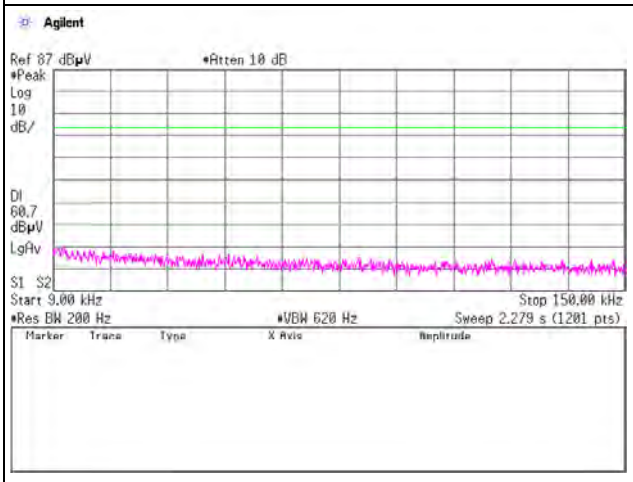
Spurious emission (Conducted)

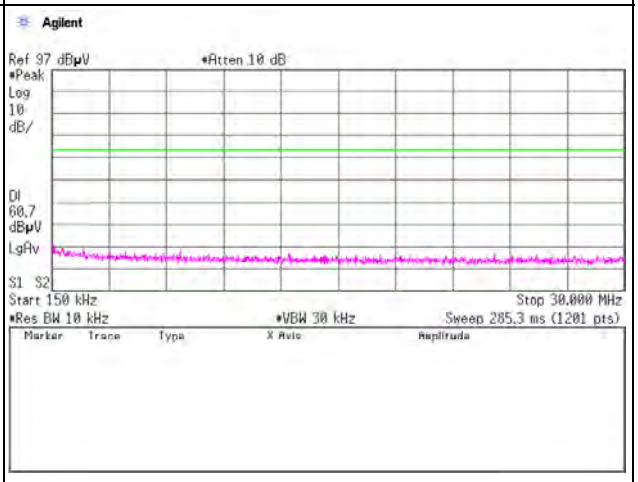
IEEE802.11g, 24Mbps

Tx 2412MHz (1/2)

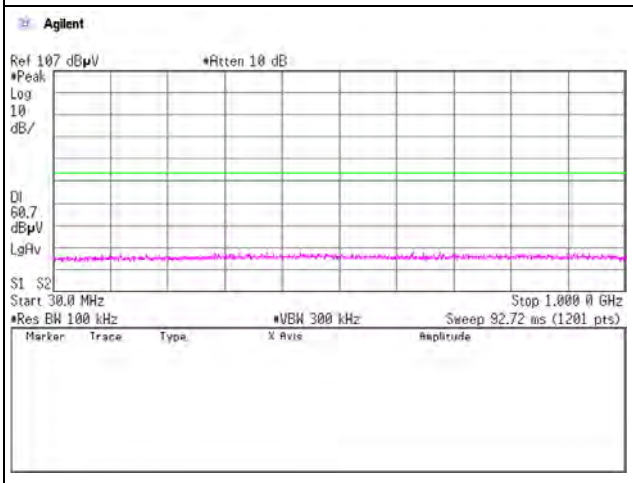
9kHz - 150kHz



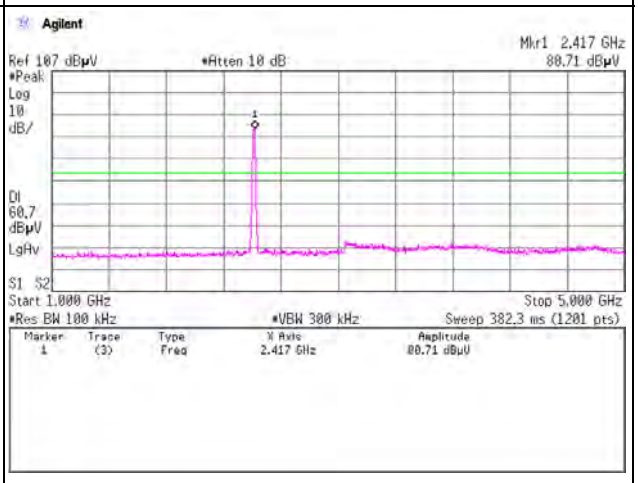
150kHz - 30MHz



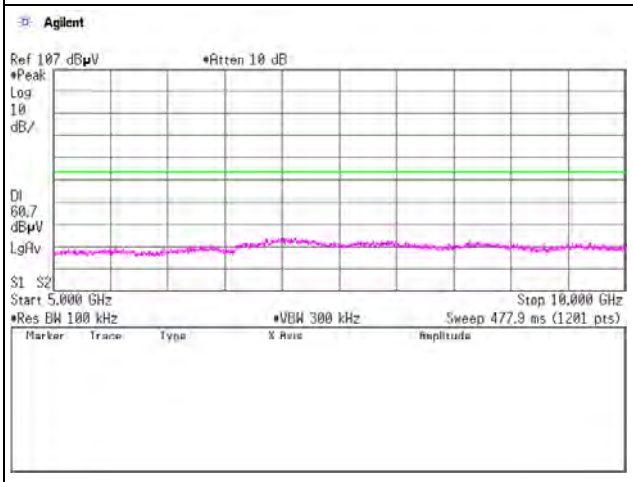
30MHz - 1GHz



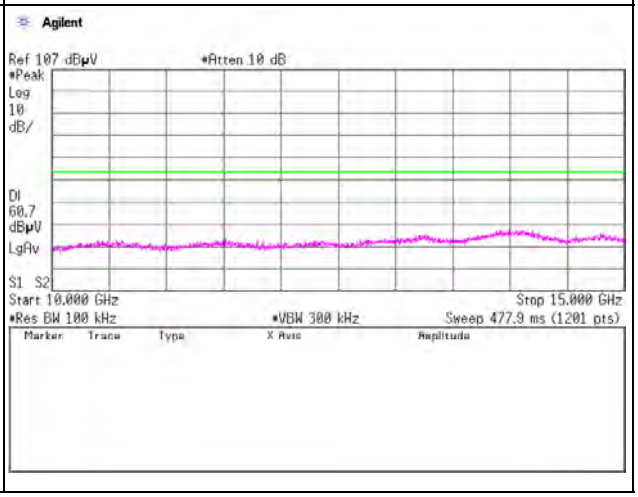
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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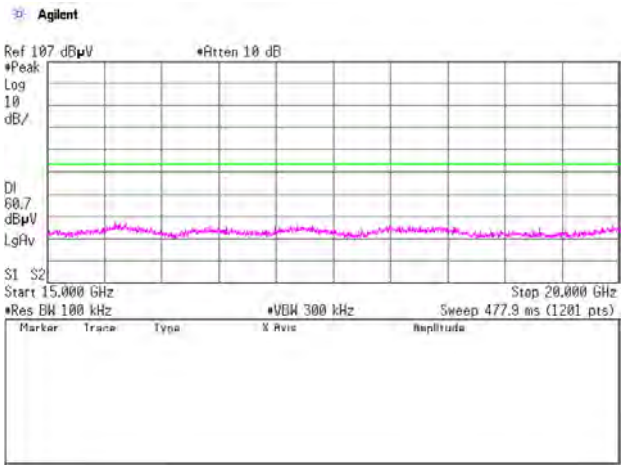
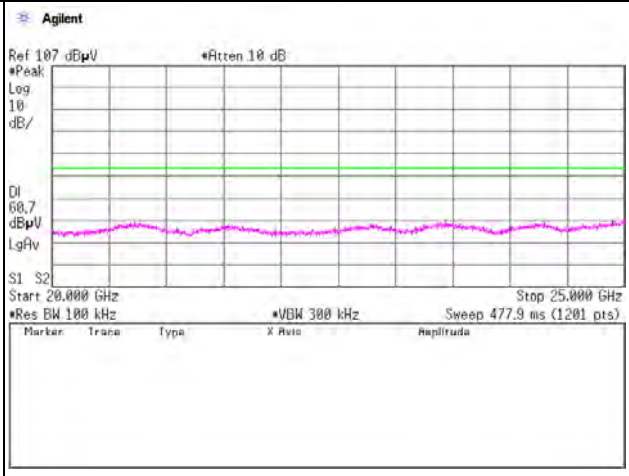
Spurious emission (Conducted)

IEEE802.11g, 24Mbps

Tx 2412MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
	

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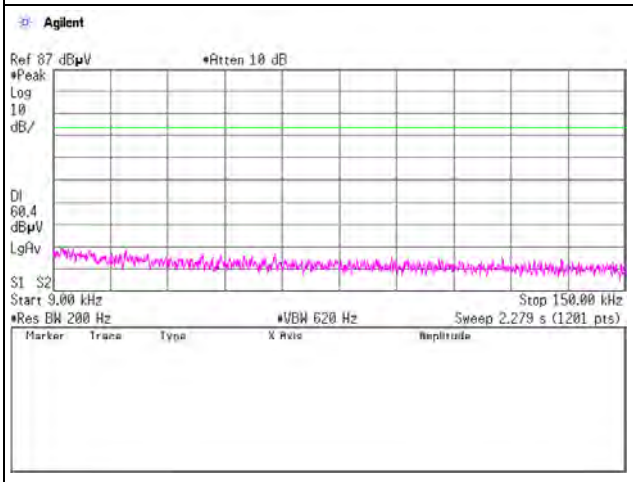
Spurious emission (Conducted)

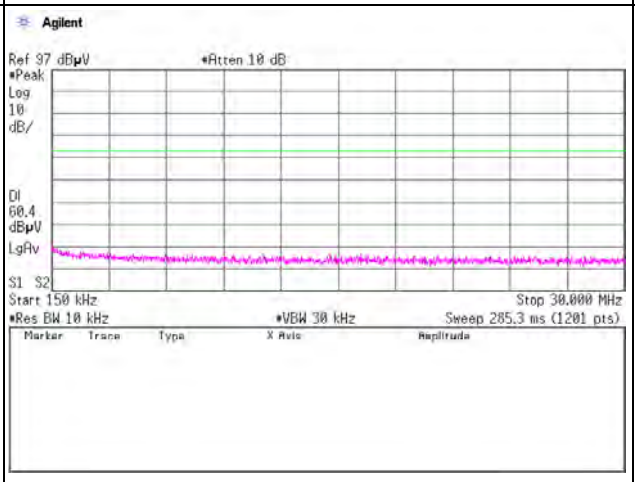
IEEE802.11g, 24Mbps

Tx 2437MHz (1/2)

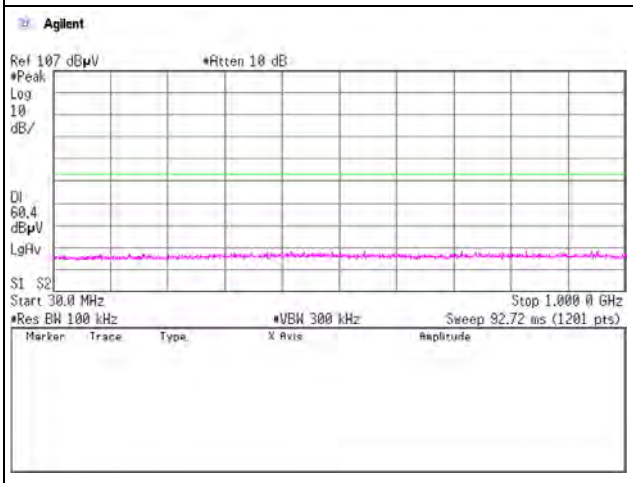
9kHz - 150kHz



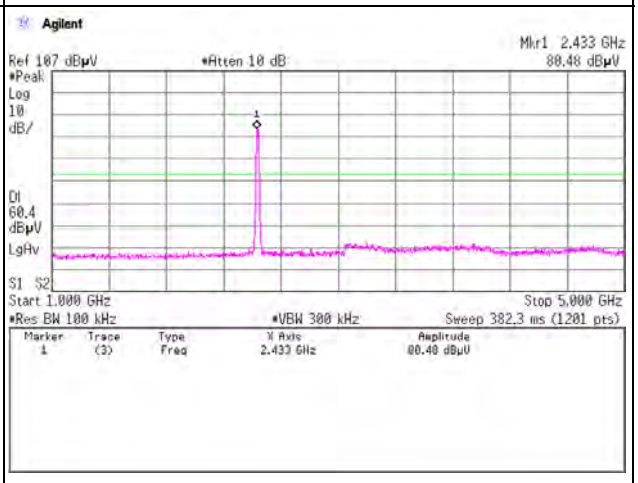
150kHz - 30MHz



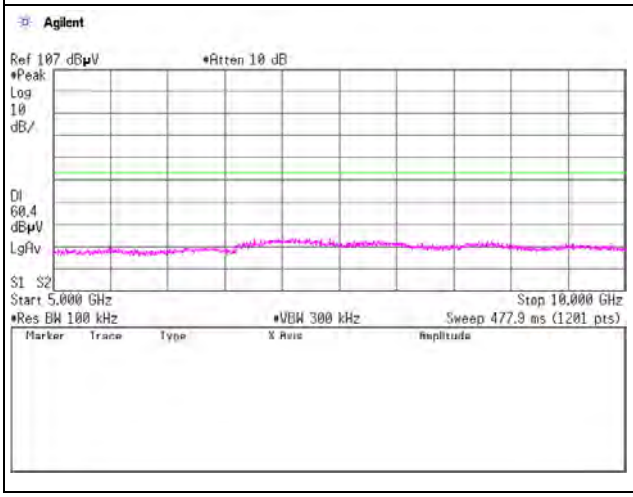
30MHz - 1GHz



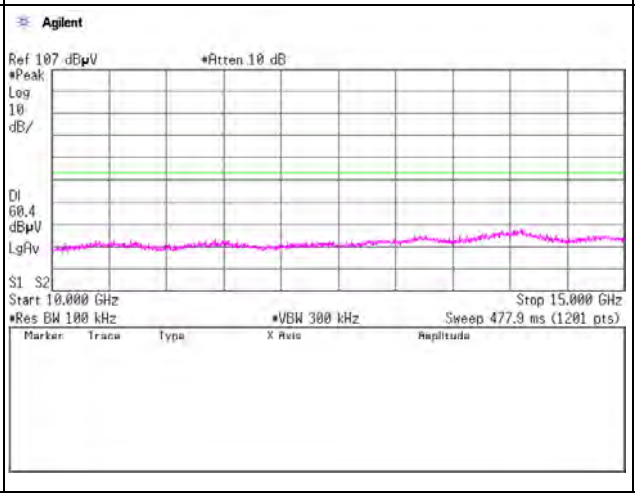
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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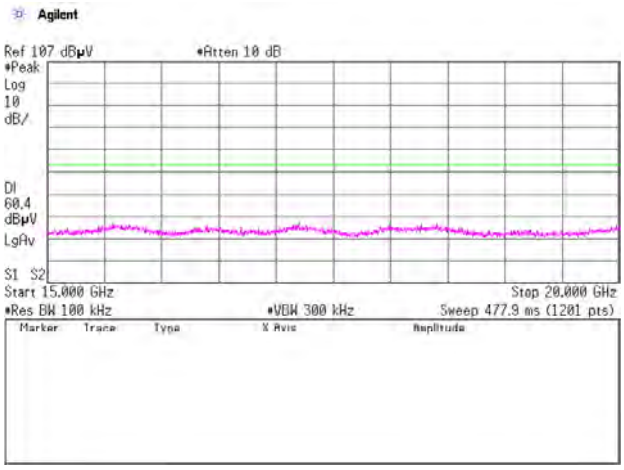
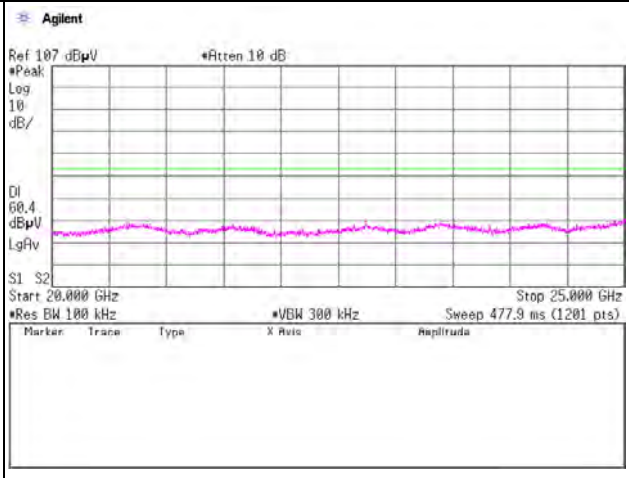
Spurious emission (Conducted)

IEEE802.11g, 24Mbps

Tx 2437MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
	

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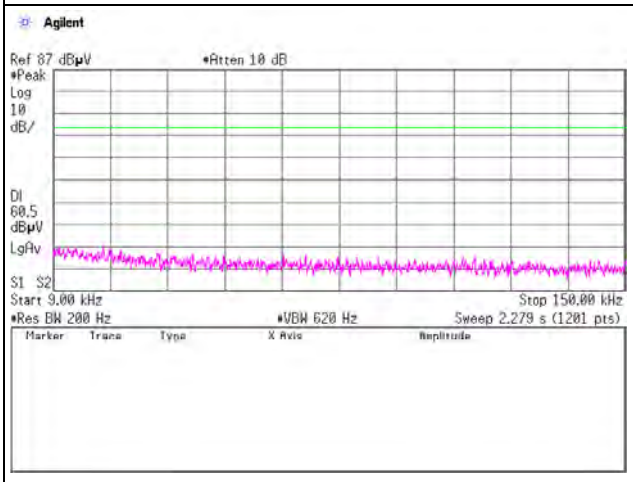
Spurious emission (Conducted)

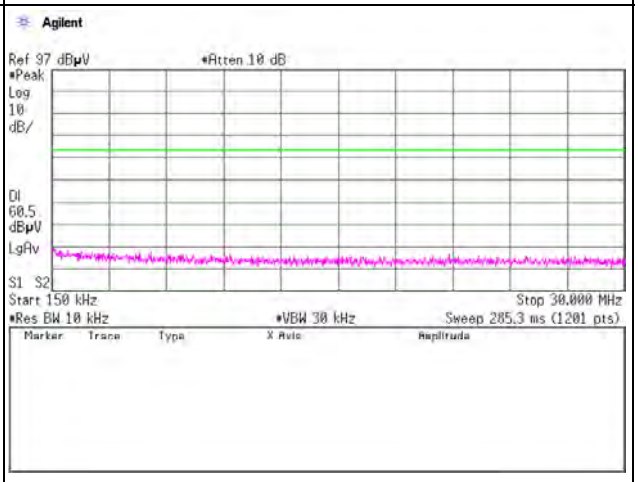
IEEE802.11g, 24Mbps

Tx 2462MHz (1/2)

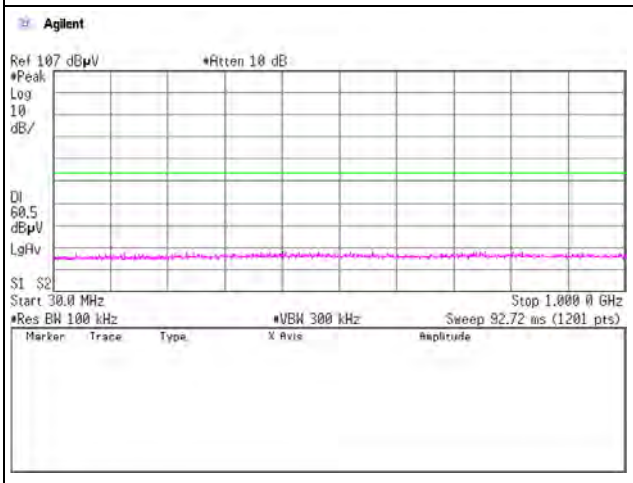
9kHz - 150kHz



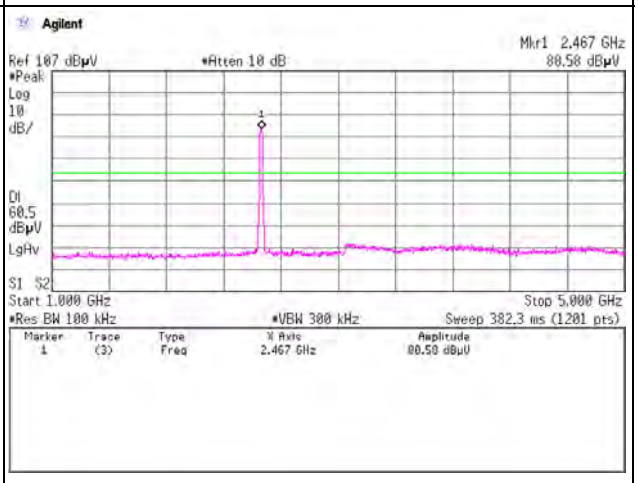
150kHz - 30MHz



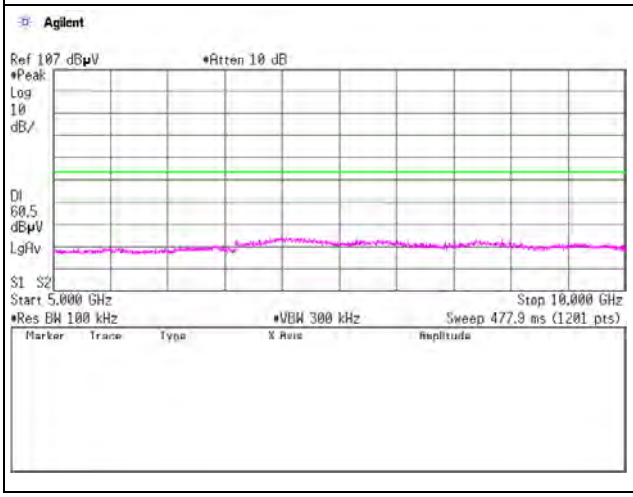
30MHz - 1GHz



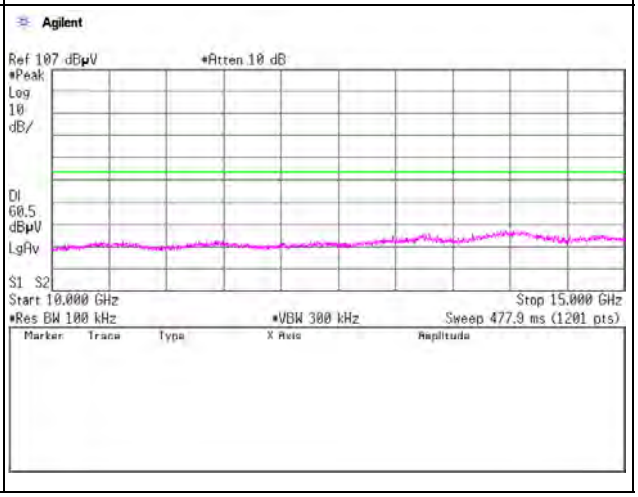
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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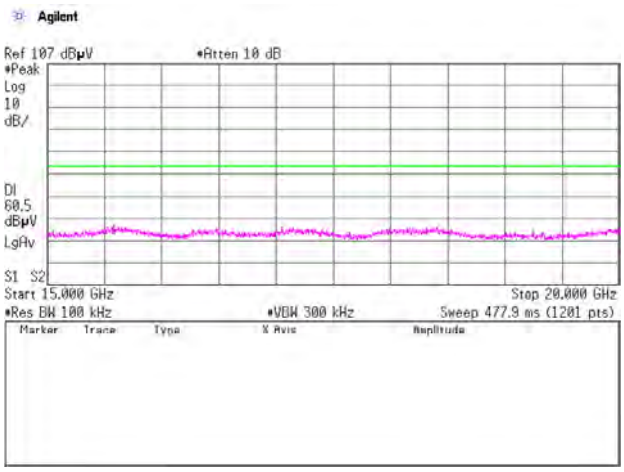
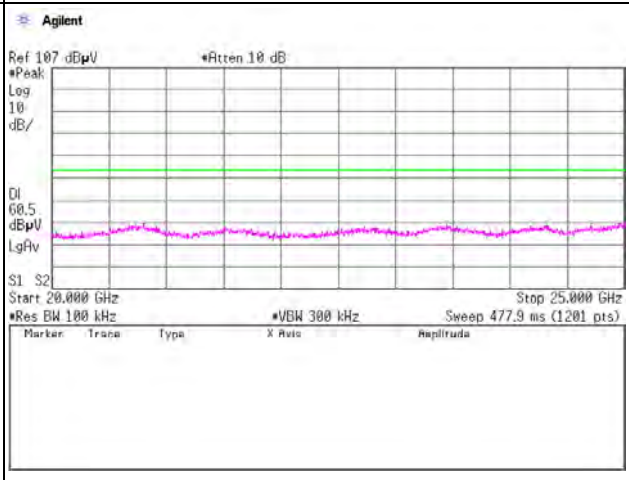
Spurious emission (Conducted)

IEEE802.11g, 24Mbps

Tx 2462MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
	

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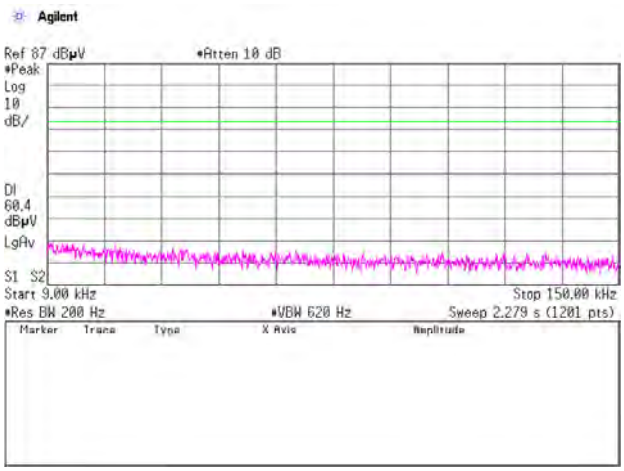
Spurious emission (Conducted)

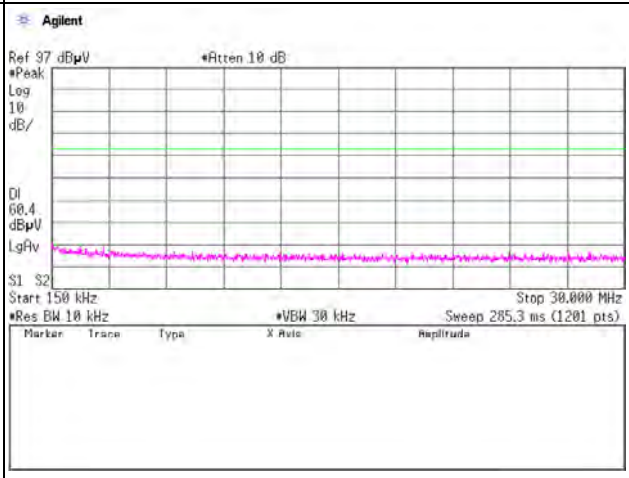
IEEE802.11n, MCS6

Tx 2412MHz (1/2)

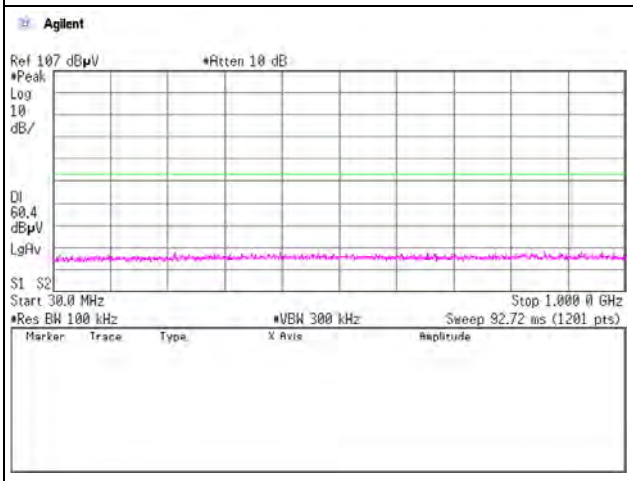
9kHz - 150kHz



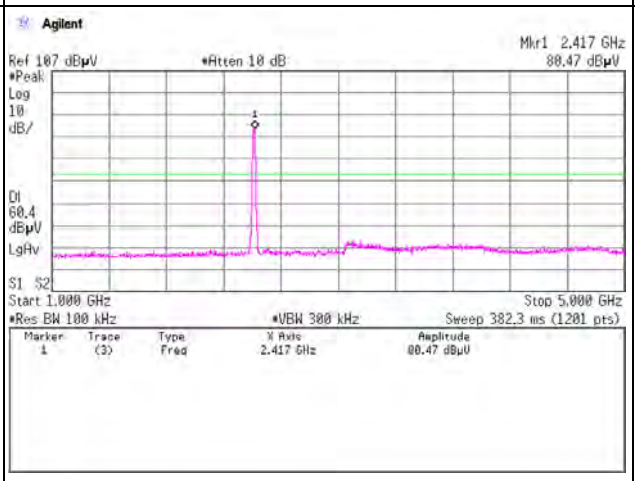
150kHz - 30MHz



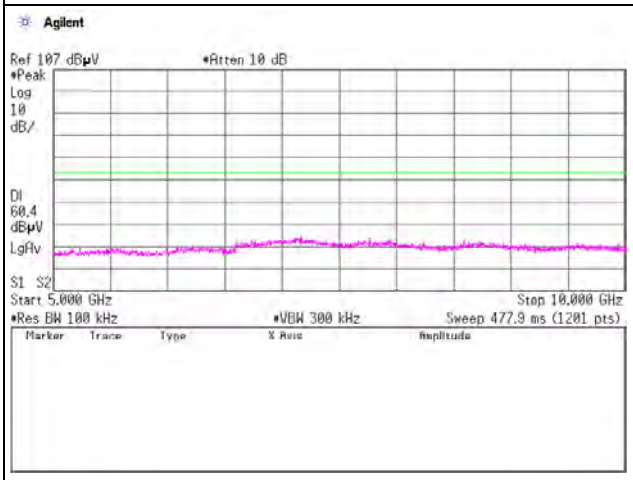
30MHz - 1GHz



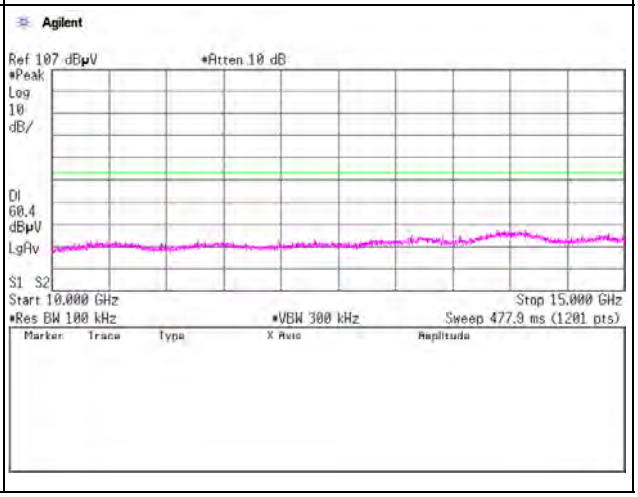
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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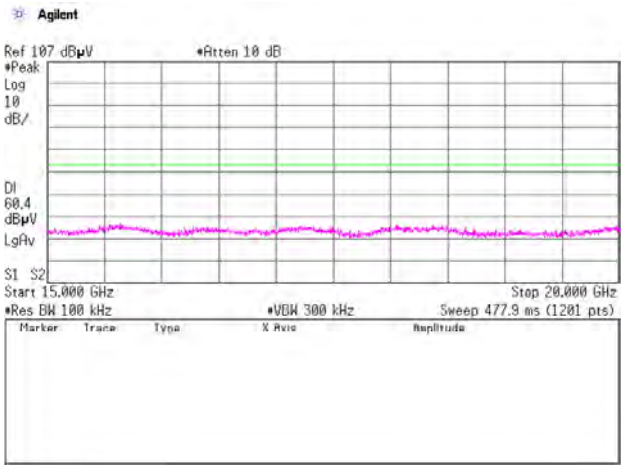
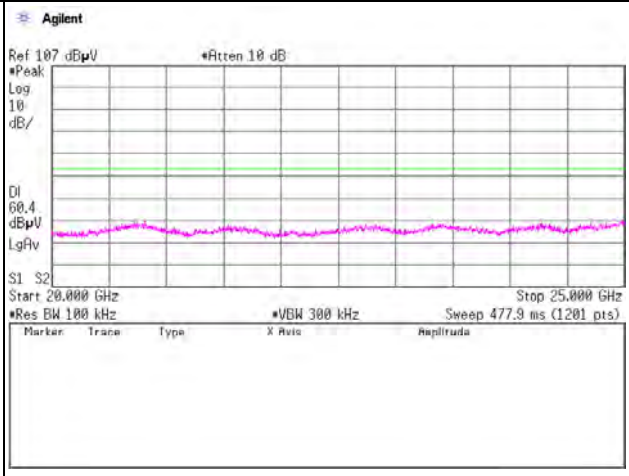
Spurious emission (Conducted)

IEEE802.11n, MCS6

Tx 2412MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
	

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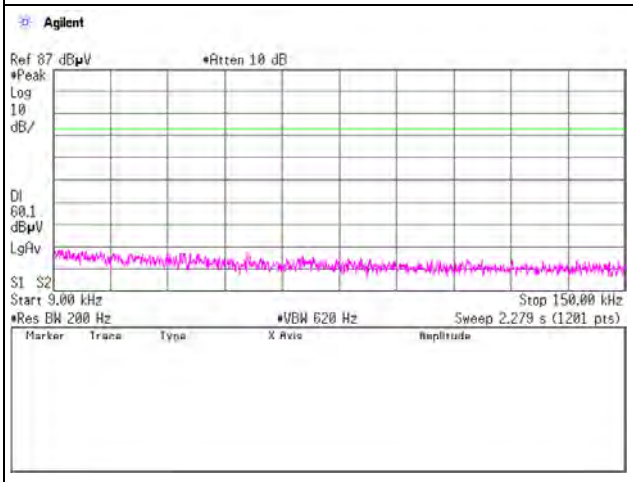
Spurious emission (Conducted)

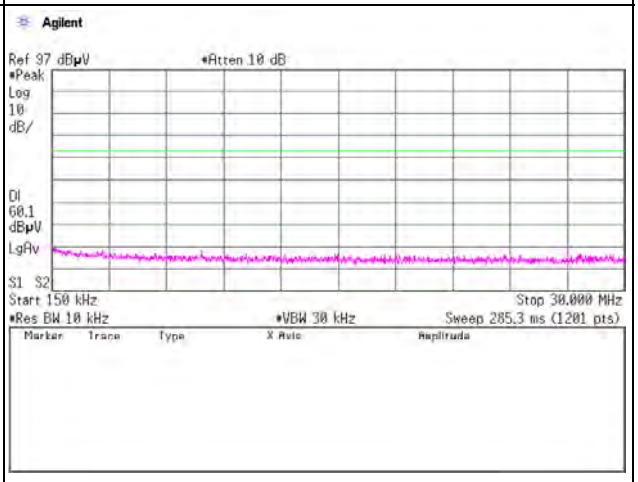
IEEE802.11n, MCS6

Tx 2437MHz (1/2)

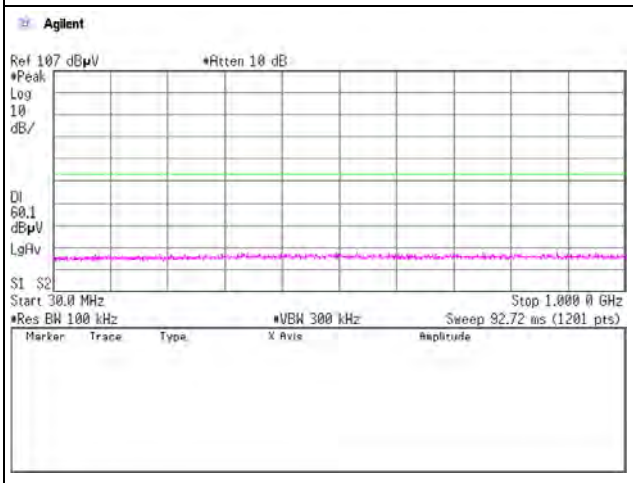
9kHz - 150kHz



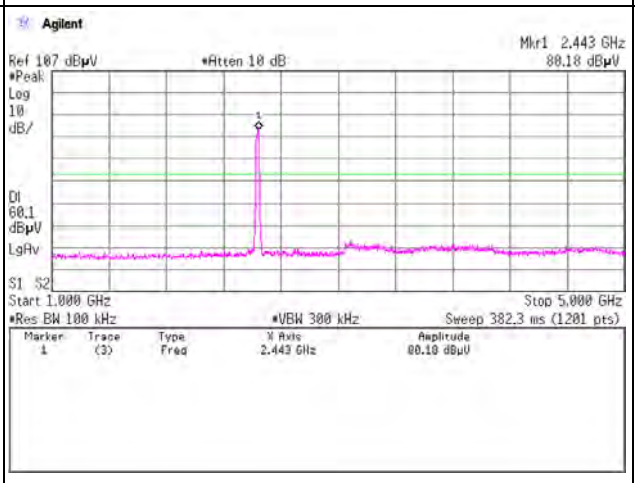
150kHz - 30MHz



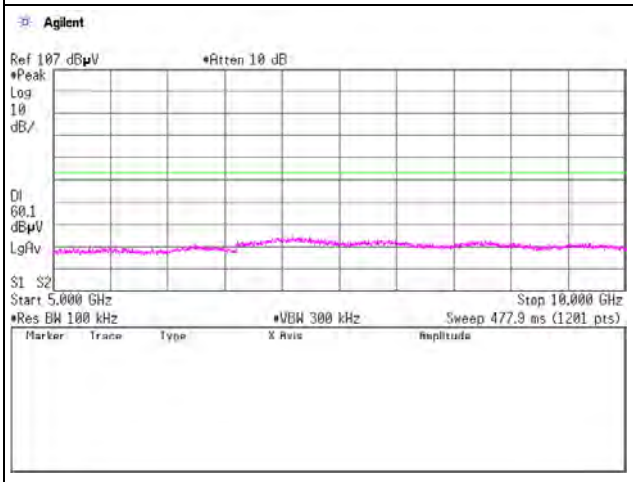
30MHz - 1GHz



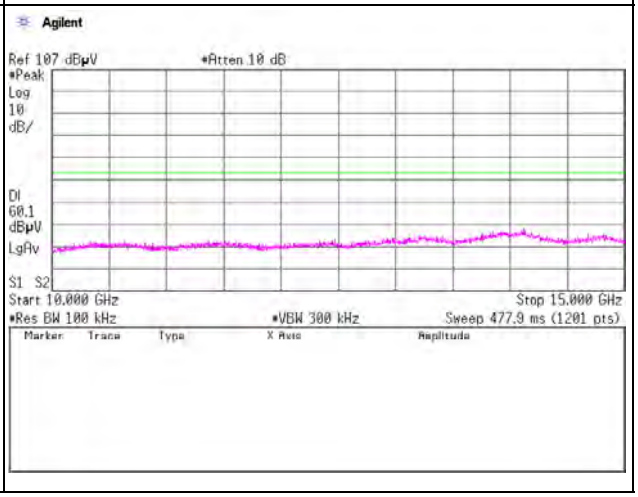
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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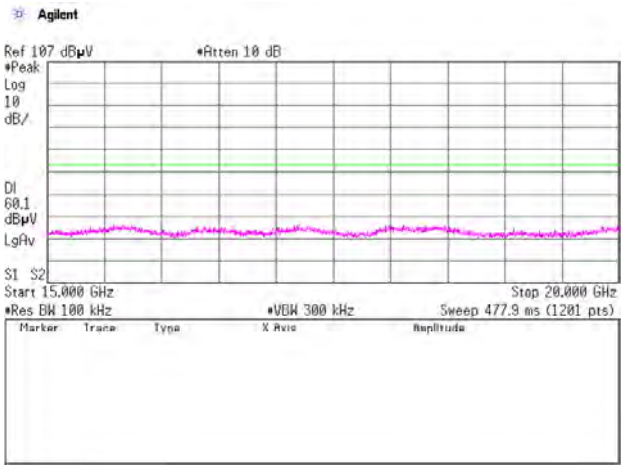
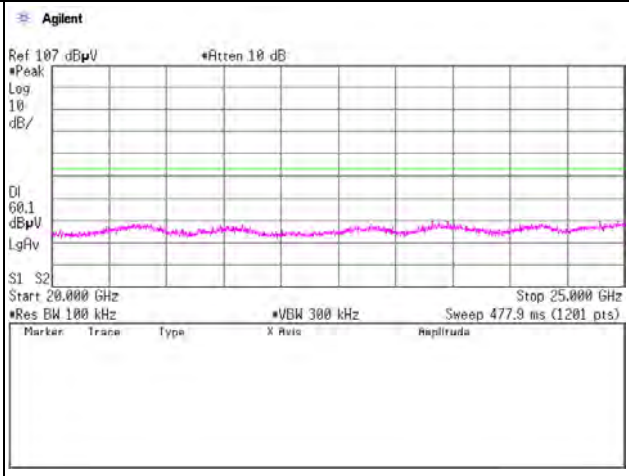
Spurious emission (Conducted)

IEEE802.11n, MCS6

Tx 2437MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
	

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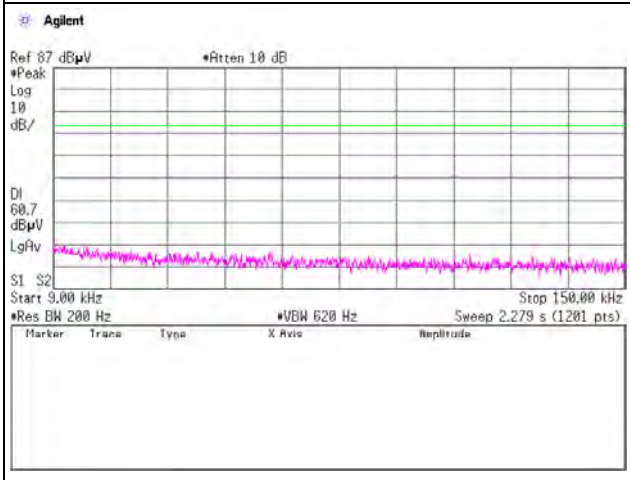
Spurious emission (Conducted)

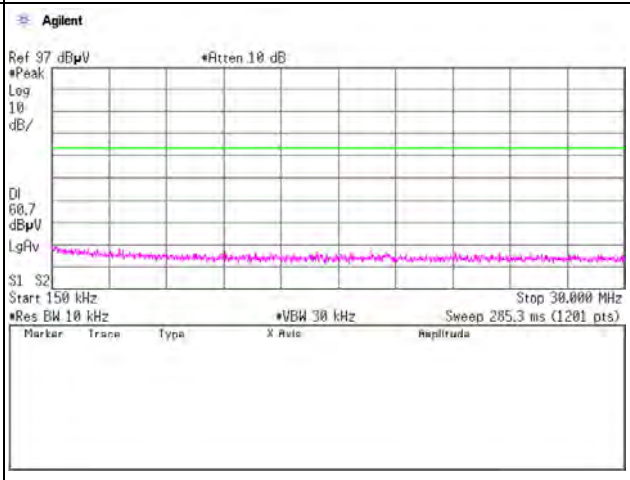
IEEE802.11n, MCS6

Tx 2462MHz (1/2)

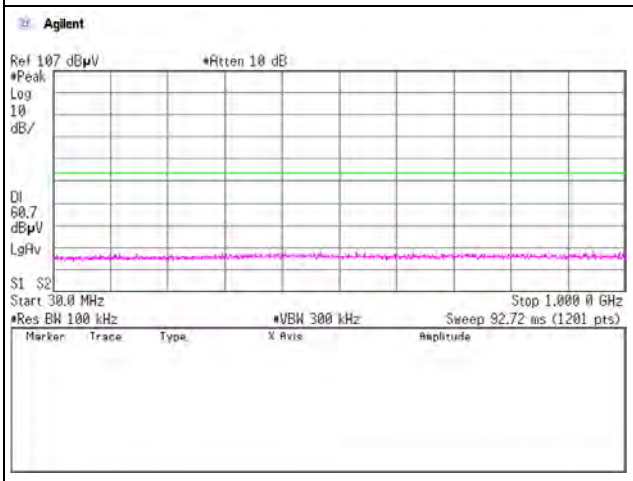
9kHz - 150kHz



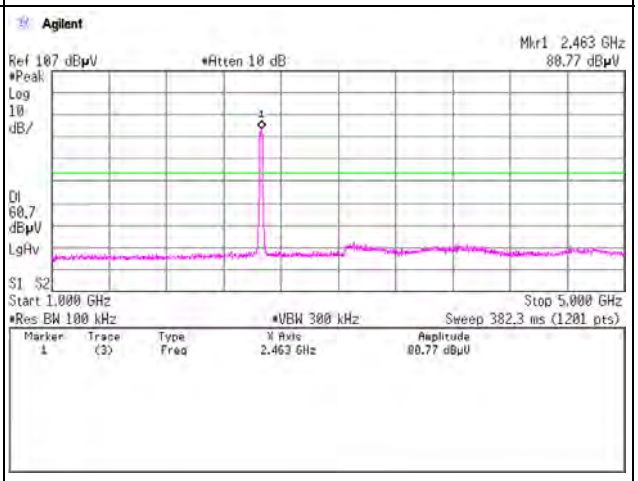
150kHz - 30MHz



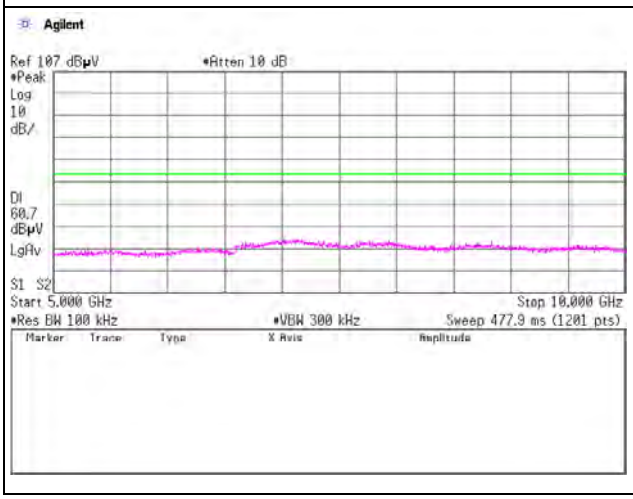
30MHz - 1GHz



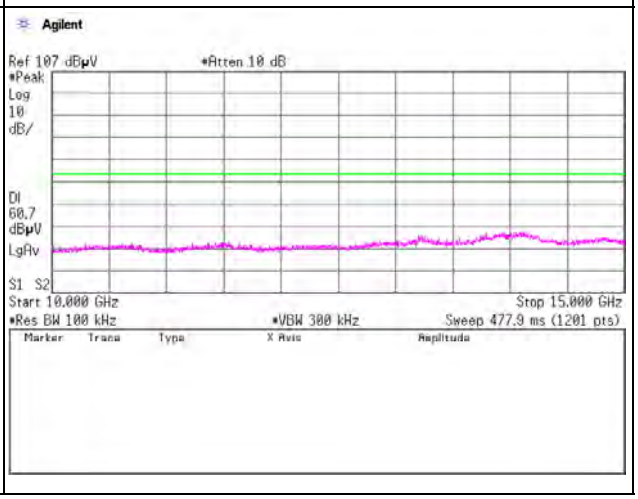
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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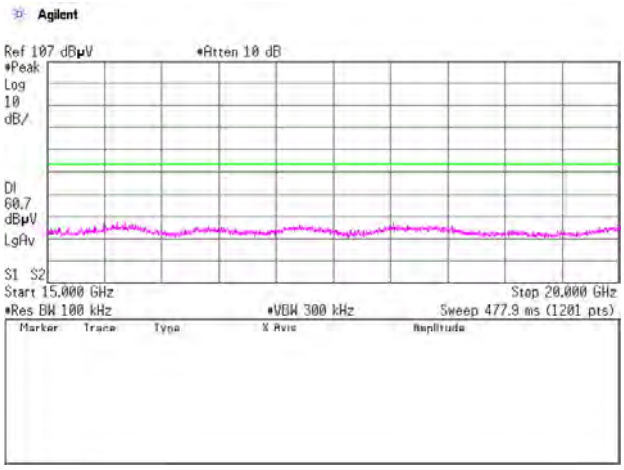
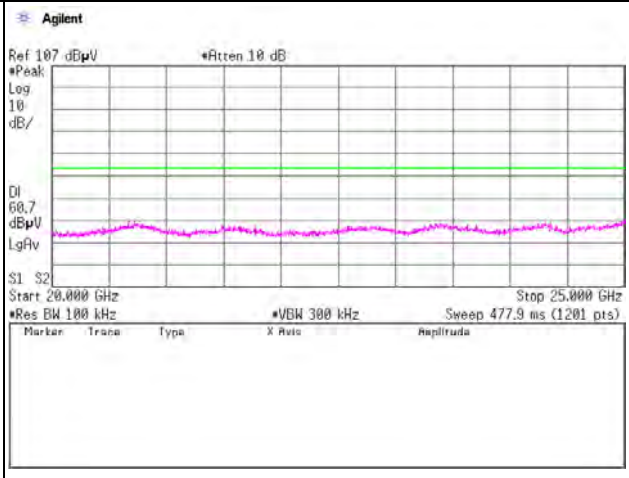
Spurious emission (Conducted)

IEEE802.11n, MCS6

Tx 2462MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
	

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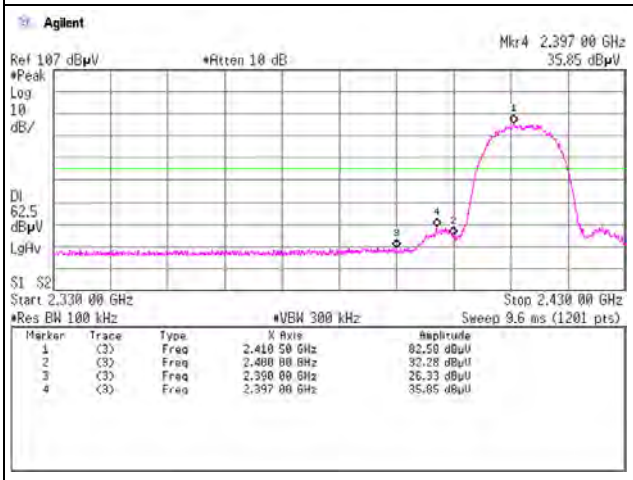
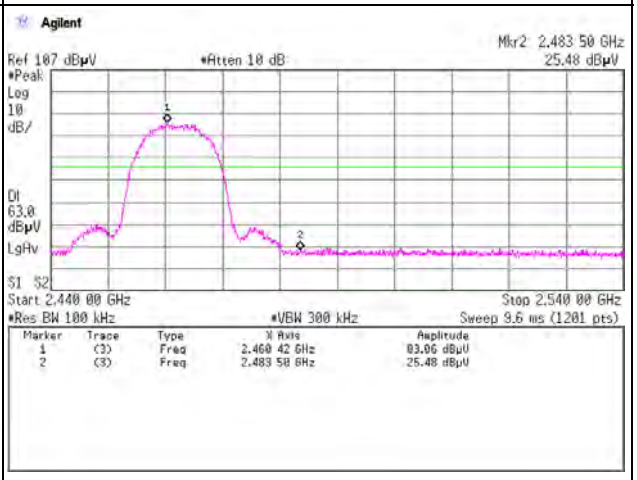
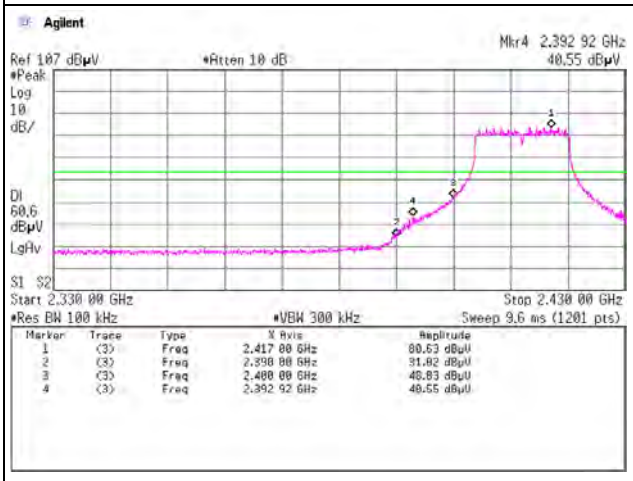
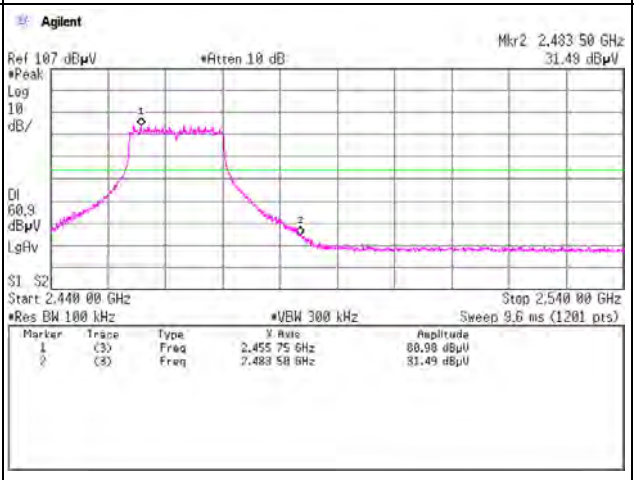
Spurious emission (Conducted)

Band Edge compliance

IEEE802.11b, 11Mbps	
Tx 2412MHz	**Tx 2462MHz**
	

IEEE802.11g, 24Mbps	
Tx 2412MHz	**Tx 2462MHz**
	

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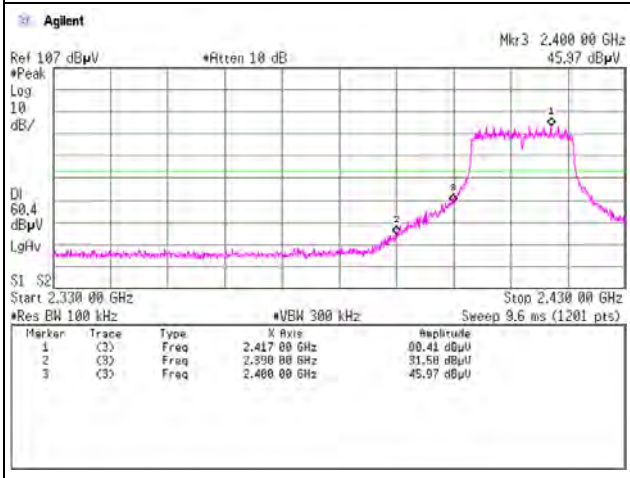
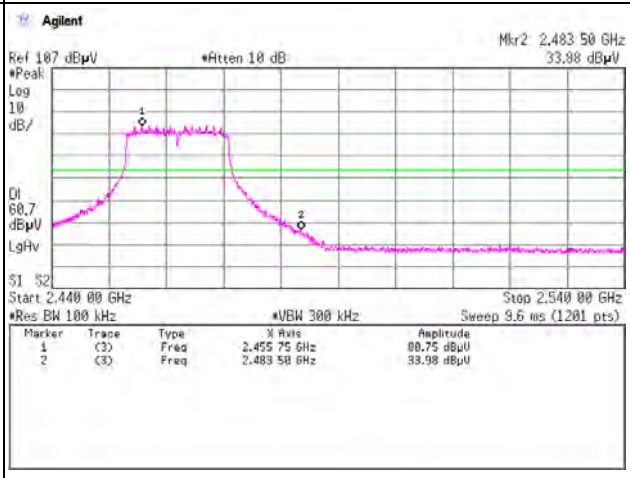
Spurious emission (Conducted)

Band Edge compliance

IEEE802.11n (HT20), MCS6	
Tx 2412MHz	**Tx 2462MHz**
	

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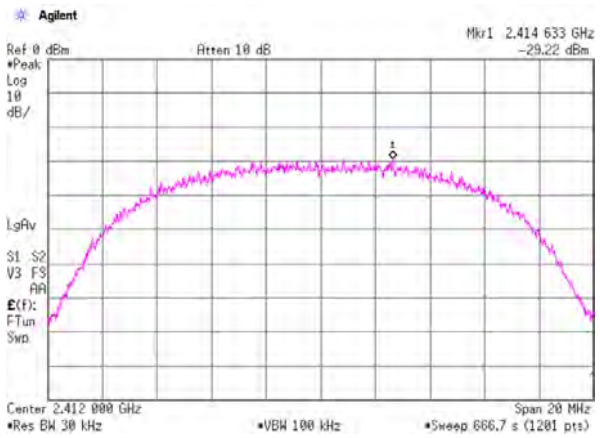
Power Density

Test place	UL Japan, Inc. Shonan EMC Lab.	No.3 Shilded room
Date	2011/10/26	
Temperature / Humidity	25deg.C. , 36%RH	
Engineer	Hikaru Shirasawa	
Mode	IEEE802.11b, 11Mbps	
Serial Number	17	

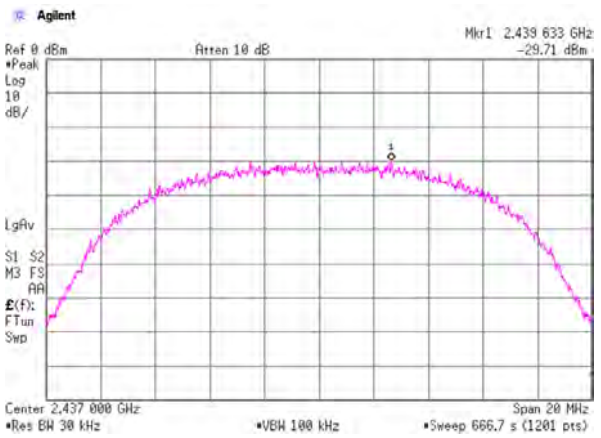
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2414.633	-29.22	1.27	20.16	-7.79	8.00	15.79
2437.0000	2439.633	-29.71	1.24	20.15	-8.32	8.00	16.32
2462.0000	2463.833	-29.27	1.24	20.15	-7.88	8.00	15.88

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

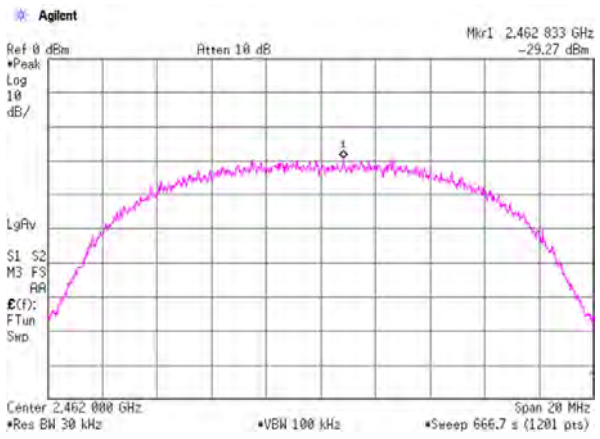
Transmitting(2412MHz)



Transmitting(2437MHz)



Transmitting(2462MHz)



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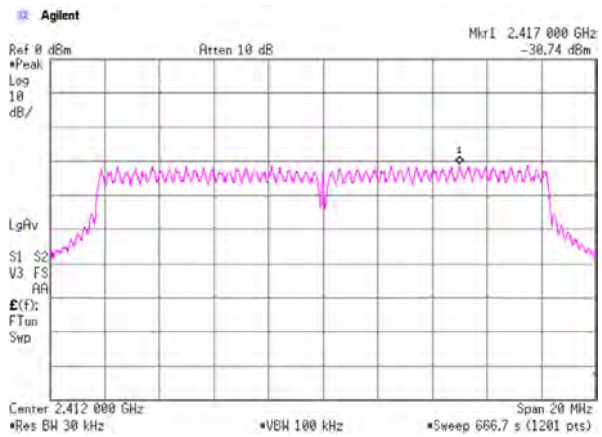
Power Density

Test place	UL Japan, Inc. Shonan EMC Lab.	No.3 Shilded room
Date	2011/10/26	
Temperature / Humidity	25deg.C. , 36%RH	
Engineer	Hikaru Shirasawa	
Mode	IEEE802.11g, 24Mbps	
Serial Number	17	

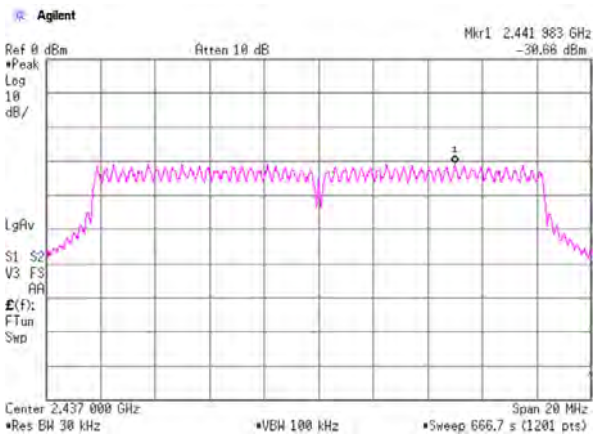
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2417.000	-30.74	1.27	20.16	-9.31	8.00	17.31
2437.0000	2441.983	-30.66	1.24	20.15	-9.27	8.00	17.27
2462.0000	2455.733	-30.47	1.24	20.15	-9.08	8.00	17.08

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

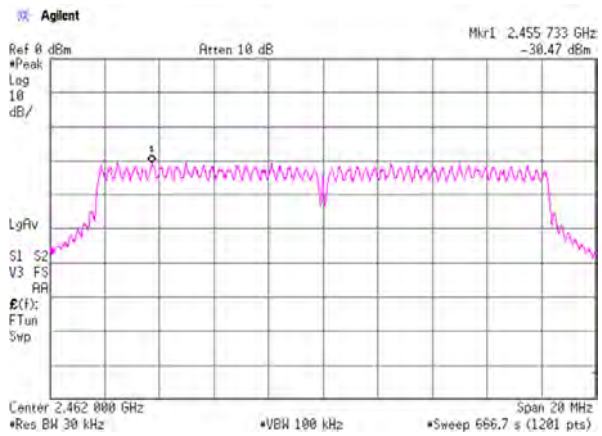
Transmitting(2412MHz)



Transmitting(2437MHz)



Transmitting(2462MHz)



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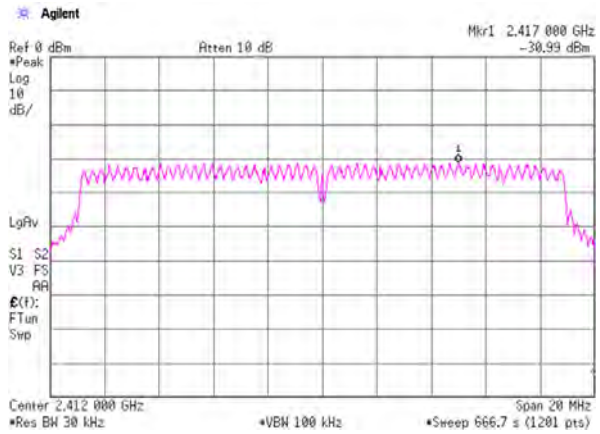
Power Density

Test place	UL Japan, Inc. Shonan EMC Lab.	No.3 Shilded room
Date	2011/10/26	
Temperature / Humidity	25deg.C. , 36%RH	
Engineer	Hikaru Shirasawa	
Mode	IEEE802.11n, MCS6	
Serial Number	17	

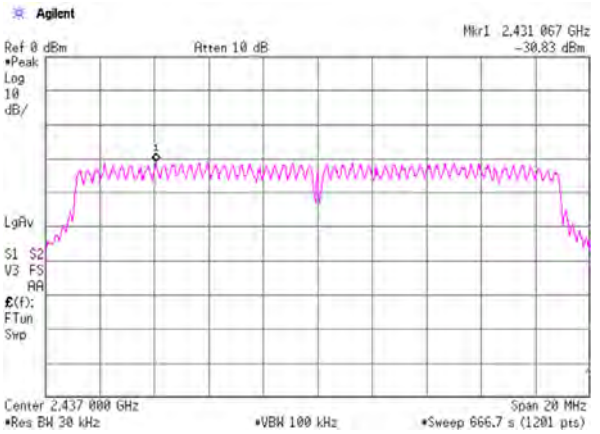
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2417.000	-30.99	1.27	20.16	-9.56	8.00	17.56
2437.0000	2431.067	-30.83	1.24	20.15	-9.44	8.00	17.44
2462.0000	2456.067	-30.58	1.24	20.15	-9.19	8.00	17.19

Sample Calculation:
Result = Reading + Cable Loss + Atten. Loss

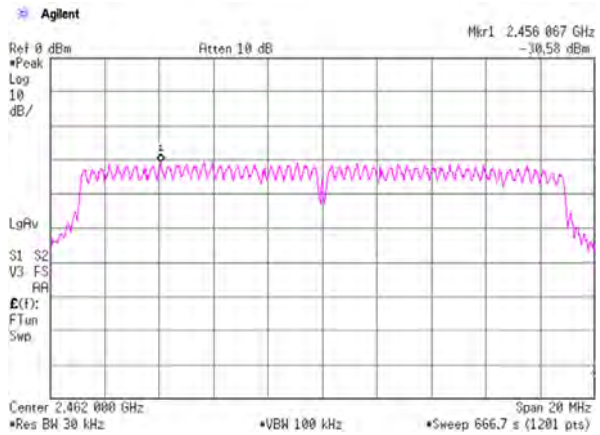
Transmitting(2412MHz)



Transmitting(2437MHz)



Transmitting(2462MHz)



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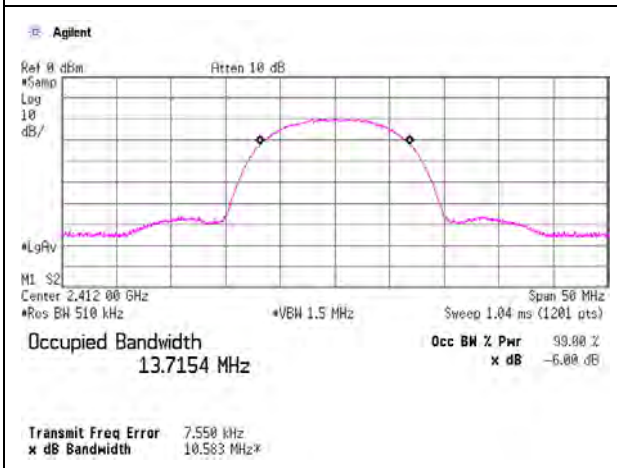
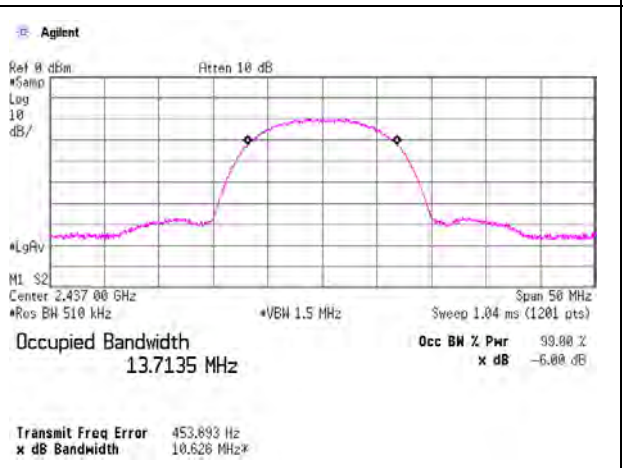
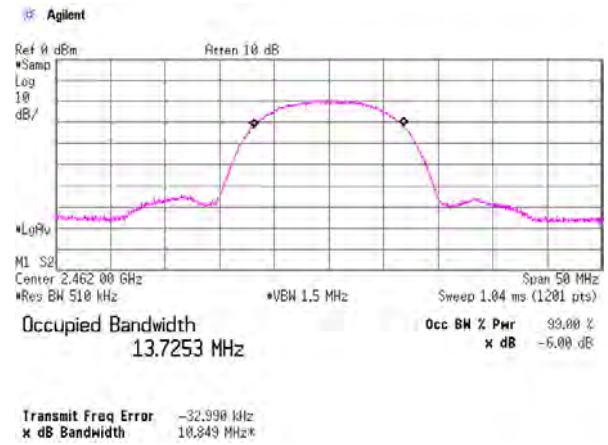
99% Occupied Bandwidth

IEEE802.11b, 11Mbps	
2412MHz: 13.715MHz	2437MHz: 13.714MHz
	
2462MHz: 13.725MHz	
	

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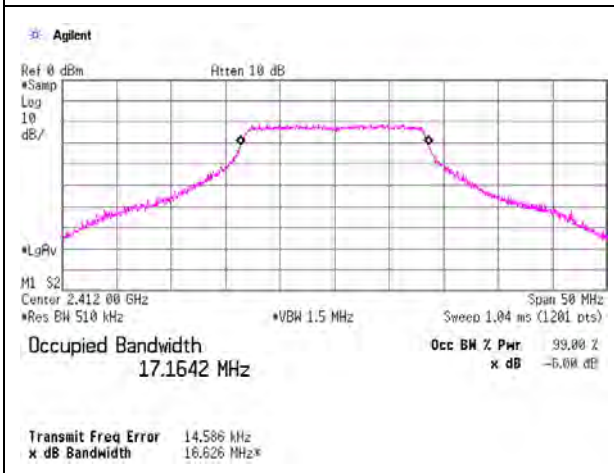
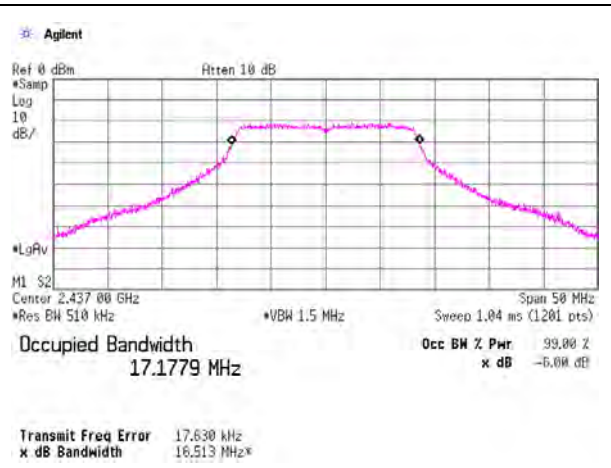
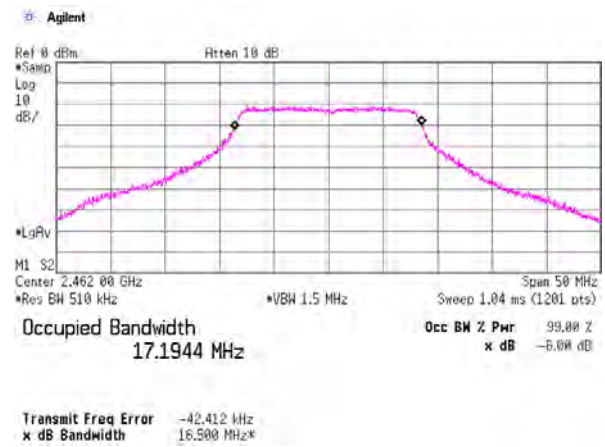
99% Occupied Bandwidth

IEEE802.11g, 24Mbps	
2412MHz: 17.164MHz	2437MHz: 17.178MHz
	
2462MHz: 17.194MHz	
	

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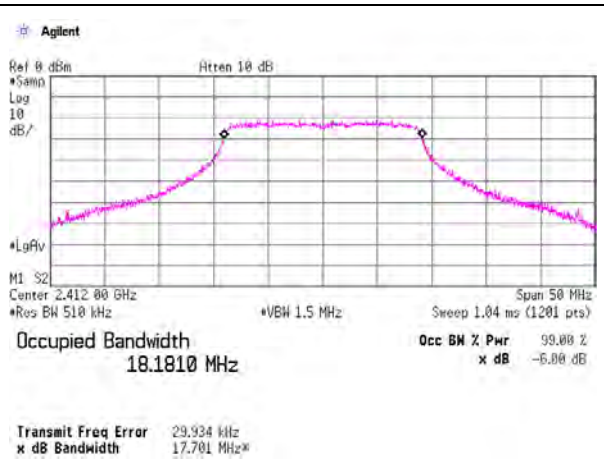
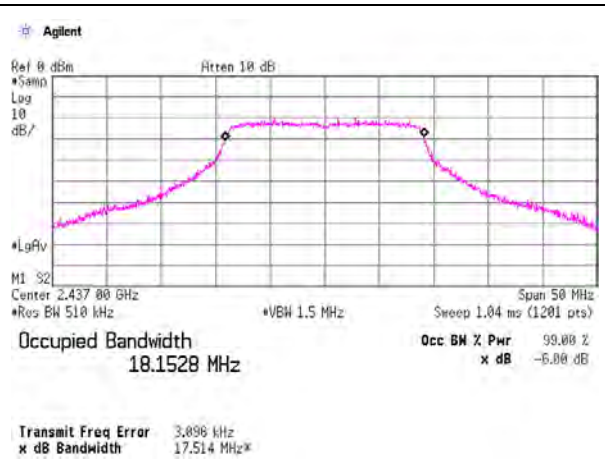
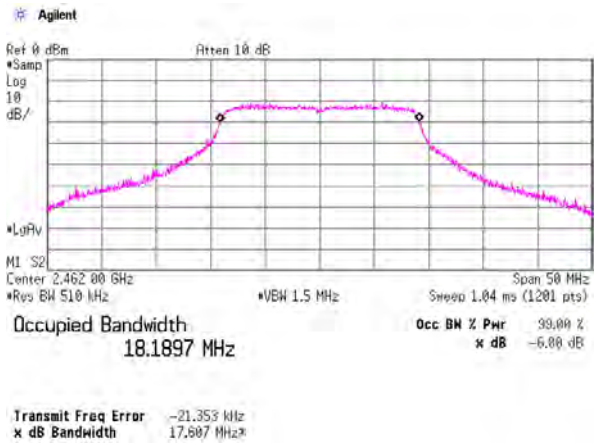
99% Occupied Bandwidth

IEEE802.11n, MCS6	
2412MHz: 18.181MHz	**2437MHz: 18.153MHz**
	
2462MHz: 18.190MHz	
	

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APPENDIX 2
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	AT	2010/11/16 * 12
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2011/04/12 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2011/04/12 * 12
SAT20-03	Attenuator	Agilent	8493C-020	74891	AT	2011/03/23 * 12
SCC-G12	Coaxial Cable	Suhner	SUCOFLEX 102	30790/2	AT	2011/03/23 * 12
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2011/07/19 * 12
SAT10-04	Attenuator(above1GHz)	Agilent	8493C-010	74863	RE	2010/12/15 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2010/12/15 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2011/04/28 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2011/05/27 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2011/08/28 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE, AT	2011/02/23 * 12
STR-03	Test Receiver	Rohde & Schwarz	ESI40	100054/040	RE, CE	2011/07/28 * 12
SJM-10	Measure	PROMART	SEN1935	-	RE, CE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE, RFI,MF)	-	RE, CE	-
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE, AT	2011/03/07 * 12
SHA-04	Horn Antenna	ETS LINDGREN	3160-09	LM3640	RE	2011/03/15 * 12
SAF-08	Pre Amplifier	TOYO Corporation	HAP18-26W	00000019	RE	2011/03/16 * 12
SCC-G17	Coaxial Cable	Suhner	SUCOFLEX 104A	46291/4A	RE	2011/03/16 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2011/02/17 * 12
SAT6-03	Attenuator	JFW	50HF-006N	-	RE	2011/02/17 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2011/10/23 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2011/04/28 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2011/10/23 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2011/09/23 * 12
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	CE	2011/04/28 * 12
SLS-05	LISN	Rohde & Schwarz	ENV216	100516	CE	2011/02/23 * 12
SAT3-06	Attenuator	JFW	50HF-003N	-	CE	2011/02/17 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2011/03/02 * 12

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards .
Test Item :
CE: Conducted emission ,
RE: Radiated emission ,
AT: Antenna terminal disturbance voltage ,