RADIO TEST REPORT

Test Report No.: 10048647S-M

Applicant	:	**Canon Inc.**
Type of Equipment	:	**Wireless Module**
Model No.	:	**WM228**
FCC ID	:	**AZD228**
Test regulation	:	**FCC Part15 Subpart C: 2014**
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.

Date of test: August 14 to 21, 2013

Tested by:

Hikaru Shirasawa
Engineer
Consumer Technology Division

Approved by :

Toyokazu Imamura
Leader
Consumer Technology Division

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

RTL02610

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

REVISION HISTORY

Original Test Report No.: 10048647S-M

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10048647S-M	April 21, 2014	-	-

Contents

SECTION 1: Customer information

Company Name	:	Canon Inc.
Address	:	30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo, 146-8501 Japan
Telephone Number	:	+81-3-5482-8070
Facsimile Number	:	+81-3-3757-8431
Contact Person	:	Hironobu Saida

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

2.1 Identification of E.U.T.

Type of Equipment	:	Wireless Module
Model No.	:	WM228
Serial No.	:	Refer to 4.1
Rating	:	DC3.3V, DC1.8V
Receipt Date of Sample	:	August 5, 2013
Country of Mass-production	:	Philippines
Condition of EUT	:	Engineering 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: WM228 (referred to as the EUT in this report) is a Wireless Module.

Clock frequency(ies) in the system : 38.4MHz

Radio specification

Equipment type	:	Transceiver
Frequency of operation	:	2412-2462MHz (IEEE 802.11b, 11g, 11n(HT20)) 2422-2452MHz (IEEE 802.11n(HT40))
Bandwidth	:	20MHz (IEEE 802.11b, 11g, 11n(HT20)), 40MHz (IEEE 802.11n(HT40))
Channel spacing	:	5MHz
Type of modulation	:	DSSS (IEEE 802.11b), OFDM (IEEE 802.11g/n)
Antenna type	:	Monopole type chip
Antenna connector type	:	None
Antenna gain	:	-3.30 dBi (2442MHz)
ITU code	:	D1D, G1D
Operation temperature range	:	-20 to +85 deg.C

FCC 15.31 (e) / 212
The Wireless Module has its own regulator.
RF part is constantly provided voltage (DC3.0V and DC1.2V) through the regulator regardless of input voltage.
Therefore, this EUT complies with the requirement.

FCC 15.203 / 212
The antenna is not removable from the EUT. Therefore, the equipment complies with the antenna requirement.

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart 2014, final revised on May 1, 2014 and effective June 2, 2014
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

* The revision on May 1, 2014 does not affect the test specification applied to the EUT.

3.2 Procedures & Results

Item	Test Procedure *1)	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.10:2009	FCC 15.207	-	N/A	12.9dB Freq.: 0.15025MHz Detector: Quasi-Peak Phase: L1 Mode: Tx 2462MHz, IEEE 802.11g Power setting: 12dBm	Complied
6dB bandwidth	ANSI C63.10:2009	FCC 15.247 (a)(2)	Conducted	N/A	* See data	Complied
Maximum peak conducted output power	ANSI C63.10:2009	FCC 15.247 (b)(3)	Conducted	N/A		Complied
Out of band emission & Restricted band edges	ANSI C63.10:2009	FCC 15.109, 15.247 (d) & 15.209	Conducted / Radiated	N/A	1.5dB Freq.: 2483.500MHz Polarization: Vertical Detection: Peak Mode: Tx 2462MHz, IEEE 802.11g Power setting: 12dBm	Complied
Power density	ANSI C63.10:2009	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. *1) These tests were also referred to KDB 558074 v03 r01 (FCC), "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".						

3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied bandwidth (99%)	ANSI C63.4:2009 RSS-Gen 4.6.1	-	Conducted	-	-
Note: UL Japan's 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) LISN	150kHz-30MHz	3.6 dB	3.6 dB	3.5 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	4.9 dB
	300MHz-1GHz	5.0 dB	5.2 dB	4.9 dB
	1GHz-15GHz	4.8 dB	4.8 dB	4.9 dB
Radiated emission (Measurement distance: 1m)	15GHz-18GHz	5.6 dB	5.6 dB	5.6 dB
	18GHz-40GHz	4.6 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 the site margin.

Radiated emission test

The data listed in this test report meets the limits unless the uncertainty is taken into consideration.

Antenna port conducted test

Power measurement uncertainty above 1GHz for this test was: (±) 1.5dB
Spurious emission (Conducted) measurement (below 1GHz) uncertainty for this test was: (±) 1.7dB
Spurious emission (Conducted) measurement (1G-3GHz) uncertainty for this test was: (±) 2.3dB
Spurious emission (Conducted) measurement (3G-18GHz) uncertainty for this test was: (±) 3.0dB
Spurious emission (Conducted) measurement (18G-26.5GHz) uncertainty for this test was: (±) 2.9dB
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

	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	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.2 semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 semi-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

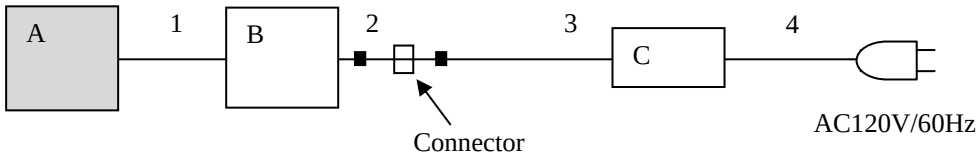
4.1 Operating mode

Test item	Mode	Tested frequency	Power setting *1)	Worst data rate *2)
Conducted emission Radiated emission (below 1GHz) *3)	Transmitting IEEE 802.11g	2462MHz	12 10	6Mbps, PN9
Other items	Transmitting IEEE 802.11b	2412MHz, 2437MHz, 2462MHz	14 11	1Mbps, PN9
	Transmitting IEEE 802.11g	2412MHz, 2437MHz, 2462MHz	12 10	6Mbps, PN9
	Transmitting IEEE 802.11n (HT20)	2412MHz, 2437MHz, 2462MHz	12 10	MCS2, PN9
	Transmitting IEEE 802.11n (HT40)	2422MHz, 2437MHz, 2452MHz	12 10	MCS3, PN9
*1) The actual output power differs from the setting value. Software used for the test: RFTEST ver. 14.0.11.p51 *2) The worst condition was determined based on the test result of Maximum Peak Conducted Output Power. *3) Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing- Managing Complex Regulatory Approvals - "of TCB Council Workshop October 2009.				

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

4.2 Configuration and peripherals

■: Ferrite core *2)



* Test data was taken under worst case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Wireless Module	WM228	*1)	Canon	EUT
B	Digital Camera	PC1739	431030032132	Canon	-
C	Compact Power Adapter	CA-DC10 N	1214	Canon	-

*1) 2C9EFCFFE8EE: Conducted emission and Radiated emission, 2C9EFCFFE915: Antenna port conducted test

List of cables used

No.	Cable	Length (m)	Shield-Cable	Shield-Connector	Remarks
1	Jig	0.18	Unshielded	Unshielded	-
2	DC	0.15	Unshielded	Unshielded	-
3	DC	1.9	Unshielded	Unshielded	-
4	AC	1.9	Unshielded	Unshielded	-

*2) The ferrite core was not attached to reduce the noise from the EUT but was used to reduce the noise from Digital Camera. Therefore, that does not affect the emission level of the EUT. Since it was difficult to prepare a cable for Digital Camera to which a ferrite core was not attached, the measurement was performed with the cable with the ferrite core.

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 0.8m 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.
Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source.
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 host device within a Shielded room. The EUT was connected to a Line Impedance Stabilization Network (LISN) via host device.
An overview sweep with peak detection has been performed.
The measurements had been performed with a quasi-peak detector and if required, a CISPR average detector.
The conducted emission measurements were made with the following detection of the test receiver.

Detection Type : Quasi-Peak/ CISPR 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.
The test was measured based on Method 8.1 Option 1 and 8.2 Option 2 of KDB 558074 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".

Summary of the test results: Pass
Refer to APPENDIX 1.

SECTION 7: Maximum peak conducted output power

Test procedure
The Maximum Peak Output Power was measured with a power meter connected to the antenna port.
The test was measured based on Method 9.1.3 PKPM1 of KDB 558074 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".

Detection type: Peak / Average *1)

Summary of the test results: Pass
Refer to APPENDIX 1

*1) Average detector was used only for Reference data of SAR testing.

SECTION 8: Out of band emissions (Antenna port conducted)

Test procedure
The Out of Band Emissions 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: Peak power density

Test procedure
The peak power density was measured with a spectrum analyzer connected to the antenna port.
Instrument used : Spectrum Analyzer
RBW / VBW : 3kHz / 9.1kHz

The test was measured based on Method 10.2 PKPSD of KDB 558074 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".

Summary of the test results: Pass
Refer to APPENDIX 1.

SECTION 10: Radiated emission

10.1 Operating environment

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

10.2 Test configuration

EUT was placed on a urethane platform of nominal size, 0.5m by 0.5m, raised 0.8m above the conducting ground plane. Photographs of the set up are shown in APPENDIX 3.

10.3 Test conditions

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

10.4 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 15GHz) / 1m (above 15GHz) (Refer to Figure 1). 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.

Frequency	30-1000MHz	1-25GHz		20dBc
Detection type	Quasi-Peak	Peak	Average *1)	Peak
IF Bandwidth	120kHz	RBW: 1MHz VBW: 3MHz	RBW: 1MHz VBW: 3MHz Detector: RMS	RBW: 100kHz VBW: 300kHz

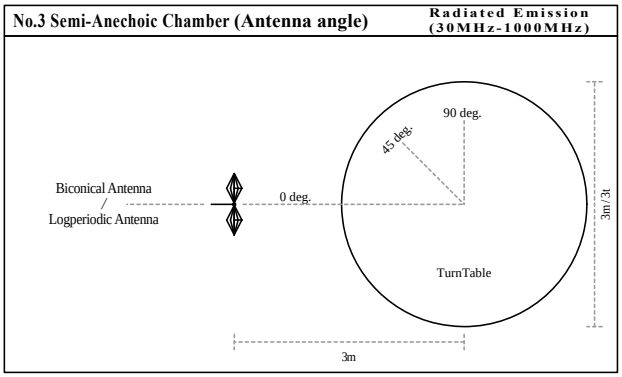
*1) Average Power Measurement was measured based on 12.2.5 of KDB 558074 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".

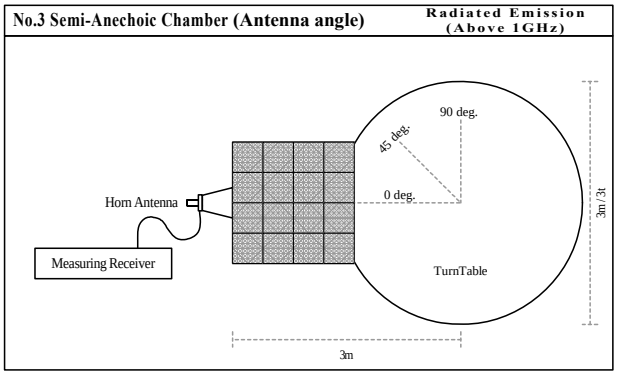
The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

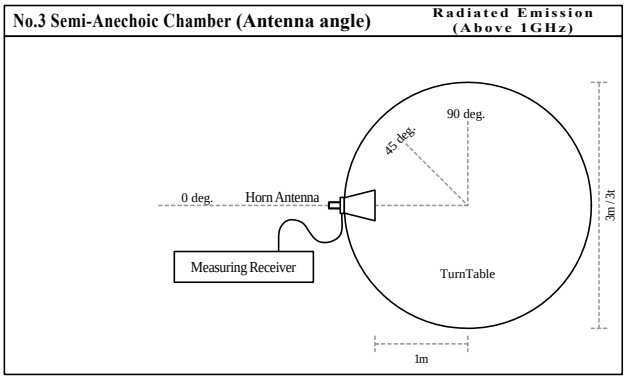
Worst case:

Antenna polarization	Carrier (Band edge)	Spurious			
		Below 1GHz	Above 1GHz		
			1-2.8GHz	2.8-15GHz	15-25GHz
Horizontal	X	X	X	X	X
Vertical	Y	X	Y	Y	Y

Figure 1. Antenna angle







10.5 Band edge

Band edge level at 2390MHz and 2483.5MHz is below the limits of FCC 15.209 and band edge level at 2400MHz is below the 20dBc. Refer to the data.

10.6 Results

Summary of the test results : Pass
* No noise was detected above the 5th order harmonics.

Refer to APPENDIX 1.

Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

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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

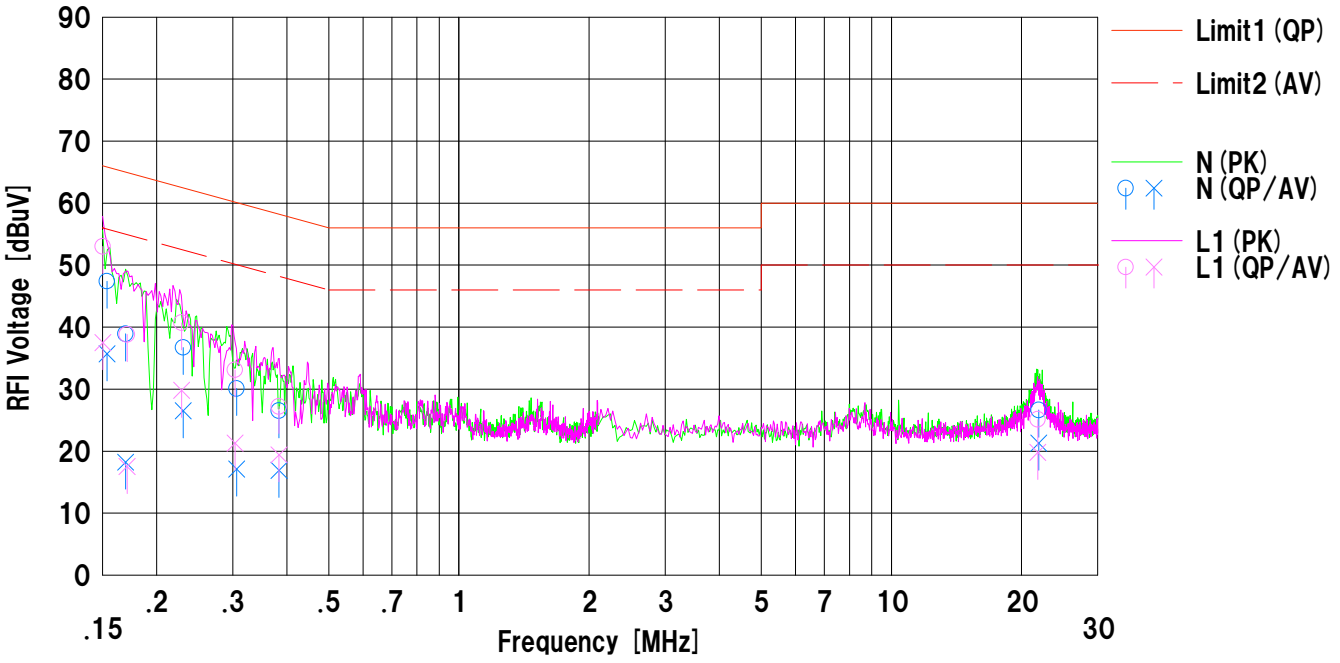
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2013/08/21

Company : Canon Inc.
Kind of EUT : Wireless Module
Model No. : WM228
Serial No. : 2C9EFCFFE8EE
Remarks : -

Mode : Tx 11g 2462MHz Power 12
Report No. : 10048647S
Power : AC 120V / 60Hz
Temp./Humi. : 26deg.C. / 46%RH

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

Engineer : Shinichi Takano



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	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15352	34.7	23.0	12.7	47.4	35.7	65.8	55.8	18.4	20.1	N	
2	0.16955	26.2	5.5	12.7	38.9	18.2	64.9	54.9	26.0	36.7	N	
3	0.23044	24.0	13.8	12.7	36.7	26.5	62.4	52.4	25.7	25.9	N	
4	0.30615	17.4	4.4	12.7	30.1	17.1	60.0	50.0	29.9	32.9	N	
5	0.38389	13.8	4.2	12.7	26.5	16.9	58.1	48.1	31.6	31.2	N	
6	21.92428	13.0	7.7	13.6	26.6	21.3	60.0	50.0	33.4	28.7	N	
7	0.15025	40.3	24.8	12.7	53.0	37.5	65.9	55.9	12.9	18.4	L1	
8	0.17081	26.1	4.8	12.7	38.8	17.5	64.9	54.9	26.1	37.4	L1	
9	0.22848	28.0	17.1	12.7	40.7	29.8	62.5	52.5	21.8	22.7	L1	
10	0.30360	20.4	8.6	12.7	33.1	21.3	60.1	50.1	27.0	28.8	L1	
11	0.38394	14.5	6.7	12.7	27.2	19.4	58.1	48.1	30.9	28.7	L1	
12	21.80941	11.5	6.2	13.6	25.1	19.8	60.0	50.0	34.9	30.2	L1	

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

DATA OF CONDUCTED EMISSION TEST

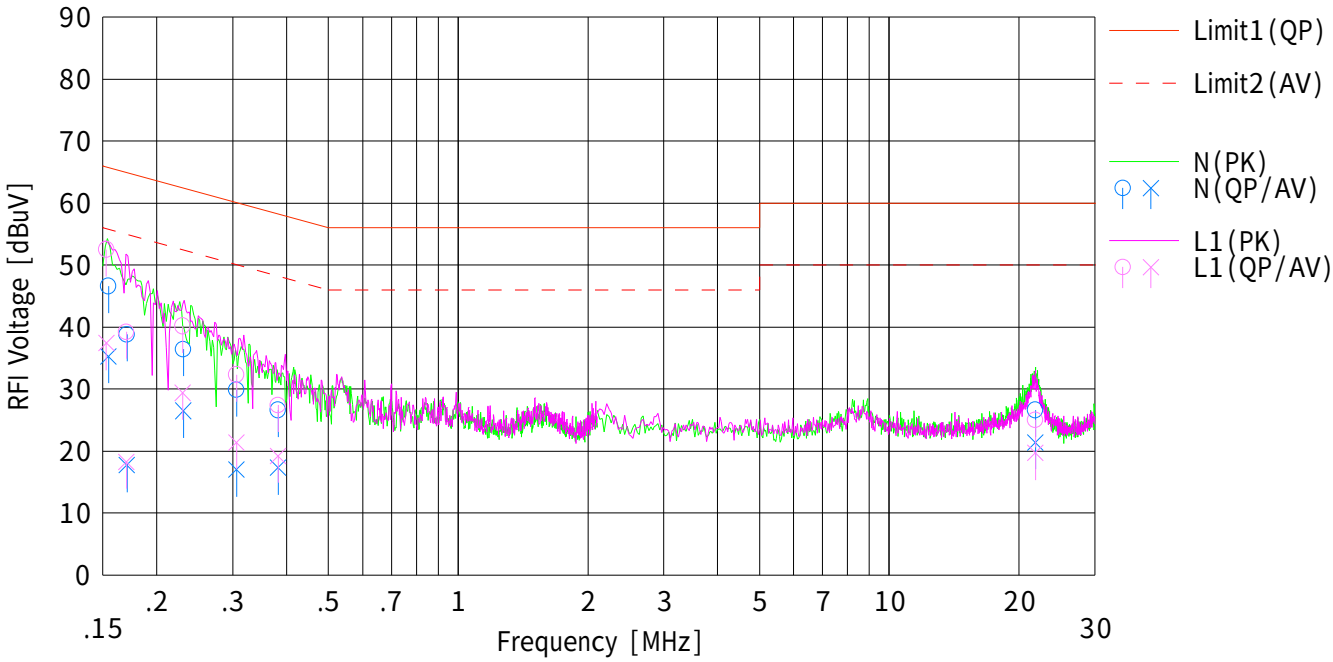
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2013/08/21

Company : Canon Inc.
Kind of EUT : Wireless Module
Model No. : **WM228**
Serial No. : 2C9EFCFFE8EE
Remarks : -

Mode : Tx 11g 2462MHz Power 10
Report No. : 10048647S
Power : AC 120V / 60Hz
Temp./Humi. : 26deg.C. / 46%RH

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

Engineer : Shinichi Takano



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	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15436	33.9	22.6	12.7	46.6	35.3	65.7	55.7	19.1	20.4	N	
2	0.17067	26.1	5.0	12.7	38.8	17.7	64.9	54.9	26.1	37.2	N	
3	0.23074	23.7	13.8	12.7	36.4	26.5	62.4	52.4	26.0	25.9	N	
4	0.30588	17.2	4.3	12.7	29.9	17.0	60.0	50.0	30.1	33.0	N	
5	0.38236	13.9	4.6	12.7	26.6	17.3	58.2	48.2	31.6	30.9	N	
6	21.83573	13.0	7.8	13.6	26.6	21.4	60.0	50.0	33.4	28.6	N	
7	0.15261	39.8	24.7	12.7	52.5	37.4	65.8	55.8	13.3	18.4	L1	
8	0.17017	26.5	5.6	12.7	39.2	18.3	64.9	54.9	25.7	36.6	L1	
9	0.22993	27.5	16.7	12.7	40.2	29.4	62.4	52.4	22.2	23.0	L1	
10	0.30646	19.6	8.7	12.7	32.3	21.4	60.0	50.0	27.7	28.6	L1	
11	0.38257	14.7	6.5	12.7	27.4	19.2	58.2	48.2	30.8	29.0	L1	
12	21.84327	11.4	6.1	13.6	25.0	19.7	60.0	50.0	35.0	30.3	L1	

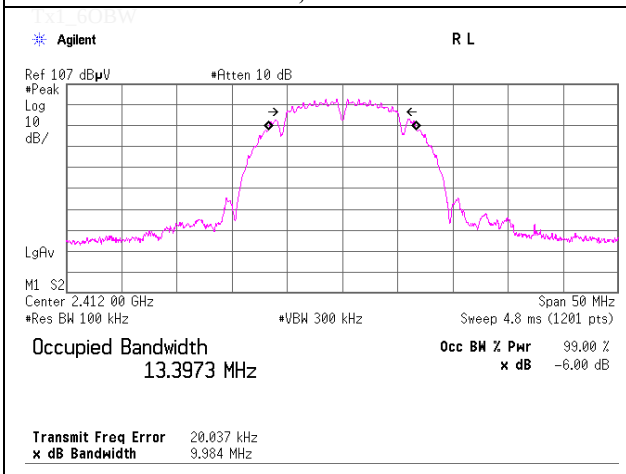
Calculation:Result[dBuV]=Reading[dBuV]+C.Fac(LISN+Cable+ATT)[dB]
LISN:SLS-05

-6dB Bandwidth

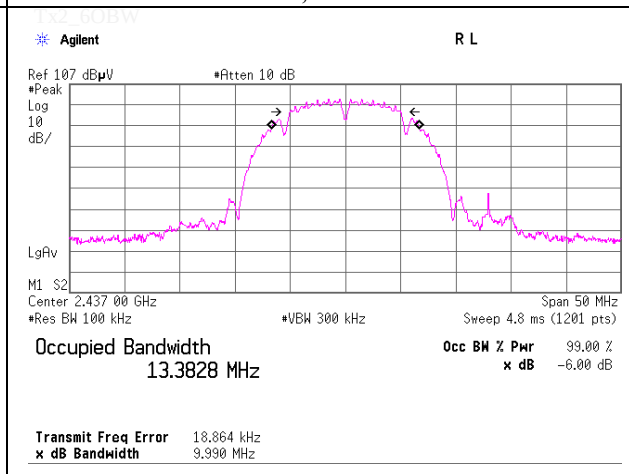
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 14, 2013	
Temperature / Humidity	25deg.C , 62%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	9.984	> 0.500
2437.0000	9.990	> 0.500
2462.0000	9.914	> 0.500

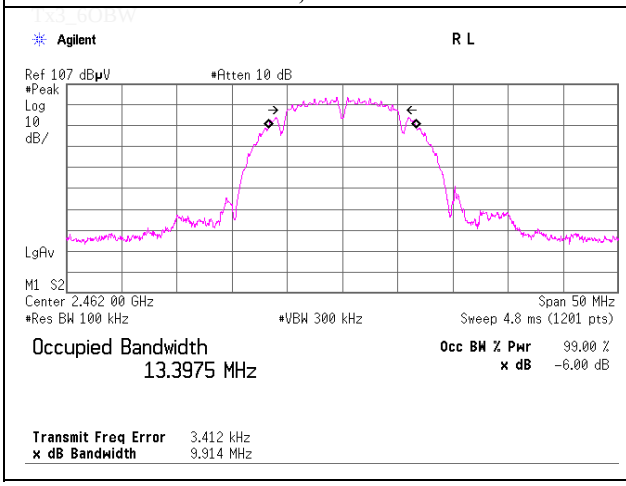
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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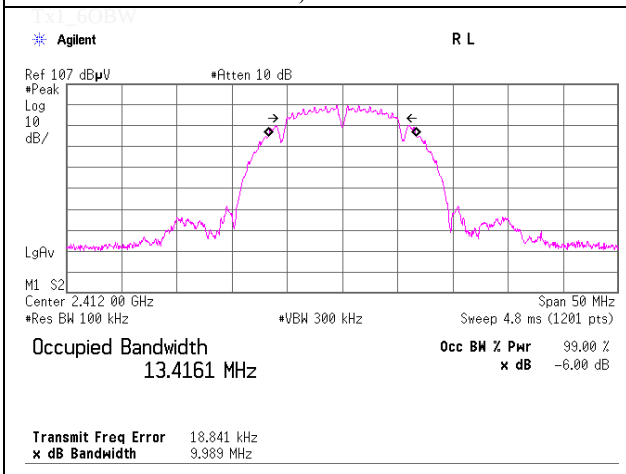
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

-6dB Bandwidth

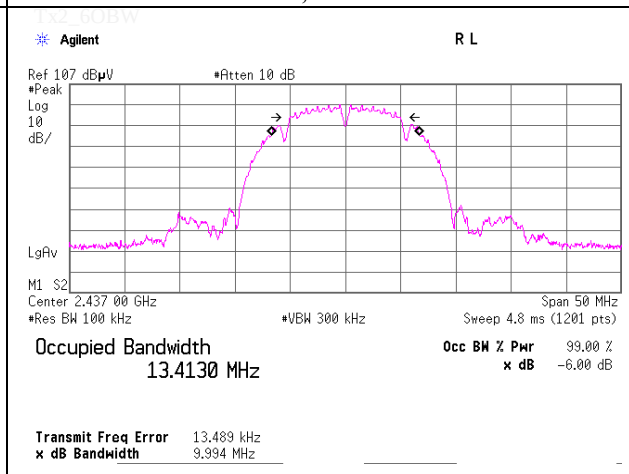
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	9.989	> 0.500
2437.0000	9.994	> 0.500
2462.0000	9.970	> 0.500

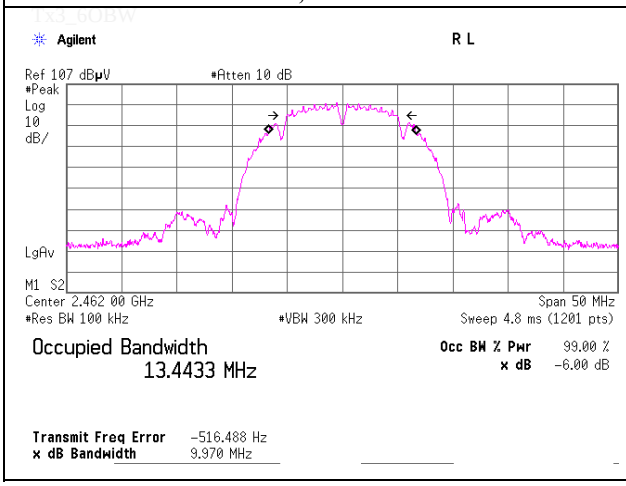
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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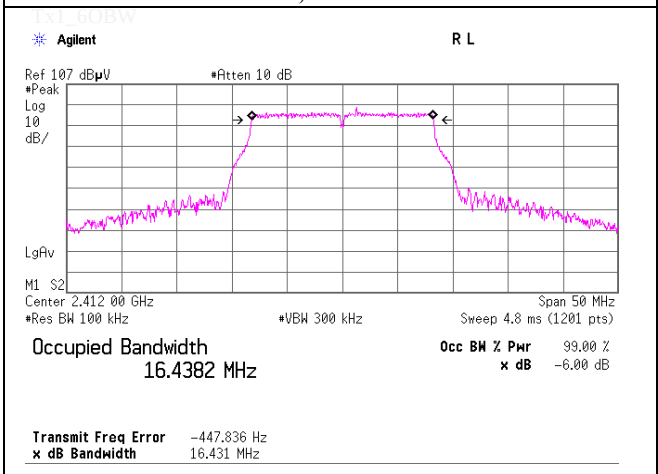
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

-6dB Bandwidth

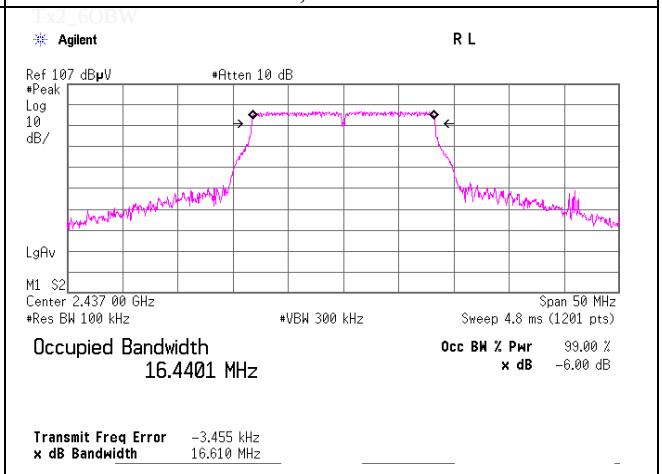
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 14, 2013	
Temperature / Humidity	25deg.C , 62%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	16.431	> 0.500
2437.0000	16.610	> 0.500
2462.0000	16.601	> 0.500

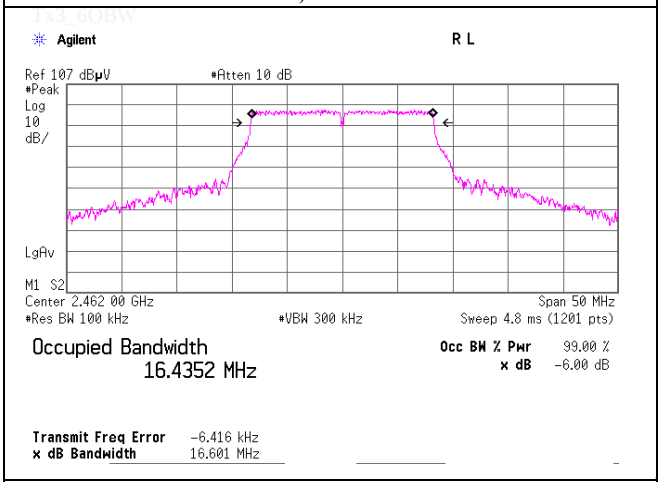
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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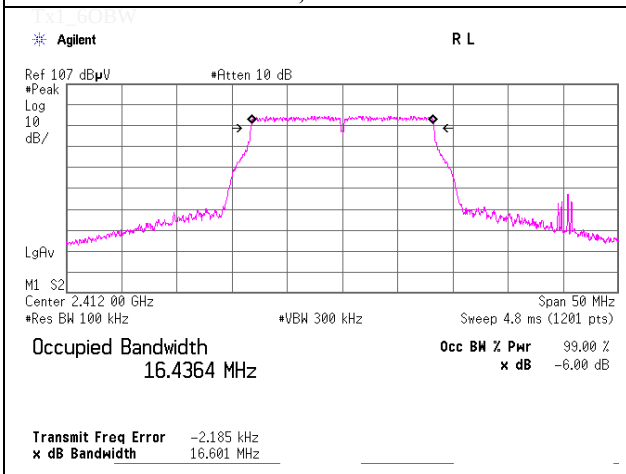
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

-6dB Bandwidth

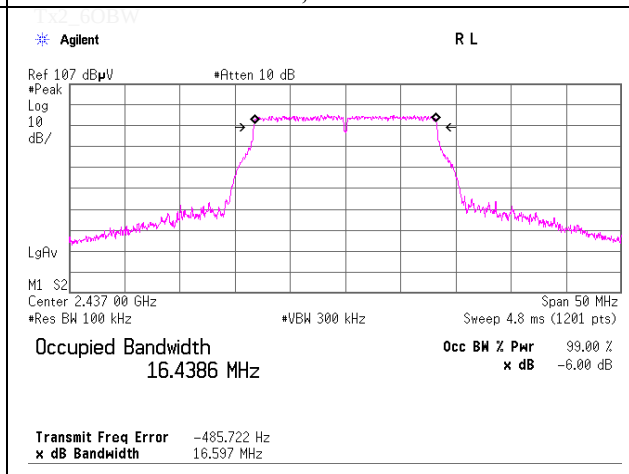
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	16.601	> 0.500
2437.0000	16.597	> 0.500
2462.0000	16.603	> 0.500

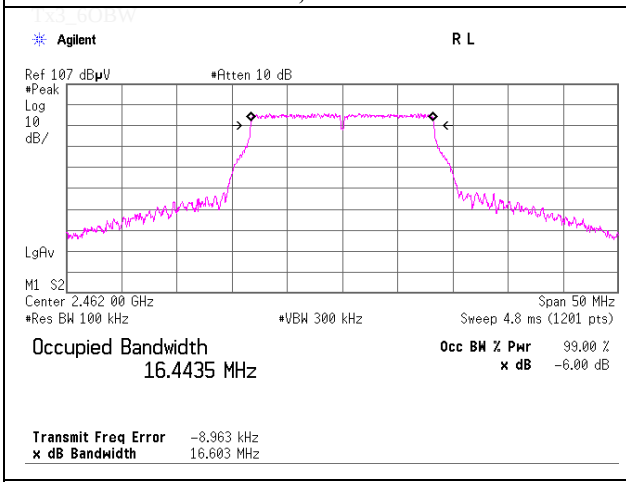
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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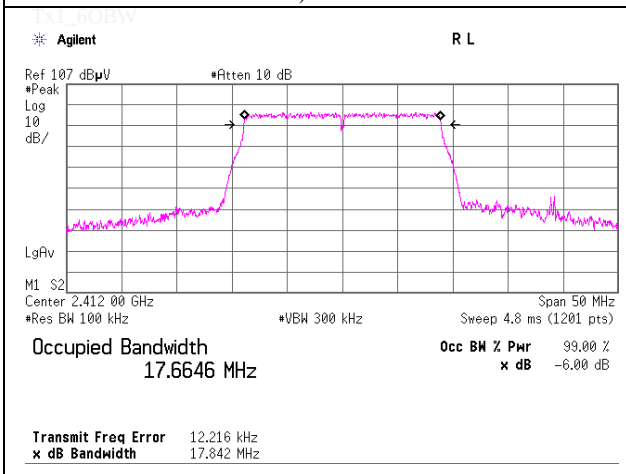
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

-6dB Bandwidth

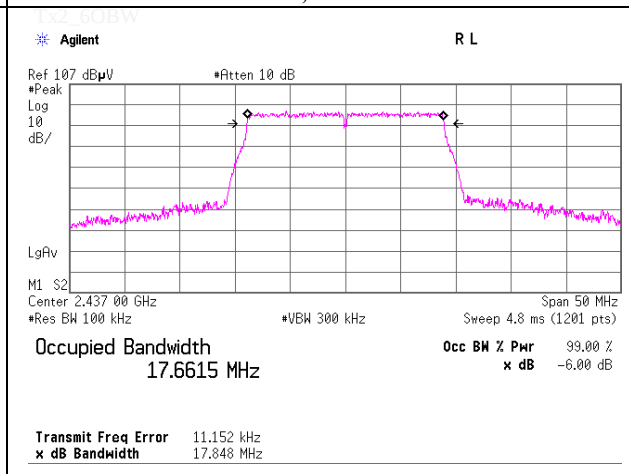
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	17.842	> 0.500
2437.0000	17.848	> 0.500
2462.0000	17.857	> 0.500

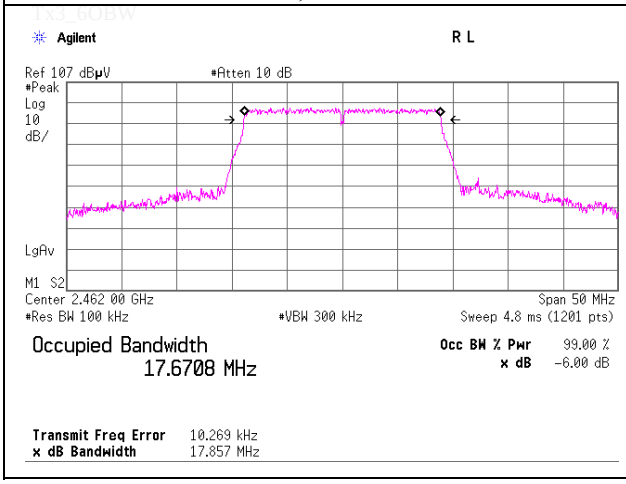
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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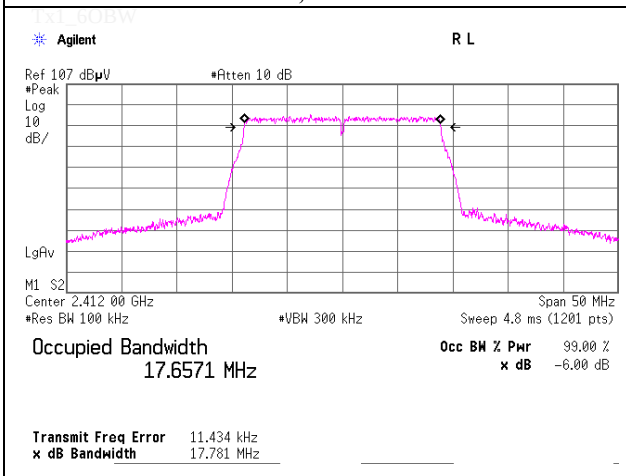
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

-6dB Bandwidth

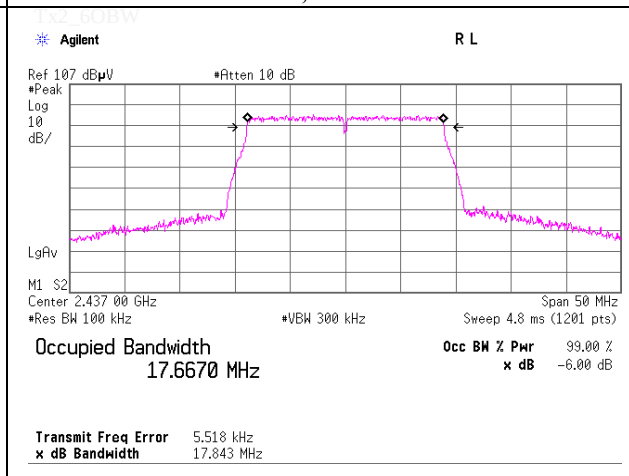
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	17.781	> 0.500
2437.0000	17.843	> 0.500
2462.0000	17.773	> 0.500

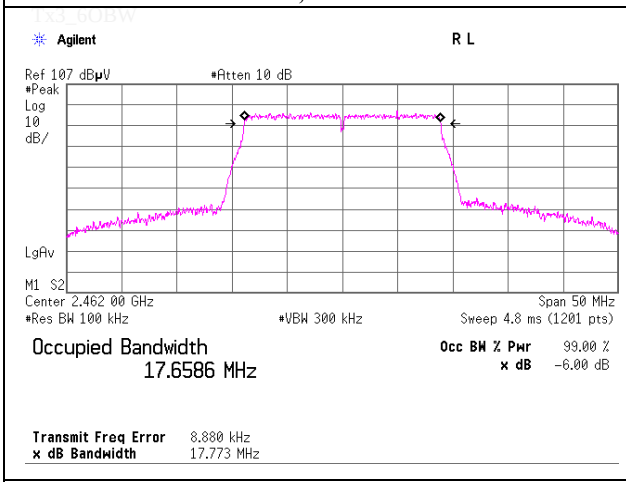
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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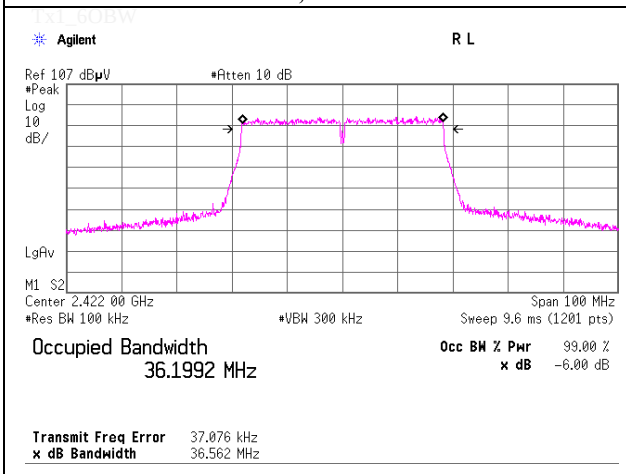
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

-6dB Bandwidth

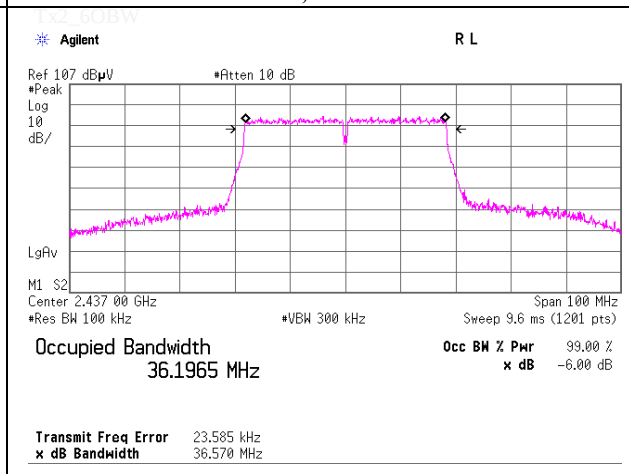
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2422.0000	36.562	> 0.500
2437.0000	36.570	> 0.500
2452.0000	36.575	> 0.500

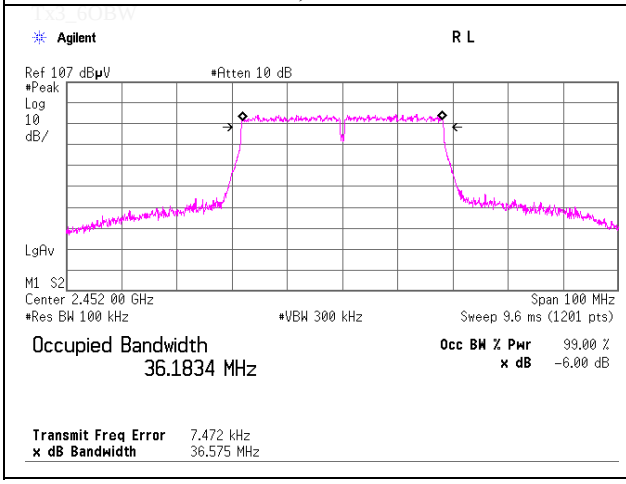
Tx, 2422MHz



Tx, 2437MHz



Tx, 2452MHz



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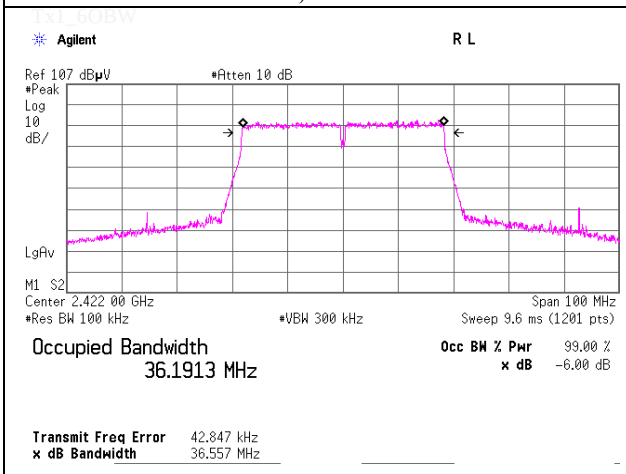
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

-6dB Bandwidth

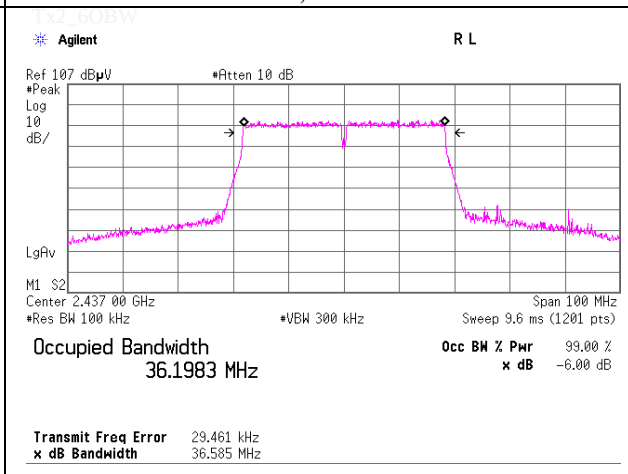
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2422.0000	36.557	> 0.500
2437.0000	36.585	> 0.500
2452.0000	36.587	> 0.500

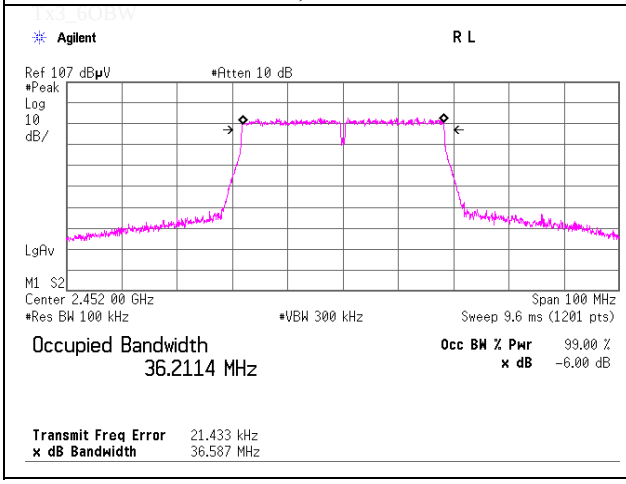
Tx, 2422MHz



Tx, 2437MHz



Tx, 2452MHz



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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	Augsut 14, 2013		
Temperature / Humidity	25deg.C , 62%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11b, PN9, power setting 14	worst data mode :	1 Mbps

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

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	5.76	0.50	9.98	16.24	42.07	30.00	1000	13.76
Mid	2437.0	6.05	0.50	9.98	16.53	44.98	30.00	1000	13.47
High	2462.0	6.19	0.50	9.98	16.67	46.45	30.00	1000	13.33

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

[Pre check]

	Data rate	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	
	[Mbps]	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	
	1	2437.0	6.05	0.50	9.98	**16.53**	44.98	30.00	1000	**13.47**	**Worst**
	2	2437.0	5.77	0.50	9.98	16.25	42.17	30.00	1000	13.75	
	5.5	2437.0	5.95	0.50	9.98	16.43	43.95	30.00	1000	13.57	
	11	2437.0	5.84	0.50	9.98	16.32	42.85	30.00	1000	13.68	

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	Augsut 14, 2013		
Temperature / Humidity	25deg.C , 62%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11b, PN9, power setting 14	worst data mode :	1 Mbps

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

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low	2412.0	3.11	0.50	9.98	0.00	13.59	22.86
Mid	2437.0	3.43	0.50	9.98	0.00	13.91	24.60
High	2462.0	3.54	0.50	9.98	0.00	14.02	25.23

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
E.I.R.P = Result + Antenna Gain

[Pre check]

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
	1	2437.0	3.43	0.50	9.98	0.00	**13.91**	24.60
	2	2437.0	3.20	0.50	9.98	0.00	13.68	23.33
	6	2437.0	3.38	0.50	9.98	0.00	13.86	24.32
	11	2437.0	3.28	0.50	9.98	0.00	13.76	23.77

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

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

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11b, PN9, power setting 11	worst data mode :	1 Mbps

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

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	2.48	0.50	9.98	12.96	19.77	30.00	1000	17.04
Mid	2437.0	2.84	0.50	9.98	13.32	21.48	30.00	1000	16.68
High	2462.0	3.52	0.50	9.98	14.00	25.12	30.00	1000	16.00

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11b, PN9, power setting 11	worst data mode :	1 Mbps

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

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low	2412.0	-0.04	0.50	9.98	0.00	10.44	11.07
Mid	2437.0	0.33	0.50	9.98	0.00	10.81	12.05
High	2462.0	1.00	0.50	9.98	0.00	11.48	14.06

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
E.I.R.P = Result + Antenna Gain

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1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	Augsut 14, 2013		
Temperature / Humidity	25deg.C , 62%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11g, PN9, power setting 12	worst data mode :	6 Mbps

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

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	10.64	0.50	9.98	21.12	129.42	30.00	1000	8.88
Mid	2437.0	10.90	0.50	9.98	21.38	137.40	30.00	1000	8.62
High	2462.0	11.20	0.50	9.98	21.68	147.23	30.00	1000	8.32

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

[Pre check]

	Data rate	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	
	[Mbps]	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	
	6	2437.0	10.90	0.50	9.98	**21.38**	137.40	30.00	1000	**8.62**	**Worst**
	9	2437.0	10.16	0.50	9.98	20.64	115.88	30.00	1000	9.36	
	12	2437.0	10.55	0.50	9.98	21.03	126.77	30.00	1000	8.97	
	18	2437.0	10.08	0.50	9.98	20.56	113.76	30.00	1000	9.44	
	24	2437.0	10.73	0.50	9.98	21.21	132.13	30.00	1000	8.79	
	36	2437.0	10.73	0.50	9.98	21.21	132.13	30.00	1000	8.79	
	48	2437.0	10.31	0.50	9.98	20.79	119.95	30.00	1000	9.21	
	54	2437.0	10.05	0.50	9.98	20.53	112.98	30.00	1000	9.47	

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
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Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	Augsut 14, 2013		
Temperature / Humidity	25deg.C , 62%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11g, PN9, power setting 12	worst data mode :	6 Mbps

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

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low	2412.0	0.68	0.50	9.98	0.00	11.16	13.06
Mid	2437.0	1.20	0.50	9.98	0.00	11.68	14.72
High	2462.0	1.90	0.50	9.98	0.00	12.38	17.30

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
E.I.R.P = Result + Antenna Gain

[Pre check]

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
	6	2437.0	1.20	0.50	9.98	0.00	**11.68**	14.72
	9	2437.0	1.05	0.50	9.98	0.00	11.53	14.22
	12	2437.0	0.98	0.50	9.98	0.00	11.46	14.00
	18	2437.0	1.06	0.50	9.98	0.00	11.54	14.26
	24	2437.0	0.90	0.50	9.98	0.00	11.38	13.74
	36	2437.0	1.18	0.50	9.98	0.00	11.66	14.66
	48	2437.0	0.93	0.50	9.98	0.00	11.41	13.84
	54	2437.0	0.89	0.50	9.98	0.00	11.37	13.71

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11g, PN9, power setting 10	worst data mode :	6 Mbps

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

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	8.52	0.50	9.98	19.00	79.43	30.00	1000	11.00
Mid	2437.0	9.60	0.50	9.98	20.08	101.86	30.00	1000	9.92
High	2462.0	10.12	0.50	9.98	20.60	114.82	30.00	1000	9.40

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room		
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11g, PN9, power setting 10	worst data mode :	6 Mbps

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

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low	2412.0	-1.17	0.50	9.98	0.00	9.31	8.53
Mid	2437.0	-0.51	0.50	9.98	0.00	9.97	9.93
High	2462.0	0.22	0.50	9.98	0.00	10.70	11.75

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
E.I.R.P = Result + Antenna Gain

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room		
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11n (HT20), PN9, power setting 12	worst data mode :	2 (MCS)

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

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	9.93	0.50	9.98	20.41	109.90	30.00	1000	9.59
Mid	2437.0	10.25	0.50	9.98	20.73	118.30	30.00	1000	9.27
High	2462.0	10.62	0.50	9.98	21.10	128.82	30.00	1000	8.90

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

[Pre check]

	Mode	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	
	(MCS)	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	
	0	2437.0	10.21	0.50	9.98	20.69	117.22	30.00	1000	9.31	
	1	2437.0	10.19	0.50	9.98	20.67	116.68	30.00	1000	9.33	
	2	2437.0	10.25	0.50	9.98	**20.73**	118.30	30.00	1000	**9.27**	**Worst**
	3	2437.0	10.18	0.50	9.98	20.66	116.41	30.00	1000	9.34	
	4	2437.0	10.17	0.50	9.98	20.65	116.14	30.00	1000	9.35	
	5	2437.0	10.22	0.50	9.98	20.70	117.49	30.00	1000	9.30	
	6	2437.0	10.14	0.50	9.98	20.62	115.35	30.00	1000	9.38	
	7	2437.0	10.12	0.50	9.98	20.60	114.82	30.00	1000	9.40	

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11n (HT20), PN9, power setting 12	worst data mode :	1 (MCS)

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

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low	2412.0	0.87	0.50	9.98	0.00	11.35	13.65
Mid	2437.0	1.26	0.50	9.98	0.00	11.74	14.93
High	2462.0	1.99	0.50	9.98	0.00	12.47	17.66

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
E.I.R.P = Result + Antenna Gain

[Pre check]

	Mode (MCS)	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
	0	2437.0	1.30	0.50	9.98	0.00	11.78	15.07
	1	2437.0	1.33	0.50	9.98	0.00	**11.81**	15.17
	2	2437.0	1.26	0.50	9.98	0.00	11.74	14.93
	3	2437.0	1.31	0.50	9.98	0.00	11.79	15.10
	4	2437.0	1.26	0.50	9.98	0.00	11.74	14.93
	5	2437.0	1.32	0.50	9.98	0.00	11.80	15.14
	6	2437.0	1.16	0.50	9.98	0.00	11.64	14.59
	7	2437.0	1.28	0.50	9.98	0.00	11.76	15.00

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room		
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11n (HT20), PN9, power setting 10	worst data mode :	2 (MCS)

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

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	8.22	0.50	9.98	18.70	74.13	30.00	1000	11.30
Mid	2437.0	8.63	0.50	9.98	19.11	81.47	30.00	1000	10.89
High	2462.0	9.35	0.50	9.98	19.83	96.16	30.00	1000	10.17

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room		
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11n (HT20), PN9, power setting 10	worst data mode :	1 (MCS)

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

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low	2412.0	-0.96	0.50	9.98	0.00	9.52	8.95
Mid	2437.0	-0.46	0.50	9.98	0.00	10.02	10.05
High	2462.0	0.34	0.50	9.98	0.00	10.82	12.08

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
E.I.R.P = Result + Antenna Gain

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room		
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11n (HT40), PN9, power setting 12	worst data mode :	3 (MCS)

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

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	10.17	0.50	9.98	20.65	116.14	30.00	1000	9.35
Mid	2437.0	10.42	0.50	9.98	20.90	123.03	30.00	1000	9.10
High	2452.0	10.47	0.50	9.98	20.95	124.45	30.00	1000	9.05

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

[Pre check]

	Mode	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	
	(MCS)	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	
	0	2437.0	9.65	0.50	9.98	20.13	103.04	30.00	1000	9.87	
	1	2437.0	9.55	0.50	9.98	20.03	100.69	30.00	1000	9.97	
	2	2437.0	10.29	0.50	9.98	20.77	119.40	30.00	1000	9.23	
	3	2437.0	10.42	0.50	9.98	**20.90**	123.03	30.00	1000	**9.10**	**Worst**
	4	2437.0	10.23	0.50	9.98	20.71	117.76	30.00	1000	9.29	
	5	2437.0	10.36	0.50	9.98	20.84	121.34	30.00	1000	9.16	
	6	2437.0	9.93	0.50	9.98	20.41	109.90	30.00	1000	9.59	
	7	2437.0	9.77	0.50	9.98	20.25	105.93	30.00	1000	9.75	

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date	Augsut 15, 2013
Temperature / Humidity	25deg.C , 65%RH
Engineer	Hikaru Shirasawa
Mode	Tx, IEEE802.11n (HT40), PN9, power setting 12 worst data mode : 1 (MCS)

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

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low	2422.0	0.09	0.50	9.98	0.00	10.57	11.40
Mid	2437.0	0.52	0.50	9.98	0.00	11.00	12.59
High	2452.0	0.77	0.50	9.98	0.00	11.25	13.34

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
E.I.R.P = Result + Antenna Gain

[Pre check]

	Mode (MCS)	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
	0	2437.0	0.52	0.50	9.98	0.00	11.00	12.59
	1	2437.0	0.60	0.50	9.98	0.00	**11.08**	12.82
	2	2437.0	0.55	0.50	9.98	0.00	11.03	12.68
	3	2437.0	0.52	0.50	9.98	0.00	11.00	12.59
	4	2437.0	0.50	0.50	9.98	0.00	10.98	12.53
	5	2437.0	0.51	0.50	9.98	0.00	10.99	12.56
	6	2437.0	0.57	0.50	9.98	0.00	11.05	12.74
	7	2437.0	0.50	0.50	9.98	0.00	10.98	12.53

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11n (HT40), PN9, power setting 10	worst data mode :	3 (MCS)

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

Ch	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	8.59	0.50	9.98	19.07	80.72	30.00	1000	10.93
Mid	2437.0	8.85	0.50	9.98	19.33	85.70	30.00	1000	10.67
High	2452.0	8.95	0.50	9.98	19.43	87.70	30.00	1000	10.57

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Conducted Output Power (Reference data)

(AVGPM)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room		
Date	Augsut 15, 2013		
Temperature / Humidity	25deg.C , 65%RH		
Engineer	Hikaru Shirasawa		
Mode	Tx, IEEE802.11n (HT40), PN9, power setting 10	worst data mode :	1 (MCS)

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

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result [dBm]	Result [mW]
Low	2422.0	-1.74	0.50	9.98	0.00	8.74	7.48
Mid	2437.0	-1.48	0.50	9.98	0.00	9.00	7.94
High	2452.0	-1.32	0.50	9.98	0.00	9.16	8.24

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
E.I.R.P = Result + Antenna Gain

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2412 MHz	
	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2390.000	PK	47.4	27.6	24.9	41.1	58.8	73.9	15.1	100	108	
Hori.	4824.000	PK	48.5	31.2	7.5	41.2	46.0	73.9	27.9	100	64	
Hori.	7236.000	PK	48.3	36.1	9.0	41.0	52.4	73.9	21.5	100	167	
Hori.	9648.000	PK	45.6	38.1	10.2	38.9	55.0	73.9	18.9	100	0	
Hori.	12060.000	PK	46.9	39.0	11.5	39.1	58.3	73.9	15.6	100	359	
Hori.	2390.000	AV	34.1	27.6	24.9	41.1	45.5	53.9	8.4	100	108	
Hori.	4824.000	AV	37.3	31.2	7.5	41.2	34.8	53.9	19.1	100	64	
Hori.	7236.000	AV	36.4	36.1	9.0	41.0	40.5	53.9	13.4	100	167	
Hori.	9648.000	AV	32.6	38.1	10.2	38.9	42.0	53.9	11.9	100	0	
Hori.	12060.000	AV	34.2	39.0	11.5	39.1	45.6	53.9	**8.3**	100	359	
Vert.	2390.000	PK	48.0	27.6	24.9	41.1	59.4	73.9	14.5	100	170	
Vert.	4824.000	PK	49.2	31.2	7.5	41.2	46.7	73.9	27.2	100	0	
Vert.	7236.000	PK	47.4	36.1	9.0	41.0	51.5	73.9	22.4	100	183	
Vert.	9648.000	PK	45.4	38.1	10.2	38.9	54.8	73.9	19.1	100	359	
Vert.	12060.000	PK	46.6	39.0	11.5	39.1	58.0	73.9	15.9	100	0	
Vert.	2390.000	AV	34.0	27.6	24.9	41.1	45.4	53.9	8.5	100	170	
Vert.	4824.000	AV	40.5	31.2	7.5	41.2	38.0	53.9	15.9	100	0	
Vert.	7236.000	AV	35.6	36.1	9.0	41.0	39.7	53.9	14.2	100	183	
Vert.	9648.000	AV	33.2	38.1	10.2	38.9	42.6	53.9	11.3	100	359	
Vert.	12060.000	AV	34.1	39.0	11.5	39.1	45.5	53.9	8.4	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	76.6	27.6	24.9	41.1	88.0	-	-	
Hori.	2399.080	PK	41.3	27.6	24.9	41.1	52.7	68.0	15.3	
Hori.	2400.000	PK	37.9	27.6	24.9	41.1	49.3	68.0	18.7	
Vert.	2412.000	PK	72.3	27.6	24.9	41.1	83.7	-	-	
Vert.	2399.080	PK	38.1	27.6	24.9	41.1	49.5	63.7	14.2	
Vert.	2400.000	PK	38.9	27.6	24.9	41.1	50.3	63.7	13.4	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	4874.000	PK	48.2	31.3	7.5	41.2	45.8	73.9	28.1	100	228	
Hori.	7311.000	PK	47.1	36.1	9.0	41.1	51.1	73.9	22.8	100	159	
Hori.	9748.000	PK	44.6	38.1	10.1	38.8	54.0	73.9	19.9	100	359	
Hori.	12185.000	PK	45.5	38.9	11.4	39.1	56.7	73.9	17.2	100	0	
Hori.	4874.000	AV	37.2	31.3	7.5	41.2	34.8	53.9	19.1	100	228	
Hori.	7311.000	AV	35.3	36.1	9.0	41.1	39.3	53.9	14.6	100	159	
Hori.	9748.000	AV	32.3	38.1	10.1	38.8	41.7	53.9	12.2	100	359	
Hori.	12185.000	AV	32.1	38.9	11.4	39.1	43.3	53.9	10.6	100	0	
Vert.	4874.000	PK	49.1	31.3	7.5	41.2	46.7	73.9	27.2	100	308	
Vert.	7311.000	PK	46.2	36.1	9.0	41.1	50.2	73.9	23.7	100	196	
Vert.	9748.000	PK	46.6	38.1	10.1	38.8	56.0	73.9	17.9	136	173	
Vert.	12185.000	PK	46.0	38.9	11.4	39.1	57.2	73.9	16.7	100	359	
Vert.	4874.000	AV	40.4	31.3	7.5	41.2	38.0	53.9	15.9	100	308	
Vert.	7311.000	AV	34.8	36.1	9.0	41.1	38.8	53.9	15.1	100	196	
Vert.	9748.000	AV	35.5	38.1	10.1	38.8	44.9	53.9	**9.0**	136	173	
Vert.	12185.000	AV	32.4	38.9	11.4	39.1	43.6	53.9	10.3	100	359	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2462 MHz	
	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2483.500	PK	58.9	27.6	25.0	41.0	70.5	73.9	**3.4**	100	111	
Hori.	4924.000	PK	48.7	31.4	7.5	41.1	46.5	73.9	27.4	100	28	
Hori.	7386.000	PK	49.5	36.2	9.0	41.1	53.6	73.9	20.3	100	159	
Hori.	9848.000	PK	44.9	38.1	10.0	38.8	54.2	73.9	19.7	100	49	
Hori.	12310.000	PK	44.6	38.9	11.3	39.1	55.7	73.9	18.2	100	0	
Hori.	2483.500	AV	34.1	27.6	25.0	41.0	45.7	53.9	8.2	100	111	
Hori.	4924.000	AV	39.1	31.4	7.5	41.1	36.9	53.9	17.0	100	28	
Hori.	7386.000	AV	35.5	36.2	9.0	41.1	39.6	53.9	14.3	100	159	
Hori.	9848.000	AV	33.4	38.1	10.0	38.8	42.7	53.9	11.2	100	49	
Hori.	12310.000	AV	31.6	38.9	11.3	39.1	42.7	53.9	11.2	100	0	
Vert.	2483.500	PK	58.6	27.6	25.0	41.0	70.2	73.9	3.7	100	185	
Vert.	4924.000	PK	49.6	31.4	7.5	41.1	47.4	73.9	26.5	100	355	
Vert.	7386.000	PK	46.7	36.2	9.0	41.1	50.8	73.9	23.1	100	189	
Vert.	9848.000	PK	44.0	38.1	10.0	38.8	53.3	73.9	20.6	153	17	
Vert.	12310.000	PK	44.5	38.9	11.3	39.1	55.6	73.9	18.3	100	359	
Vert.	2483.500	AV	34.4	27.6	25.0	41.0	46.0	53.9	7.9	100	185	
Vert.	4924.000	AV	41.0	31.4	7.5	41.1	38.8	53.9	15.1	100	355	
Vert.	7386.000	AV	35.0	36.2	9.0	41.1	39.1	53.9	14.8	100	189	
Vert.	9848.000	AV	33.3	38.1	10.0	38.8	42.6	53.9	11.3	153	17	
Vert.	12310.000	AV	31.2	38.9	11.3	39.1	42.3	53.9	11.6	100	359	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2412 MHz	
	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2390.000	PK	46.6	27.6	24.9	41.1	58.0	73.9	15.9	100	108	
Hori.	4824.000	PK	47.7	31.2	7.5	41.2	45.2	73.9	28.7	100	64	
Hori.	7236.000	PK	47.9	36.1	9.0	41.0	52.0	73.9	21.9	100	167	
Hori.	9648.000	PK	45.2	38.1	10.2	38.9	54.6	73.9	19.3	100	0	
Hori.	12060.000	PK	46.9	39.0	11.5	39.1	58.3	73.9	15.6	100	359	
Hori.	2390.000	AV	33.6	27.6	24.9	41.1	45.0	53.9	8.9	100	108	
Hori.	4824.000	AV	34.9	31.2	7.5	41.2	32.4	53.9	21.5	100	64	
Hori.	7236.000	AV	35.4	36.1	9.0	41.0	39.5	53.9	14.4	100	167	
Hori.	9648.000	AV	32.1	38.1	10.2	38.9	41.5	53.9	12.4	100	0	
Hori.	12060.000	AV	33.6	39.0	11.5	39.1	45.0	53.9	8.9	100	359	
Vert.	2390.000	PK	47.1	27.6	24.9	41.1	58.5	73.9	15.4	100	170	
Vert.	4824.000	PK	47.7	31.2	7.5	41.2	45.2	73.9	28.7	100	0	
Vert.	7236.000	PK	48.5	36.1	9.0	41.0	52.6	73.9	21.3	100	183	
Vert.	9648.000	PK	45.6	38.1	10.2	38.9	55.0	73.9	18.9	100	359	
Vert.	12060.000	PK	46.7	39.0	11.5	39.1	58.1	73.9	15.8	100	0	
Vert.	2390.000	AV	33.2	27.6	24.9	41.1	44.6	53.9	9.3	100	170	
Vert.	4824.000	AV	37.0	31.2	7.5	41.2	34.5	53.9	19.4	100	0	
Vert.	7236.000	AV	35.5	36.1	9.0	41.0	39.6	53.9	14.3	100	183	
Vert.	9648.000	AV	32.7	38.1	10.2	38.9	42.1	53.9	11.8	100	359	
Vert.	12060.000	AV	34.1	39.0	11.5	39.1	45.5	53.9	**8.4**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	75.7	27.6	24.9	41.1	87.1	-	-	
Hori.	2399.080	PK	40.4	27.6	24.9	41.1	51.8	67.1	15.3	
Hori.	2400.000	PK	36.9	27.6	24.9	41.1	48.3	67.1	18.8	
Vert.	2412.000	PK	70.8	27.6	24.9	41.1	82.2	-	-	
Vert.	2399.080	PK	36.8	27.6	24.9	41.1	48.2	62.2	14.0	
Vert.	2400.000	PK	37.7	27.6	24.9	41.1	49.1	62.2	13.1	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	4874.000	PK	46.3	31.3	7.5	41.2	43.9	73.9	30.0	100	228	
Hori.	7311.000	PK	47.0	36.1	9.0	41.1	51.0	73.9	22.9	100	159	
Hori.	9748.000	PK	44.3	38.1	10.1	38.8	53.7	73.9	20.2	100	359	
Hori.	12185.000	PK	45.2	38.9	11.4	39.1	56.4	73.9	17.5	100	0	
Hori.	4874.000	AV	34.1	31.3	7.5	41.2	31.7	53.9	22.2	100	228	
Hori.	7311.000	AV	34.8	36.1	9.0	41.1	38.8	53.9	15.1	100	159	
Hori.	9748.000	AV	32.3	38.1	10.1	38.8	41.7	53.9	12.2	100	359	
Hori.	12185.000	AV	32.3	38.9	11.4	39.1	43.5	53.9	**10.4**	100	0	
Vert.	4874.000	PK	47.3	31.3	7.5	41.2	44.9	73.9	29.0	100	308	
Vert.	7311.000	PK	46.1	36.1	9.0	41.1	50.1	73.9	23.8	100	196	
Vert.	9748.000	PK	44.6	38.1	10.1	38.8	54.0	73.9	19.9	136	173	
Vert.	12185.000	PK	44.2	38.9	11.4	39.1	55.4	73.9	18.5	100	359	
Vert.	4874.000	AV	36.2	31.3	7.5	41.2	33.8	53.9	20.1	100	308	
Vert.	7311.000	AV	34.4	36.1	9.0	41.1	38.4	53.9	15.5	100	196	
Vert.	9748.000	AV	32.1	38.1	10.1	38.8	41.5	53.9	12.4	136	173	
Vert.	12185.000	AV	32.0	38.9	11.4	39.1	43.2	53.9	10.7	100	359	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2462 MHz	
	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2483.500	PK	57.7	27.6	25.0	41.0	69.3	73.9	**4.6**	100	111	
Hori.	4924.000	PK	47.1	31.4	7.5	41.1	44.9	73.9	29.0	100	28	
Hori.	7386.000	PK	45.8	36.2	9.0	41.1	49.9	73.9	24.0	100	159	
Hori.	9848.000	PK	43.9	38.1	10.0	38.8	53.2	73.9	20.7	100	49	
Hori.	12310.000	PK	44.1	38.9	11.3	39.1	55.2	73.9	18.7	100	0	
Hori.	2483.500	AV	33.9	27.6	25.0	41.0	45.5	53.9	8.4	100	111	
Hori.	4924.000	AV	36.4	31.4	7.5	41.1	34.2	53.9	19.7	100	28	
Hori.	7386.000	AV	34.4	36.2	9.0	41.1	38.5	53.9	15.4	100	159	
Hori.	9848.000	AV	31.6	38.1	10.0	38.8	40.9	53.9	13.0	100	49	
Hori.	12310.000	AV	31.4	38.9	11.3	39.1	42.5	53.9	11.4	100	0	
Vert.	2483.500	PK	57.6	27.6	25.0	41.0	69.2	73.9	4.7	100	185	
Vert.	4924.000	PK	46.5	31.4	7.5	41.1	44.3	73.9	29.6	112	189	
Vert.	7386.000	PK	46.7	36.2	9.0	41.1	50.8	73.9	23.1	100	189	
Vert.	9848.000	PK	44.6	38.1	10.0	38.8	53.9	73.9	20.0	100	17	
Vert.	12310.000	PK	44.9	38.9	11.3	39.1	56.0	73.9	17.9	100	359	
Vert.	2483.500	AV	33.9	27.6	25.0	41.0	45.5	53.9	8.4	100	185	
Vert.	4924.000	AV	34.9	31.4	7.5	41.1	32.7	53.9	21.2	112	189	
Vert.	7386.000	AV	34.5	36.2	9.0	41.1	38.6	53.9	15.3	100	189	
Vert.	9848.000	AV	32.2	38.1	10.0	38.8	41.5	53.9	12.4	100	17	
Vert.	12310.000	AV	31.7	38.9	11.3	39.1	42.8	53.9	11.1	100	359	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2412 MHz	
	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2390.000	PK	49.9	27.6	24.9	41.1	61.3	73.9	12.6	100	118	
Hori.	4824.000	PK	46.9	31.2	7.5	41.2	44.4	73.9	29.5	100	10	
Hori.	7236.000	PK	48.4	36.1	9.0	41.0	52.5	73.9	21.4	100	163	
Hori.	9648.000	PK	45.2	38.1	10.2	38.9	54.6	73.9	19.3	100	0	
Hori.	12060.000	PK	46.7	39.0	11.5	39.1	58.1	73.9	15.8	100	359	
Hori.	2390.000	AV	35.0	27.6	24.9	41.1	46.4	53.9	**7.5**	100	118	
Hori.	4824.000	AV	33.9	31.2	7.5	41.2	31.4	53.9	22.5	100	10	
Hori.	7236.000	AV	35.6	36.1	9.0	41.0	39.7	53.9	14.2	100	163	
Hori.	9648.000	AV	32.2	38.1	10.2	38.9	41.6	53.9	12.3	100	0	
Hori.	12060.000	AV	34.1	39.0	11.5	39.1	45.5	53.9	8.4	100	359	
Vert.	2390.000	PK	49.4	27.6	24.9	41.1	60.8	73.9	13.1	100	177	
Vert.	4824.000	PK	46.1	31.2	7.5	41.2	43.6	73.9	30.3	100	297	
Vert.	7236.000	PK	48.0	36.1	9.0	41.0	52.1	73.9	21.8	100	308	
Vert.	9648.000	PK	45.2	38.1	10.2	38.9	54.6	73.9	19.3	100	359	
Vert.	12060.000	PK	48.3	39.0	11.5	39.1	59.7	73.9	14.2	100	0	
Vert.	2390.000	AV	34.4	27.6	24.9	41.1	45.8	53.9	8.1	100	177	
Vert.	4824.000	AV	34.3	31.2	7.5	41.2	31.8	53.9	22.1	100	297	
Vert.	7236.000	AV	35.6	36.1	9.0	41.0	39.7	53.9	14.2	100	308	
Vert.	9648.000	AV	32.6	38.1	10.2	38.9	42.0	53.9	11.9	100	359	
Vert.	12060.000	AV	34.2	39.0	11.5	39.1	45.6	53.9	8.3	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	73.8	27.6	24.9	41.1	85.2	-	-	
Hori.	2400.000	PK	42.9	27.6	24.9	41.1	54.3	65.2	10.9	
Vert.	2412.000	PK	72.4	27.6	24.9	41.1	83.8	-	-	
Vert.	2400.000	PK	41.2	27.6	24.9	41.1	52.6	63.8	11.2	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	4874.000	PK	47.0	31.3	7.5	41.2	44.6	73.9	29.3	100	0	
Hori.	7311.000	PK	47.8	36.1	9.0	41.1	51.8	73.9	22.1	100	359	
Hori.	9748.000	PK	45.8	38.1	10.1	38.8	55.2	73.9	18.7	100	0	
Hori.	12185.000	PK	44.2	38.9	11.4	39.1	55.4	73.9	18.5	100	359	
Hori.	4874.000	AV	34.1	31.3	7.5	41.2	31.7	53.9	22.2	100	0	
Hori.	7311.000	AV	35.3	36.1	9.0	41.1	39.3	53.9	14.6	100	359	
Hori.	9748.000	AV	32.5	38.1	10.1	38.8	41.9	53.9	12.0	100	0	
Hori.	12185.000	AV	34.3	38.9	11.4	39.1	45.5	53.9	**8.4**	100	359	
Vert.	4874.000	PK	46.4	31.3	7.5	41.2	44.0	73.9	29.9	100	0	
Vert.	7311.000	PK	47.9	36.1	9.0	41.1	51.9	73.9	22.0	100	359	
Vert.	9748.000	PK	44.9	38.1	10.1	38.8	54.3	73.9	19.6	100	359	
Vert.	12185.000	PK	46.9	38.9	11.4	39.1	58.1	73.9	15.8	100	0	
Vert.	4874.000	AV	34.1	31.3	7.5	41.2	31.7	53.9	22.2	100	0	
Vert.	7311.000	AV	35.0	36.1	9.0	41.1	39.0	53.9	14.9	100	359	
Vert.	9748.000	AV	32.1	38.1	10.1	38.8	41.5	53.9	12.4	100	359	
Vert.	12185.000	AV	33.9	38.9	11.4	39.1	45.1	53.9	8.8	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	August 18, 2013	August 19, 2013	August 20, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH	24 deg.C, 66 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa	Shinichi Takano
Mode	Tx, 2462 MHz		
	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	240.004	QP	48.4	16.9	8.2	32.0	41.5	46.0	4.5	209	276	
Hori.	335.997	QP	50.0	14.8	8.7	31.9	41.6	46.0	4.4	100	84	
Hori.	2483.500	PK	57.7	27.6	25.0	41.0	69.3	73.9	4.6	100	74	
Hori.	4924.000	PK	46.6	31.4	7.5	41.1	44.4	73.9	29.5	100	0	
Hori.	7386.000	PK	47.3	36.2	9.0	41.1	51.4	73.9	22.5	100	164	
Hori.	9848.000	PK	44.4	38.1	10.0	38.8	53.7	73.9	20.2	100	0	
Hori.	12310.000	PK	44.8	38.9	11.3	39.1	55.9	73.9	18.0	100	359	
Hori.	2483.500	AV	35.6	27.6	25.0	41.0	47.2	53.9	6.7	100	74	
Hori.	4924.000	AV	33.8	31.4	7.5	41.1	31.6	53.9	22.3	100	0	
Hori.	7386.000	AV	34.7	36.2	9.0	41.1	38.8	53.9	15.1	100	164	
Hori.	9848.000	AV	31.8	38.1	10.0	38.8	41.1	53.9	12.8	100	0	
Hori.	12310.000	AV	31.6	38.9	11.3	39.1	42.7	53.9	11.2	100	359	
Vert.	47.997	QP	51.8	11.5	6.7	32.2	37.8	40.0	2.2	100	175	
Vert.	239.996	QP	45.2	16.9	8.2	32.0	38.3	46.0	7.7	100	28	
Vert.	335.999	QP	47.9	14.8	8.7	31.9	39.5	46.0	6.5	165	202	
Vert.	2483.500	PK	60.8	27.6	25.0	41.0	72.4	73.9	**1.5**	100	173	
Vert.	4924.000	PK	47.4	31.4	7.5	41.1	45.2	73.9	28.7	100	181	
Vert.	7386.000	PK	47.8	36.2	9.0	41.1	51.9	73.9	22.0	100	359	
Vert.	9848.000	PK	43.9	38.1	10.0	38.8	53.2	73.9	20.7	100	359	
Vert.	12310.000	PK	44.7	38.9	11.3	39.1	55.8	73.9	18.1	100	0	
Vert.	2483.500	AV	35.2	27.6	25.0	41.0	46.8	53.9	7.1	100	173	
Vert.	4924.000	AV	35.0	31.4	7.5	41.1	32.8	53.9	21.1	100	181	
Vert.	7386.000	AV	34.4	36.2	9.0	41.1	38.5	53.9	15.4	100	359	
Vert.	9848.000	AV	31.3	38.1	10.0	38.8	40.6	53.9	13.3	100	359	
Vert.	12310.000	AV	31.5	38.9	11.3	39.1	42.6	53.9	11.3	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2412 MHz	
	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2390.000	PK	49.4	27.6	24.9	41.1	60.8	73.9	13.1	100	118	
Hori.	4824.000	PK	46.6	31.2	7.5	41.2	44.1	73.9	29.8	100	10	
Hori.	7236.000	PK	48.6	36.1	9.0	41.0	52.7	73.9	21.2	100	163	
Hori.	9648.000	PK	45.9	38.1	10.2	38.9	55.3	73.9	18.6	100	0	
Hori.	12060.000	PK	46.6	39.0	11.5	39.1	58.0	73.9	15.9	100	359	
Hori.	2390.000	AV	34.7	27.6	24.9	41.1	46.1	53.9	**7.8**	100	118	
Hori.	4824.000	AV	34.0	31.2	7.5	41.2	31.5	53.9	22.4	100	10	
Hori.	7236.000	AV	35.4	36.1	9.0	41.0	39.5	53.9	14.4	100	163	
Hori.	9648.000	AV	32.6	38.1	10.2	38.9	42.0	53.9	11.9	100	0	
Hori.	12060.000	AV	34.1	39.0	11.5	39.1	45.5	53.9	8.4	100	359	
Vert.	2390.000	PK	48.8	27.6	24.9	41.1	60.2	73.9	13.7	100	177	
Vert.	4824.000	PK	46.8	31.2	7.5	41.2	44.3	73.9	29.6	100	297	
Vert.	7236.000	PK	48.5	36.1	9.0	41.0	52.6	73.9	21.3	100	308	
Vert.	9648.000	PK	44.9	38.1	10.2	38.9	54.3	73.9	19.6	100	359	
Vert.	12060.000	PK	46.7	39.0	11.5	39.1	58.1	73.9	15.8	100	0	
Vert.	2390.000	AV	33.8	27.6	24.9	41.1	45.2	53.9	8.7	100	177	
Vert.	4824.000	AV	34.0	31.2	7.5	41.2	31.5	53.9	22.4	100	297	
Vert.	7236.000	AV	35.4	36.1	9.0	41.0	39.5	53.9	14.4	100	308	
Vert.	9648.000	AV	32.2	38.1	10.2	38.9	41.6	53.9	12.3	100	359	
Vert.	12060.000	AV	33.9	39.0	11.5	39.1	45.3	53.9	8.6	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	73.0	27.6	24.9	41.1	84.4	-	-	
Hori.	2400.000	PK	42.3	27.6	24.9	41.1	53.7	64.4	10.7	
Vert.	2412.000	PK	71.7	27.6	24.9	41.1	83.1	-	-	
Vert.	2400.000	PK	40.8	27.6	24.9	41.1	52.2	63.1	10.9	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

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Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	4874.000	PK	47.0	31.3	7.5	41.2	44.6	73.9	29.3	100	0	
Hori.	7311.000	PK	48.0	36.1	9.0	41.1	52.0	73.9	21.9	100	359	
Hori.	9748.000	PK	45.2	38.1	10.1	38.8	54.6	73.9	19.3	100	0	
Hori.	12185.000	PK	45.3	38.9	11.4	39.1	56.5	73.9	17.4	100	359	
Hori.	4874.000	AV	33.8	31.3	7.5	41.2	31.4	53.9	22.5	100	0	
Hori.	7311.000	AV	34.6	36.1	9.0	41.1	38.6	53.9	15.3	100	359	
Hori.	9748.000	AV	31.8	38.1	10.1	38.8	41.2	53.9	12.7	100	0	
Hori.	12185.000	AV	32.3	38.9	11.4	39.1	43.5	53.9	10.4	100	359	
Vert.	4874.000	PK	47.1	31.3	7.5	41.2	44.7	73.9	29.2	100	0	
Vert.	7311.000	PK	47.5	36.1	9.0	41.1	51.5	73.9	22.4	100	359	
Vert.	9748.000	PK	45.1	38.1	10.1	38.8	54.5	73.9	19.4	100	359	
Vert.	12185.000	PK	45.5	38.9	11.4	39.1	56.7	73.9	17.2	100	0	
Vert.	4874.000	AV	34.1	31.3	7.5	41.2	31.7	53.9	22.2	100	0	
Vert.	7311.000	AV	34.7	36.1	9.0	41.1	38.7	53.9	15.2	100	359	
Vert.	9748.000	AV	32.2	38.1	10.1	38.8	41.6	53.9	12.3	100	359	
Vert.	12185.000	AV	32.5	38.9	11.4	39.1	43.7	53.9	**10.2**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	August 18, 2013	August 19, 2013	August 20, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH	24 deg.C, 66 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa	Shinichi Takano
Mode	Tx, 2462 MHz		
	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	240.002	QP	48.0	16.9	8.2	32.0	41.1	46.0	4.9	211	280	
Hori.	335.998	QP	50.1	14.8	8.7	31.9	41.7	46.0	4.3	100	91	
Hori.	2483.500	PK	57.0	27.6	25.0	41.0	68.6	73.9	5.3	100	74	
Hori.	4924.000	PK	47.1	31.4	7.5	41.1	44.9	73.9	29.0	100	0	
Hori.	7386.000	PK	46.2	36.2	9.0	41.1	50.3	73.9	23.6	100	164	
Hori.	9848.000	PK	44.5	38.1	10.0	38.8	53.8	73.9	20.1	100	0	
Hori.	12310.000	PK	45.0	38.9	11.3	39.1	56.1	73.9	17.8	100	359	
Hori.	2483.500	AV	34.8	27.6	25.0	41.0	46.4	53.9	7.5	100	74	
Hori.	4924.000	AV	33.7	31.4	7.5	41.1	31.5	53.9	22.4	100	0	
Hori.	7386.000	AV	34.1	36.2	9.0	41.1	38.2	53.9	15.7	100	164	
Hori.	9848.000	AV	31.2	38.1	10.0	38.8	40.5	53.9	13.4	100	0	
Hori.	12310.000	AV	31.4	38.9	11.3	39.1	42.5	53.9	11.4	100	359	
Vert.	47.995	QP	51.5	11.5	6.7	32.2	37.5	40.0	**2.5**	100	164	
Vert.	239.994	QP	45.4	16.9	8.2	32.0	38.5	46.0	7.5	100	20	
Vert.	336.009	QP	47.6	14.8	8.7	31.9	39.2	46.0	6.8	171	200	
Vert.	2483.500	PK	59.8	27.6	25.0	41.0	71.4	73.9	**2.5**	100	173	
Vert.	4924.000	PK	47.8	31.4	7.5	41.1	45.6	73.9	28.3	100	181	
Vert.	7386.000	PK	47.6	36.2	9.0	41.1	51.7	73.9	22.2	100	359	
Vert.	9848.000	PK	44.5	38.1	10.0	38.8	53.8	73.9	20.1	100	359	
Vert.	12310.000	PK	44.4	38.9	11.3	39.1	55.5	73.9	18.4	100	0	
Vert.	2483.500	AV	34.7	27.6	25.0	41.0	46.3	53.9	7.6	100	173	
Vert.	4924.000	AV	34.1	31.4	7.5	41.1	31.9	53.9	22.0	100	181	
Vert.	7386.000	AV	34.3	36.2	9.0	41.1	38.4	53.9	15.5	100	359	
Vert.	9848.000	AV	31.2	38.1	10.0	38.8	40.5	53.9	13.4	100	359	
Vert.	12310.000	AV	31.5	38.9	11.3	39.1	42.6	53.9	11.3	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2412 MHz	
	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2390.000	PK	53.3	27.6	24.9	41.1	64.7	73.9	9.2	100	120	
Hori.	4824.000	PK	47.7	31.2	7.5	41.2	45.2	73.9	28.7	100	0	
Hori.	7236.000	PK	48.2	36.1	9.0	41.0	52.3	73.9	21.6	100	359	
Hori.	9648.000	PK	45.6	38.1	10.2	38.9	55.0	73.9	18.9	100	0	
Hori.	12060.000	PK	46.8	39.0	11.5	39.1	58.2	73.9	15.7	100	359	
Hori.	2390.000	AV	35.6	27.6	24.9	41.1	47.0	53.9	**6.9**	100	120	
Hori.	4824.000	AV	33.7	31.2	7.5	41.2	31.2	53.9	22.7	100	0	
Hori.	7236.000	AV	35.5	36.1	9.0	41.0	39.6	53.9	14.3	100	359	
Hori.	9648.000	AV	32.7	38.1	10.2	38.9	42.1	53.9	11.8	100	0	
Hori.	12060.000	AV	34.3	39.0	11.5	39.1	45.7	53.9	8.2	100	359	
Vert.	2390.000	PK	49.9	27.6	24.9	41.1	61.3	73.9	12.6	100	170	
Vert.	4824.000	PK	46.8	31.2	7.5	41.2	44.3	73.9	29.6	100	359	
Vert.	7236.000	PK	48.0	36.1	9.0	41.0	52.1	73.9	21.8	100	0	
Vert.	9648.000	PK	44.9	38.1	10.2	38.9	54.3	73.9	19.6	100	359	
Vert.	12060.000	PK	47.2	39.0	11.5	39.1	58.6	73.9	15.3	100	0	
Vert.	2390.000	AV	34.8	27.6	24.9	41.1	46.2	53.9	7.7	100	170	
Vert.	4824.000	AV	34.2	31.2	7.5	41.2	31.7	53.9	22.2	100	359	
Vert.	7236.000	AV	35.4	36.1	9.0	41.0	39.5	53.9	14.4	100	0	
Vert.	9648.000	AV	32.5	38.1	10.2	38.9	41.9	53.9	12.0	100	359	
Vert.	12060.000	AV	34.2	39.0	11.5	39.1	45.6	53.9	8.3	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	73.9	27.6	24.9	41.1	85.3	-	-	
Hori.	2400.000	PK	44.6	27.6	24.9	41.1	56.0	65.3	9.3	
Vert.	2412.000	PK	72.3	27.6	24.9	41.1	83.7	-	-	
Vert.	2400.000	PK	40.8	27.6	24.9	41.1	52.2	63.7	11.5	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

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Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	4874.000	PK	46.6	31.3	7.5	41.2	44.2	73.9	29.7	100	0	
Hori.	7311.000	PK	47.7	36.1	9.0	41.1	51.7	73.9	22.2	100	359	
Hori.	9748.000	PK	45.3	38.1	10.1	38.8	54.7	73.9	19.2	100	0	
Hori.	12185.000	PK	45.4	38.9	11.4	39.1	56.6	73.9	17.3	100	359	
Hori.	4874.000	AV	33.8	31.3	7.5	41.2	31.4	53.9	22.5	100	0	
Hori.	7311.000	AV	33.8	36.1	9.0	41.1	37.8	53.9	16.1	100	359	
Hori.	9748.000	AV	32.4	38.1	10.1	38.8	41.8	53.9	12.1	100	0	
Hori.	12185.000	AV	32.7	38.9	11.4	39.1	43.9	53.9	**10.0**	100	359	
Vert.	4874.000	PK	46.9	31.3	7.5	41.2	44.5	73.9	29.4	100	0	
Vert.	7311.000	PK	47.9	36.1	9.0	41.1	51.9	73.9	22.0	100	359	
Vert.	9748.000	PK	45.5	38.1	10.1	38.8	54.9	73.9	19.0	100	359	
Vert.	12185.000	PK	45.7	38.9	11.4	39.1	56.9	73.9	17.0	100	0	
Vert.	4874.000	AV	34.0	31.3	7.5	41.2	31.6	53.9	22.3	100	0	
Vert.	7311.000	AV	34.8	36.1	9.0	41.1	38.8	53.9	15.1	100	359	
Vert.	9748.000	AV	32.0	38.1	10.1	38.8	41.4	53.9	12.5	100	359	
Vert.	12185.000	AV	32.6	38.9	11.4	39.1	43.8	53.9	10.1	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2462 MHz	
	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2483.500	PK	58.4	27.6	25.0	41.0	70.0	73.9	**3.9**	100	119	
Hori.	4924.000	PK	46.8	31.4	7.5	41.1	44.6	73.9	29.3	100	0	
Hori.	7386.000	PK	47.5	36.2	9.0	41.1	51.6	73.9	22.3	100	359	
Hori.	9848.000	PK	44.4	38.1	10.0	38.8	53.7	73.9	20.2	100	0	
Hori.	12310.000	PK	44.7	38.9	11.3	39.1	55.8	73.9	18.1	100	359	
Hori.	2483.500	AV	35.3	27.6	25.0	41.0	46.9	53.9	7.0	100	119	
Hori.	4924.000	AV	34.2	31.4	7.5	41.1	32.0	53.9	21.9	100	0	
Hori.	7386.000	AV	34.5	36.2	9.0	41.1	38.6	53.9	15.3	100	359	
Hori.	9848.000	AV	31.3	38.1	10.0	38.8	40.6	53.9	13.3	100	0	
Hori.	12310.000	AV	31.6	38.9	11.3	39.1	42.7	53.9	11.2	100	359	
Vert.	2483.500	PK	53.0	27.6	25.0	41.0	64.6	73.9	9.3	100	174	
Vert.	4924.000	PK	46.5	31.4	7.5	41.1	44.3	73.9	29.6	100	0	
Vert.	7386.000	PK	47.8	36.2	9.0	41.1	51.9	73.9	22.0	100	359	
Vert.	9848.000	PK	45.0	38.1	10.0	38.8	54.3	73.9	19.6	100	359	
Vert.	12310.000	PK	46.1	38.9	11.3	39.1	57.2	73.9	16.7	100	0	
Vert.	2483.500	AV	34.9	27.6	25.0	41.0	46.5	53.9	7.4	100	174	
Vert.	4924.000	AV	34.6	31.4	7.5	41.1	32.4	53.9	21.5	100	0	
Vert.	7386.000	AV	34.9	36.2	9.0	41.1	39.0	53.9	14.9	100	359	
Vert.	9848.000	AV	31.9	38.1	10.0	38.8	41.2	53.9	12.7	100	359	
Vert.	12310.000	AV	33.1	38.9	11.3	39.1	44.2	53.9	9.7	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2412 MHz	
	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2390.000	PK	52.7	27.6	24.9	41.1	64.1	73.9	9.8	100	120	
Hori.	4824.000	PK	48.1	31.2	7.5	41.2	45.6	73.9	28.3	100	0	
Hori.	7236.000	PK	48.3	36.1	9.0	41.0	52.4	73.9	21.5	100	359	
Hori.	9648.000	PK	45.1	38.1	10.2	38.9	54.5	73.9	19.4	100	0	
Hori.	12060.000	PK	47.9	39.0	11.5	39.1	59.3	73.9	14.6	100	359	
Hori.	2390.000	AV	34.8	27.6	24.9	41.1	46.2	53.9	**7.7**	100	120	
Hori.	4824.000	AV	33.7	31.2	7.5	41.2	31.2	53.9	22.7	100	0	
Hori.	7236.000	AV	35.2	36.1	9.0	41.0	39.3	53.9	14.6	100	359	
Hori.	9648.000	AV	32.3	38.1	10.2	38.9	41.7	53.9	12.2	100	0	
Hori.	12060.000	AV	34.3	39.0	11.5	39.1	45.7	53.9	8.2	100	359	
Vert.	2390.000	PK	49.2	27.6	24.9	41.1	60.6	73.9	13.3	100	170	
Vert.	4824.000	PK	46.8	31.2	7.5	41.2	44.3	73.9	29.6	100	359	
Vert.	7236.000	PK	48.4	36.1	9.0	41.0	52.5	73.9	21.4	100	0	
Vert.	9648.000	PK	45.2	38.1	10.2	38.9	54.6	73.9	19.3	100	359	
Vert.	12060.000	PK	47.1	39.0	11.5	39.1	58.5	73.9	15.4	100	0	
Vert.	2390.000	AV	34.2	27.6	24.9	41.1	45.6	53.9	8.3	100	170	
Vert.	4824.000	AV	33.9	31.2	7.5	41.2	31.4	53.9	22.5	100	359	
Vert.	7236.000	AV	35.3	36.1	9.0	41.0	39.4	53.9	14.5	100	0	
Vert.	9648.000	AV	32.4	38.1	10.2	38.9	41.8	53.9	12.1	100	359	
Vert.	12060.000	AV	34.1	39.0	11.5	39.1	45.5	53.9	8.4	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	73.0	27.6	24.9	41.1	84.4	-	-	
Hori.	2400.000	PK	43.9	27.6	24.9	41.1	55.3	64.4	9.1	
Vert.	2412.000	PK	71.8	27.6	24.9	41.1	83.2	-	-	
Vert.	2400.000	PK	40.0	27.6	24.9	41.1	51.4	63.2	11.8	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	4874.000	PK	47.1	31.3	7.5	41.2	44.7	73.9	29.2	100	0	
Hori.	7311.000	PK	48.4	36.1	9.0	41.1	52.4	73.9	21.5	100	359	
Hori.	9748.000	PK	44.7	38.1	10.1	38.8	54.1	73.9	19.8	100	0	
Hori.	12185.000	PK	45.7	38.9	11.4	39.1	56.9	73.9	17.0	100	359	
Hori.	4874.000	AV	33.7	31.3	7.5	41.2	31.3	53.9	22.6	100	0	
Hori.	7311.000	AV	34.4	36.1	9.0	41.1	38.4	53.9	15.5	100	359	
Hori.	9748.000	AV	31.8	38.1	10.1	38.8	41.2	53.9	12.7	100	0	
Hori.	12185.000	AV	32.4	38.9	11.4	39.1	43.6	53.9	10.3	100	359	
Vert.	4874.000	PK	45.6	31.3	7.5	41.2	43.2	73.9	30.7	100	0	
Vert.	7311.000	PK	47.6	36.1	9.0	41.1	51.6	73.9	22.3	100	359	
Vert.	9748.000	PK	45.1	38.1	10.1	38.8	54.5	73.9	19.4	100	359	
Vert.	12185.000	PK	45.6	38.9	11.4	39.1	56.8	73.9	17.1	100	0	
Vert.	4874.000	AV	32.6	31.3	7.5	41.2	30.2	53.9	23.7	100	0	
Vert.	7311.000	AV	34.6	36.1	9.0	41.1	38.6	53.9	15.3	100	359	
Vert.	9748.000	AV	32.1	38.1	10.1	38.8	41.5	53.9	12.4	100	359	
Vert.	12185.000	AV	32.9	38.9	11.4	39.1	44.1	53.9	**9.8**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	26 deg.C, 64 %RH
Engineer	Takahiro Suzuki	Hikaru Shirasawa
Mode	Tx, 2462 MHz	
	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2483.500	PK	57.6	27.6	25.0	41.0	69.2	73.9	**4.7**	100	119	
Hori.	4924.000	PK	47.0	31.4	7.5	41.1	44.8	73.9	29.1	100	0	
Hori.	7386.000	PK	48.2	36.2	9.0	41.1	52.3	73.9	21.6	100	359	
Hori.	9848.000	PK	45.0	38.1	10.0	38.8	54.3	73.9	19.6	100	0	
Hori.	12310.000	PK	45.2	38.9	11.3	39.1	56.3	73.9	17.6	100	359	
Hori.	2483.500	AV	34.7	27.6	25.0	41.0	46.3	53.9	7.6	100	119	
Hori.	4924.000	AV	32.6	31.4	7.5	41.1	30.4	53.9	23.5	100	0	
Hori.	7386.000	AV	34.4	36.2	9.0	41.1	38.5	53.9	15.4	100	359	
Hori.	9848.000	AV	30.4	38.1	10.0	38.8	39.7	53.9	14.2	100	0	
Hori.	12310.000	AV	31.8	38.9	11.3	39.1	42.9	53.9	11.0	100	359	
Vert.	2483.500	PK	52.2	27.6	25.0	41.0	63.8	73.9	10.1	100	174	
Vert.	4924.000	PK	47.3	31.4	7.5	41.1	45.1	73.9	28.8	100	0	
Vert.	7386.000	PK	48.0	36.2	9.0	41.1	52.1	73.9	21.8	100	359	
Vert.	9848.000	PK	44.8	38.1	10.0	38.8	54.1	73.9	19.8	100	359	
Vert.	12310.000	PK	45.1	38.9	11.3	39.1	56.2	73.9	17.7	100	0	
Vert.	2483.500	AV	33.9	27.6	25.0	41.0	45.5	53.9	8.4	100	174	
Vert.	4924.000	AV	34.4	31.4	7.5	41.1	32.2	53.9	21.7	100	0	
Vert.	7386.000	AV	34.3	36.2	9.0	41.1	38.4	53.9	15.5	100	359	
Vert.	9848.000	AV	31.4	38.1	10.0	38.8	40.7	53.9	13.2	100	359	
Vert.	12310.000	AV	31.7	38.9	11.3	39.1	42.8	53.9	11.1	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	25 deg.C, 58 %RH
Engineer	Takahiro Suzuki	Shinichi Takano
Mode	Tx, 2422 MHz	
	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2390.000	PK	48.9	27.6	24.9	41.1	60.3	73.9	13.6	137	125	
Hori.	4844.000	PK	47.1	31.3	7.5	41.2	44.7	73.9	29.2	100	0	
Hori.	6458.696	PK	47.2	34.6	8.3	40.7	49.4	73.9	24.5	100	145	
Hori.	7266.000	PK	46.8	36.1	9.1	41.0	51.0	73.9	22.9	100	0	
Hori.	9688.000	PK	44.6	38.1	10.1	38.9	53.9	73.9	20.0	100	0	
Hori.	12110.000	PK	45.0	39.0	11.5	39.1	56.4	73.9	17.5	100	0	
Hori.	2390.000	AV	35.2	27.6	24.9	41.1	46.6	53.9	7.3	137	125	
Hori.	4844.000	AV	36.1	31.3	7.5	41.2	33.7	53.9	20.2	100	0	
Hori.	6458.696	AV	38.0	34.6	8.3	40.7	40.2	53.9	13.7	100	145	
Hori.	7266.000	AV	37.4	36.1	9.1	41.0	41.6	53.9	12.3	100	0	
Hori.	9688.000	AV	34.7	38.1	10.1	38.9	44.0	53.9	9.9	100	0	
Hori.	12110.000	AV	35.2	39.0	11.5	39.1	46.6	53.9	7.3	100	0	
Vert.	2390.000	PK	48.9	27.6	24.9	41.1	60.3	73.9	13.6	100	166	
Vert.	4844.000	PK	45.7	31.3	7.5	41.2	43.3	73.9	30.6	100	0	
Vert.	6458.683	PK	47.7	34.6	8.3	40.7	49.9	73.9	24.0	100	68	
Vert.	7266.000	PK	47.5	36.1	9.1	41.0	51.7	73.9	22.2	100	0	
Vert.	9688.000	PK	44.3	38.1	10.1	38.9	53.6	73.9	20.3	100	0	
Vert.	12110.000	PK	45.3	39.0	11.5	39.1	56.7	73.9	17.2	100	0	
Vert.	2390.000	AV	35.0	27.6	24.9	41.1	46.4	53.9	7.5	100	166	
Vert.	4844.000	AV	36.1	31.3	7.5	41.2	33.7	53.9	20.2	100	0	
Vert.	6458.683	AV	38.2	34.6	8.3	40.7	40.4	53.9	13.5	100	68	
Vert.	7266.000	AV	37.3	36.1	9.1	41.0	41.5	53.9	12.4	100	0	
Vert.	9688.000	AV	34.7	38.1	10.1	38.9	44.0	53.9	9.9	100	0	
Vert.	12110.000	AV	35.3	39.0	11.5	39.1	46.7	53.9	**7.2**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2422.000	PK	69.4	27.6	24.9	41.1	80.8	-	-	
Hori.	2400.000	PK	40.0	27.6	24.9	41.1	51.4	60.8	9.4	
Vert.	2422.000	PK	68.2	27.6	24.9	41.1	79.6	-	-	
Vert.	2400.000	PK	38.4	27.6	24.9	41.1	49.8	59.6	9.8	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	25 deg.C, 58 %RH
Engineer	Takahiro Suzuki	Shinichi Takano
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	4874.000	PK	46.2	31.3	7.5	41.2	43.8	73.9	30.1	100	0	
Hori.	6498.775	PK	47.5	34.8	8.3	40.7	49.9	73.9	24.0	100	150	
Hori.	7311.000	PK	46.3	36.1	9.0	41.1	50.3	73.9	23.6	100	0	
Hori.	9748.000	PK	44.7	38.1	10.1	38.8	54.1	73.9	19.8	100	0	
Hori.	12185.000	PK	45.0	38.9	11.4	39.1	56.2	73.9	17.7	100	0	
Hori.	4874.000	AV	36.1	31.3	7.5	41.2	33.7	53.9	20.2	100	0	
Hori.	6498.775	AV	38.6	34.8	8.3	40.7	41.0	53.9	12.9	100	150	
Hori.	7311.000	AV	36.6	36.1	9.0	41.1	40.6	53.9	13.3	100	0	
Hori.	9748.000	AV	34.2	38.1	10.1	38.8	43.6	53.9	10.3	100	0	
Hori.	12185.000	AV	34.6	38.9	11.4	39.1	45.8	53.9	**8.1**	100	0	
Vert.	4874.000	PK	46.5	31.3	7.5	41.2	44.1	73.9	29.8	100	0	
Vert.	6498.789	PK	47.1	34.8	8.3	40.7	49.5	73.9	24.4	100	70	
Vert.	7311.000	PK	46.0	36.1	9.0	41.1	50.0	73.9	23.9	100	0	
Vert.	9748.000	PK	44.3	38.1	10.1	38.8	53.7	73.9	20.2	100	0	
Vert.	12185.000	PK	44.8	38.9	11.4	39.1	56.0	73.9	17.9	100	0	
Vert.	4874.000	AV	36.4	31.3	7.5	41.2	34.0	53.9	19.9	100	0	
Vert.	6498.789	AV	38.2	34.8	8.3	40.7	40.6	53.9	13.3	100	70	
Vert.	7311.000	AV	36.5	36.1	9.0	41.1	40.5	53.9	13.4	100	0	
Vert.	9748.000	AV	34.1	38.1	10.1	38.8	43.5	53.9	10.4	100	0	
Vert.	12185.000	AV	34.6	38.9	11.4	39.1	45.8	53.9	**8.1**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	25 deg.C, 58 %RH
Engineer	Takahiro Suzuki	Shinichi Takano
Mode	Tx, 2452 MHz	
	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2483.500	PK	53.3	27.6	25.0	41.0	64.9	73.9	9.0	100	128	
Hori.	4904.000	PK	47.5	31.4	7.5	41.1	45.3	73.9	28.6	100	0	
Hori.	6538.657	PK	47.5	34.8	8.4	40.8	49.9	73.9	24.0	100	151	
Hori.	7356.000	PK	46.0	36.2	8.9	41.1	50.0	73.9	23.9	100	0	
Hori.	9808.000	PK	43.7	38.1	10.1	38.8	53.1	73.9	20.8	100	0	
Hori.	12260.000	PK	44.6	38.9	11.3	39.1	55.7	73.9	18.2	100	0	
Hori.	2483.500	AV	35.2	27.6	25.0	41.0	46.8	53.9	**7.1**	100	128	
Hori.	4904.000	AV	36.5	31.4	7.5	41.1	34.3	53.9	19.6	100	0	
Hori.	6538.657	AV	38.7	34.8	8.4	40.8	41.1	53.9	12.8	100	151	
Hori.	7356.000	AV	36.9	36.2	8.9	41.1	40.9	53.9	13.0	100	0	
Hori.	9808.000	AV	33.7	38.1	10.1	38.8	43.1	53.9	10.8	100	0	
Hori.	12260.000	AV	34.0	38.9	11.3	39.1	45.1	53.9	8.8	100	0	
Vert.	2483.500	PK	51.6	27.6	25.0	41.0	63.2	73.9	10.7	100	178	
Vert.	4904.000	PK	46.7	31.4	7.5	41.1	44.5	73.9	29.4	100	0	
Vert.	6538.711	PK	47.6	34.8	8.4	40.8	50.0	73.9	23.9	100	68	
Vert.	7356.000	PK	46.6	36.2	8.9	41.1	50.6	73.9	23.3	100	0	
Vert.	9808.000	PK	43.8	38.1	10.1	38.8	53.2	73.9	20.7	100	0	
Vert.	12260.000	PK	44.2	38.9	11.3	39.1	55.3	73.9	18.6	100	0	
Vert.	2483.500	AV	34.7	27.6	25.0	41.0	46.3	53.9	7.6	100	178	
Vert.	4904.000	AV	36.4	31.4	7.5	41.1	34.2	53.9	19.7	100	0	
Vert.	6538.711	AV	37.7	34.8	8.4	40.8	40.1	53.9	13.8	100	68	
Vert.	7356.000	AV	36.8	36.2	8.9	41.1	40.8	53.9	13.1	100	0	
Vert.	9808.000	AV	33.9	38.1	10.1	38.8	43.3	53.9	10.6	100	0	
Vert.	12260.000	AV	34.1	38.9	11.3	39.1	45.2	53.9	8.7	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	25 deg.C, 58 %RH
Engineer	Takahiro Suzuki	Shinichi Takano
Mode	Tx, 2422 MHz	
	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	2390.000	PK	47.1	27.6	24.9	41.1	58.5	73.9	15.4	137	125	
Hori.	4844.000	PK	47.0	31.3	7.5	41.2	44.6	73.9	29.3	100	0	
Hori.	6458.718	PK	47.3	34.6	8.3	40.7	49.5	73.9	24.4	100	147	
Hori.	7266.000	PK	47.7	36.1	9.1	41.0	51.9	73.9	22.0	100	0	
Hori.	9688.000	PK	44.3	38.1	10.1	38.9	53.6	73.9	20.3	100	0	
Hori.	12110.000	PK	45.2	39.0	11.5	39.1	56.6	73.9	17.3	100	0	
Hori.	2390.000	AV	34.1	27.6	24.9	41.1	45.5	53.9	8.4	137	125	
Hori.	4844.000	AV	36.2	31.3	7.5	41.2	33.8	53.9	20.1	100	0	
Hori.	6458.718	AV	38.3	34.6	8.3	40.7	40.5	53.9	13.4	100	147	
Hori.	7266.000	AV	37.4	36.1	9.1	41.0	41.6	53.9	12.3	100	0	
Hori.	9688.000	AV	34.6	38.1	10.1	38.9	43.9	53.9	10.0	100	0	
Hori.	12110.000	AV	35.0	39.0	11.5	39.1	46.4	53.9	7.5	100	0	
Vert.	2390.000	PK	47.8	27.6	24.9	41.1	59.2	73.9	14.7	100	166	
Vert.	4844.000	PK	47.5	31.3	7.5	41.2	45.1	73.9	28.8	100	0	
Vert.	6458.735	PK	47.1	34.6	8.3	40.7	49.3	73.9	24.6	100	76	
Vert.	7266.000	PK	48.3	36.1	9.1	41.0	52.5	73.9	21.4	100	0	
Vert.	9688.000	PK	43.2	38.1	10.1	38.9	52.5	73.9	21.4	100	0	
Vert.	12110.000	PK	45.5	39.0	11.5	39.1	56.9	73.9	17.0	100	0	
Vert.	2390.000	AV	33.8	27.6	24.9	41.1	45.2	53.9	8.7	100	166	
Vert.	4844.000	AV	36.1	31.3	7.5	41.2	33.7	53.9	20.2	100	0	
Vert.	6458.735	AV	38.8	34.6	8.3	40.7	41.0	53.9	12.9	100	76	
Vert.	7266.000	AV	37.2	36.1	9.1	41.0	41.4	53.9	12.5	100	0	
Vert.	9688.000	AV	34.7	38.1	10.1	38.9	44.0	53.9	9.9	100	0	
Vert.	12110.000	AV	35.1	39.0	11.5	39.1	46.5	53.9	**7.4**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2422.000	PK	68.2	27.6	24.9	41.1	79.6	-	-	
Hori.	2400.000	PK	38.9	27.6	24.9	41.1	50.3	59.6	9.3	
Vert.	2422.000	PK	67.1	27.6	24.9	41.1	78.5	-	-	
Vert.	2400.000	PK	37.6	27.6	24.9	41.1	49.0	58.5	9.5	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	25 deg.C, 58 %RH
Engineer	Takahiro Suzuki	Shinichi Takano
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	4874.000	PK	46.5	31.3	7.5	41.2	44.1	73.9	29.8	100	0	
Hori.	6498.736	PK	47.2	34.8	8.3	40.7	49.6	73.9	24.3	100	147	
Hori.	7311.000	PK	46.7	36.1	9.0	41.1	50.7	73.9	23.2	100	0	
Hori.	9748.000	PK	44.3	38.1	10.1	38.8	53.7	73.9	20.2	100	0	
Hori.	12185.000	PK	45.5	38.9	11.4	39.1	56.7	73.9	17.2	100	0	
Hori.	4874.000	AV	36.0	31.3	7.5	41.2	33.6	53.9	20.3	100	0	
Hori.	6498.736	AV	38.4	34.8	8.3	40.7	40.8	53.9	13.1	100	147	
Hori.	7311.000	AV	36.4	36.1	9.0	41.1	40.4	53.9	13.5	100	0	
Hori.	9748.000	AV	34.1	38.1	10.1	38.8	43.5	53.9	10.4	100	0	
Hori.	12185.000	AV	34.5	38.9	11.4	39.1	45.7	53.9	**8.2**	100	0	
Vert.	4874.000	PK	46.1	31.3	7.5	41.2	43.7	73.9	30.2	100	0	
Vert.	6498.741	PK	47.5	34.8	8.3	40.7	49.9	73.9	24.0	100	72	
Vert.	7311.000	PK	46.3	36.1	9.0	41.1	50.3	73.9	23.6	100	0	
Vert.	9748.000	PK	44.8	38.1	10.1	38.8	54.2	73.9	19.7	100	0	
Vert.	12185.000	PK	45.8	38.9	11.4	39.1	57.0	73.9	16.9	100	0	
Vert.	4874.000	AV	36.1	31.3	7.5	41.2	33.7	53.9	20.2	100	0	
Vert.	6498.741	AV	38.0	34.8	8.3	40.7	40.4	53.9	13.5	100	72	
Vert.	7311.000	AV	36.4	36.1	9.0	41.1	40.4	53.9	13.5	100	0	
Vert.	9748.000	AV	34.2	38.1	10.1	38.8	43.6	53.9	10.3	100	0	
Vert.	12185.000	AV	34.3	38.9	11.4	39.1	45.5	53.9	8.4	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	
Date	August 18, 2013	August 19, 2013
Temperature / Humidity	24 deg.C, 62 %RH	25 deg.C, 58 %RH
Engineer	Takahiro Suzuki	Shinichi Takano
Mode	Tx, 2452 MHz	
	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

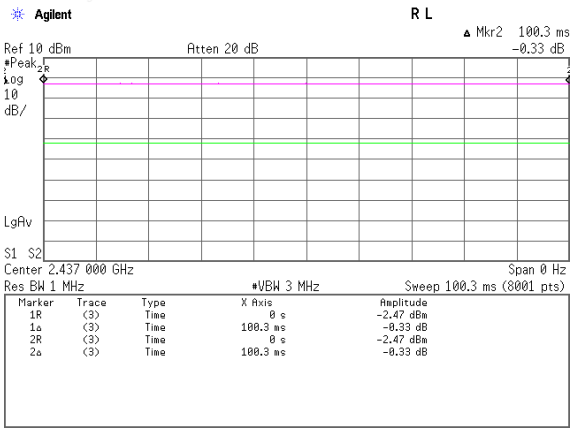
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	51.1	27.6	25.0	41.0	62.7	73.9	11.2	100	128	
Hori.	4904.000	PK	47.9	31.4	7.5	41.1	45.7	73.9	28.2	100	0	
Hori.	6538.702	PK	47.1	34.8	8.4	40.8	49.5	73.9	24.4	100	154	
Hori.	7356.000	PK	46.6	36.2	8.9	41.1	50.6	73.9	23.3	100	0	
Hori.	9808.000	PK	43.8	38.1	10.1	38.8	53.2	73.9	20.7	100	0	
Hori.	12260.000	PK	45.1	38.9	11.3	39.1	56.2	73.9	17.7	100	0	
Hori.	2483.500	AV	33.9	27.6	25.0	41.0	45.5	53.9	**8.4**	100	128	
Hori.	4904.000	AV	36.6	31.4	7.5	41.1	34.4	53.9	19.5	100	0	
Hori.	6538.702	AV	38.4	34.8	8.4	40.8	40.8	53.9	13.1	100	154	
Hori.	7356.000	AV	36.7	36.2	8.9	41.1	40.7	53.9	13.2	100	0	
Hori.	9808.000	AV	33.7	38.1	10.1	38.8	43.1	53.9	10.8	100	0	
Hori.	12260.000	AV	34.0	38.9	11.3	39.1	45.1	53.9	8.8	100	0	
Vert.	2483.500	PK	50.8	27.6	25.0	41.0	62.4	73.9	11.5	100	178	
Vert.	4904.000	PK	48.2	31.4	7.5	41.1	46.0	73.9	27.9	100	0	
Vert.	6538.723	PK	47.4	34.8	8.4	40.8	49.8	73.9	24.1	100	64	
Vert.	7356.000	PK	46.3	36.2	8.9	41.1	50.3	73.9	23.6	100	0	
Vert.	9808.000	PK	44.5	38.1	10.1	38.8	53.9	73.9	20.0	100	0	
Vert.	12260.000	PK	45.8	38.9	11.3	39.1	56.9	73.9	17.0	100	0	
Vert.	2483.500	AV	33.6	27.6	25.0	41.0	45.2	53.9	8.7	100	178	
Vert.	4904.000	AV	36.5	31.4	7.5	41.1	34.3	53.9	19.6	100	0	
Vert.	6538.723	AV	37.5	34.8	8.4	40.8	39.9	53.9	14.0	100	64	
Vert.	7356.000	AV	36.6	36.2	8.9	41.1	40.6	53.9	13.3	100	0	
Vert.	9808.000	AV	33.9	38.1	10.1	38.8	43.3	53.9	10.6	100	0	
Vert.	12260.000	AV	33.9	38.9	11.3	39.1	45.0	53.9	8.9	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Burst rate confirmation

Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14

duty cycle = 0.1003 / 0.1003 = 1 (100%)	
Tx2_duty1  	Tx2_duty2

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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
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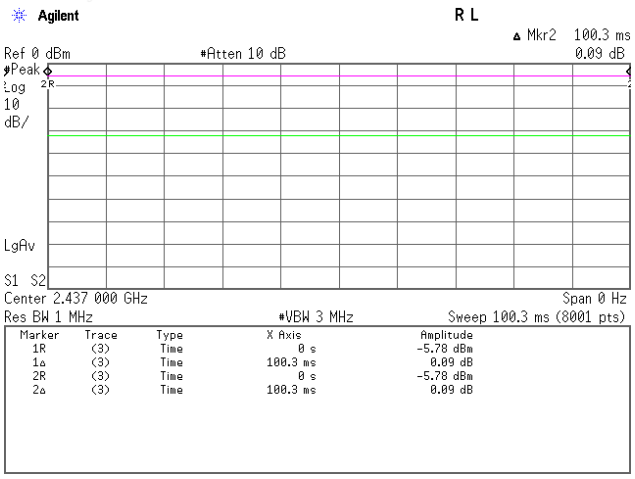
Burst rate confirmation

Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11

duty cycle = 0.1003 / 0.1003 = 1 (100%)	
	

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Telephone : +81 463 50 6400
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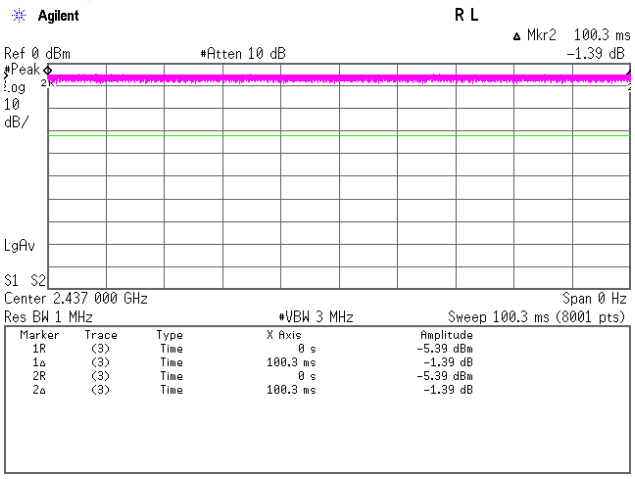
Burst rate confirmation

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12

duty cycle = 0.1003 / 0.1003 = 1 (100%)	
	

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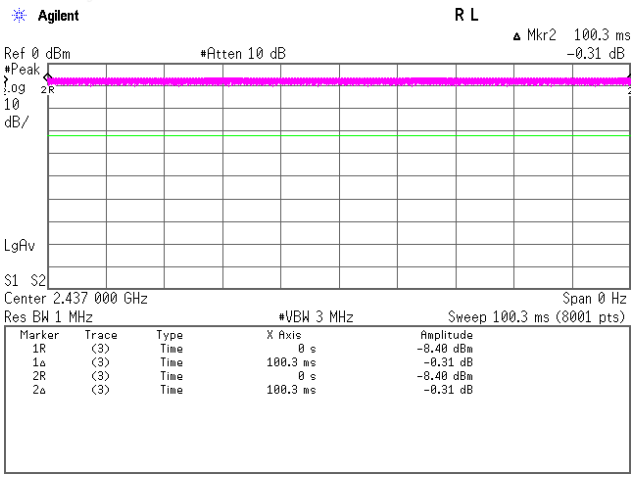
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Burst rate confirmation

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10

duty cycle = 0.1003 / 0.1003 = 1 (100%)	
	

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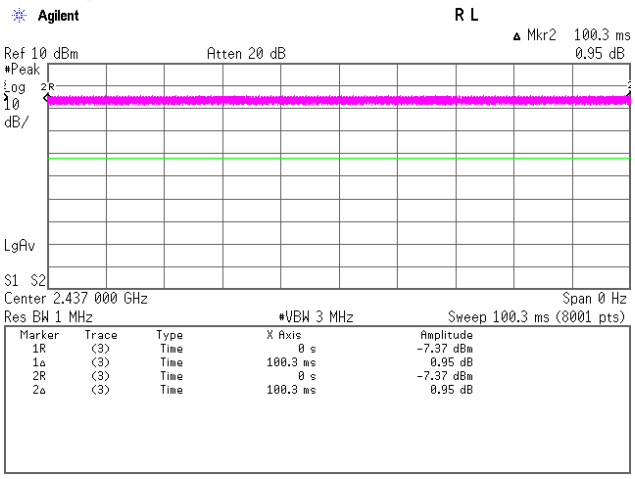
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Burst rate confirmation

Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12

duty cycle = 0.1003 / 0.1003 = 1 (100%)	
	

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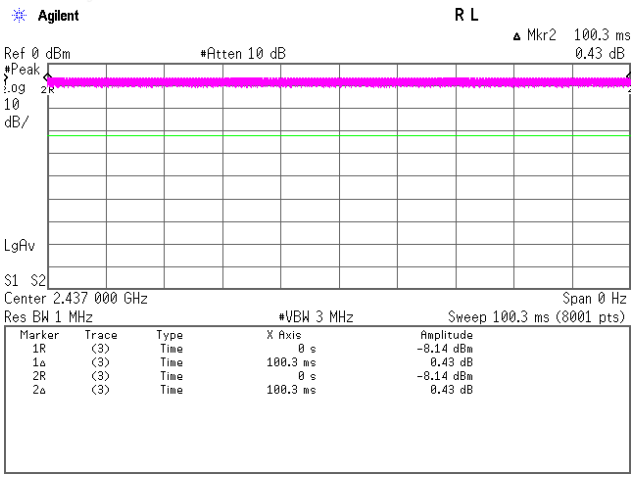
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Burst rate confirmation

Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10

duty cycle = 0.1003 / 0.1003 = 1 (100%)	
	

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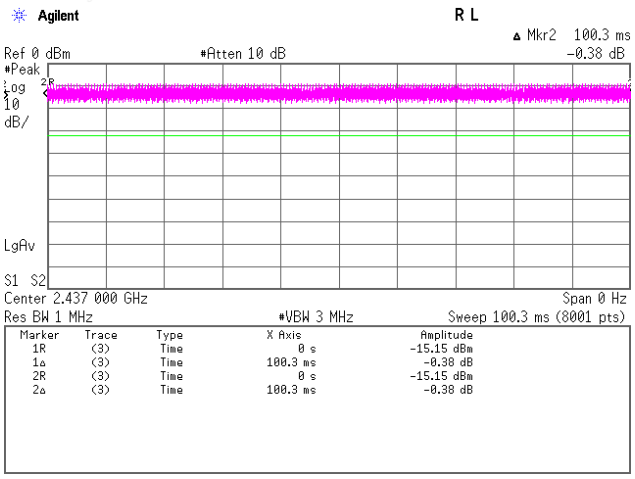
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Burst rate confirmation

Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12

duty cycle = 0.1003 / 0.1003 = 1 (100%)	
	

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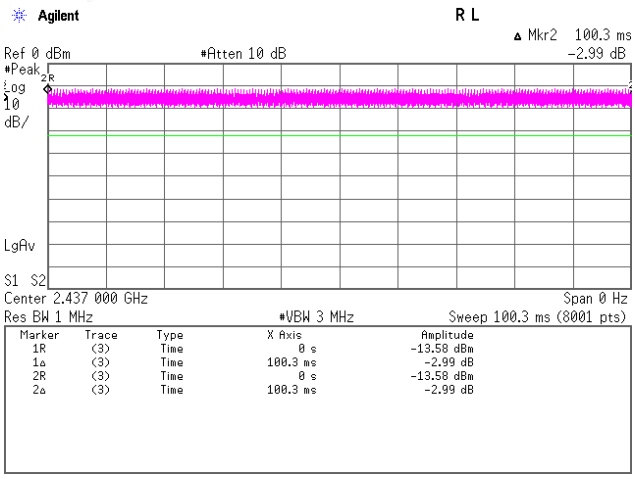
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Burst rate confirmation

Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10

duty cycle = 0.1003 / 0.1003 = 1 (100%)	
	

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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

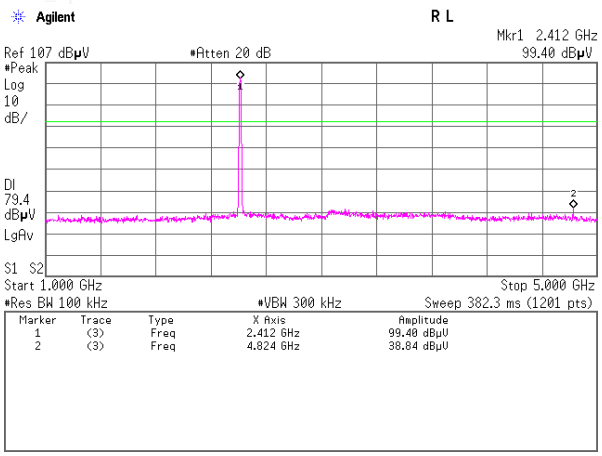
(Reference chart) Spurious emission (Conducted)

Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14

Tx, 2412MHz (above 1GHz)

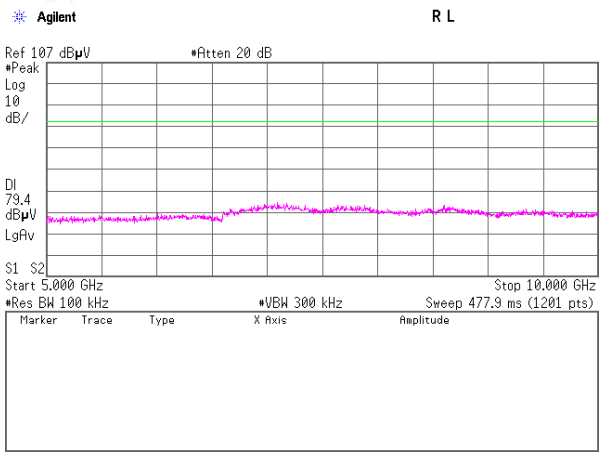
1GHz - 5GHz

Tx1_SpuriousG1



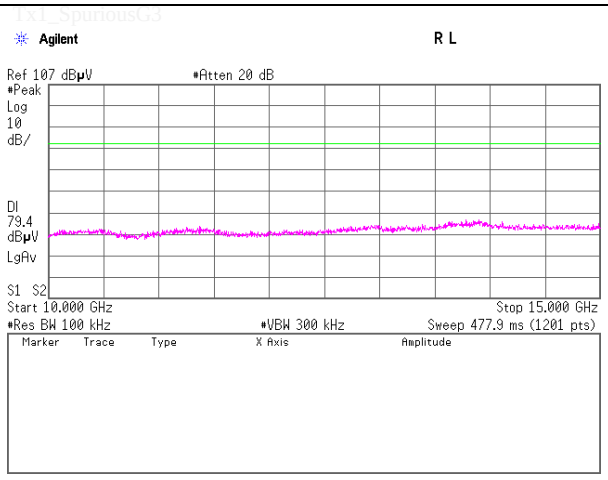
5GHz - 10GHz

Tx1_SpuriousG2



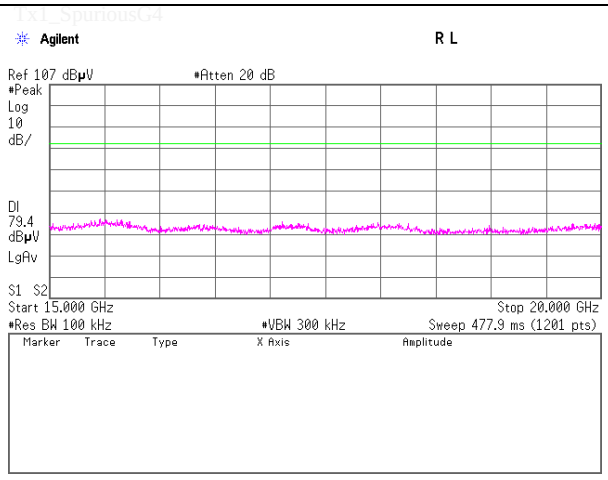
10GHz - 15GHz

Tx1_SpuriousG3



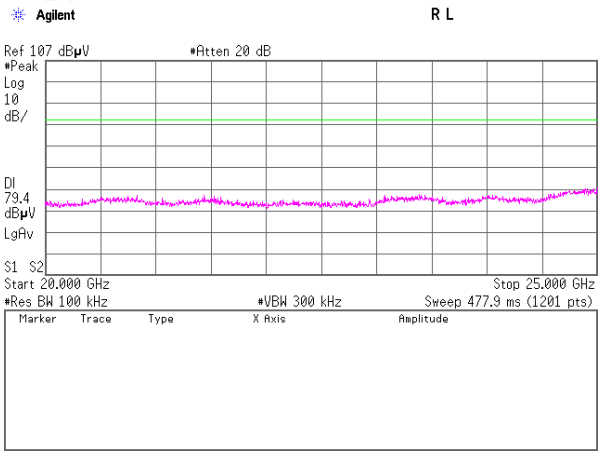
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6

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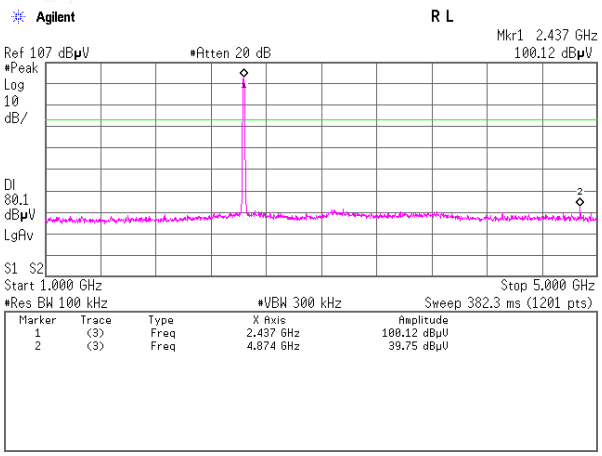
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

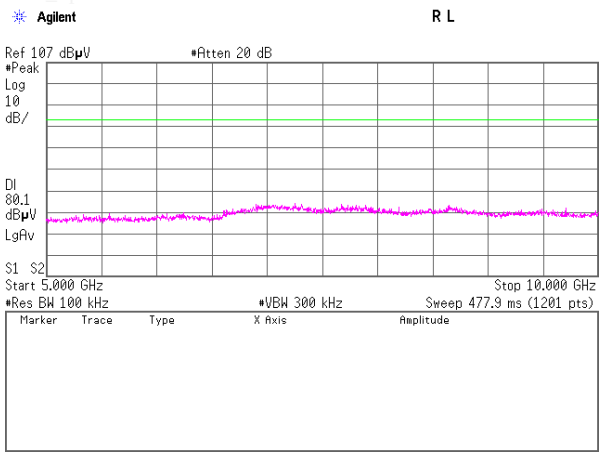
Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14

Tx, 2437MHz (above 1GHz)

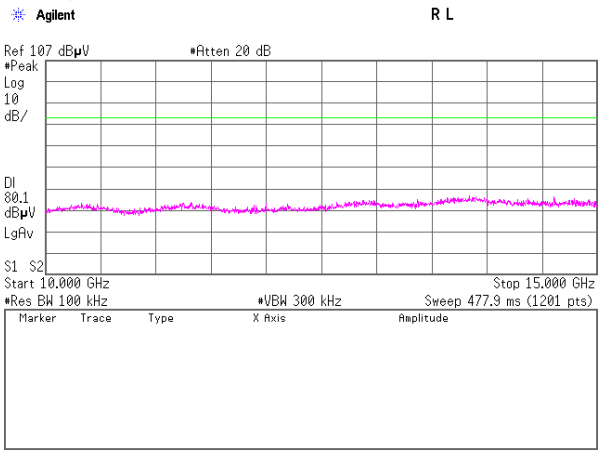
1GHz - 5GHz



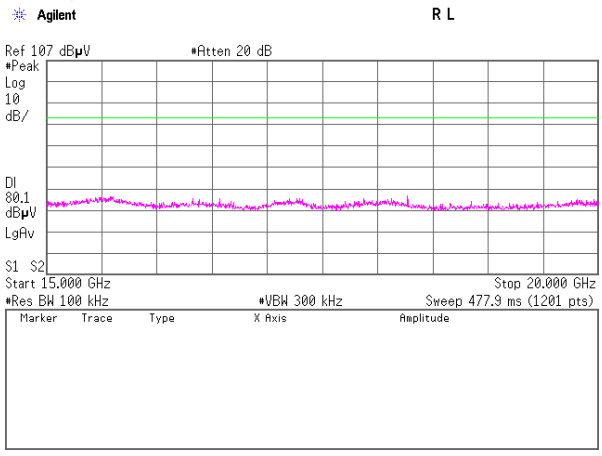
5GHz - 10GHz



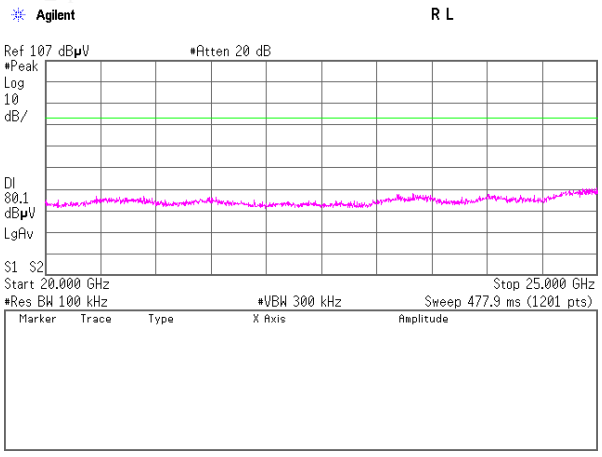
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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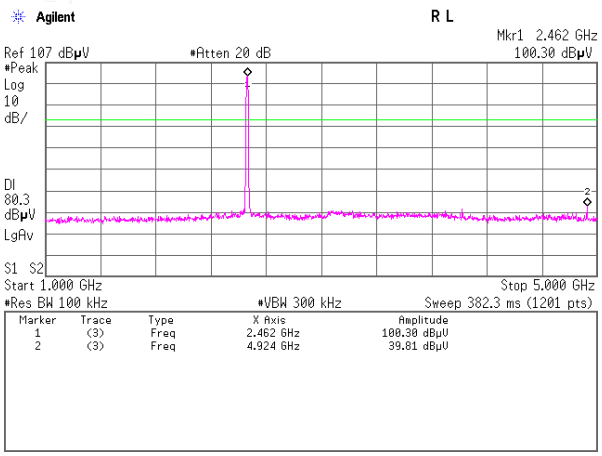
(Reference chart) Spurious emission (Conducted)

Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14

Tx, 2462MHz (above 1GHz)

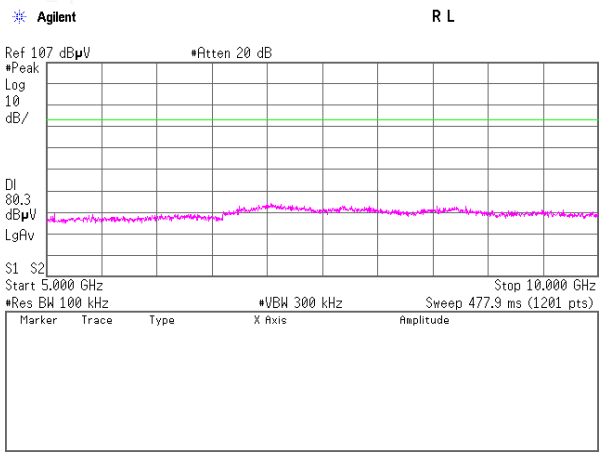
1GHz - 5GHz

Tx3_SpuriousG1



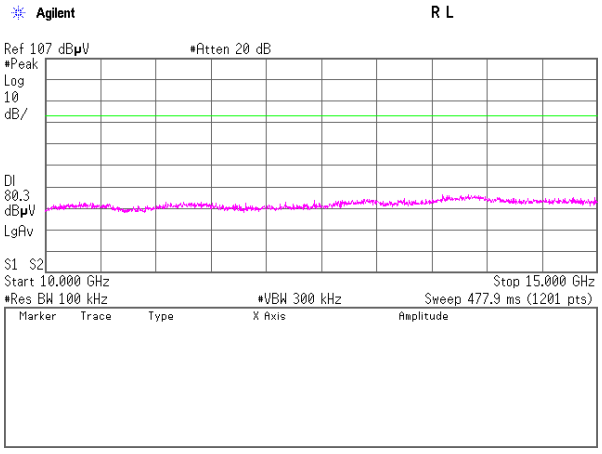
5GHz - 10GHz

Tx3_SpuriousG2



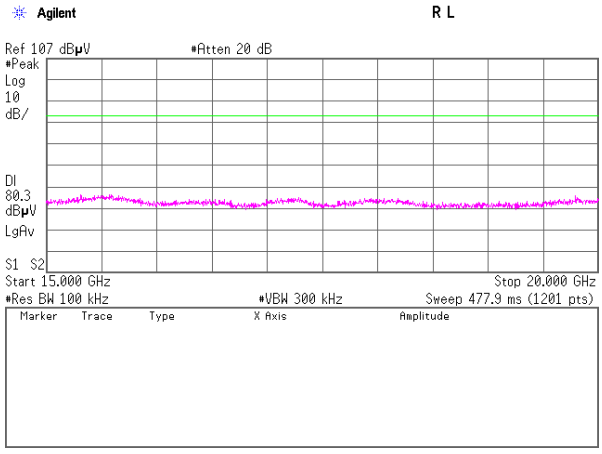
10GHz - 15GHz

Tx3_SpuriousG3



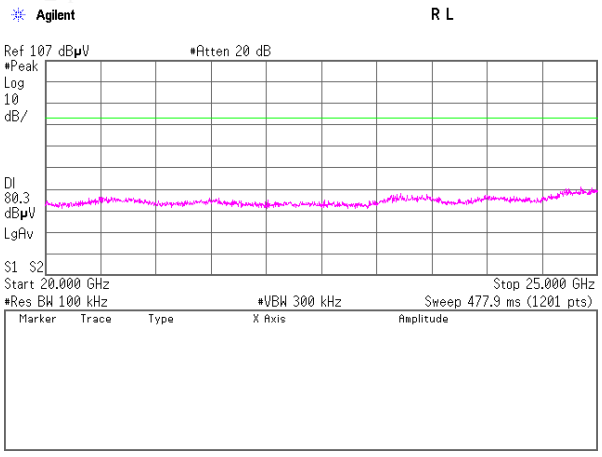
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6

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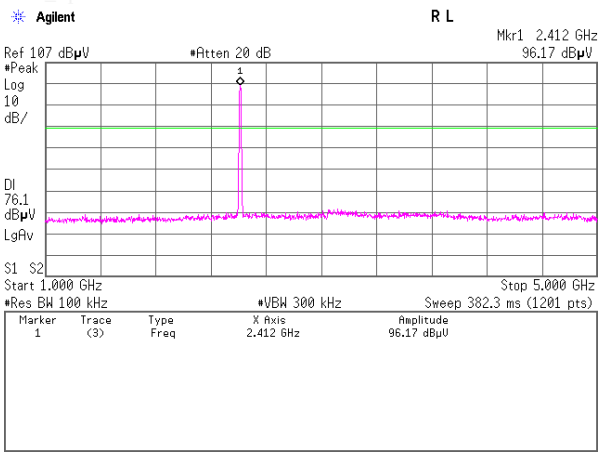
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

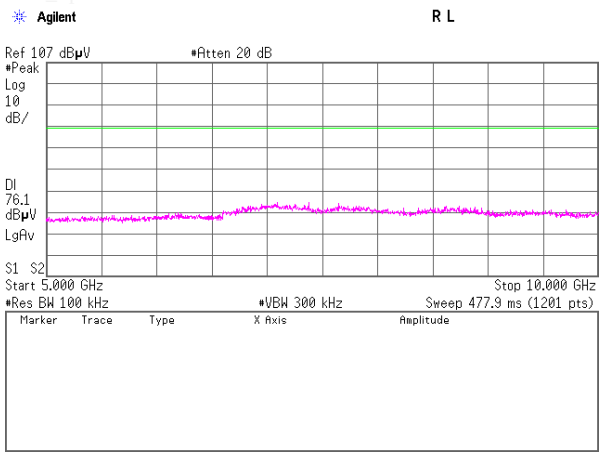
Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11

Tx, 2412MHz (above 1GHz)

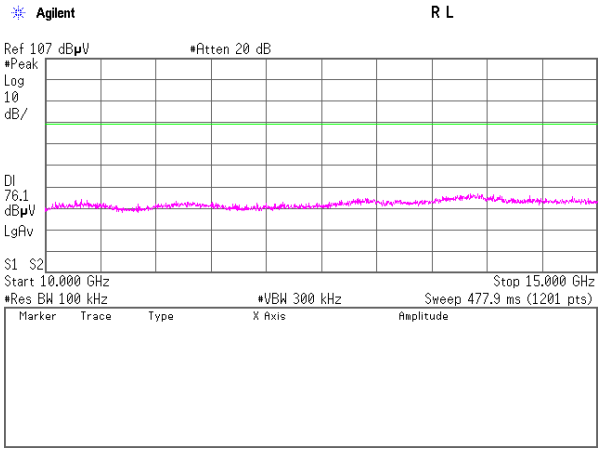
1GHz - 5GHz



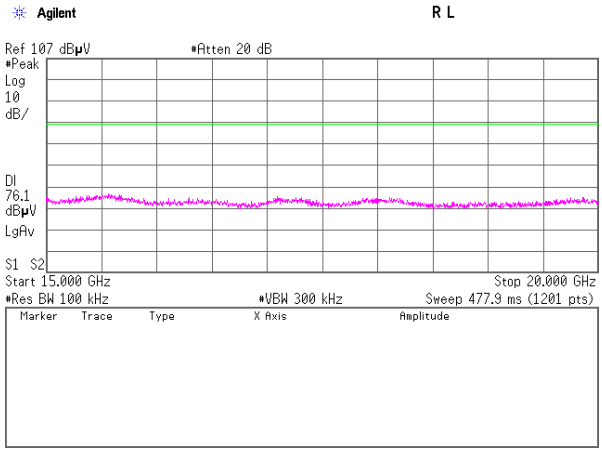
5GHz - 10GHz



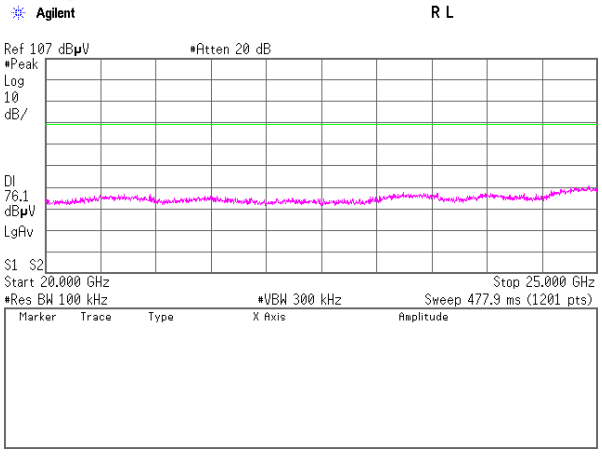
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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Facsimile : +81 463 50 6401

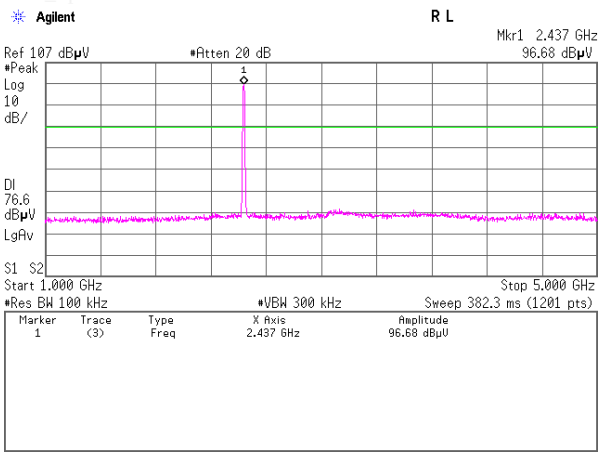
(Reference chart) Spurious emission (Conducted)

Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11

Tx, 2437MHz (above 1GHz)

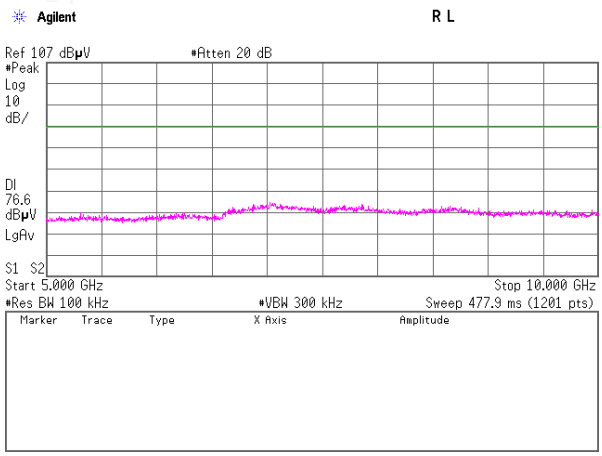
1GHz - 5GHz

Tx2_SpuriousG1



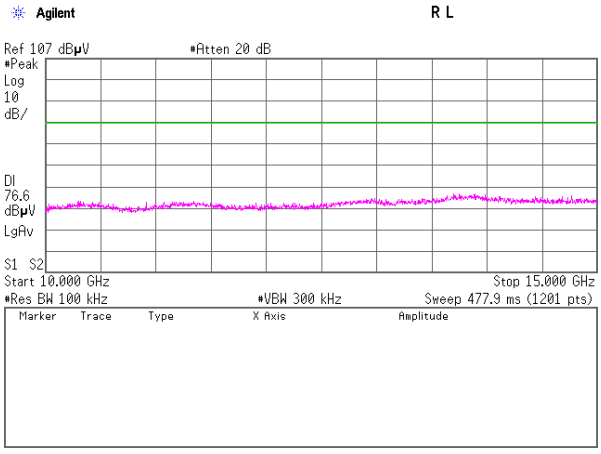
5GHz - 10GHz

Tx2_SpuriousG2



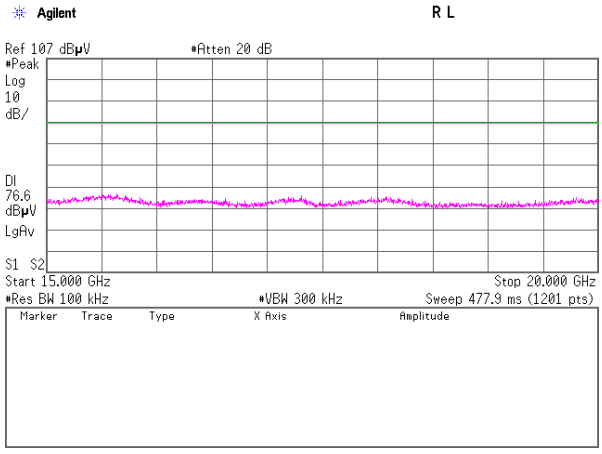
10GHz - 15GHz

Tx2_SpuriousG3



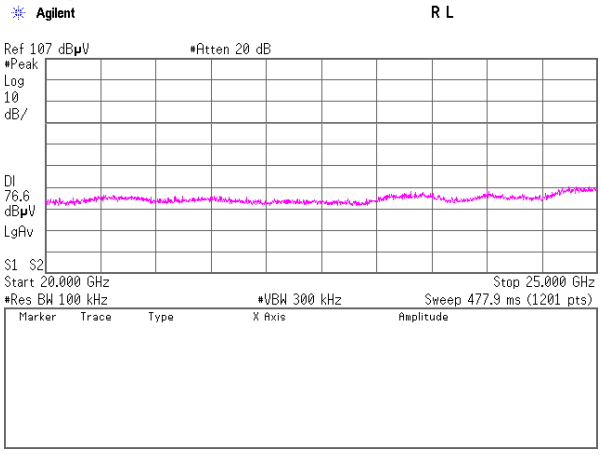
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6

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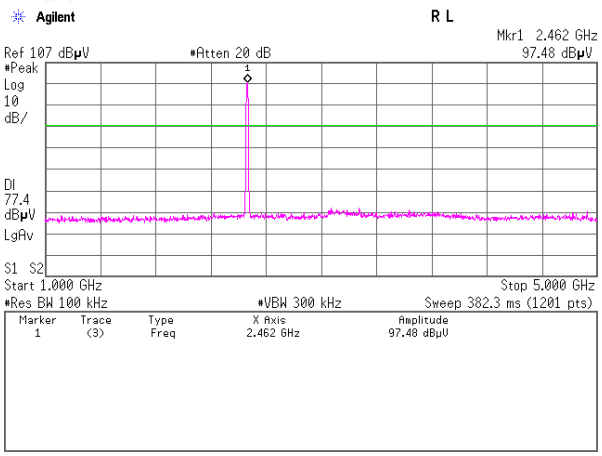
(Reference chart) Spurious emission (Conducted)

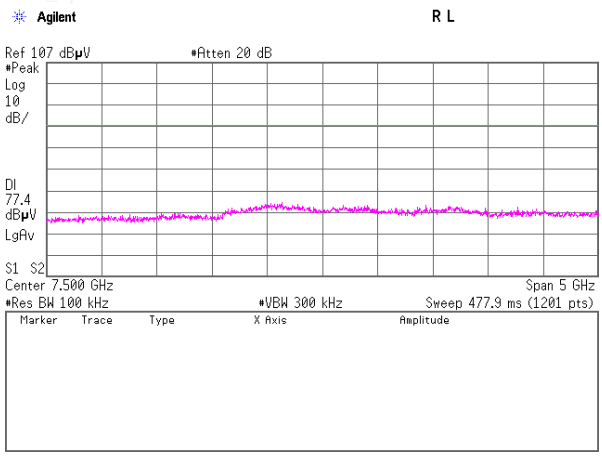
Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11

Tx, 2462MHz (above 1GHz)

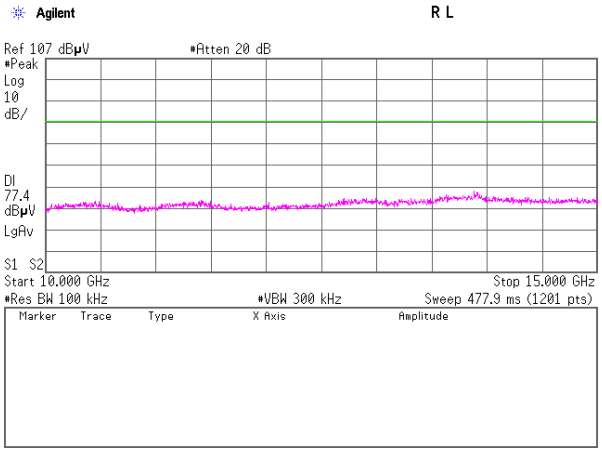
1GHz - 5GHz



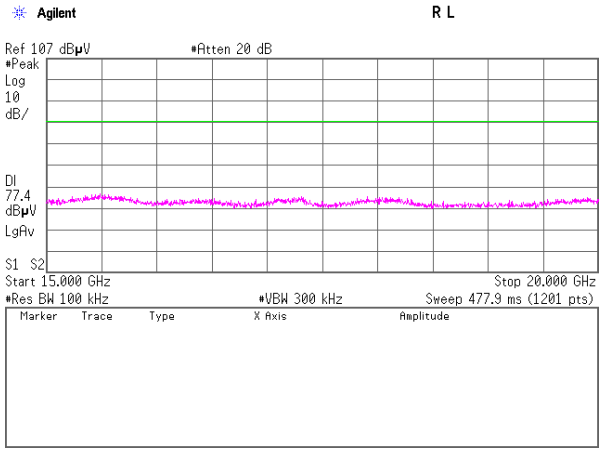
5GHz - 10GHz



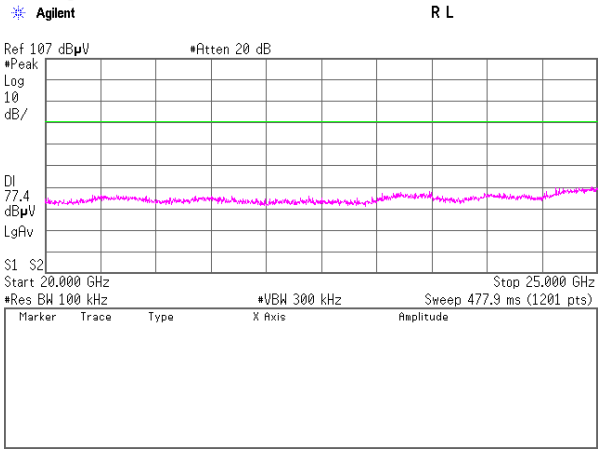
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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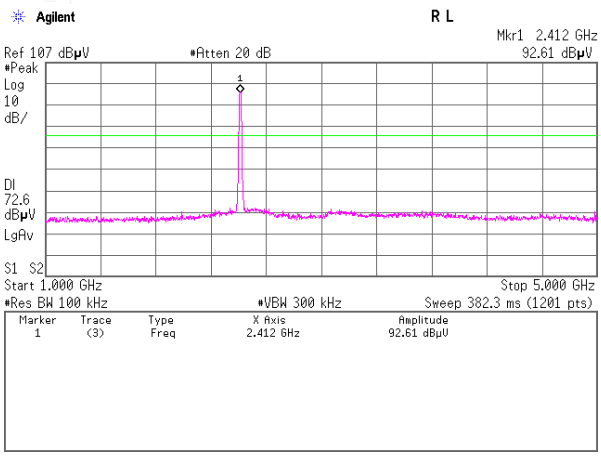
(Reference chart) Spurious emission (Conducted)

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12

Tx, 2412MHz (above 1GHz)

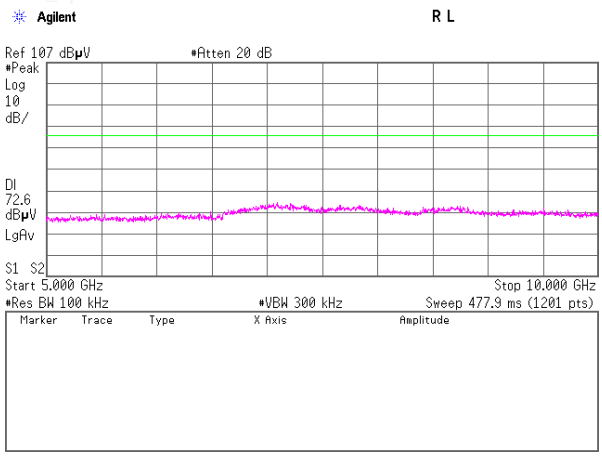
1GHz - 5GHz

Tx1_SpuriousG1



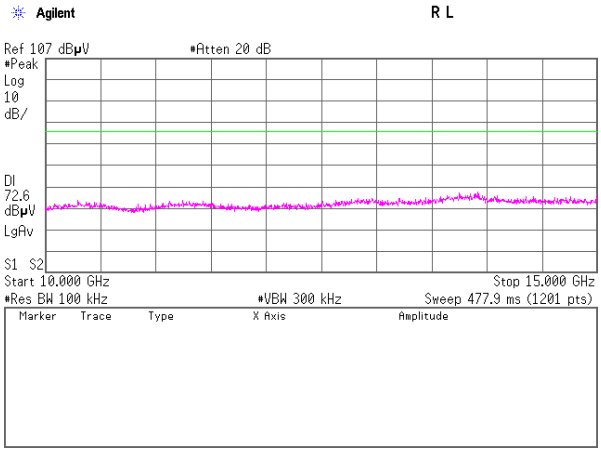
5GHz - 10GHz

Tx1_SpuriousG2



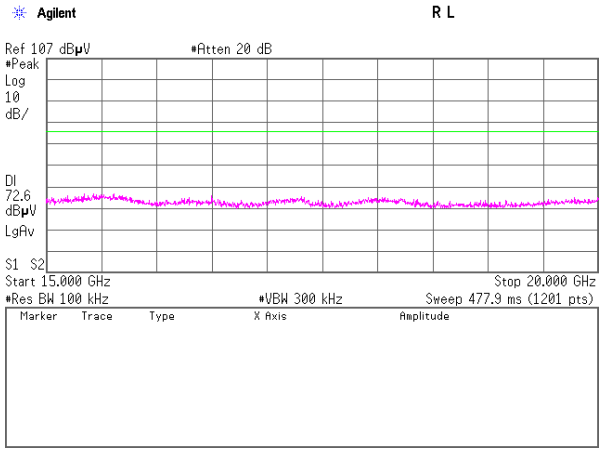
10GHz - 15GHz

Tx1_SpuriousG3



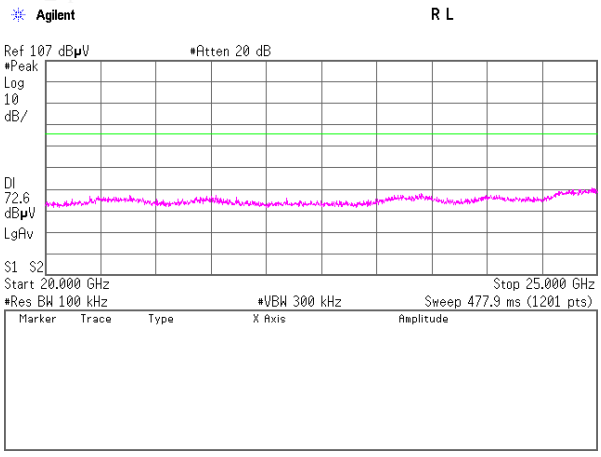
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6

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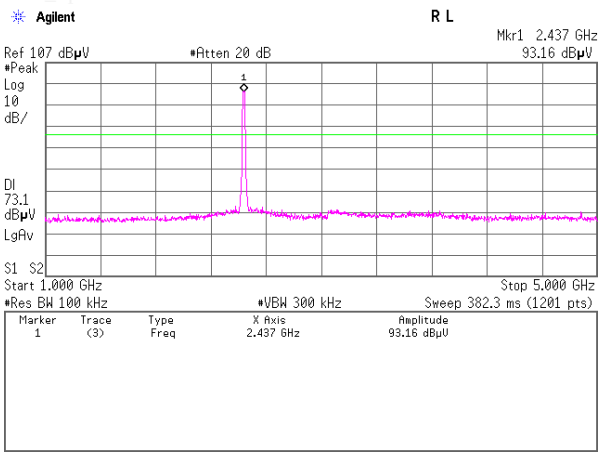
(Reference chart) Spurious emission (Conducted)

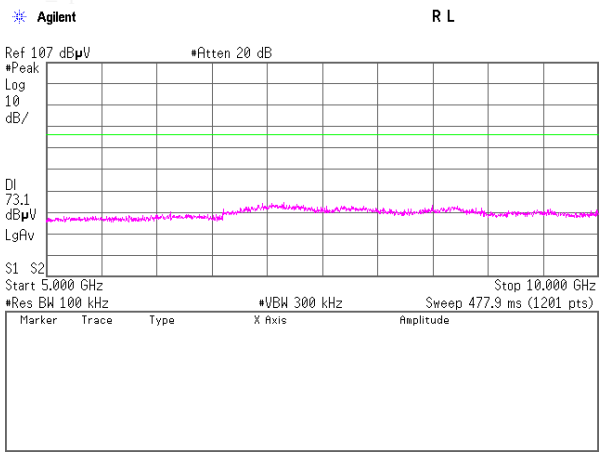
Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12

Tx, 2437MHz (above 1GHz)

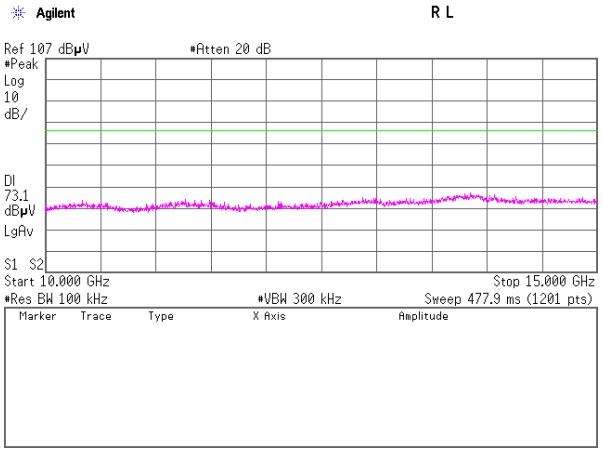
1GHz - 5GHz



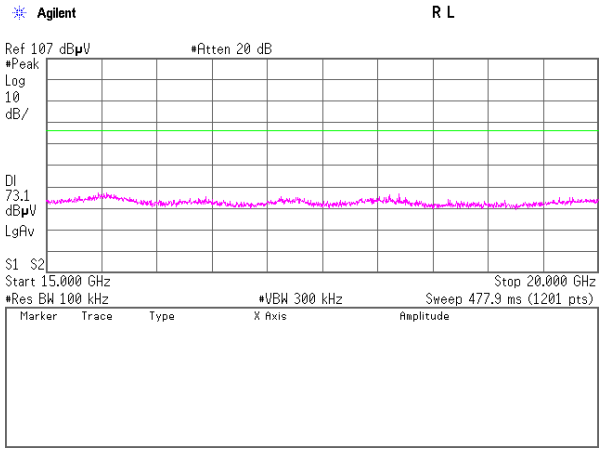
5GHz - 10GHz



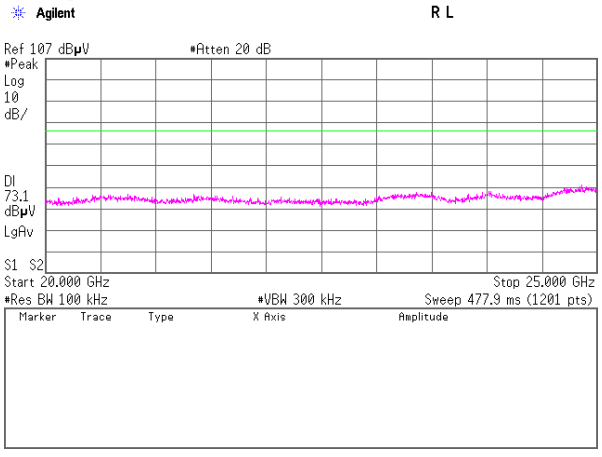
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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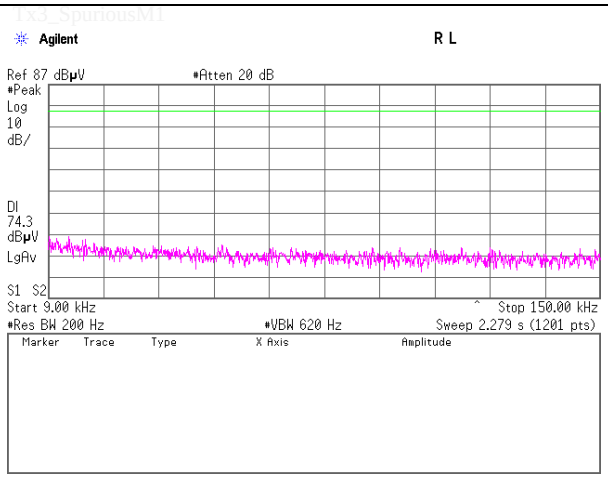
(Reference chart) Spurious emission (Conducted)

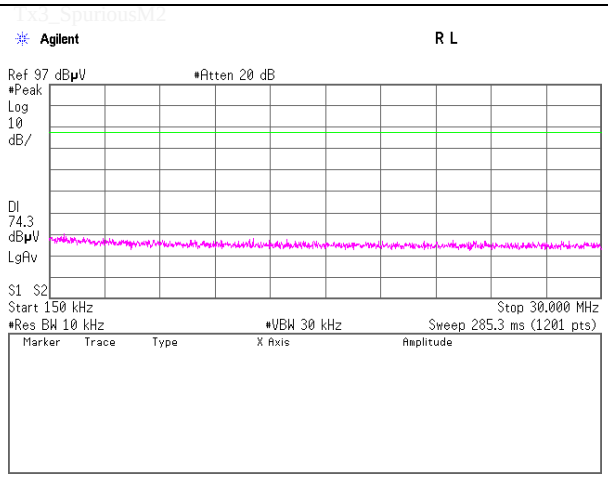
Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12

Tx, 2462MHz (below 1GHz)

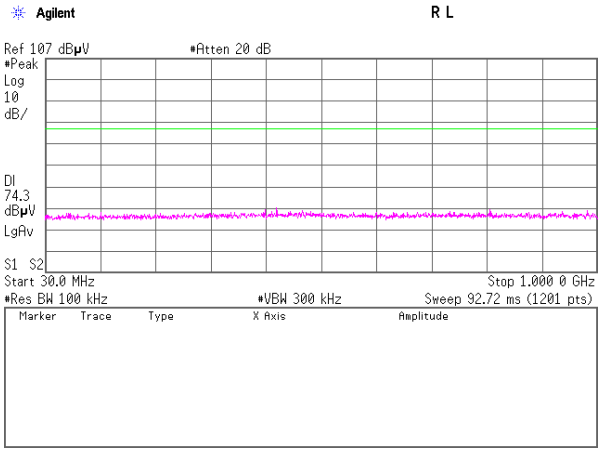
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



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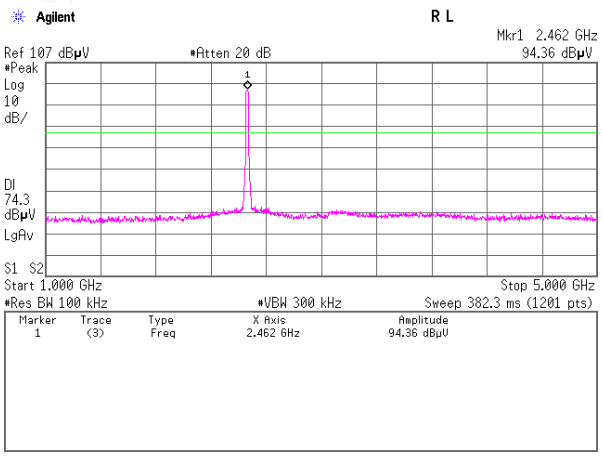
(Reference chart) Spurious emission (Conducted)

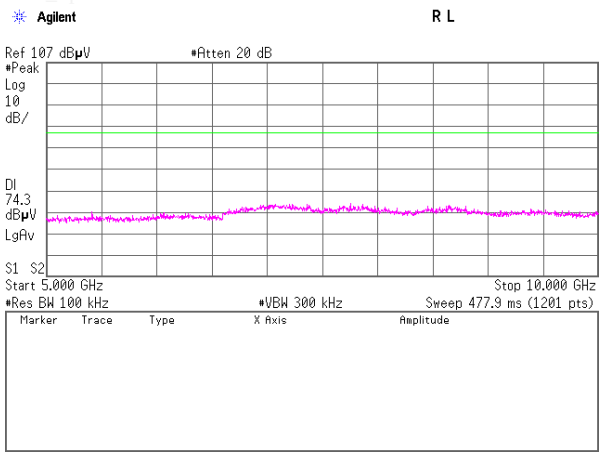
Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12

Tx, 2462MHz (above 1GHz)

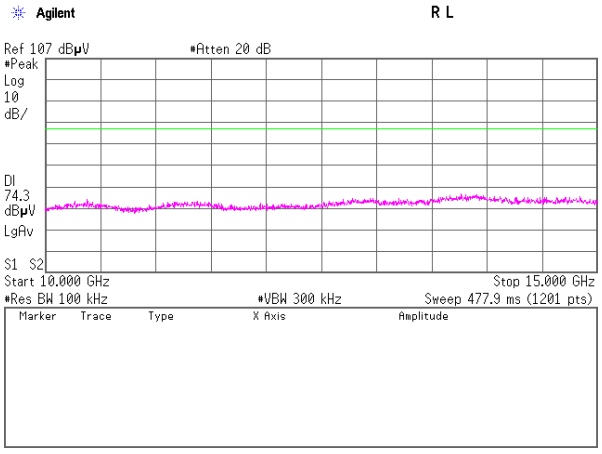
1GHz - 5GHz



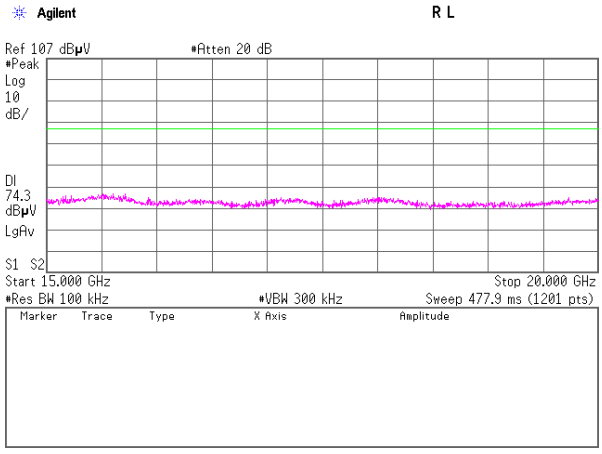
5GHz - 10GHz



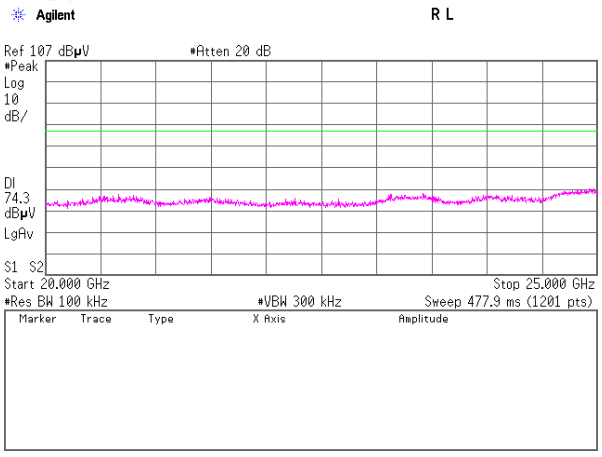
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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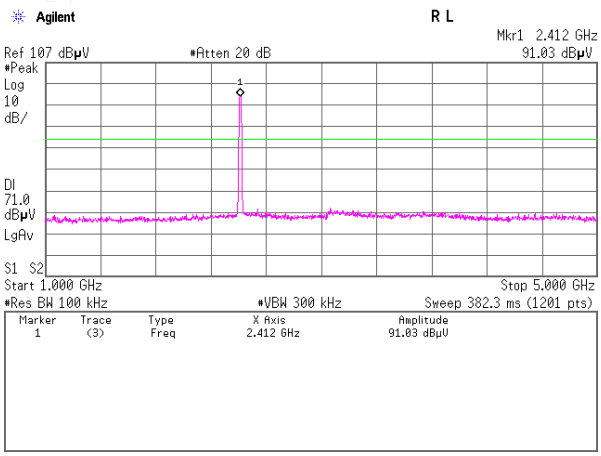
(Reference chart) Spurious emission (Conducted)

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10

Tx, 2412MHz (above 1GHz)

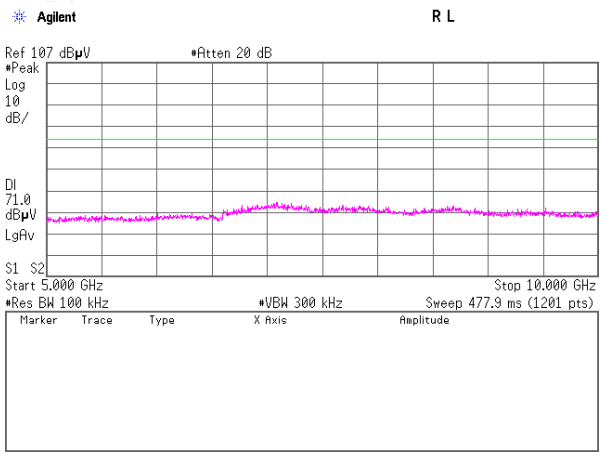
1GHz - 5GHz

Tx1_SpuriousG1



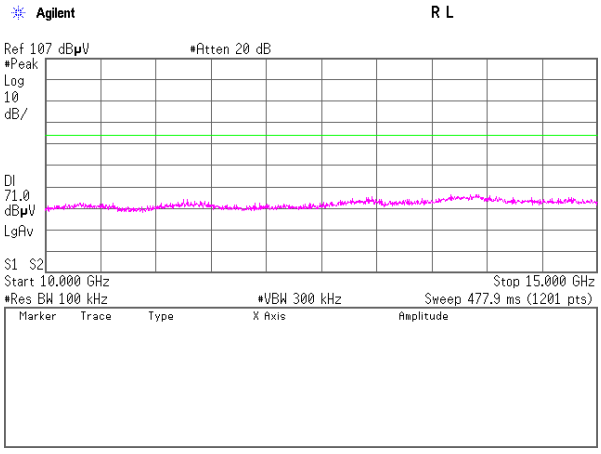
5GHz - 10GHz

Tx1_SpuriousG2



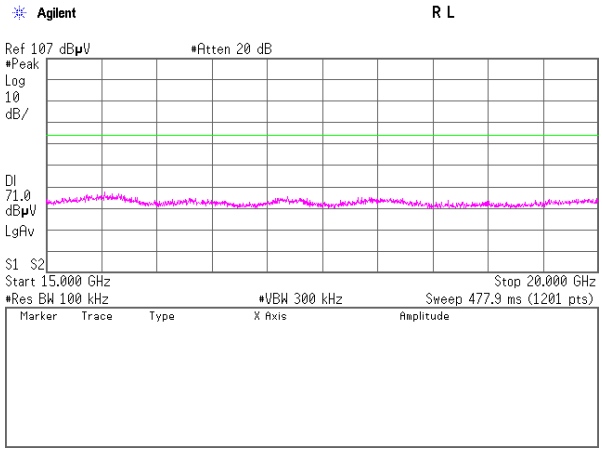
10GHz - 15GHz

Tx1_SpuriousG3



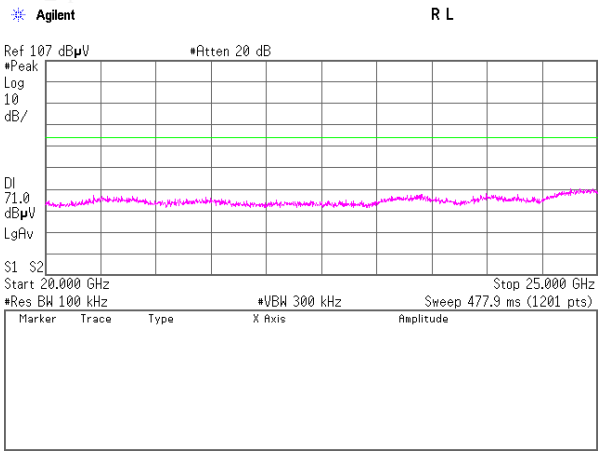
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6

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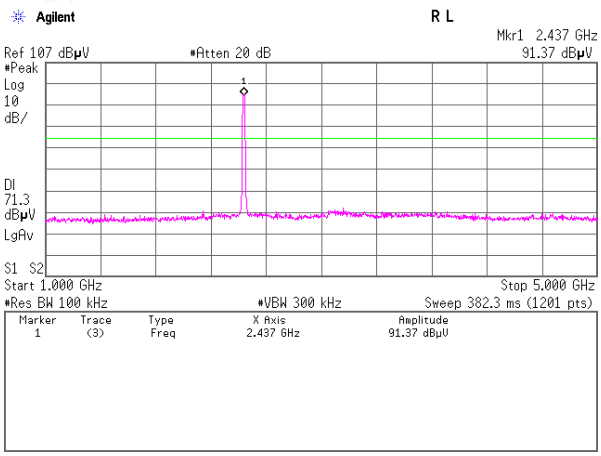
(Reference chart) Spurious emission (Conducted)

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10

Tx, 2437MHz (above 1GHz)

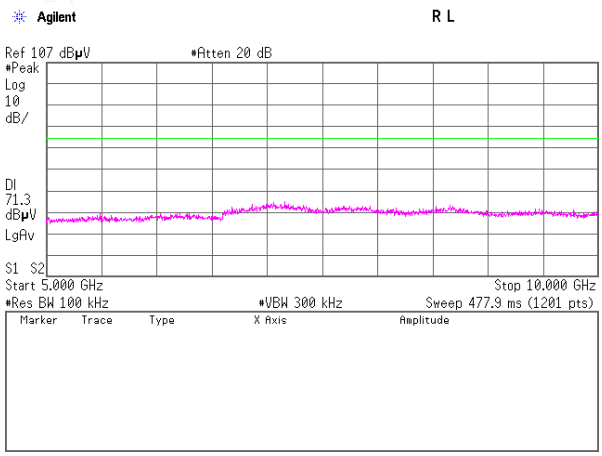
1GHz - 5GHz

Tx2_SpuriousG1



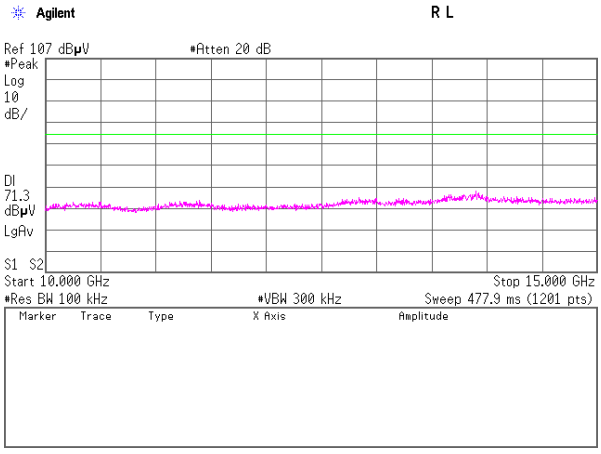
5GHz - 10GHz

Tx2_SpuriousG2



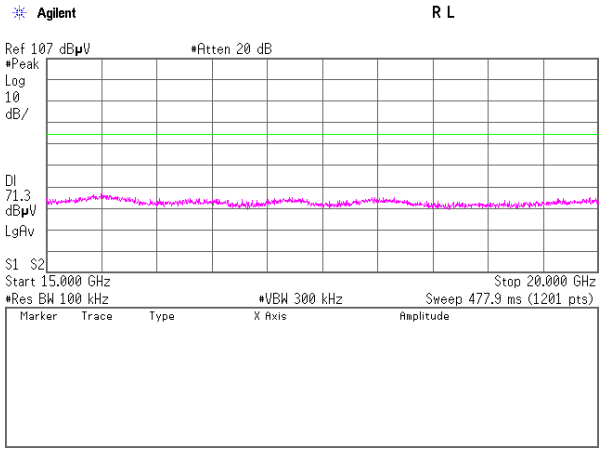
10GHz - 15GHz

Tx2_SpuriousG3



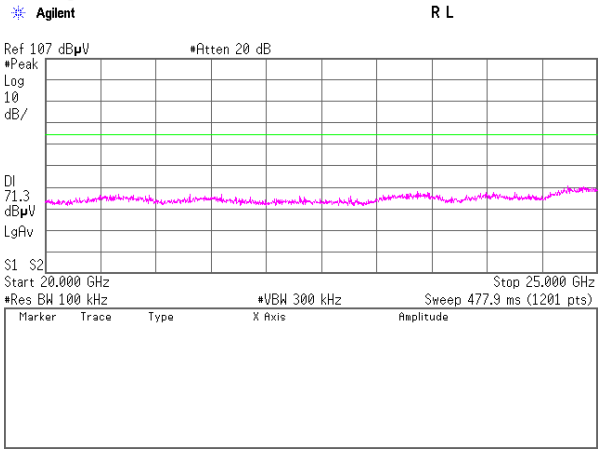
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6

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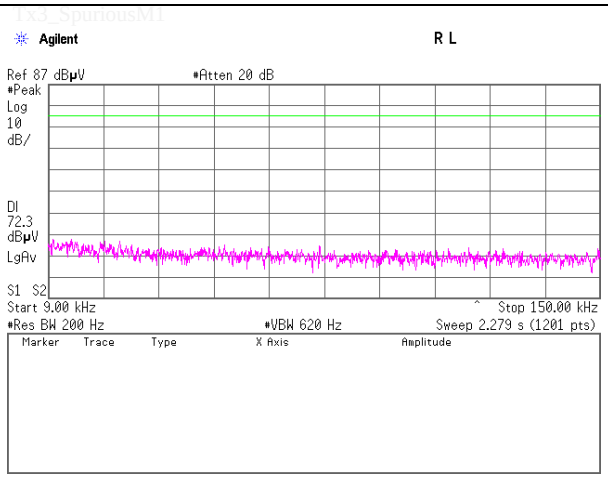
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

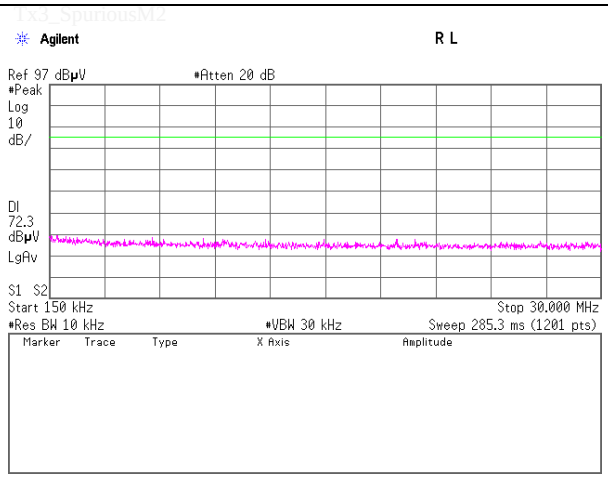
Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10

Tx, 2462MHz (below 1GHz)

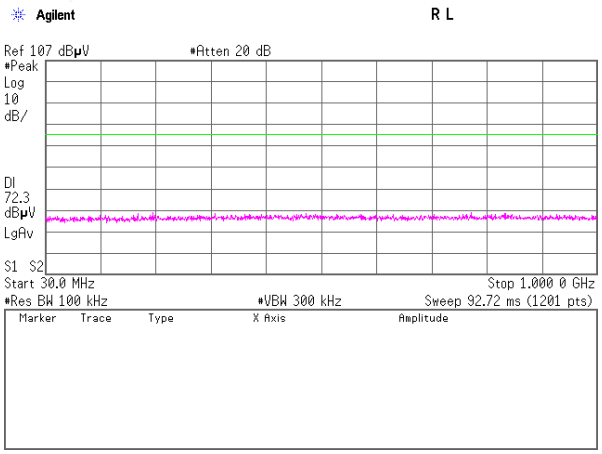
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

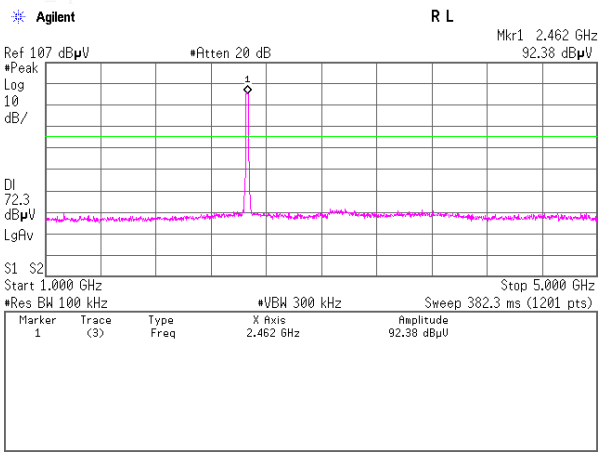
(Reference chart) Spurious emission (Conducted)

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10

Tx, 2462MHz (above 1GHz)

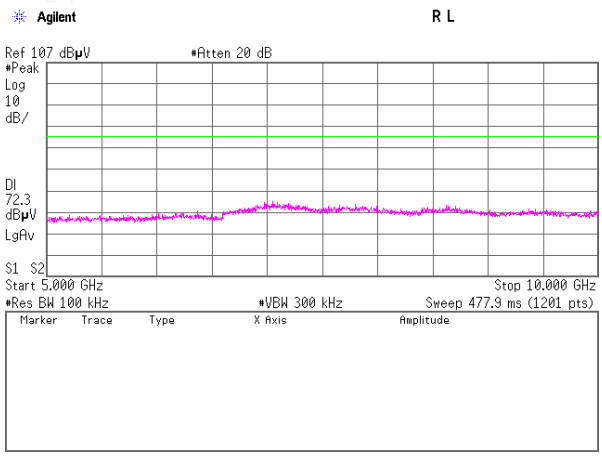
1GHz - 5GHz

Tx3_SpuriousG1



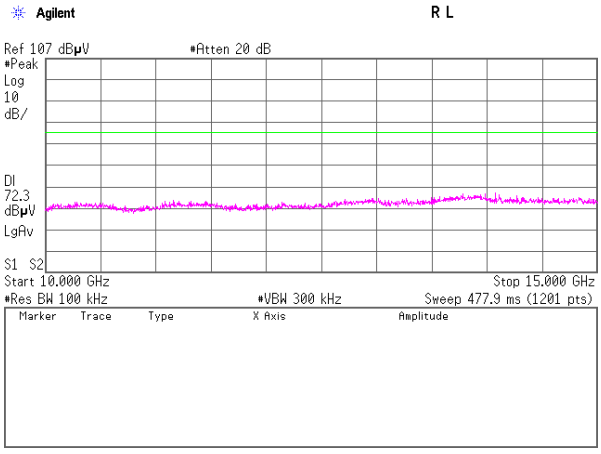
5GHz - 10GHz

Tx3_SpuriousG2



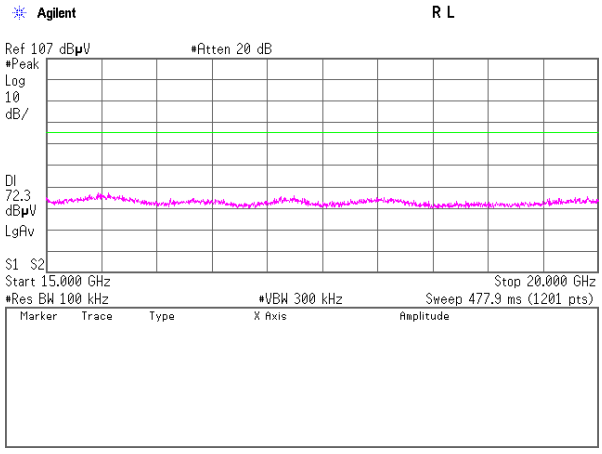
10GHz - 15GHz

Tx3_SpuriousG3



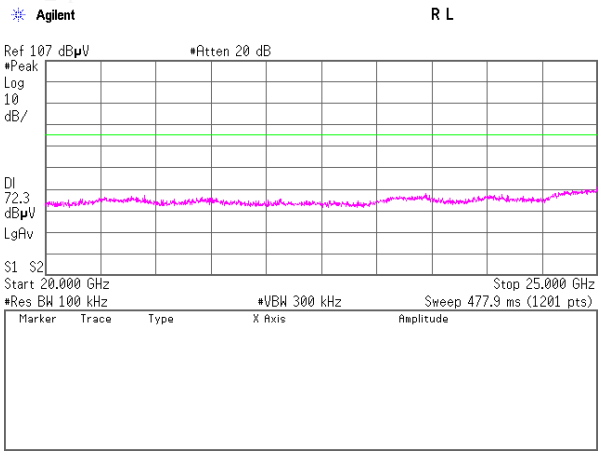
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6

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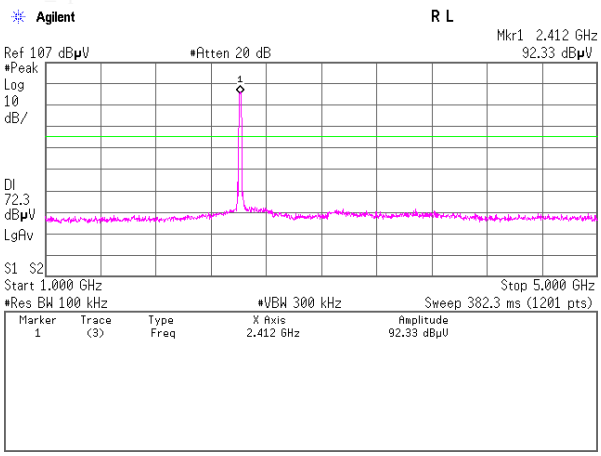
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

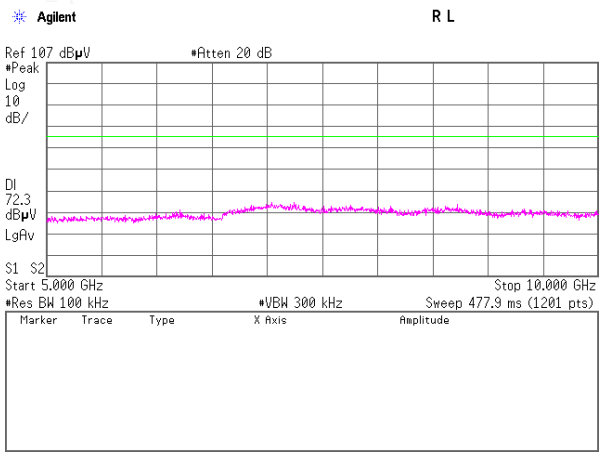
Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12

Tx, 2412MHz (above 1GHz)

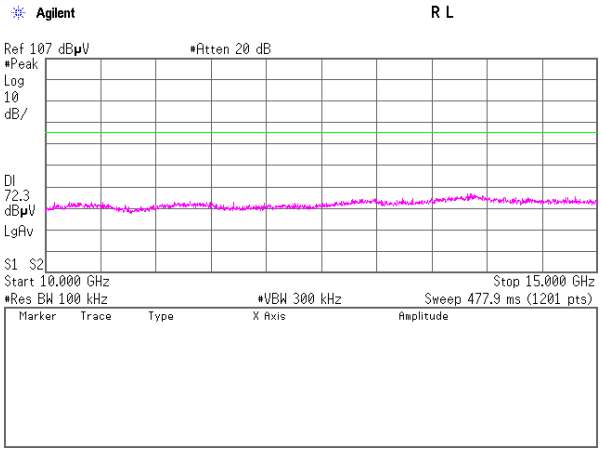
1GHz - 5GHz



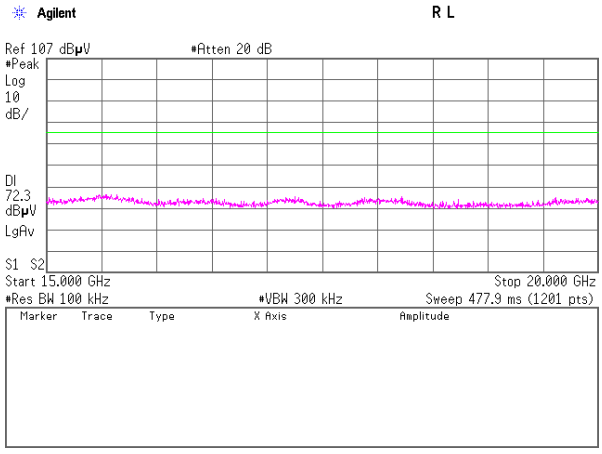
5GHz - 10GHz



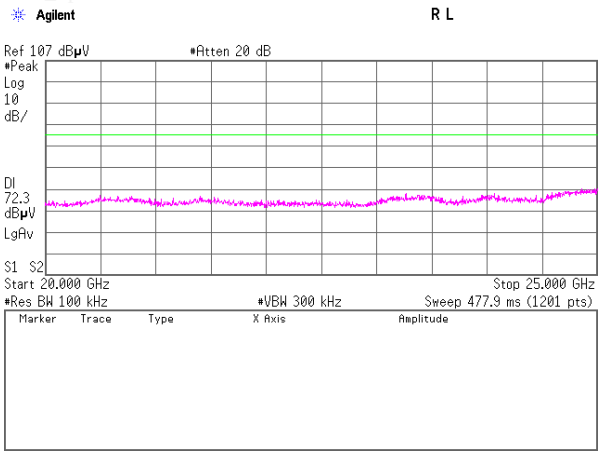
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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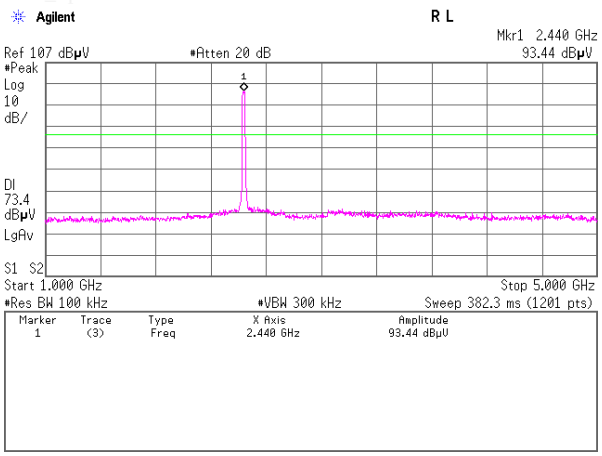
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

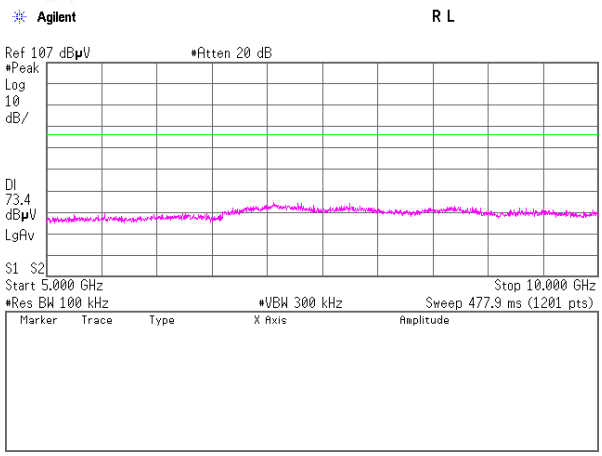
Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12

Tx, 2437MHz (above 1GHz)

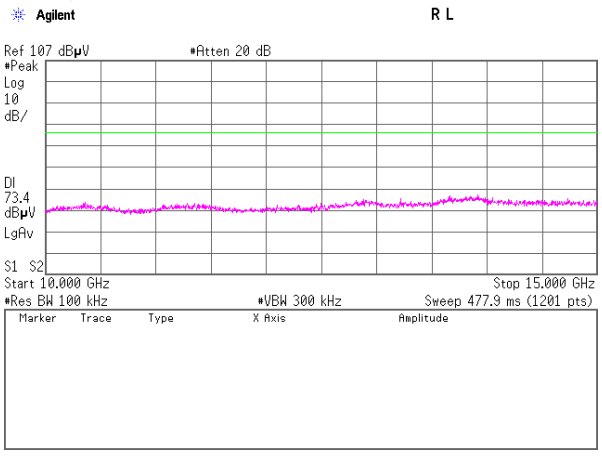
1GHz - 5GHz



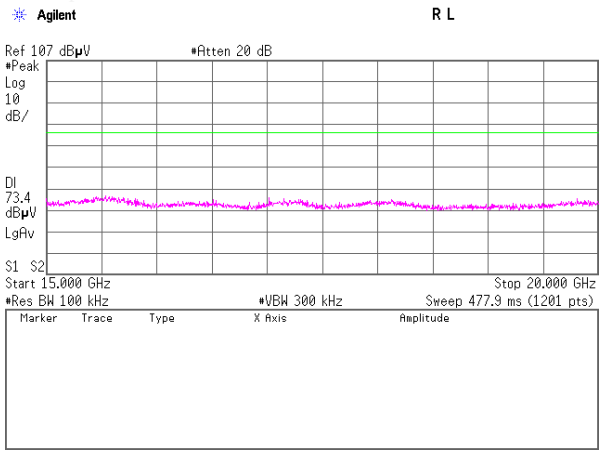
5GHz - 10GHz



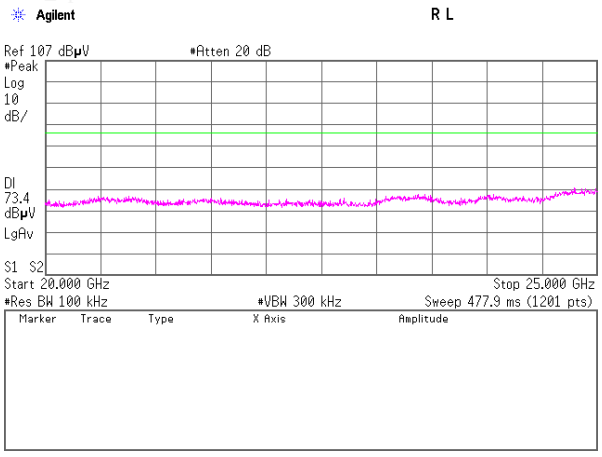
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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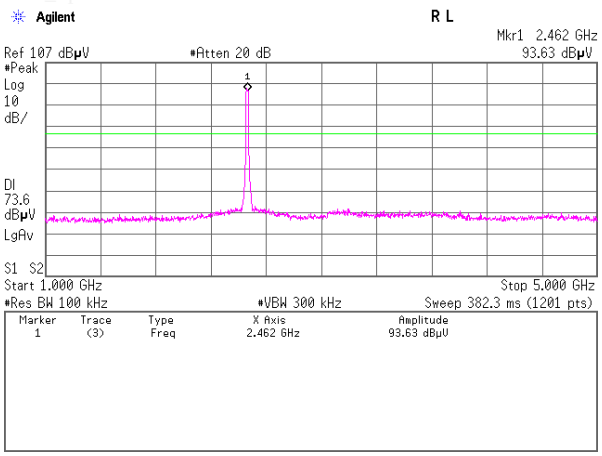
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

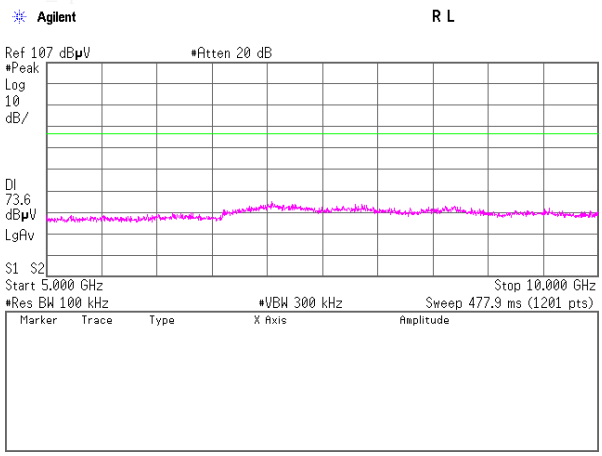
Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12

Tx, 2462MHz (above 1GHz)

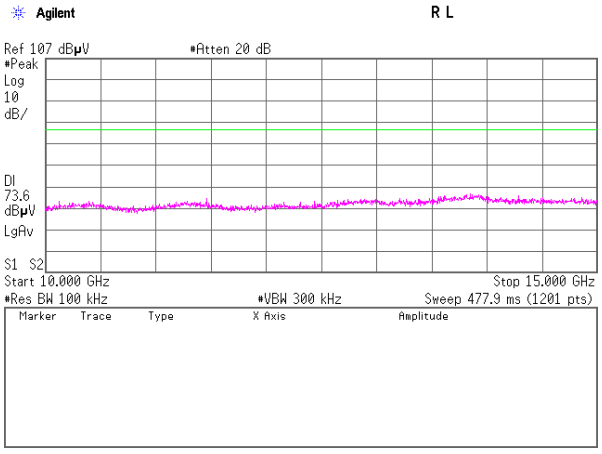
1GHz - 5GHz



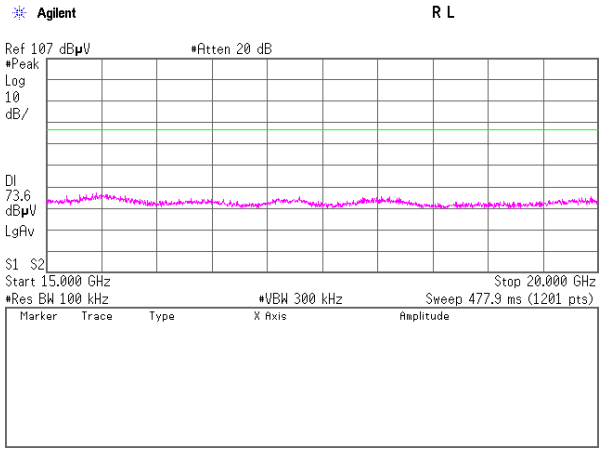
5GHz - 10GHz



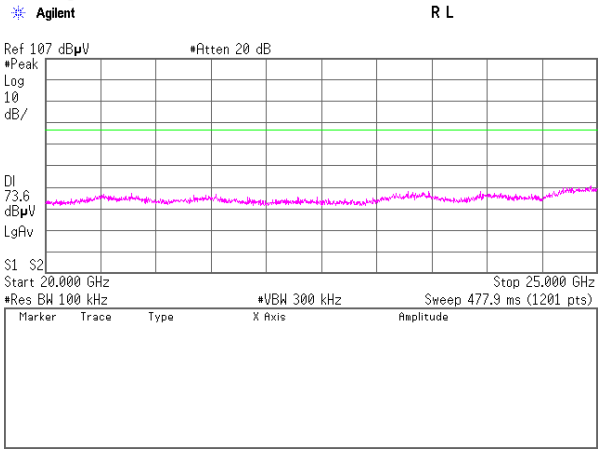
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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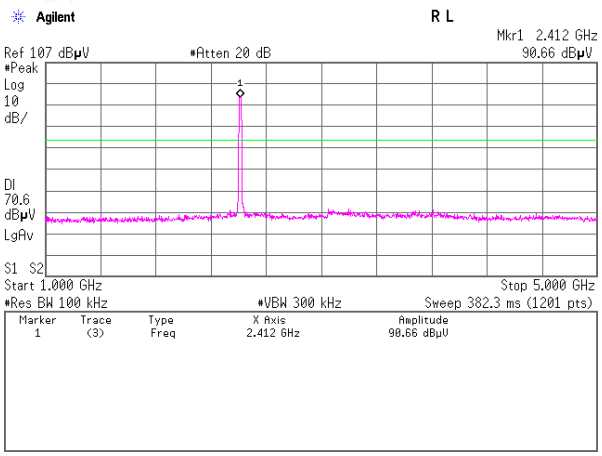
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

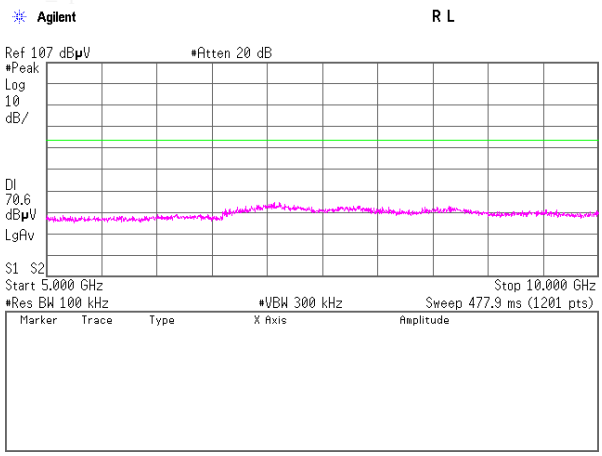
Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10

Tx, 2412MHz (above 1GHz)

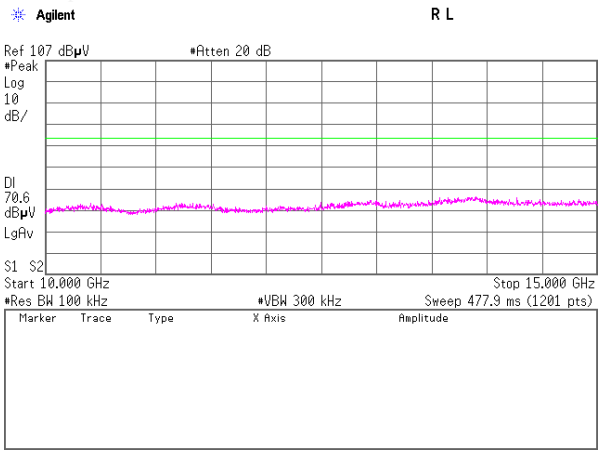
1GHz - 5GHz



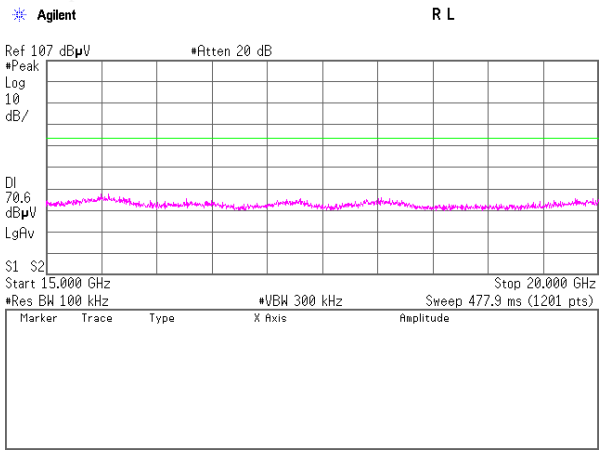
5GHz - 10GHz



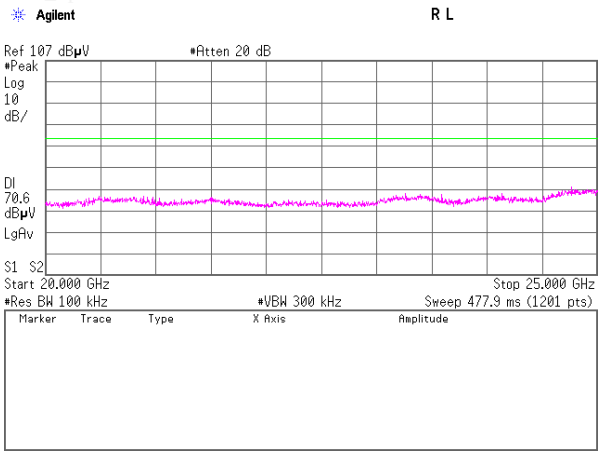
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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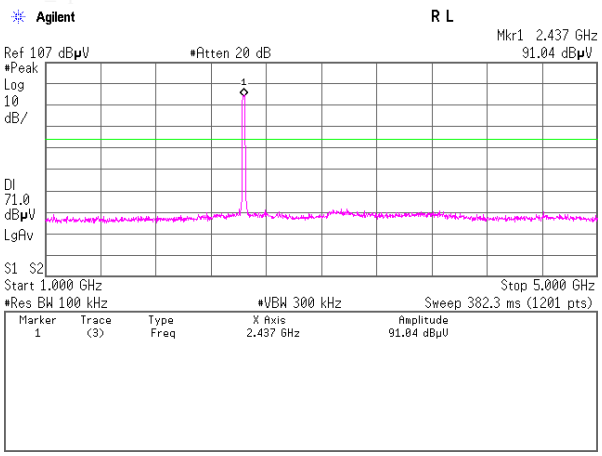
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

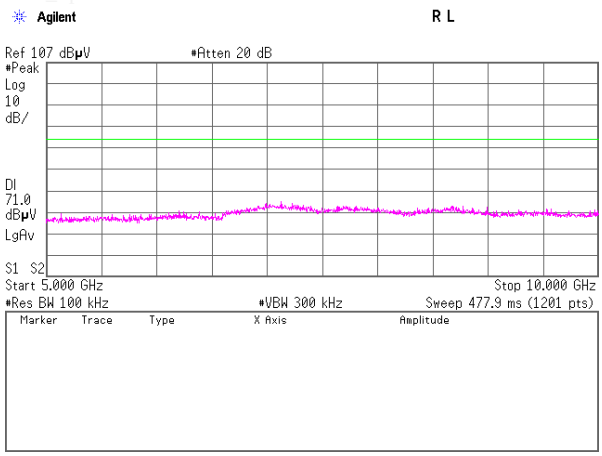
Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10

Tx, 2437MHz (above 1GHz)

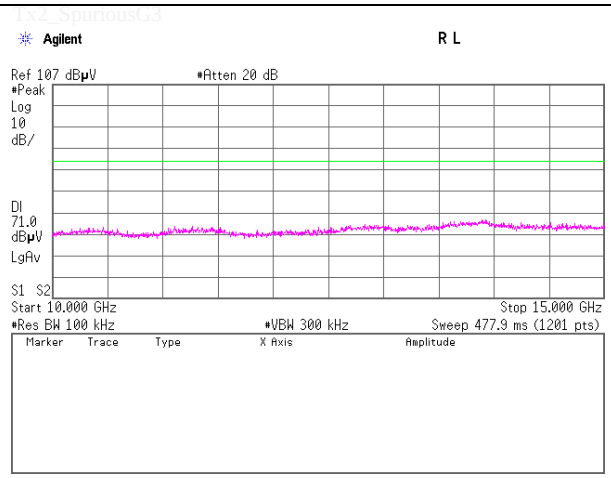
1GHz - 5GHz



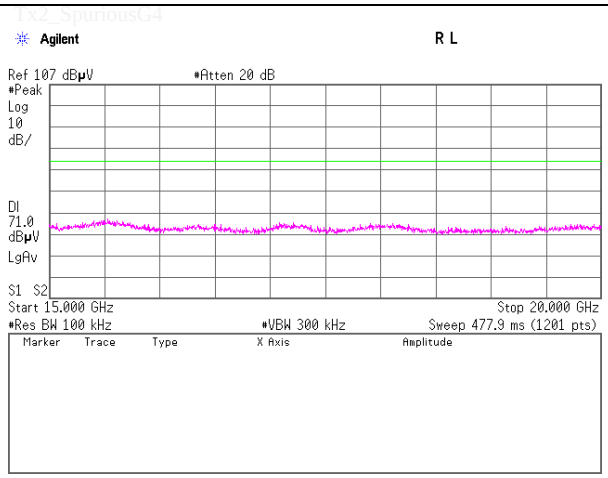
5GHz - 10GHz



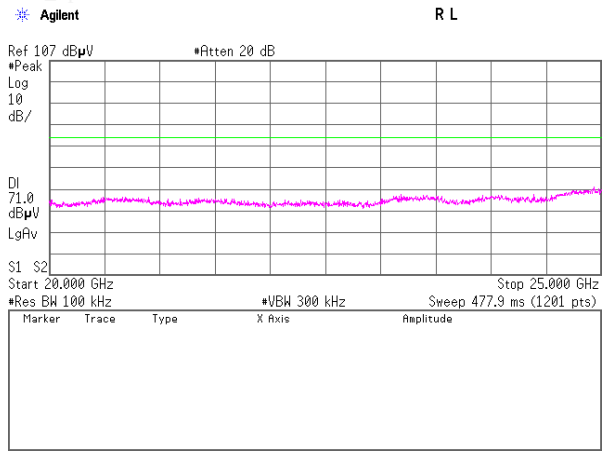
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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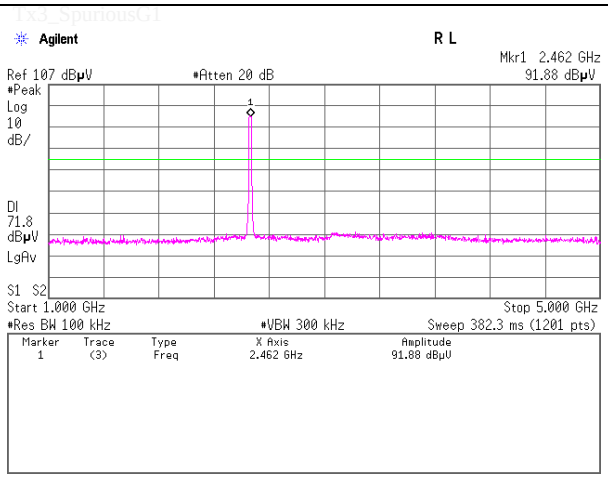
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

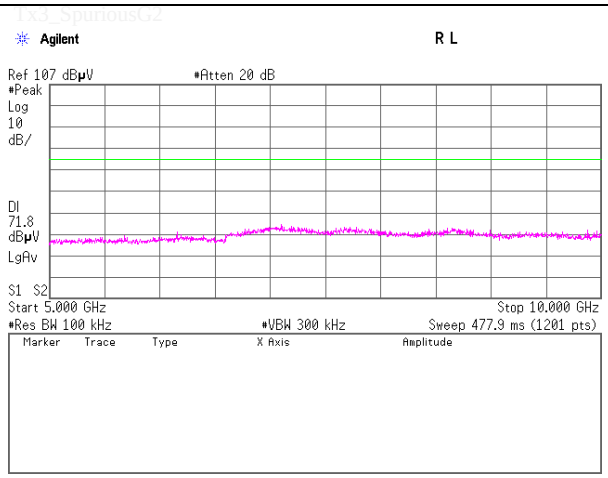
Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10

Tx, 2462MHz (above 1GHz)

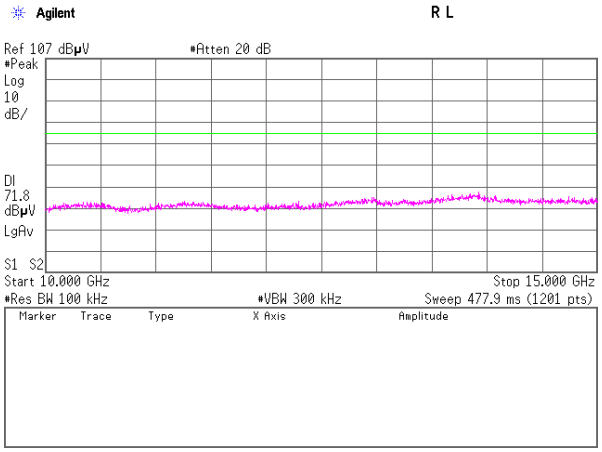
1GHz - 5GHz



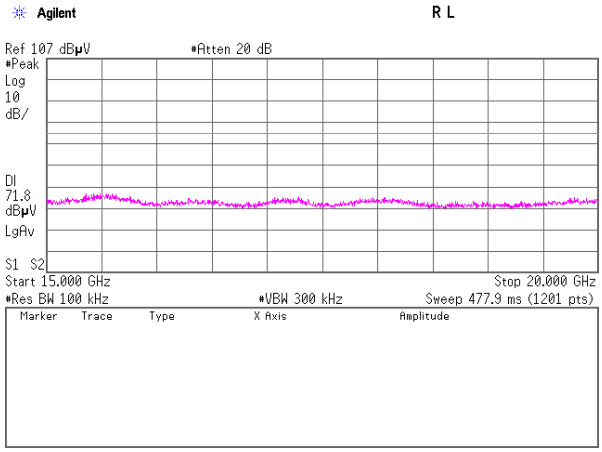
5GHz - 10GHz



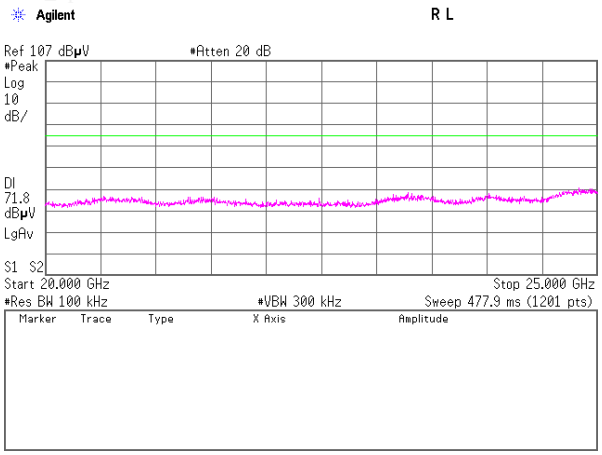
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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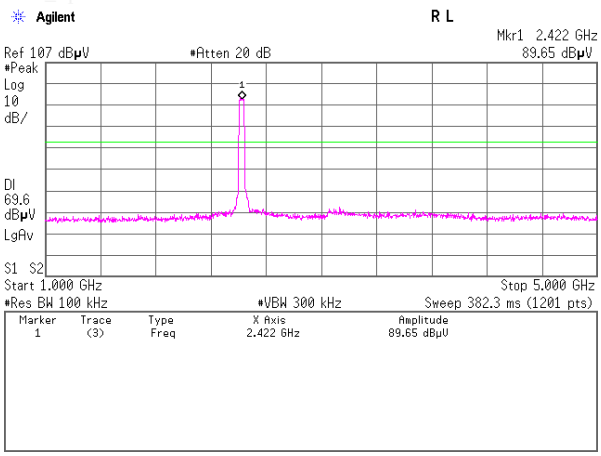
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

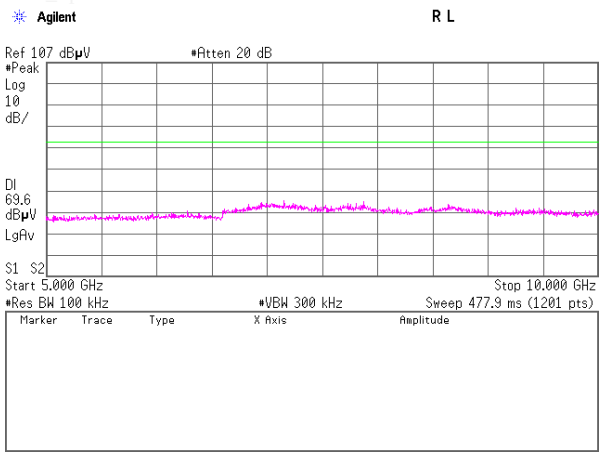
Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12

Tx, 2422MHz (above 1GHz)

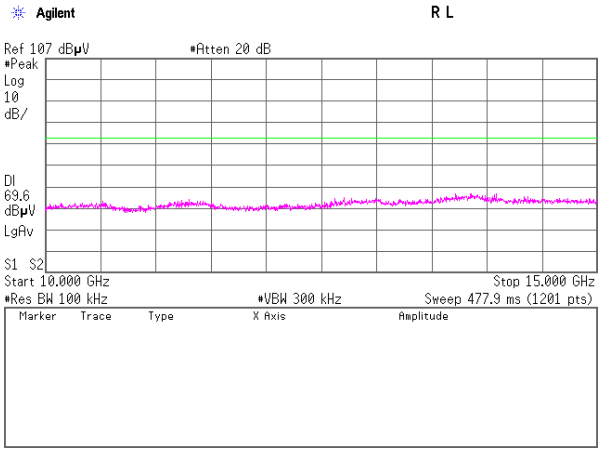
1GHz - 5GHz



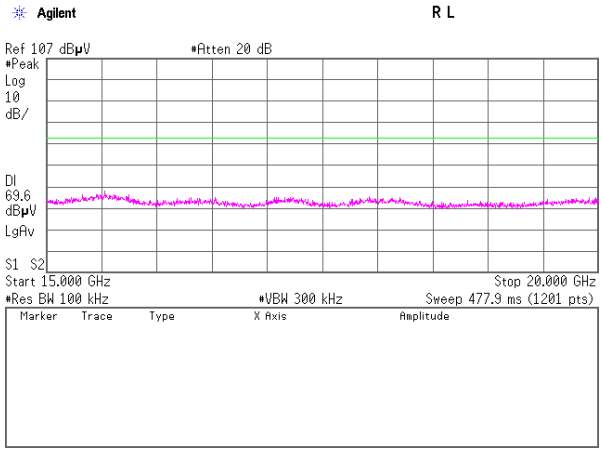
5GHz - 10GHz



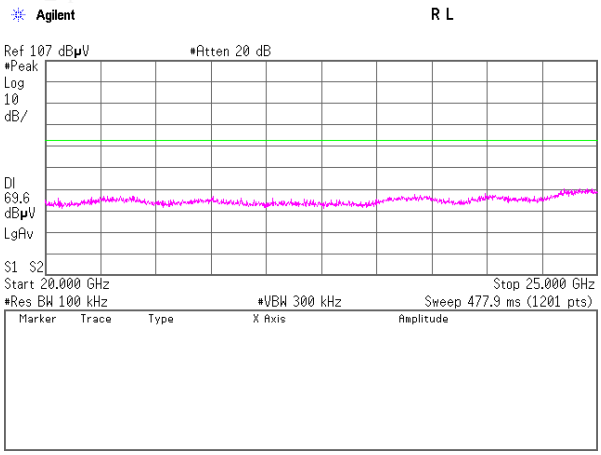
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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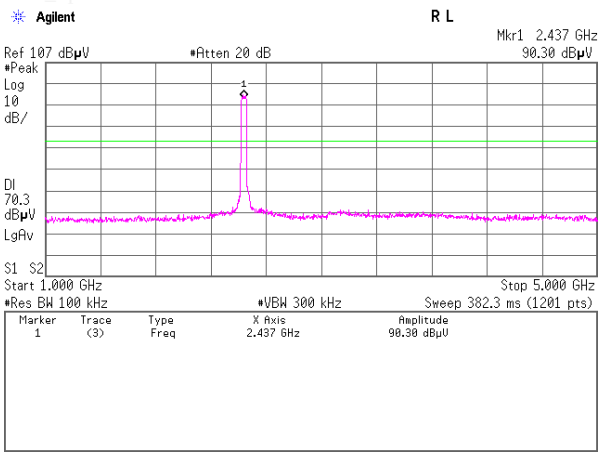
(Reference chart) Spurious emission (Conducted)

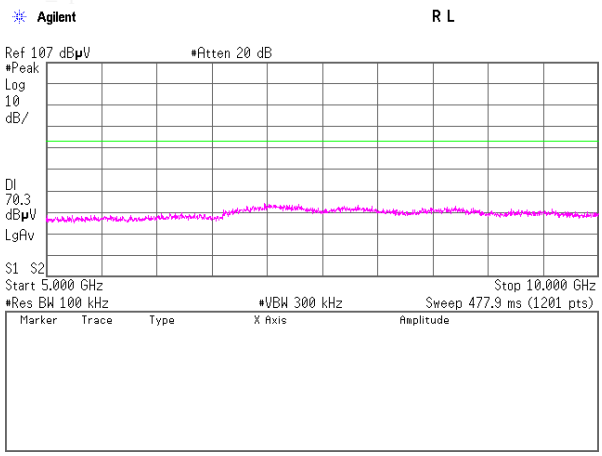
Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12

Tx, 2437MHz (above 1GHz)

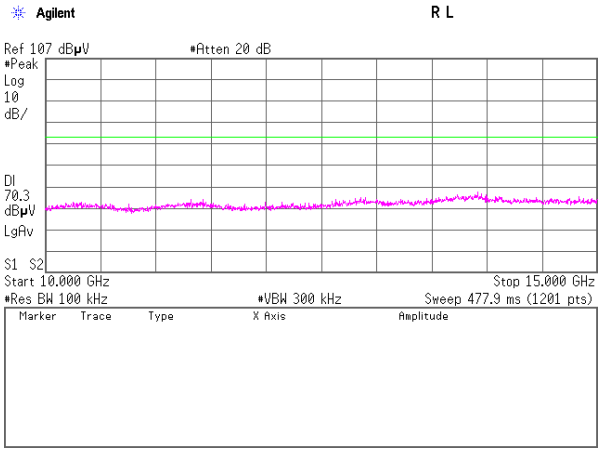
1GHz - 5GHz



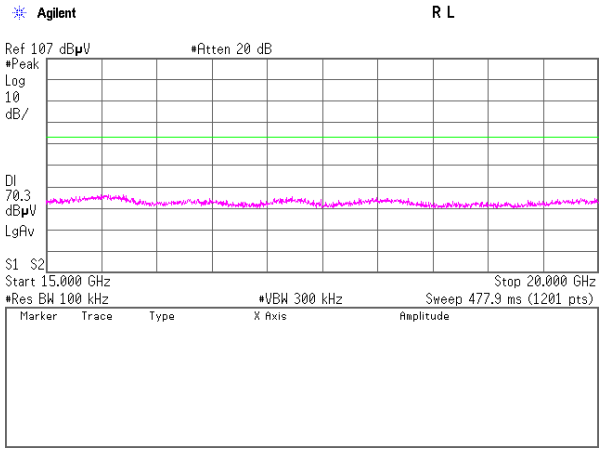
5GHz - 10GHz



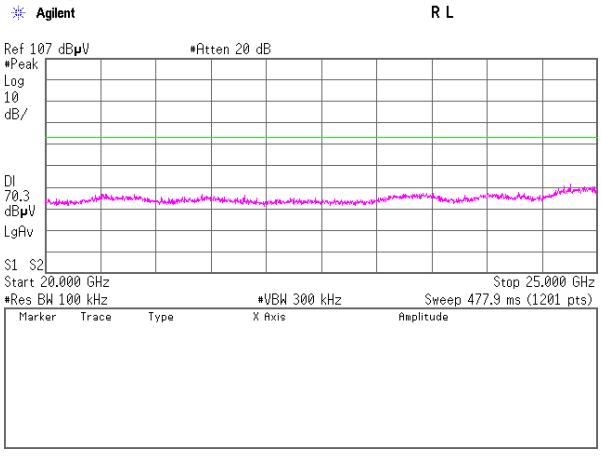
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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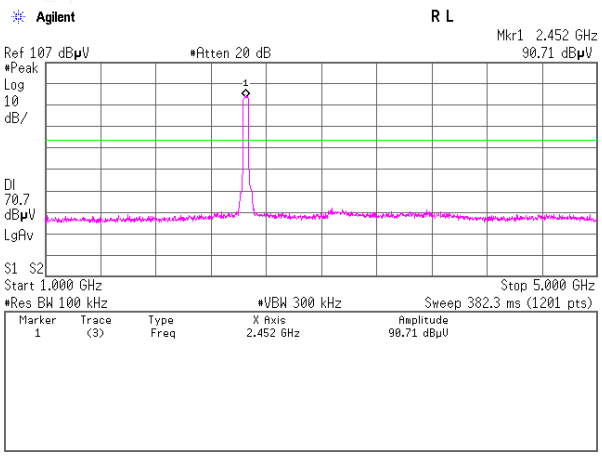
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

(Reference chart) Spurious emission (Conducted)

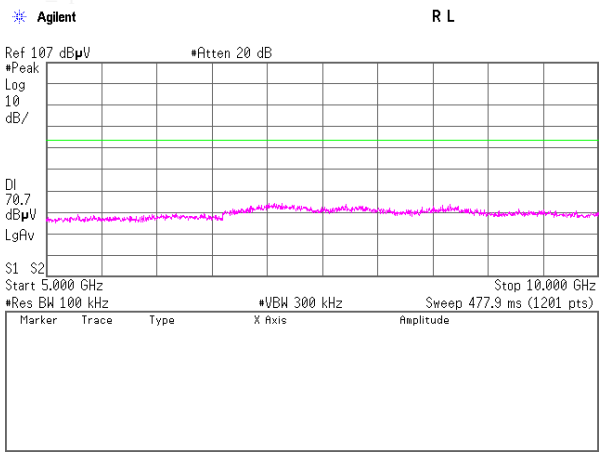
Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12

Tx, 2452MHz (above 1GHz)

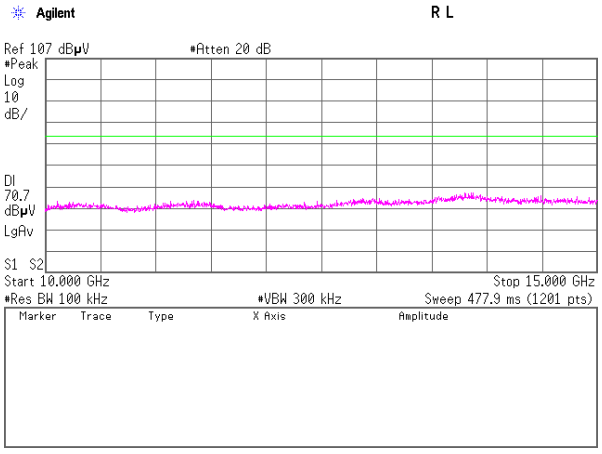
1GHz - 5GHz



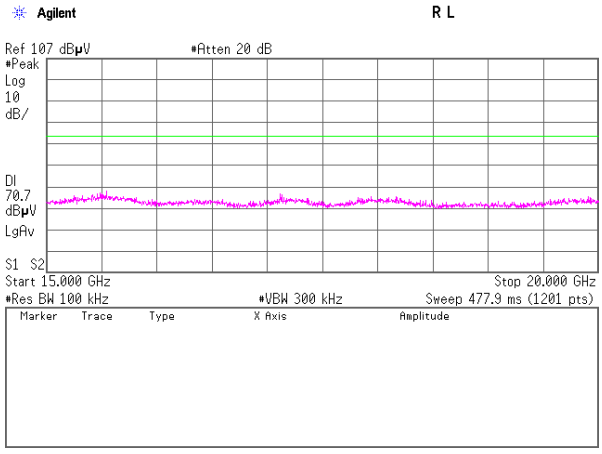
5GHz - 10GHz



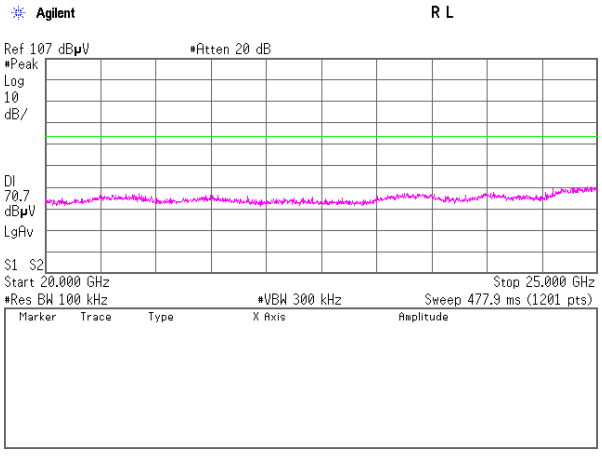
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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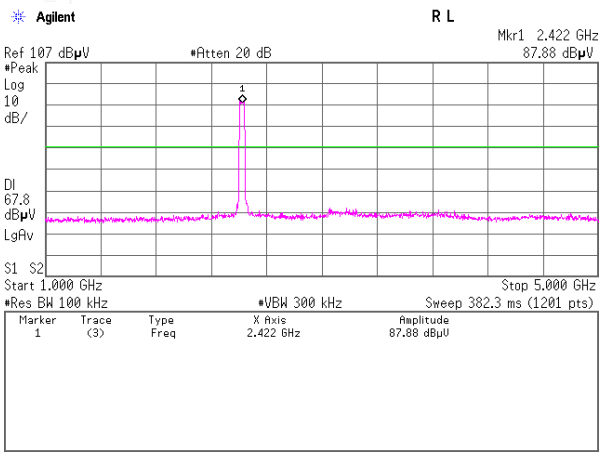
(Reference chart) Spurious emission (Conducted)

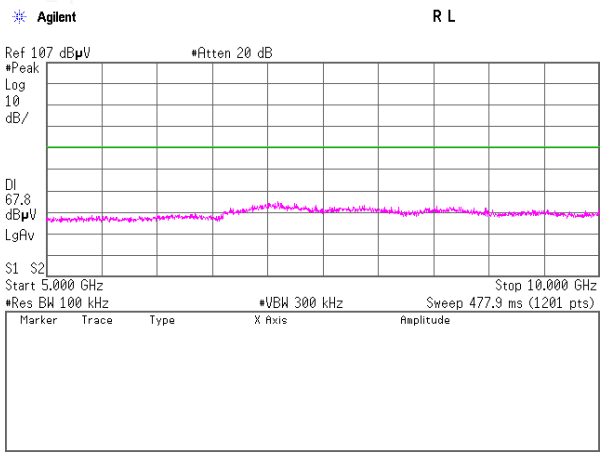
Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10

Tx, 2422MHz (above 1GHz)

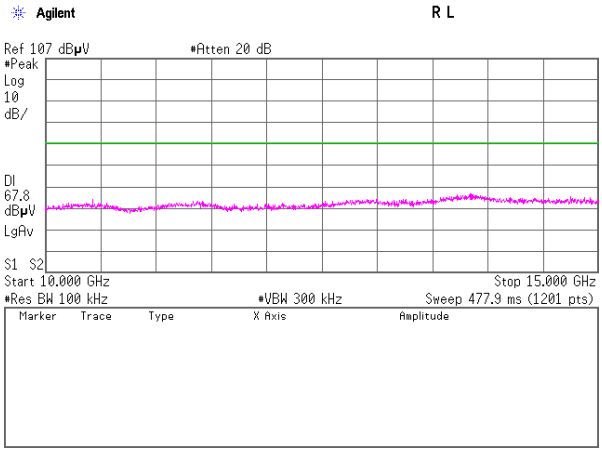
1GHz - 5GHz



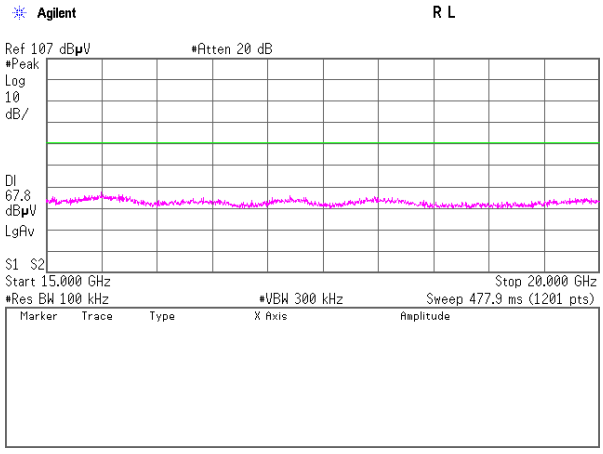
5GHz - 10GHz



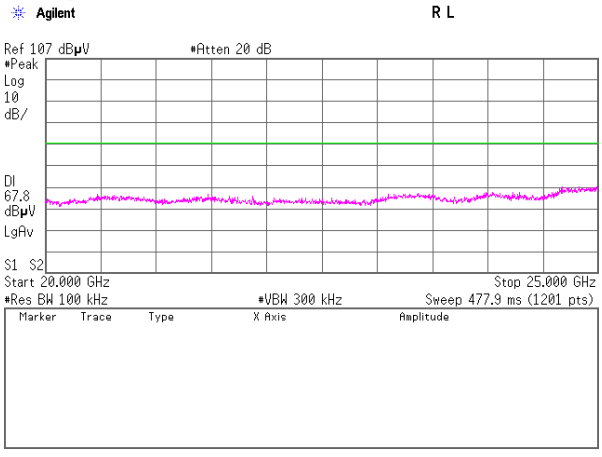
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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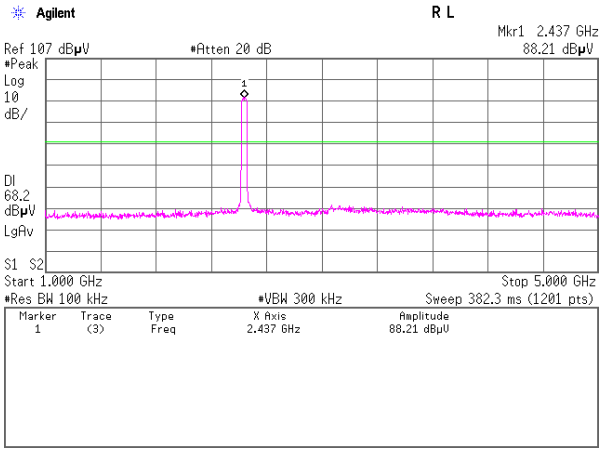
(Reference chart) Spurious emission (Conducted)

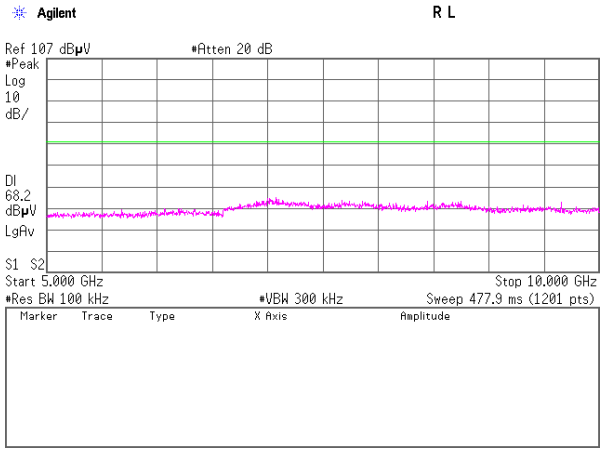
Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10

Tx, 2437MHz (above 1GHz)

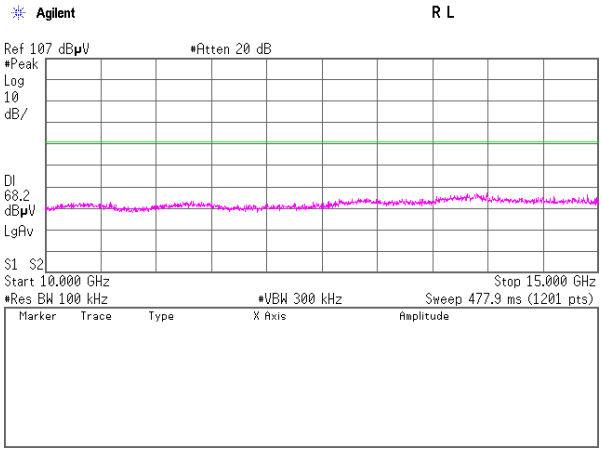
1GHz - 5GHz



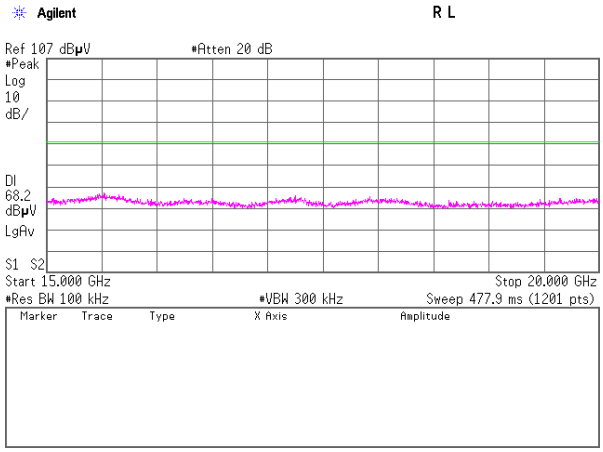
5GHz - 10GHz



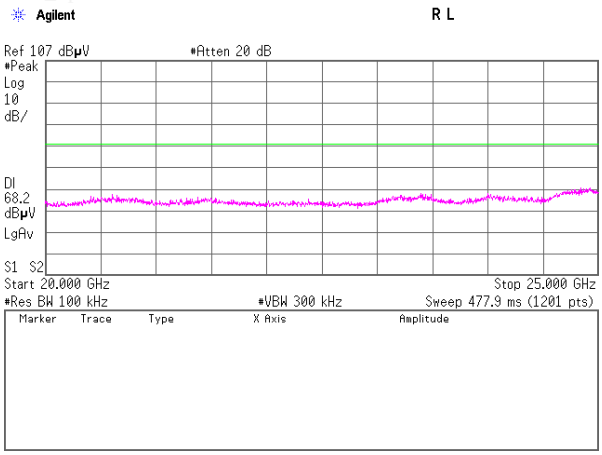
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

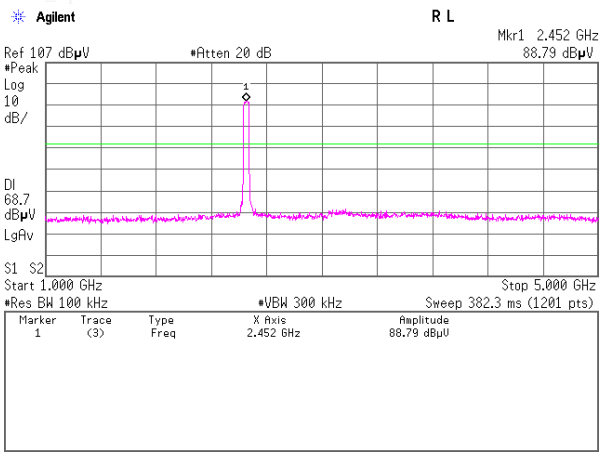
(Reference chart) Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10

Tx, 2452MHz (above 1GHz)

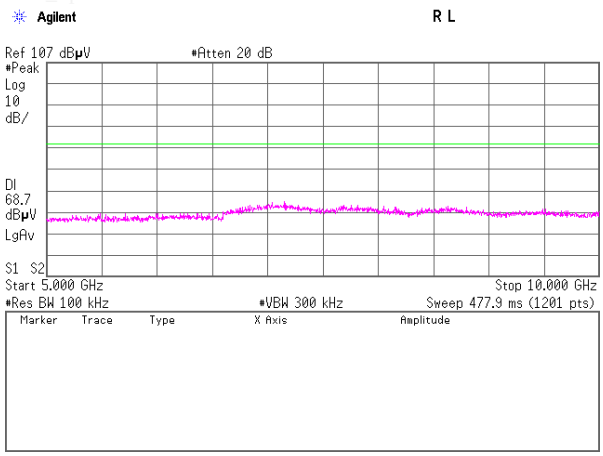
1GHz - 5GHz

Tx3_SpuriousG1



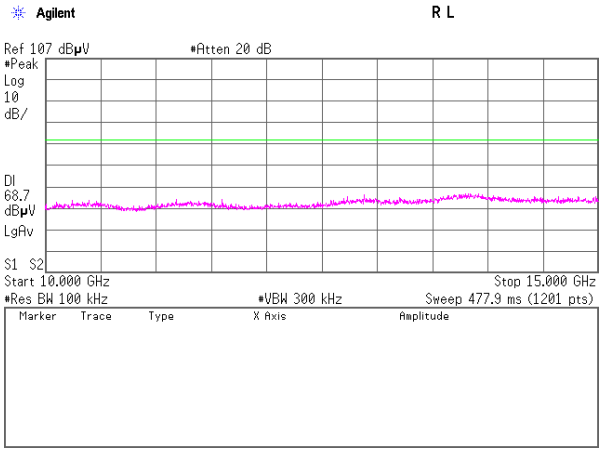
5GHz - 10GHz

Tx3_SpuriousG2



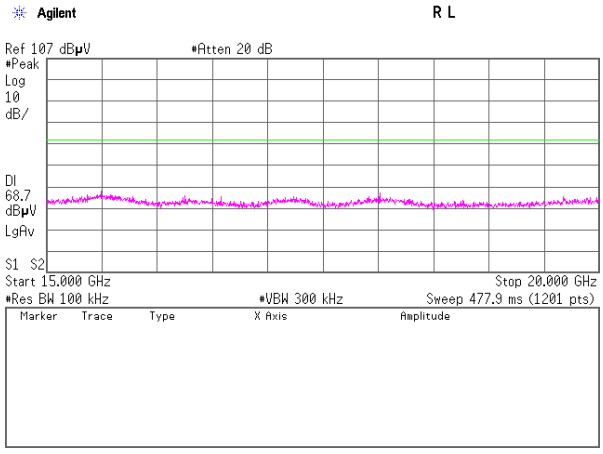
10GHz - 15GHz

Tx3_SpuriousG3



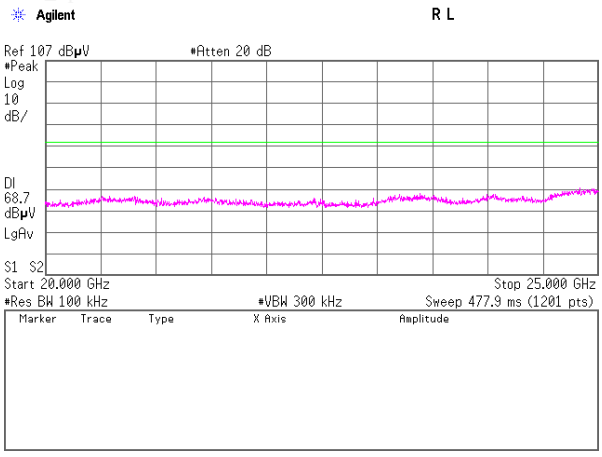
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6

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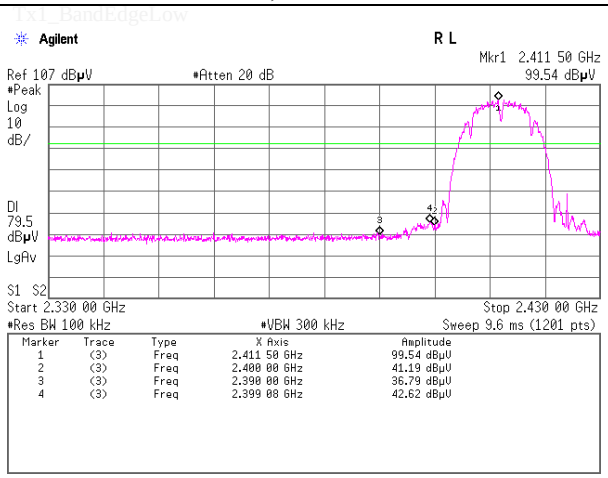
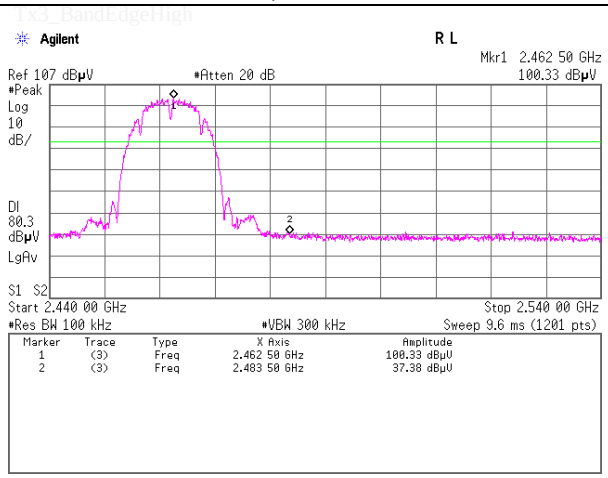
(Reference chart) Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14	
Tx, 2412MHz	**Tx, 2462MHz**
	

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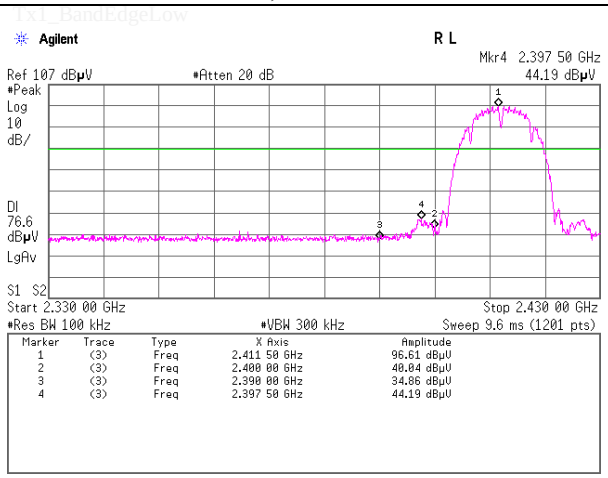
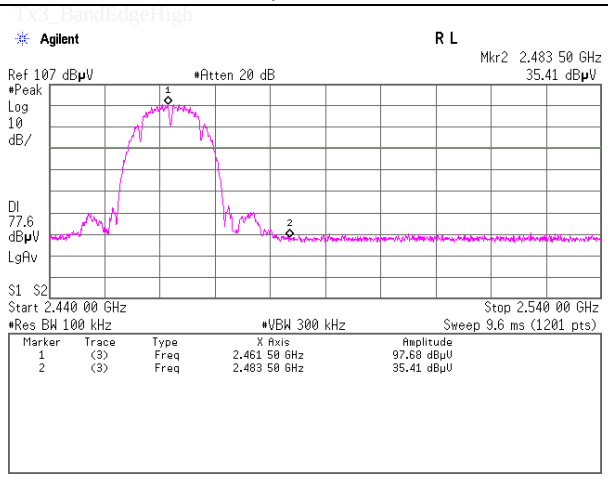
(Reference chart) Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11	
Tx, 2412MHz	**Tx, 2462MHz**
	

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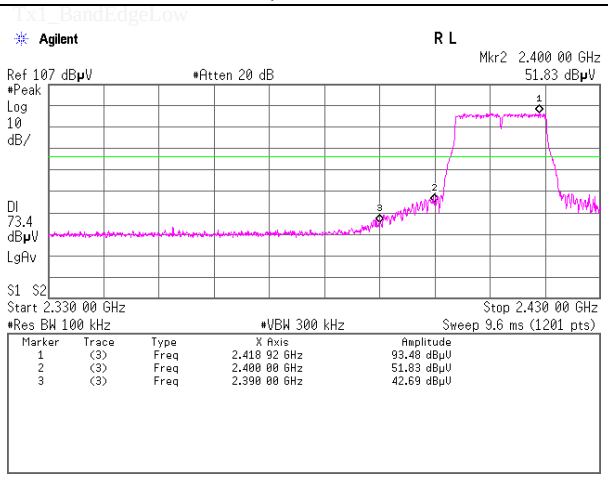
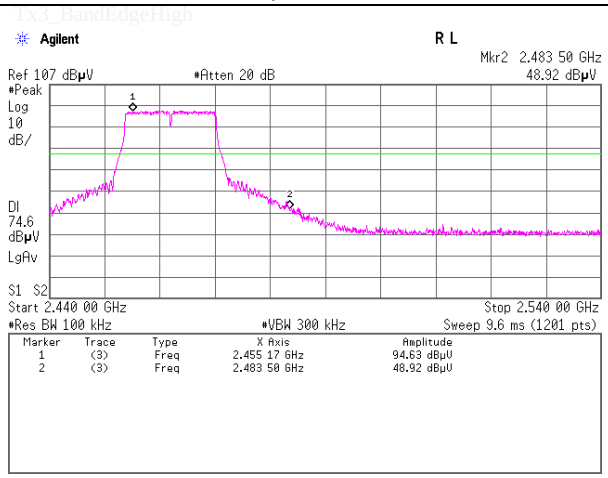
(Reference chart) Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12	
Tx, 2412MHz	**Tx, 2462MHz**
	

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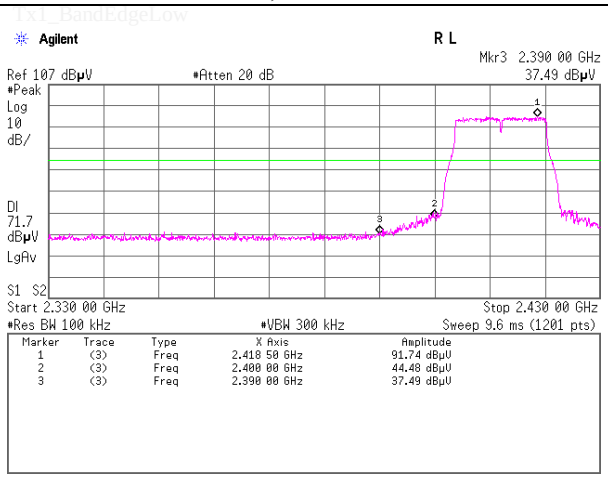
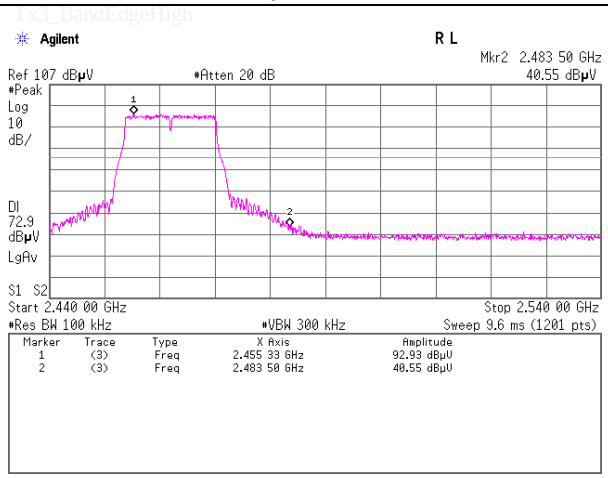
(Reference chart) Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10	
Tx, 2412MHz	**Tx, 2462MHz**
	

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1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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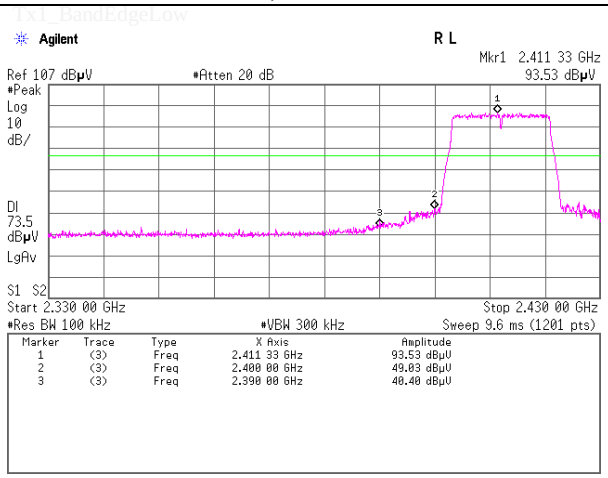
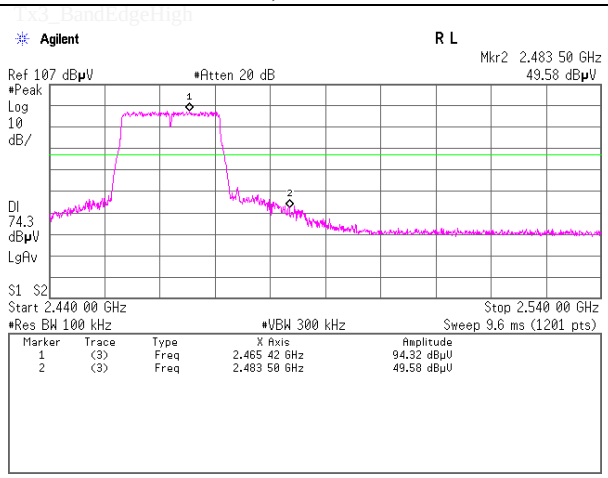
(Reference chart) Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12	
Tx, 2412MHz	**Tx, 2462MHz**
	

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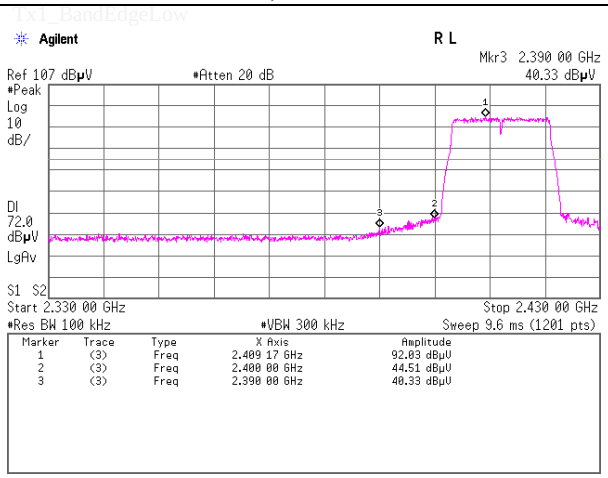
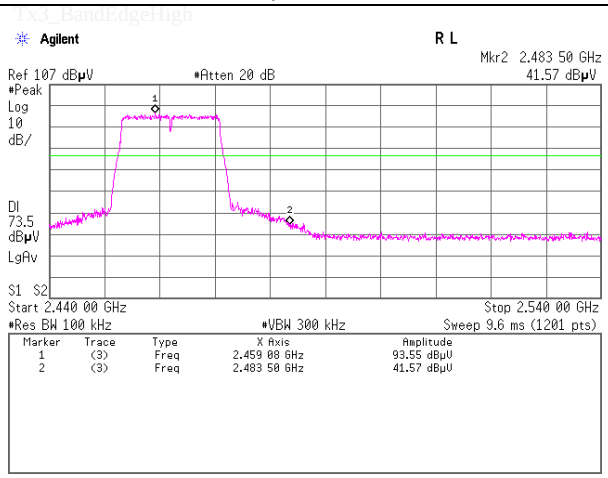
(Reference chart) Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10	
Tx, 2412MHz	**Tx, 2462MHz**
	

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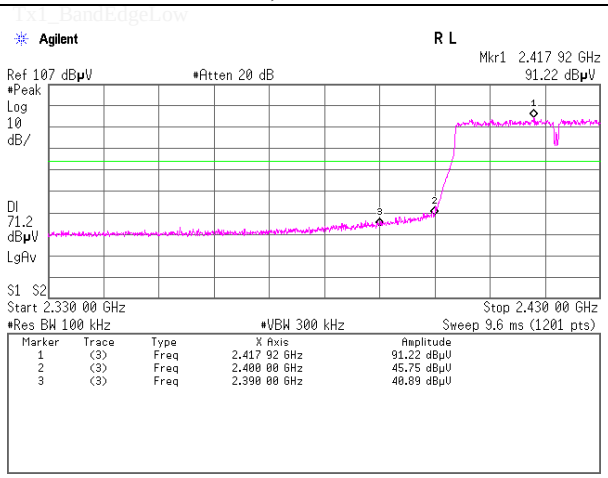
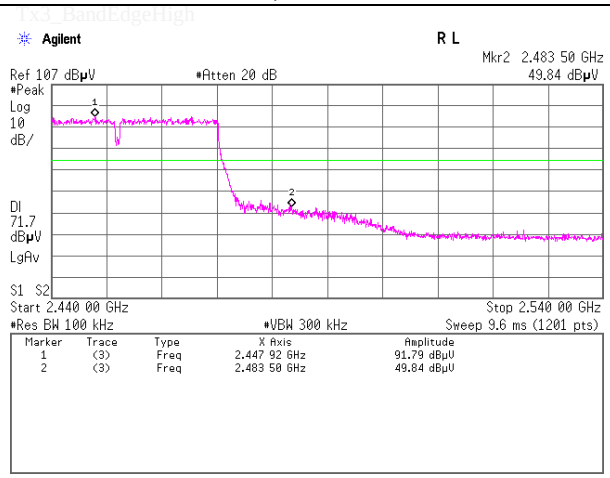
(Reference chart) Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12	
Tx, 2422MHz	**Tx, 2452MHz**
	

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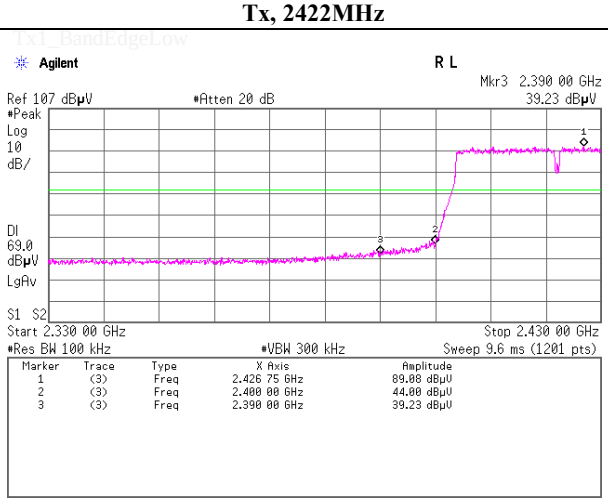
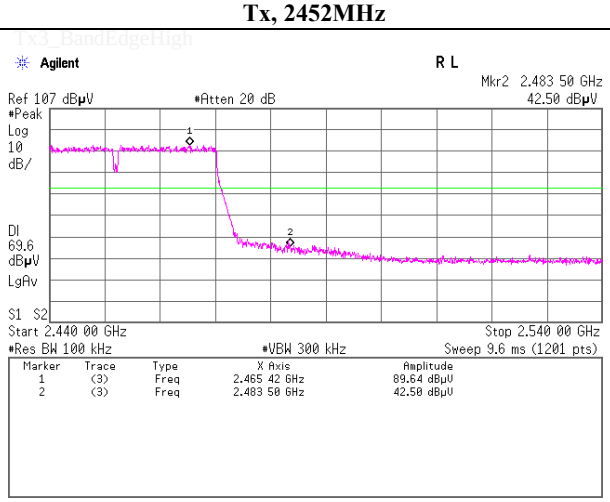
(Reference chart) Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10	
Tx, 2422MHz	**Tx, 2452MHz**
	

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Facsimile : +81 463 50 6401

Maximum Power Spectral Density

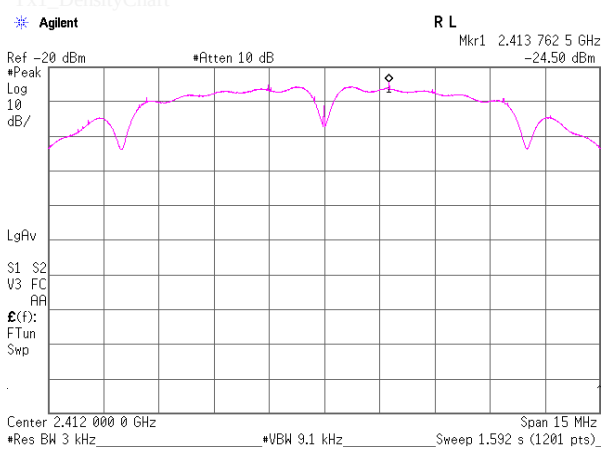
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 14, 2013	
Temperature / Humidity	25deg.C , 62%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14	

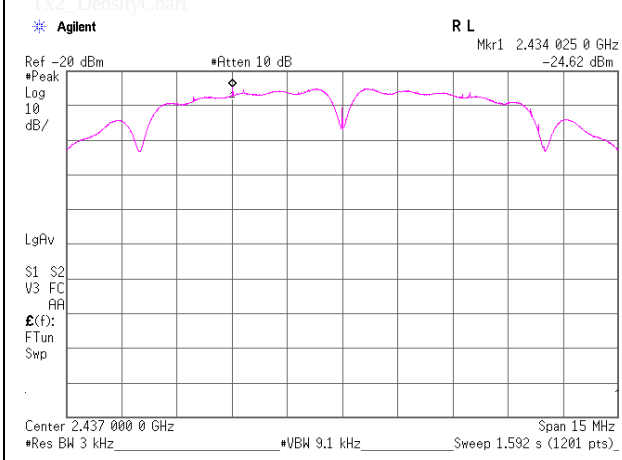
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2413.76	-24.50	0.50	9.98	-14.02	8.00	22.02
2437.0000	2434.03	-24.62	0.50	9.98	-14.14	8.00	22.14
2462.0000	2462.71	-24.52	0.50	9.98	-14.04	8.00	22.04

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

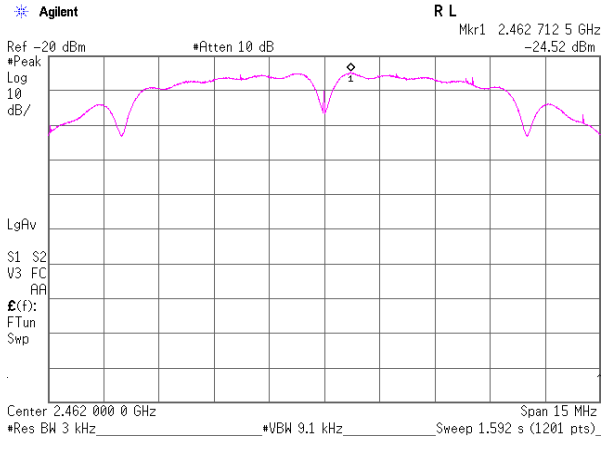
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Power Spectral Density

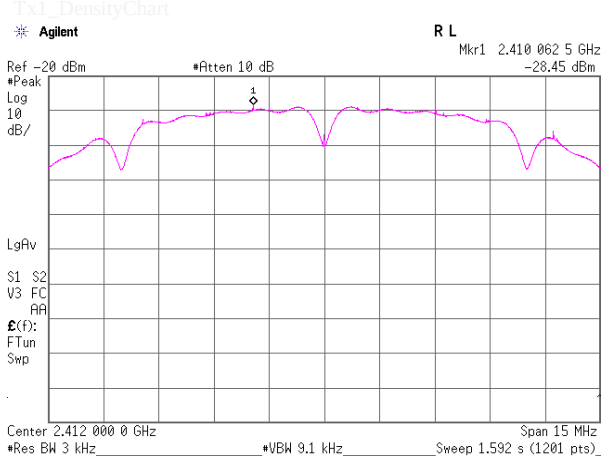
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11	

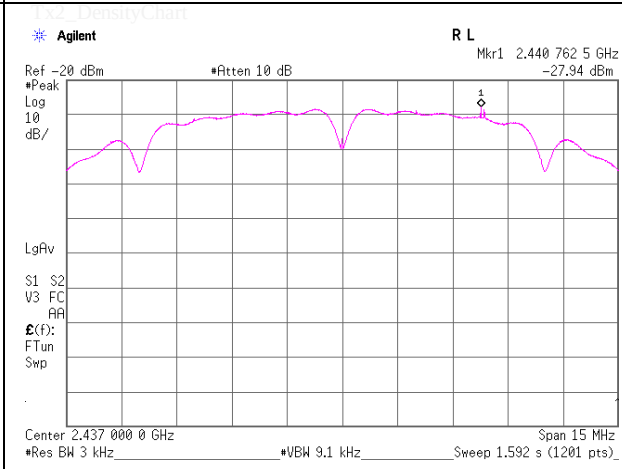
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2410.06	-28.45	0.50	9.98	-17.97	8.00	25.97
2437.0000	2440.76	-27.94	0.50	9.98	-17.46	8.00	25.46
2462.0000	2460.06	-27.39	0.50	9.98	-16.91	8.00	24.91

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

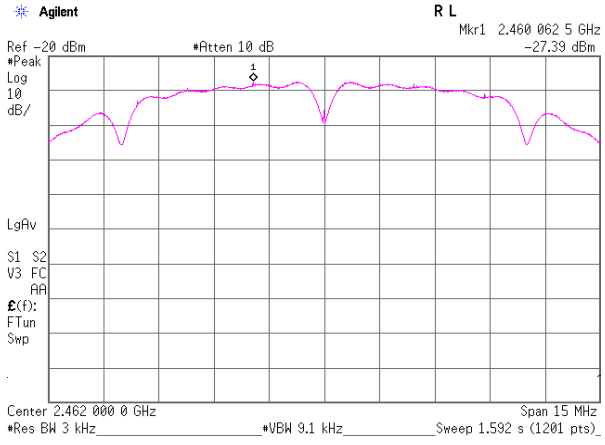
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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Maximum Power Spectral Density

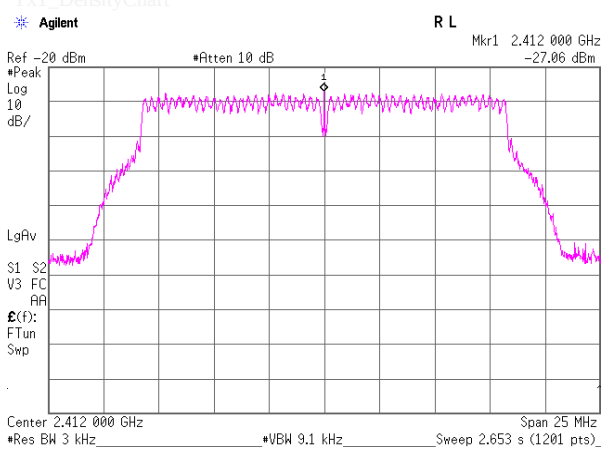
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 14, 2013	
Temperature / Humidity	25deg.C , 62%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12	

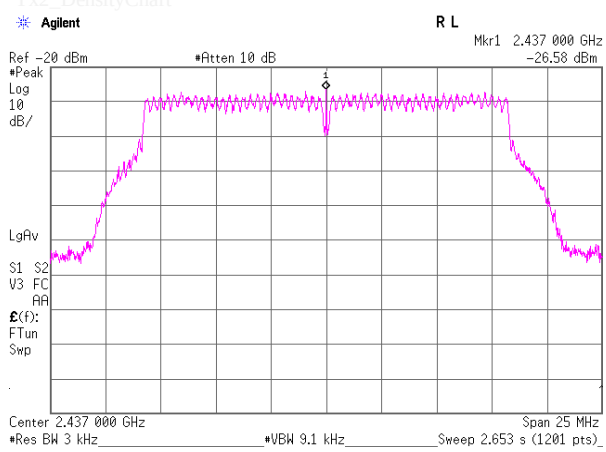
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2412.00	-27.06	0.50	9.98	-16.58	8.00	24.58
2437.0000	2437.00	-26.58	0.50	9.98	-16.10	8.00	24.10
2462.0000	2462.00	-25.87	0.50	9.98	-15.39	8.00	23.39

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

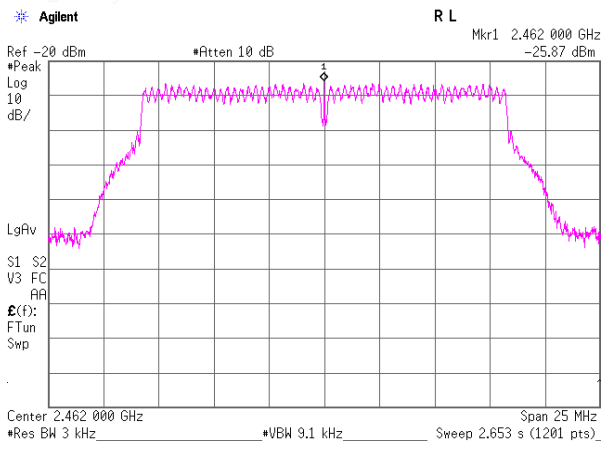
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Power Spectral Density

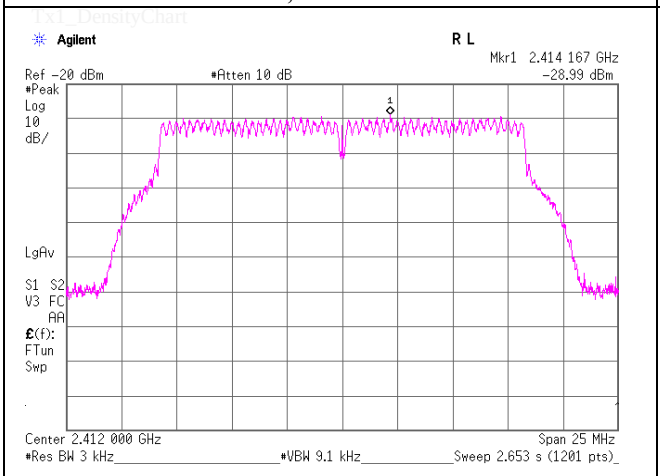
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10	

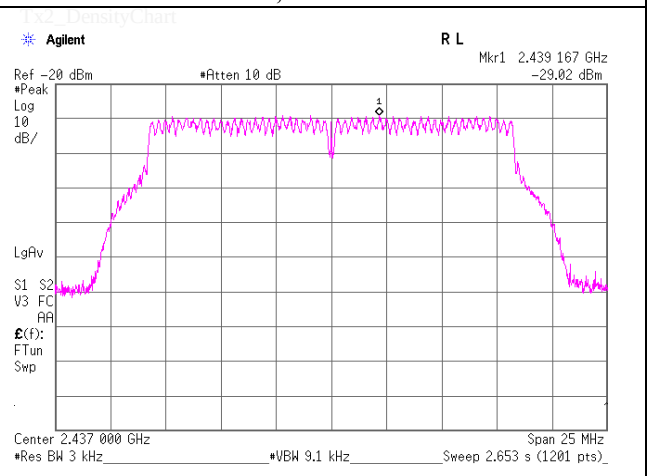
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2414.17	-28.99	0.50	9.98	-18.51	8.00	26.51
2437.0000	2439.17	-29.02	0.50	9.98	-18.54	8.00	26.54
2462.0000	2464.17	-27.81	0.50	9.98	-17.33	8.00	25.33

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

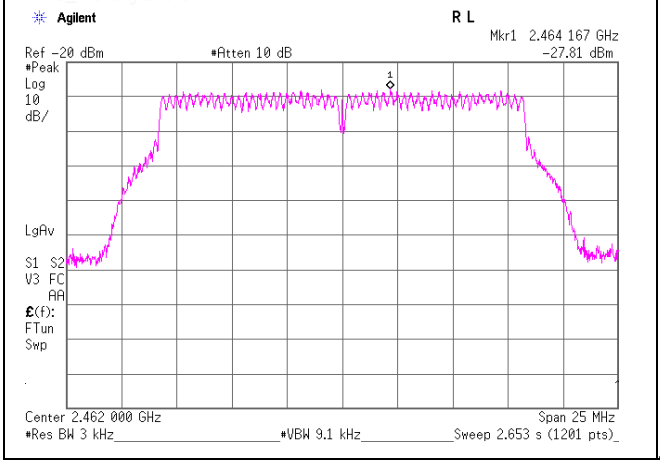
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Power Spectral Density

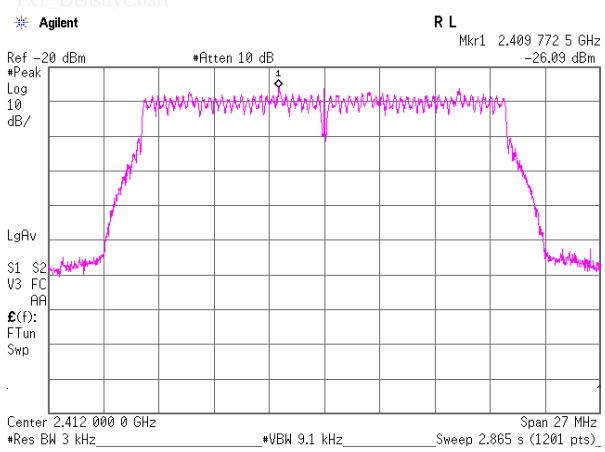
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12	

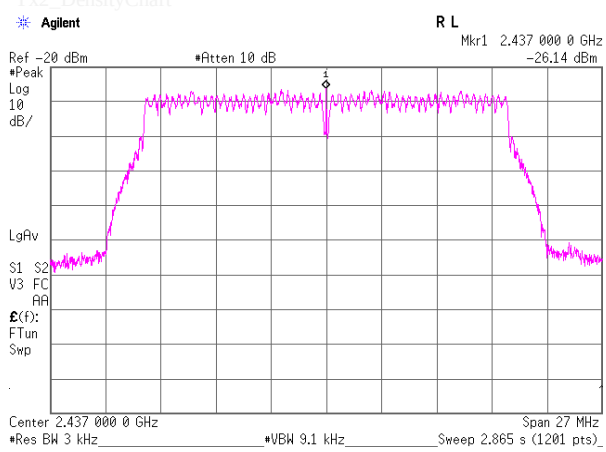
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2409.77	-26.09	0.50	9.98	-15.61	8.00	23.61
2437.0000	2437.00	-26.14	0.50	9.98	-15.66	8.00	23.66
2462.0000	2468.59	-25.33	0.50	9.98	-14.85	8.00	22.85

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

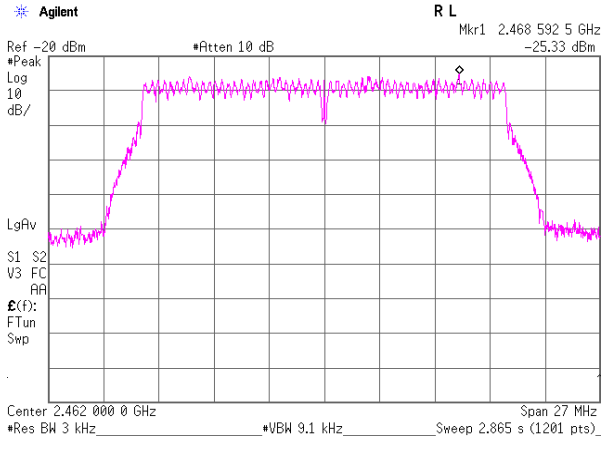
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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Maximum Power Spectral Density

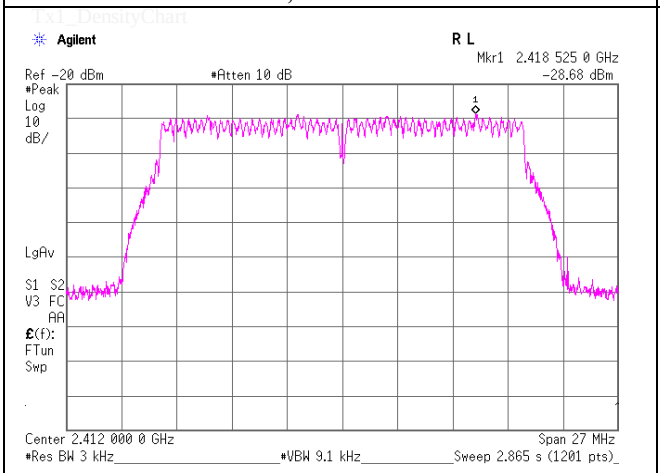
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10	

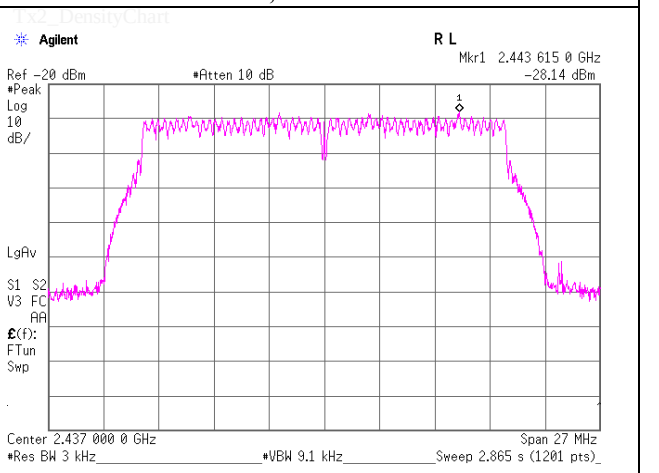
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2418.53	-28.68	0.50	9.98	-18.20	8.00	26.20
2437.0000	2443.62	-28.14	0.50	9.98	-17.66	8.00	25.66
2462.0000	2459.84	-27.63	0.50	9.98	-17.15	8.00	25.15

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

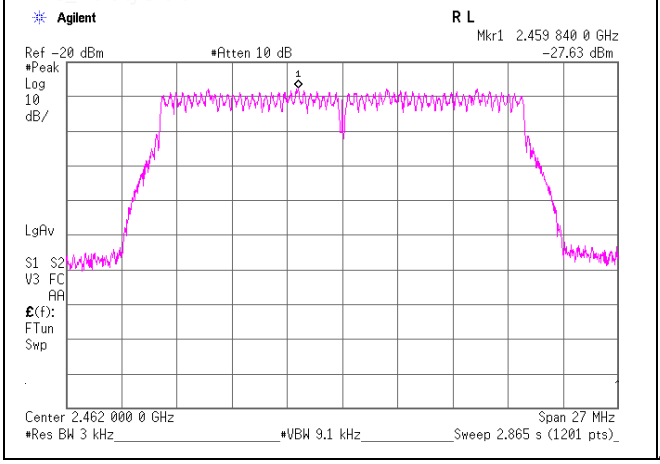
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
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Maximum Power Spectral Density

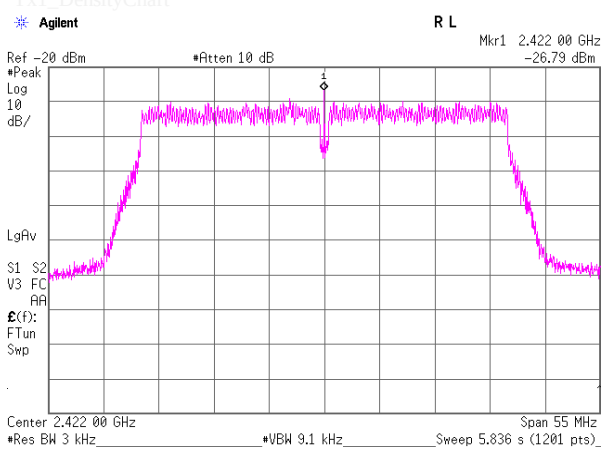
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12	

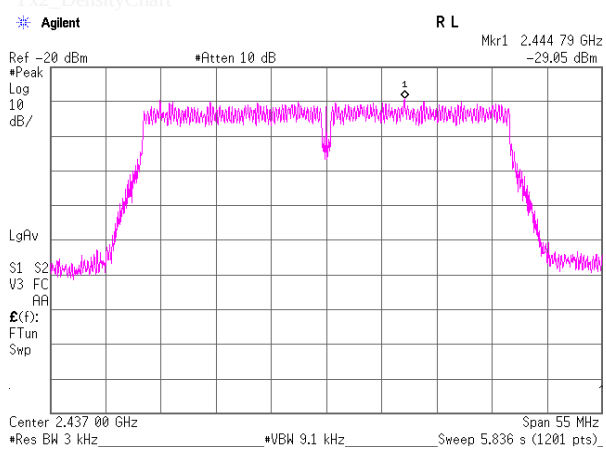
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2422.0000	2422.00	-26.79	0.50	9.98	-16.31	8.00	24.31
2437.0000	2444.79	-29.05	0.50	9.98	-18.57	8.00	26.57
2452.0000	2452.00	-26.87	0.50	9.98	-16.39	8.00	24.39

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

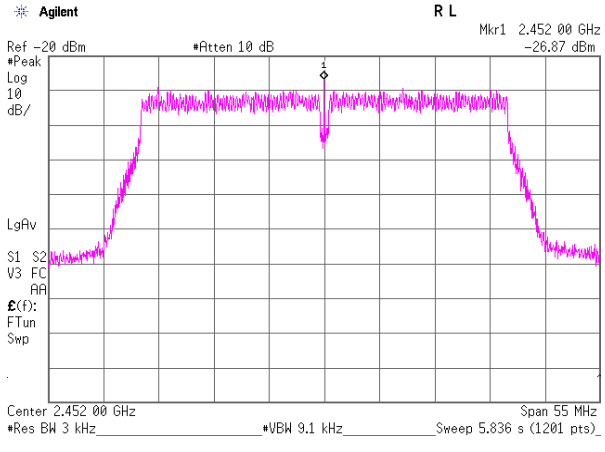
Tx, 2422MHz



Tx, 2437MHz



Tx, 2452MHz



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Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Maximum Power Spectral Density

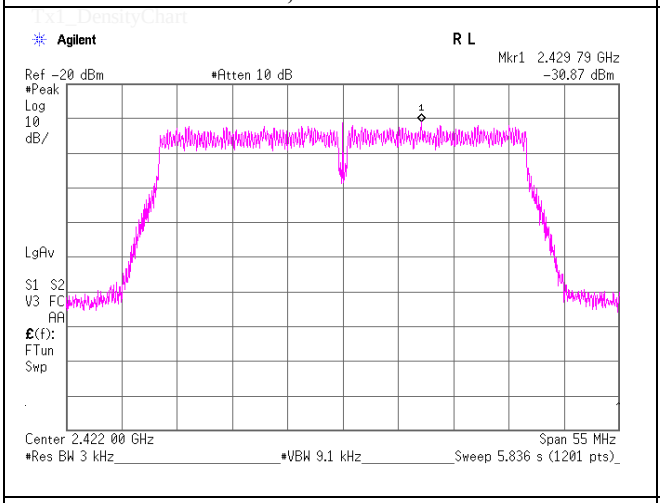
(PKPSD)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	Augsut 15, 2013	
Temperature / Humidity	25deg.C , 65%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10	

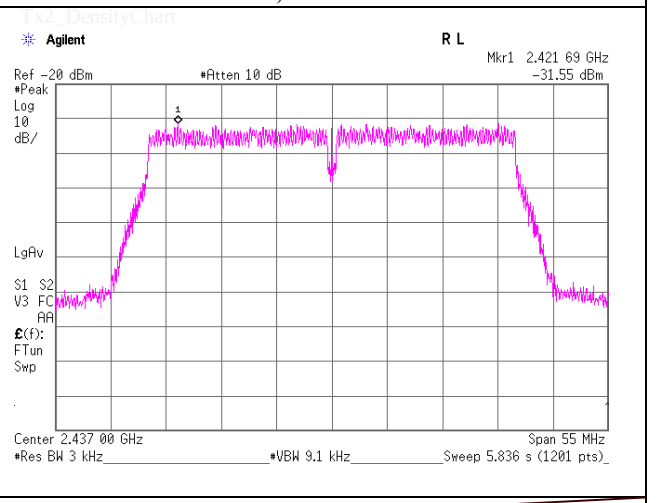
Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2422.0000	2429.79	-30.87	0.50	9.98	-20.39	8.00	28.39
2437.0000	2421.69	-31.55	0.50	9.98	-21.07	8.00	29.07
2452.0000	2468.55	-30.70	0.50	9.98	-20.22	8.00	28.22

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

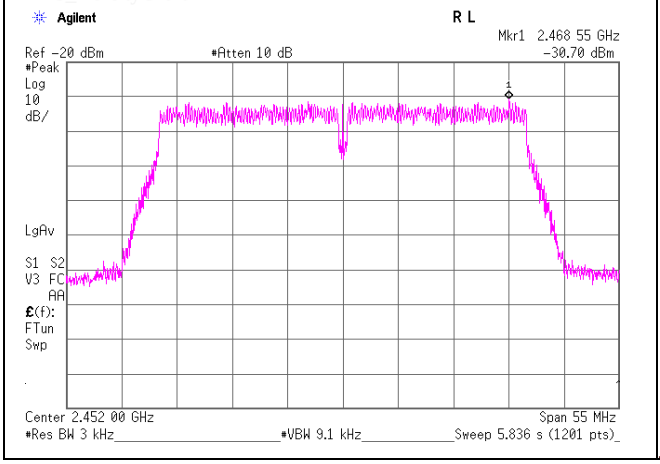
Tx, 2422MHz



Tx, 2437MHz



Tx, 2452MHz



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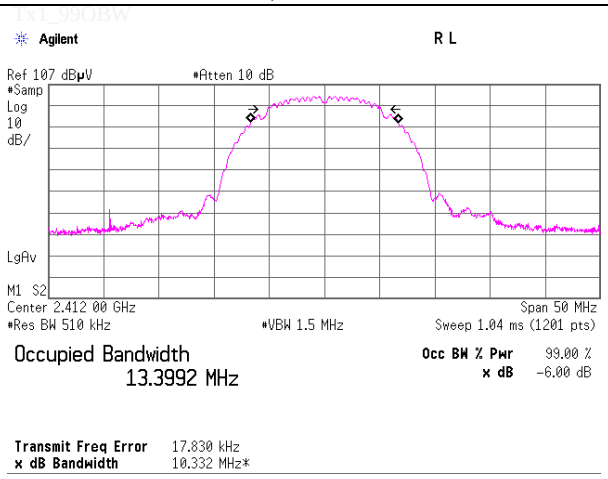
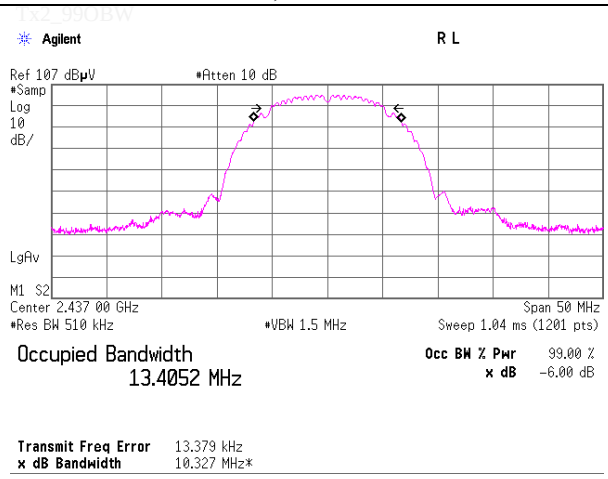
99% Occupied Bandwidth

Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 14

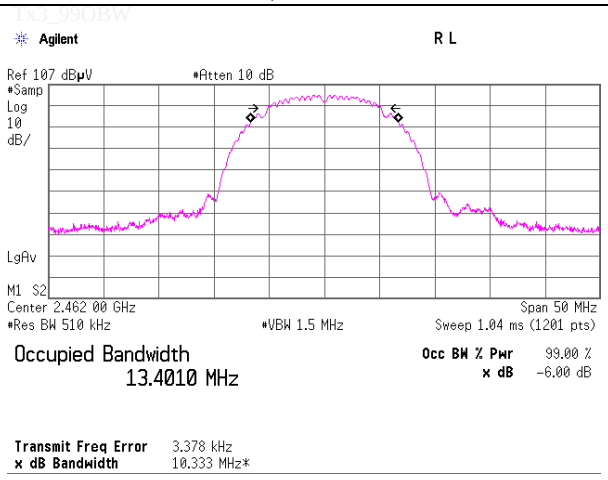
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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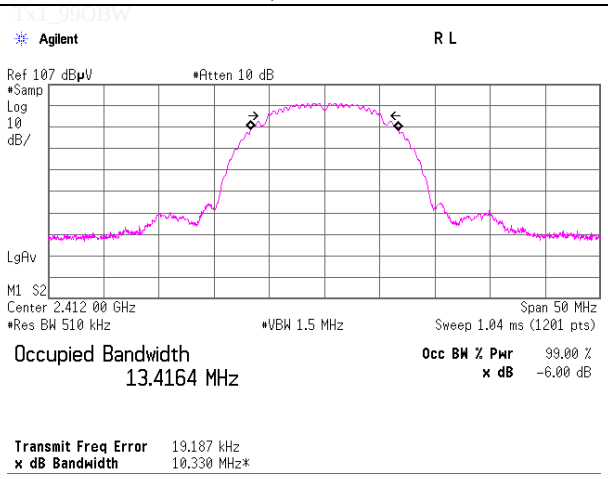
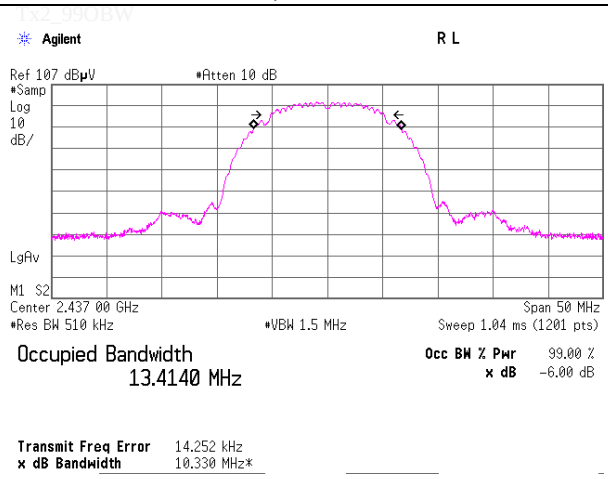
99% Occupied Bandwidth

Tx, IEEE802.11b, PN9, worst data mode 1Mbps, power setting 11

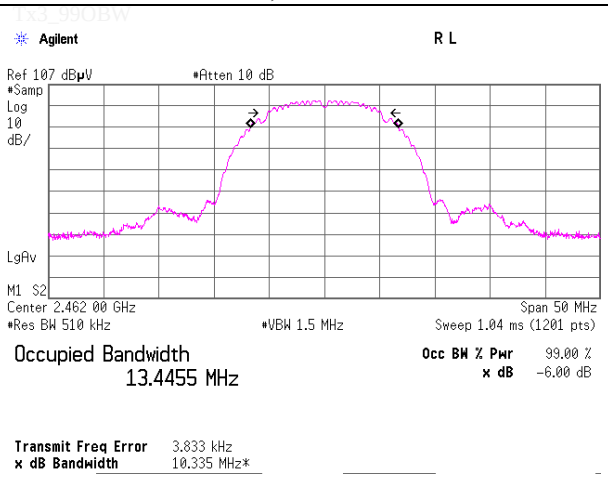
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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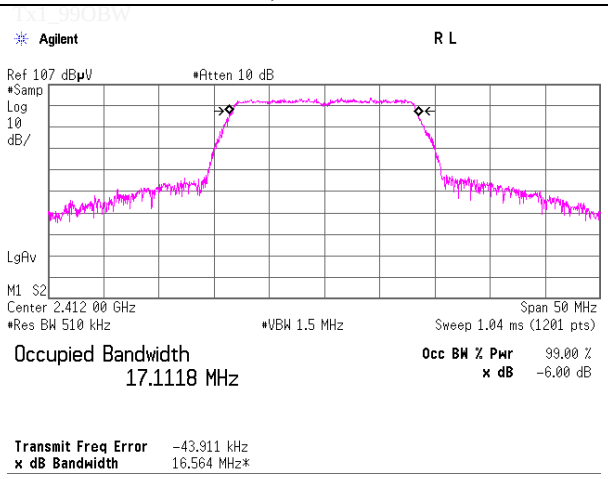
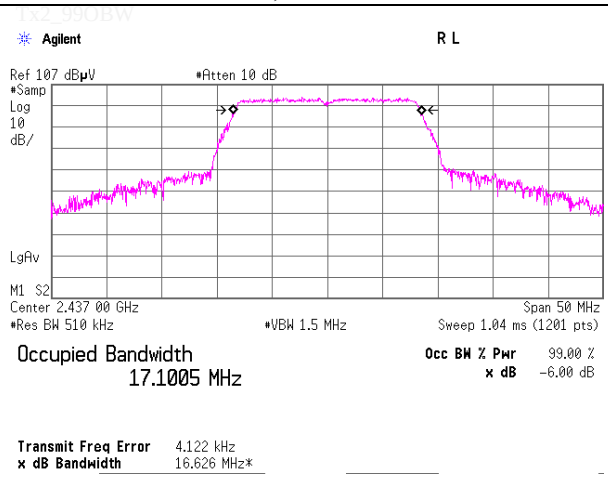
99% Occupied Bandwidth

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 12

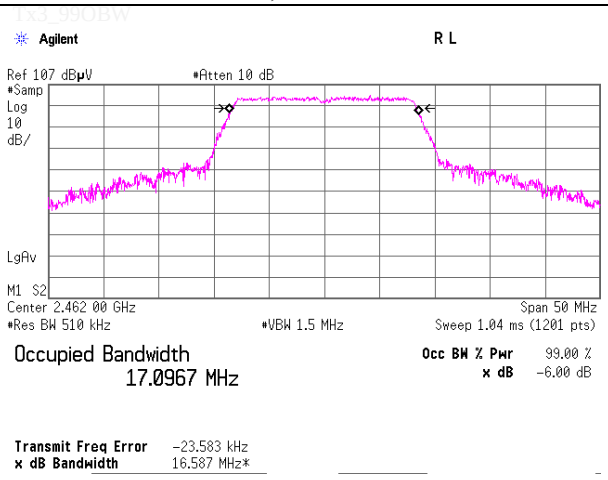
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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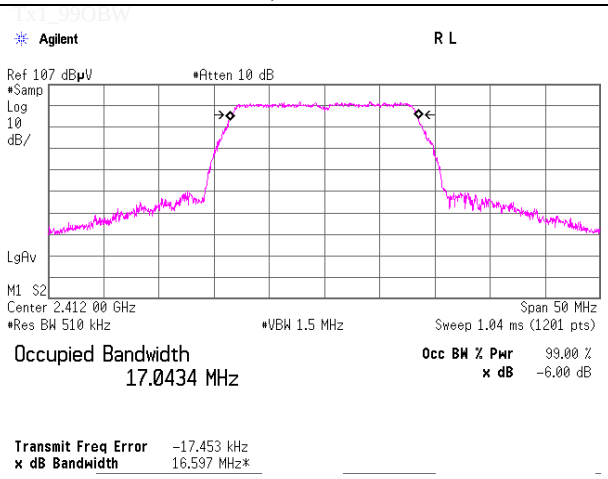
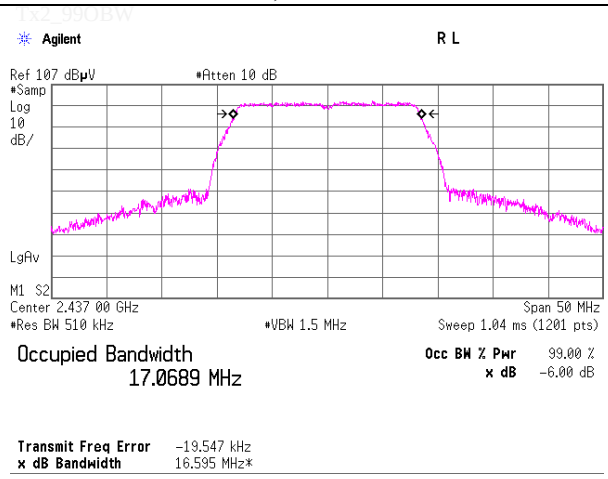
99% Occupied Bandwidth

Tx, IEEE802.11g, PN9, worst data mode 6Mbps, power setting 10

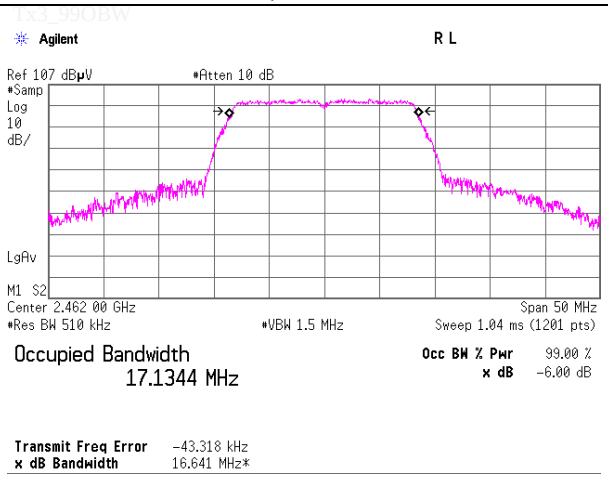
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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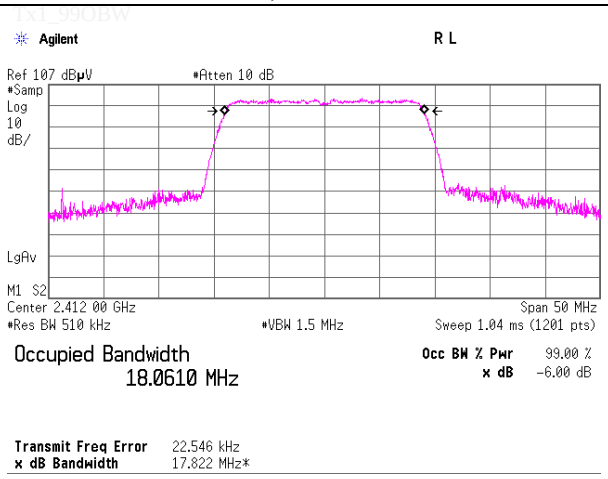
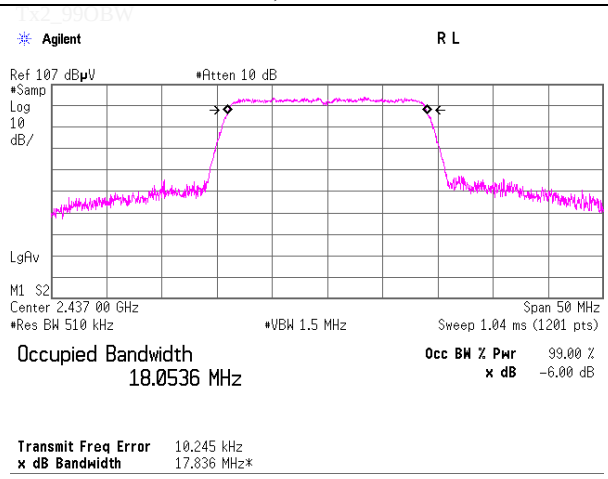
99% Occupied Bandwidth

Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 12

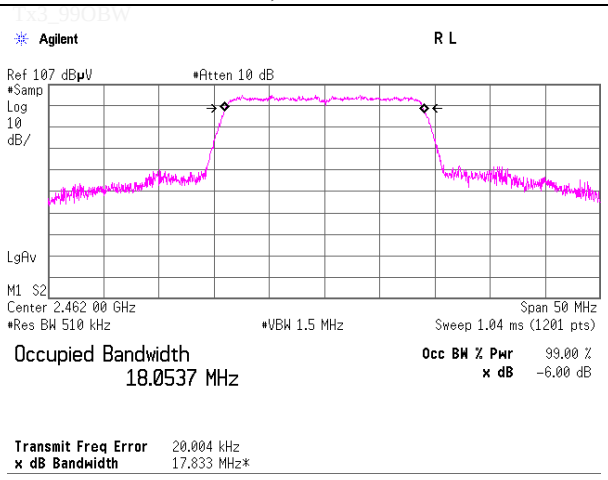
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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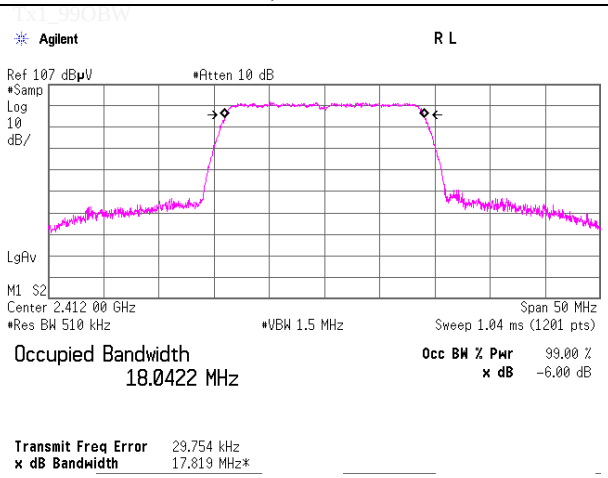
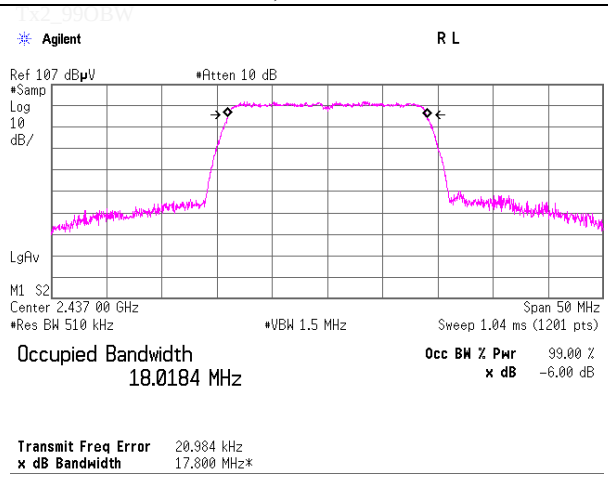
99% Occupied Bandwidth

Tx, IEEE802.11n (HT20), PN9, worst data mode 2(MCS), power setting 10

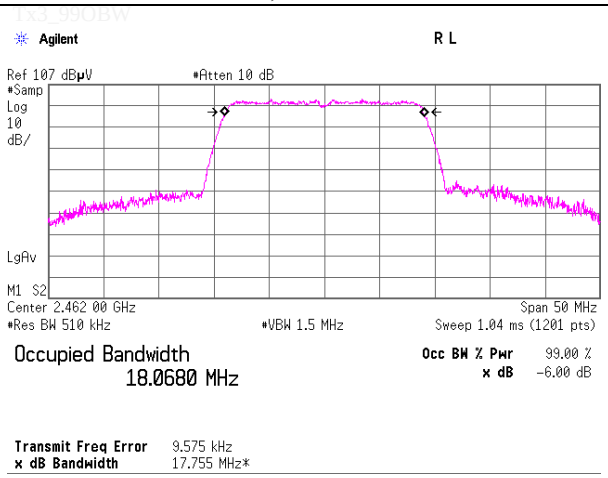
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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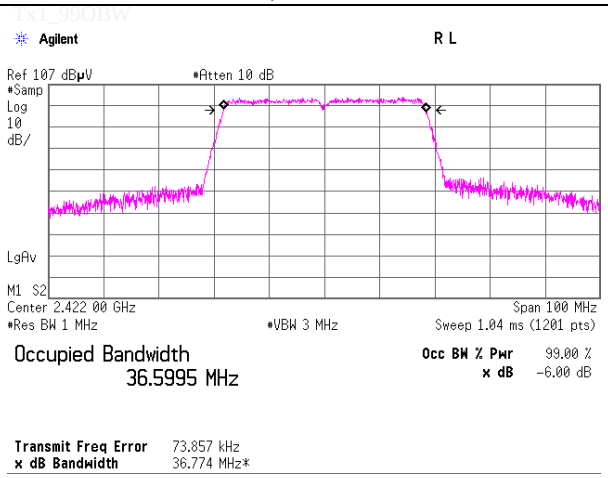
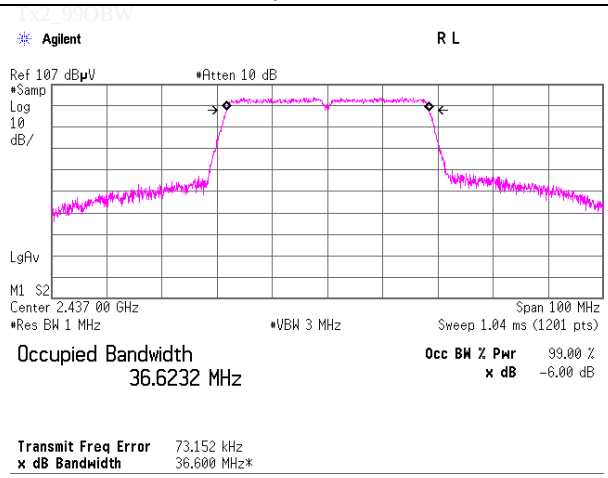
99% Occupied Bandwidth

Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 12

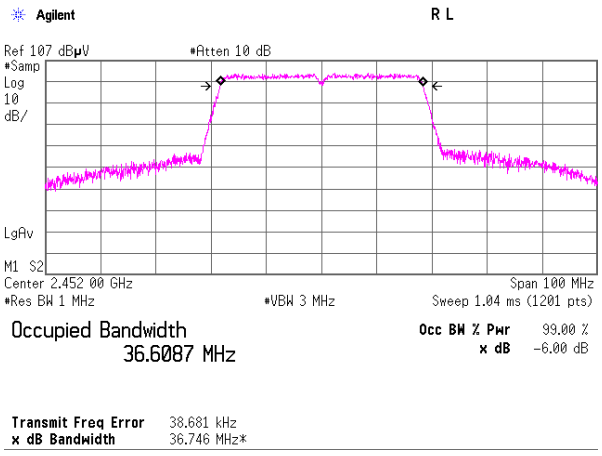
Tx, 2422MHz



Tx, 2437MHz



Tx, 2452MHz



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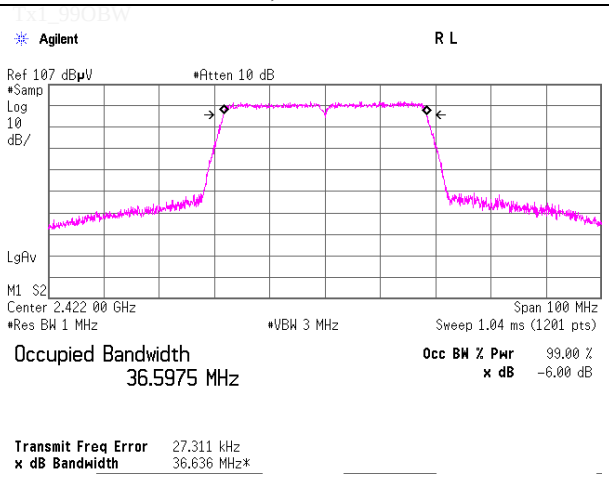
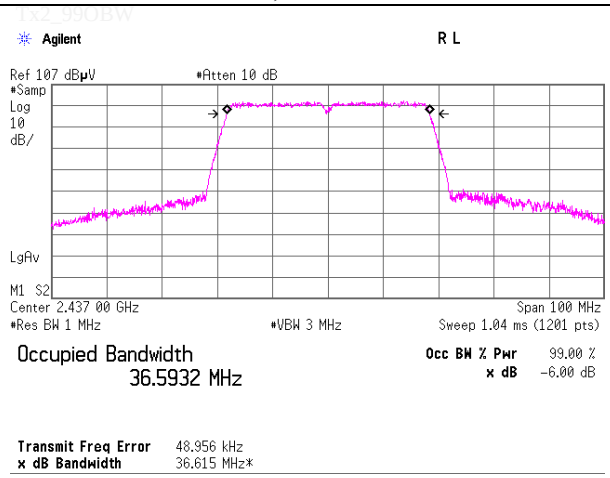
99% Occupied Bandwidth

Tx, IEEE802.11n (HT40), PN9, worst data mode 3(MCS), power setting 10

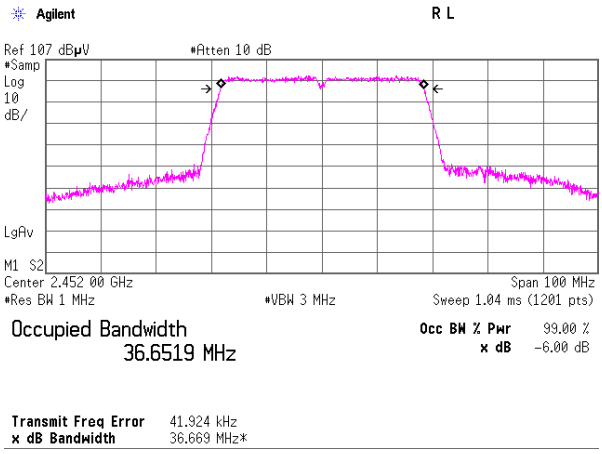
Tx, 2422MHz



Tx, 2437MHz



Tx, 2452MHz



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

APPENDIX 2
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SPM-01	Power Meter	Agilent	E4419B	MY45104212	AT	2013/01/30 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2013/04/09 * 12
KSA-08	Spectrum Analyzer	Agilent	E4446A	MY46180525	AT	2013/03/04 * 12
SAT10-10	Attenuator	Weinschel Corp.	54A-10	37584	AT	2013/04/09 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2013/03/07 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2013/07/09 * 12
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2013/07/22 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2013/04/11 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2013/05/22 * 12
SHA-01	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-725	RE	2012/08/20 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2013/02/27 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE	2013/03/28 * 12
SJM-11	Measure	PROMART	SEN1935	-	RE,CE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE, RFI,MF)	-	RE,CE	-
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2012/12/18 * 12
SAT20-01	Attenuator(above1GHz)	Agilent	8493C-020	74889	RE	2012/12/18 * 12
SHA-04	Horn Antenna	ETS LINDGREN	3160-09	LM3640	RE	2013/03/14 * 12
SAF-08	Pre Amplifier	TOYO Corporation	HAP18-26W	00000019	RE	2013/03/19 * 12
SCC-G15	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	RE	2013/03/16 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2013/02/12 * 12
SAT6-06	Attenuator	JFW	50HF-006N	-	RE	2013/02/12 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2012/10/08 * 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	2013/04/03 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2012/10/08 * 12
STR-06	Test Receiver	Rohde & Schwarz	ESCI	101259	RE,CE	2013/02/27 * 12
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	CE	2013/04/03 * 12
SLS-05	LISN	Rohde & Schwarz	ENV216	100516	CE	2013/02/25 * 12
SAT3-05	Attenuator	JFW	50HF-003N	-	CE	2013/02/12 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2013/03/07 * 12
STM-05	Terminator	TME	CT-01 BP	-	CE	2013/01/16 * 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 conducted test