RADIO TEST REPORT

Test Report No.: 10068267S-H

Applicant	:	**Hitachi Maxell, Ltd.**
Type of Equipment	:	**Wireless Display Module**
Model No.	:	**WHD0070-D103**
FCC ID	:	**2ABS4-WHD0070**
Test regulation	:	**FCC Part15 Subpart C: 2013**
Test result	:	**Complied**

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Date of test: November 10, 2013 to February 10, 2014

Tested by:

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REVISION HISTORY

Original Test Report No.: 10068267S-H

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10068267S-H	February 19, 2014	-	-
1	10068267S-H	February 28, 2014	13	Correction of typo (10.3 Test conditions)

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SECTION 1: Customer information

Company Name	:	Hitachi Maxell, Ltd.
Address	:	292 Yoshida-cho, Totsuka-ku, Yokohama-shi, Kanagawa, 244-0817 Japan
Telephone Number	:	+81 50 3152 1784
Facsimile Number	:	+81 45 866 5936
Contact Person	:	Hiroyuki Urata

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

2.1 Identification of E.U.T.

Type of Equipment	:	Wireless Display Module
Model Number	:	WHD0070-D103
Serial Number	:	Refer to 4.2 in this report.
Rating	:	DC5V
Country of Mass-production	:	China
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample	:	November 5, 2013
Modification of EUT	:	No modification by the test lab.

2.2 Product description

Model: WHD0070-D103 (referred to as the EUT in this report) is a Wireless Display Module.

Clock frequency(ies) in the system : 19.2MHz, 20MHz

Radio specification:

Equipment type	:	Transceiver
Frequency of operation *1)	:	2.4GHz: 2412-2462MHz (IEEE 802.11b, 11g, 11n (HT20))
		2422-2452MHz (IEEE 802.11n (HT40))
		5GHz (W52): 5180-5240MHz (IEEE 802.11a, 11n (HT20))
		5190-5230MHz (IEEE 802.11n (HT40))
		5GHz (W58): 5745-5825MHz (IEEE 802.11a, 11n (HT20))
		5755-5795MHz (IEEE 802.11n (HT40))
Bandwidth	:	20MHz (IEEE 802.11a/b/g/n), 40MHz (IEEE 802.11n)
Channel spacing	:	5MHz (2.4GHz),
		20MHz (IEEE 802.11a, 11n (HT20, 5GHz)),
		40MHz (IEEE 802.11n (HT40, 5GHz))
Type of modulation	:	DSSS, OFDM
Antenna type *2)	:	PCB Antenna
Antenna connector type	:	U.FL
ITU code	:	D1D, G1D
Operation temperature range	:	0 to +40 deg.C

*1) Refer to the test report 10068267S-I for FCC 15.407.
* The EUT does not perform simultaneous transmission of 2.4GHz and 5GHz Wireless LAN.

*2) The EUT has 3-type of antenna. One of the antennas is connected to the product.

No.	Antenna Brand	Antenna model	Antenna type	2.4G gain (dBi)	5G gain (dBi)	Cable length (mm)	Remark
1	Hitachi	WHD0070-A300	PIFA	0.49	1.77	300	-
2	Hitachi	WHD0070-A400	PIFA	0.34	1.09	400	-
3	Hitachi	WHD0070-A500	PIFA	-0.76	1.09	500	-

The testing has been performed using WHD0070-A300 which has the highest antenna gain.

FCC 15.31 (e) / 212
The RF Module has its own regulator. The RF Module is constantly provided voltage (DC3.3V, DC1.2V, DC1.8V) through the regulator regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC 15.203 / 212
The EUT has a unique coupling/antenna connector (U.FL). Therefore the equipment complies with the requirement.

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C: 2013,
final revised on September 30, 2013 and effective October 30, 2013

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.209 Radiated emission limits, general requirements
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

3.2 Procedures & Results

Item	Test Procedure *1)	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.10:2009	FCC 15.207	-	N/A	20.8dB Freq.: 28.96700 MHz Detection: Average Phase: L1 Mode: Tx 2412MHz IEEE 802.11n (HT20), CDD	Complied
6dB bandwidth	ANSI C63.10:2009	FCC 15.247 (a)(2)	Conducted	N/A	* See data	Complied
Maximum peak 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	1.1dB Freq.: 78.935MHz Polarization: Vertical Detection: Quasi-Peak Mode: Tx 2412MHz IEEE 802.11n (HT20), CDD	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 C63.10:2009, 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	4.8 dB	5.0 dB	4.8 dB
	300MHz-1GHz	5.0 dB	5.0 dB	4.8 dB
	1GHz-15GHz	4.9 dB	4.9 dB	4.9 dB
Radiated emission (Measurement distance: 1m)	15GHz-18GHz	5.7 dB	5.6 dB	5.6 dB
	18GHz-40GHz	5.2 dB	4.3 dB	4.3 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 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: (±) 1.6dB
Spurious emission (Conducted) measurement (1G-3GHz) uncertainty for this test was: (±) 1.4dB
Spurious emission (Conducted) measurement (3G-18GHz) uncertainty for this test was: (±) 2.8dB
Spurious emission (Conducted) measurement (18G-26.5GHz) uncertainty for this test was: (±) 2.5dB
Bandwidth measurement uncertainty for this test was: (±) 5.4%

3.5 Test location

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JAB Accreditation No. : RTL02610

	FCC Registration No.	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
☐ No.1 semi-anechoic chamber	697847	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.2 semi-anechoic chamber	697847	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 semi-anechoic chamber	697847	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 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	-
☐ No.7 shielded room	-	-	2.76 x 3.76 x 2.4	2.76 x 3.76	-
☐ No.1 measurement room	-	-	2.55 x 4.1 x 2.5	-	-

3.6 Test setup, Test data & 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	Worst data mode *1)
Conducted emission Radiated emission (below 1GHz) *2)	Transmitting IEEE 802.11n (HT20), CDD *4)	2412MHz	PN9, MCS2
		5745MHz	PN9, MCS0
Radiated emission (above 1GHz) *5)	Transmitting IEEE 802.11b	2412MHz, 2437MHz, 2462MHz	PN9, 1Mbps
	Transmitting IEEE 802.11g	2412MHz, 2437MHz, 2462MHz	PN9, 6Mbps
	Transmitting IEEE 802.11n (HT20), CDD *4)	2412MHz, 2437MHz, 2462MHz	PN9, MCS2
	Transmitting IEEE 802.11n (HT40), CDD *4)	2422MHz, 2437MHz, 2452MHz	PN9, MCS0
	Transmitting IEEE 802.11a	5745MHz, 5785MHz, 5825MHz	PN9, 6Mbps
	Transmitting IEEE 802.11n (HT20), CDD *4)	5745MHz, 5785MHz, 5825MHz	PN9, MCS0
	Transmitting IEEE 802.11n (HT40), CDD *4)	5755MHz, 5795MHz	PN9, MCS0
Other items	Transmitting IEEE 802.11b	2412MHz, 2437MHz, 2462MHz	PN9, 1Mbps
	Transmitting IEEE 802.11g	2412MHz, 2437MHz, 2462MHz	PN9, 6Mbps
	Transmitting IEEE 802.11n (HT20), SISO	2412MHz, 2437MHz, 2462MHz	PN9, MCS2
	Transmitting IEEE 802.11n (HT20), CDD *4)	2412MHz, 2437MHz, 2462MHz	PN9, MCS2
	Transmitting IEEE 802.11n (HT20), SDM (MIMO) *3)	2412MHz, 2437MHz, 2462MHz	PN9, MCS10
	Transmitting IEEE 802.11n (HT40), SISO	2422MHz, 2437MHz, 2452MHz	PN9, MCS0
	Transmitting IEEE 802.11n (HT40), CDD *4)	2422MHz, 2437MHz, 2452MHz	PN9, MCS0
	Transmitting IEEE 802.11n (HT40), SDM (MIMO) *3)	2422MHz, 2437MHz, 2452MHz	PN9, MCS8
	Transmitting IEEE 802.11a	5745MHz, 5785MHz, 5825MHz	PN9, 6Mbps
	Transmitting IEEE 802.11n (HT20) SISO	5745MHz, 5785MHz, 5825MHz	PN9, MCS0
	Transmitting IEEE 802.11n (HT20), CDD *4)	5745MHz, 5785MHz, 5825MHz	PN9, MCS0
	Transmitting IEEE 802.11n (HT20), SDM (MIMO) *3)	5745MHz, 5785MHz, 5825MHz	PN9, MCS8
	Transmitting IEEE 802.11n (HT40) SISO	5755MHz, 5795MHz	PN9, MCS0
	Transmitting IEEE 802.11n (HT40), CDD *4)	5755MHz, 5795MHz	PN9, MCS0
	Transmitting IEEE 802.11n (HT40), SDM (MIMO) *3)	5755MHz, 5795MHz	PN9, MCS8

*1) The worst condition was determined based on the test result of Maximum Peak Output Power.
*2) 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.
*3) As this transmitter has SDM (MIMO) mode for only MCS8 to MCS15, we need not to consider array gains.
*4) The EUT has CDD mode for MCS0 to MCS7. Directional gain is below 6dB, if correlation gain is considered.
*5) CDD mode was selected in SISO / CDD / SDM (MIMO) for IEEE 802.11n (HT20) and IEEE 802.11n (HT40), based on the test result of Maximum Peak Output Power.

EUT has the power settings by the software as follows;
Test software: MTool.exe, ver. 1.0.0.9
Power settings:
2.4GHz: IEEE 802.11b: 54, IEEE 802.11g: 48, IEEE 802.11n (HT20): 48, IEEE 802.11n (HT40): 48
5GHz: IEEE 802.11a: 50, IEEE 802.11n (HT20): 50, IEEE 802.11n (HT40): 50

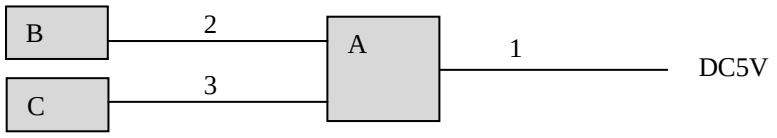
Measured antenna port:

	Single output (IEEE 802.11a, 11b, 11g, 11n SISO)	Multi output (IEEE 802.11n CDD, 11n SDM(MIMO))
Maximum peak output power	- Antenna 0 - Antenna 1	Antenna 0 + Antenna 1
Radiated emission	- Antenna 0 or Antenna 1 *1)	Antenna 0 + Antenna 1
Other tests	- Antenna 0 or Antenna 1 *1)	Antenna 0 or Antenna 1 *1)

*1) The worse antenna port was determined based on the test result of Maximum Peak Output Power.

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

4.2 Configuration and peripherals



* Test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Wireless Display Module	WHD0070-D103	*1)	Askey Computer Corp.	EUT
B	Planar Inverted F Antenna	WHD0070-A300	1	Askey Computer Corp.	EUT
C	Planar Inverted F Antenna	WHD0070-A300	2	Askey Computer Corp.	EUT

*1) Conducted / Radiated emission: C0:D9:62:FF:E6:F4, Other test: C0:D9:62:FF:E6:DA

List of cables used

No.	Cable Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB	2.1	Shielded	Shielded	-
2	Antenna	0.3	Shielded	Shielded	-
3	Antenna	0.3	Shielded	Shielded	-

SECTION 5: Conducted emission

5.1 Operating environment

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

5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 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. All unused 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.
Photographs of the set up are shown in APPENDIX 3.

5.3 Test conditions

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

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT within a Shielded room.
The EUT was connected to a Line Impedance Stabilization Network (LISN) via DC power supply.
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 "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 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 "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 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 "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 - 40GHz
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	1-40GHz		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 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247”.

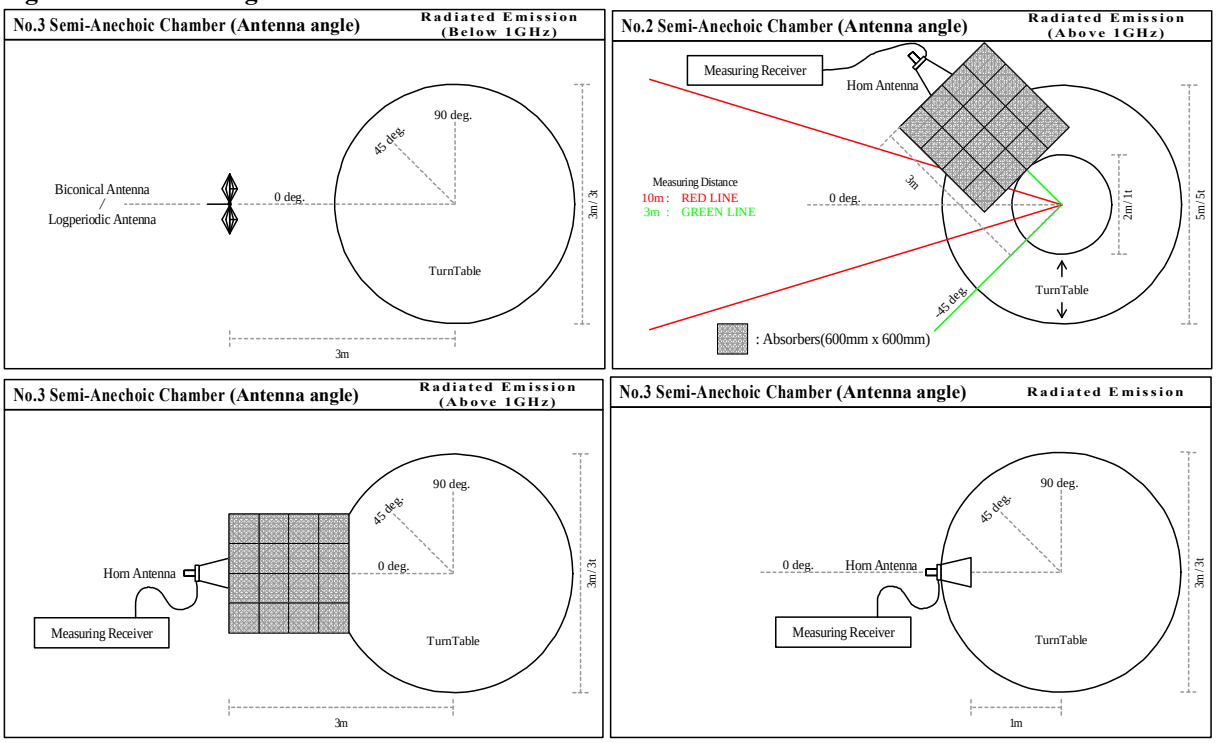
The carrier levels and noise levels were confirmed at each position of X, Y and Z axes to see the position of maximum noise, and the test was made at the position that has the maximum noise.
Worst case:
2.4GHz band

Subject	Antenna polarization	Carrier	Spurious		
			Below 1GHz	1-2.8GHz	2.8-25GHz
Module	Horizontal	Y	Y	Y	Z
Antenna		X	X	X	Y
Module	Vertical	Y	Y	Y	Y
Antenna		Z	X	Z	Z

5GHz band

Subject	Antenna polarization	Carrier	Spurious		
			Below 1GHz	1-6.4GHz	6.4-40GHz
Module	Horizontal	Y	Y	Y	Y
Antenna		Y	X	Y	X
Module	Vertical	Y	Y	Y	Y
Antenna		Z	X	Z	X

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, 5725MHz and 5850MHz is below the 20dBc. Refer to the data.

10.6 Results

Summary of the test results : Pass
* No noise was detected above the 3rd order harmonics.

Refer to APPENDIX 1.

Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

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

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Conducted emission
Radiated emission
Pre-check of the worst position

DATA OF CONDUCTED EMISSION TEST

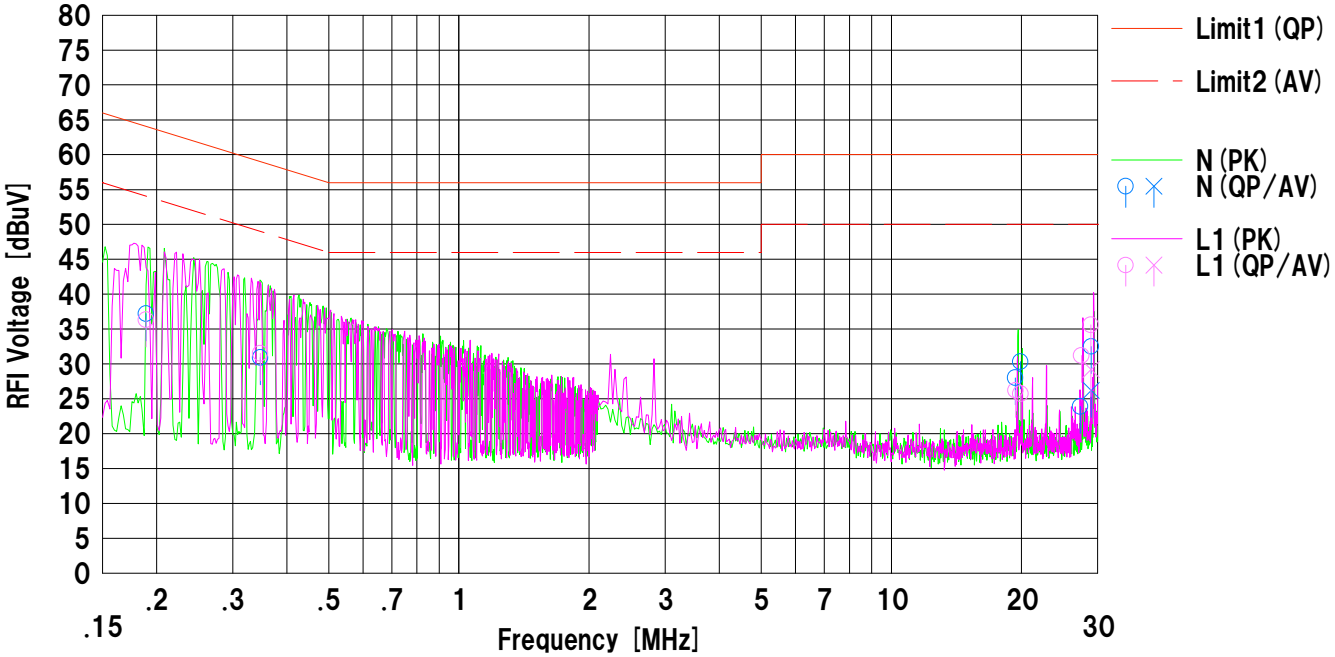
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2013/11/26

Company : Hitachi Maxell, Ltd.
Kind of EUT : Wireless Display Module
Model No. : WHD0070-D103
Serial No. : C0:D9:62:FF:E6:F4
Remarks : -

Mode : Tx,11n(HT20),CDD,2412MHz
Order No. : 10068267S
Power : DC 5V
Temp./Humi. : 25deg.C / 42%RH

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

Engineer : Tatsuya Arai



No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
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	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.18921	24.5	---	12.7	37.2	---	64.0	54.0	26.8	---	N	
2	0.34726	18.2	---	12.7	30.9	---	59.0	49.0	28.1	---	N	
3	19.33900	14.5	---	13.5	28.0	---	60.0	50.0	32.0	---	N	
4	19.88990	16.7	---	13.6	30.3	---	60.0	50.0	29.7	---	N	
5	27.37700	10.1	---	13.8	23.9	---	60.0	50.0	36.1	---	N	
6	28.97700	18.6	12.3	13.9	32.5	26.2	60.0	50.0	27.5	23.8	N	
7	0.18921	23.6	---	12.7	36.3	---	64.0	54.0	27.7	---	L1	
8	0.34726	18.8	---	12.7	31.5	---	59.0	49.0	27.5	---	L1	
9	19.37950	12.6	---	13.6	26.2	---	60.0	50.0	33.8	---	L1	
10	19.92150	12.1	---	13.6	25.7	---	60.0	50.0	34.3	---	L1	
11	27.53600	17.4	---	13.8	31.2	---	60.0	50.0	28.8	---	L1	
12	28.96700	21.7	15.3	13.9	35.6	29.2	60.0	50.0	24.4	20.8	L1	

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

DATA OF CONDUCTED EMISSION TEST

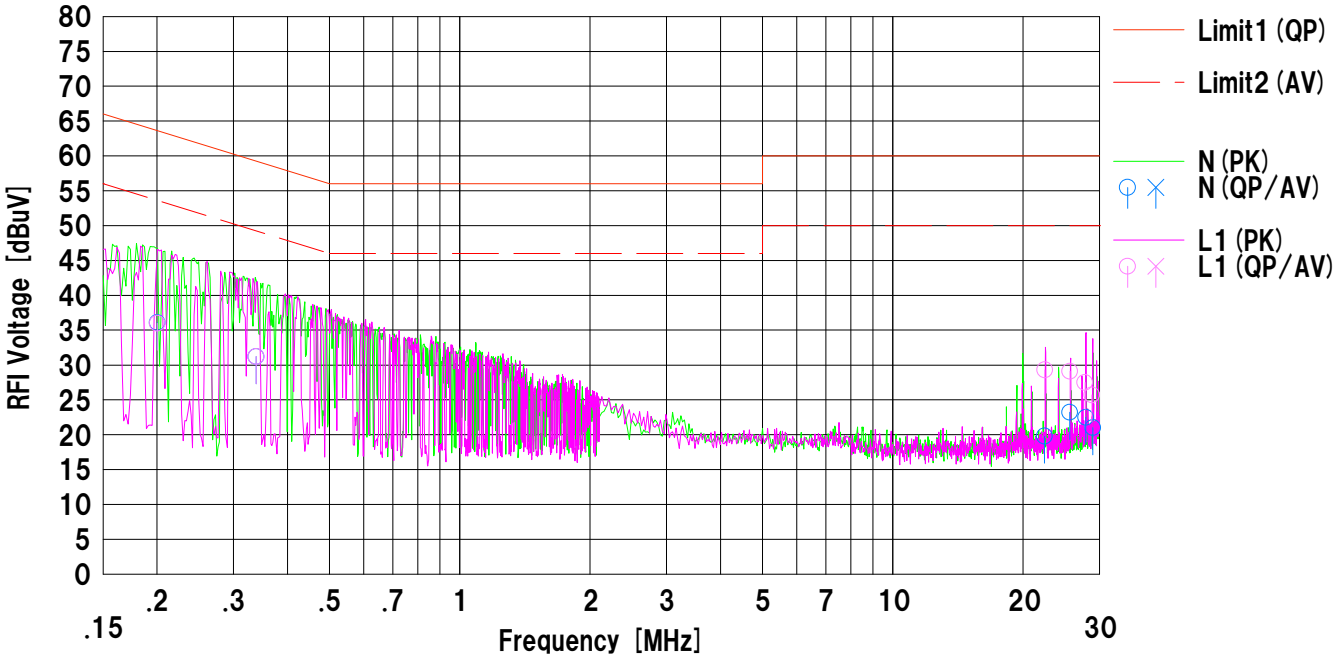
UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2013/11/26

Company : Hitachi Maxell, Ltd.
Kind of EUT : Wireless Display Module
Model No. : WHD0070-D103
Serial No. : C0:D9:62:FF:E6:F4
Remarks : -

Mode : Tx,11n(HT20),CDD,5745MHz
Order No. : 10068267S
Power : DC 5V
Temp./Humi. : 25deg.C / 42%RH

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

Engineer : Tatsuya Arai



No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.20027	23.4	---	12.7	36.1	---	63.5	53.5	27.4	---	N	
2	0.33880	18.5	---	12.7	31.2	---	59.2	49.2	28.0	---	N	
3	22.41700	6.2	---	13.6	19.8	---	60.0	50.0	40.2	---	N	
4	25.60800	9.5	---	13.7	23.2	---	60.0	50.0	36.8	---	N	
5	27.93379	8.7	---	13.8	22.5	---	60.0	50.0	37.5	---	N	
6	28.97117	7.1	---	13.9	21.0	---	60.0	50.0	39.0	---	N	
7	0.20027	23.3	---	12.7	36.0	---	63.5	53.5	27.5	---	L1	
8	0.33880	18.5	---	12.7	31.2	---	59.2	49.2	28.0	---	L1	
9	22.44850	15.7	---	13.6	29.3	---	60.0	50.0	30.7	---	L1	
10	25.65200	15.4	---	13.7	29.1	---	60.0	50.0	30.9	---	L1	
11	27.79150	13.7	---	13.8	27.5	---	60.0	50.0	32.5	---	L1	
12	28.83250	11.8	---	13.9	25.7	---	60.0	50.0	34.3	---	L1	

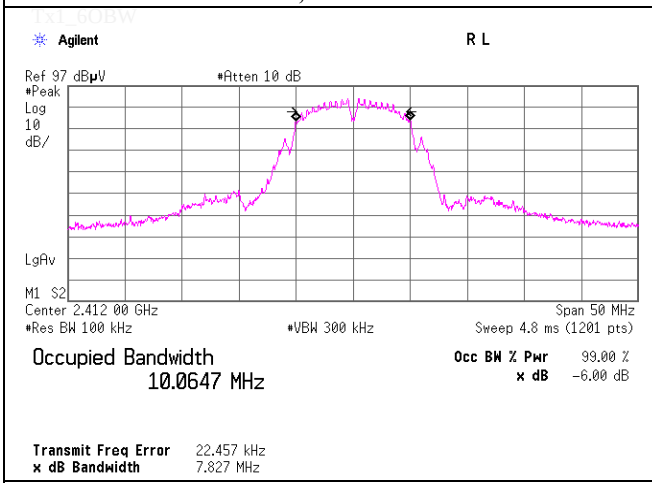
Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-05

-6dB Bandwidth

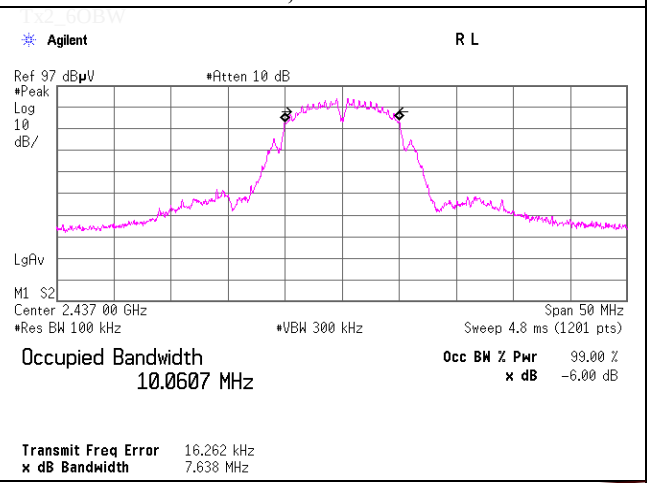
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11b, PN9, worst antenna port 0, worst data mode 1Mbps	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	7.827	> 0.500
2437.0000	7.638	> 0.500
2462.0000	8.127	> 0.500

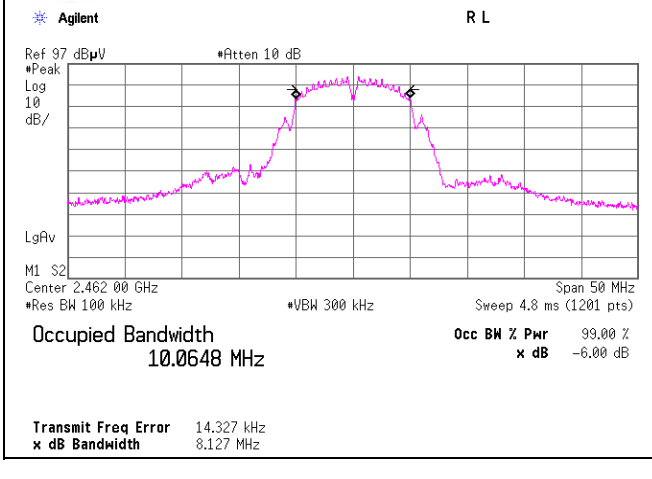
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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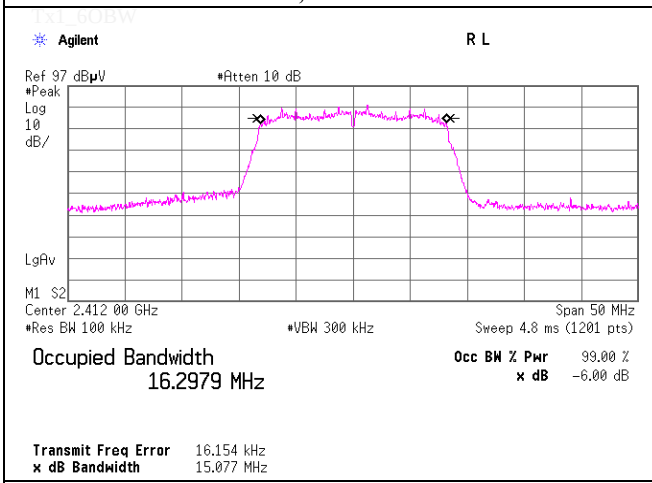
-6dB Bandwidth

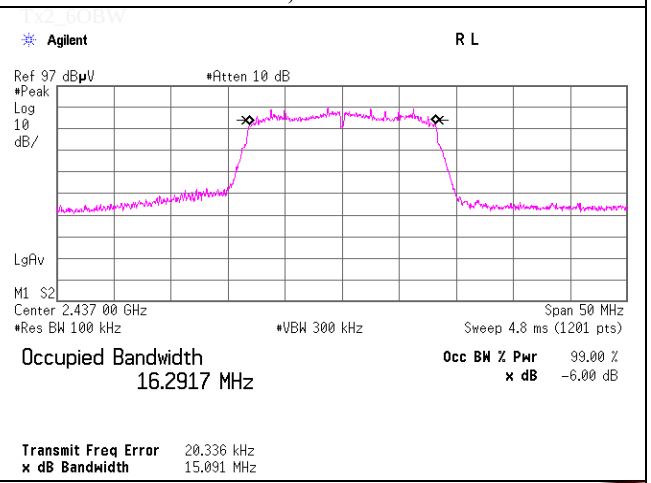
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11g, PN9, worst antenna port 0, worst data mode 6Mbps	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	15.077	> 0.500
2437.0000	15.091	> 0.500
2462.0000	15.070	> 0.500

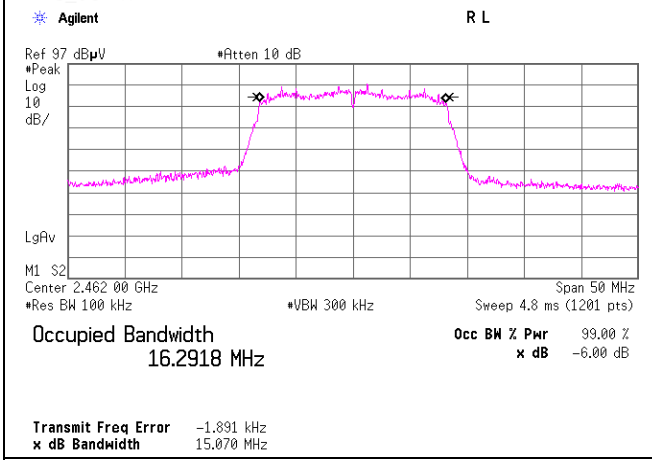
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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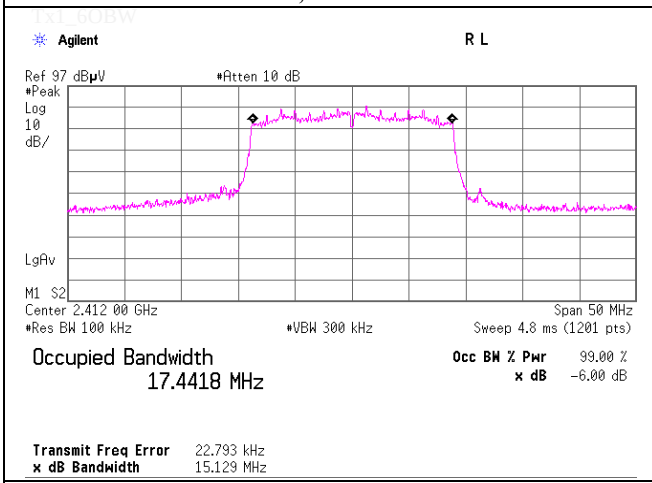
-6dB Bandwidth

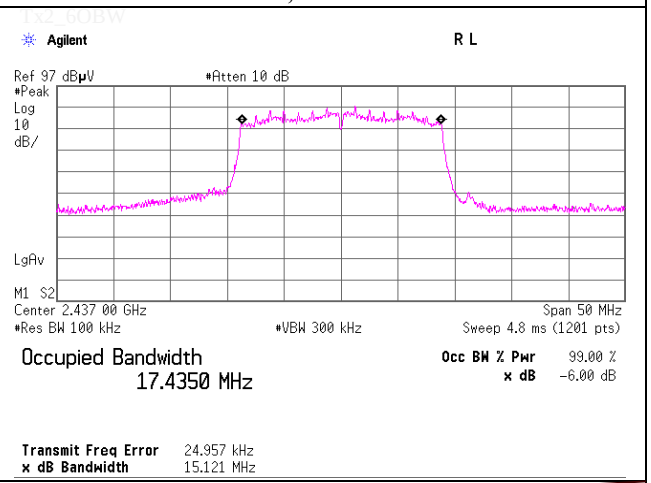
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n(HT20), SISO, PN9, worst antenna port 0, worst data mode 2(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	15.129	> 0.500
2437.0000	15.121	> 0.500
2462.0000	15.130	> 0.500

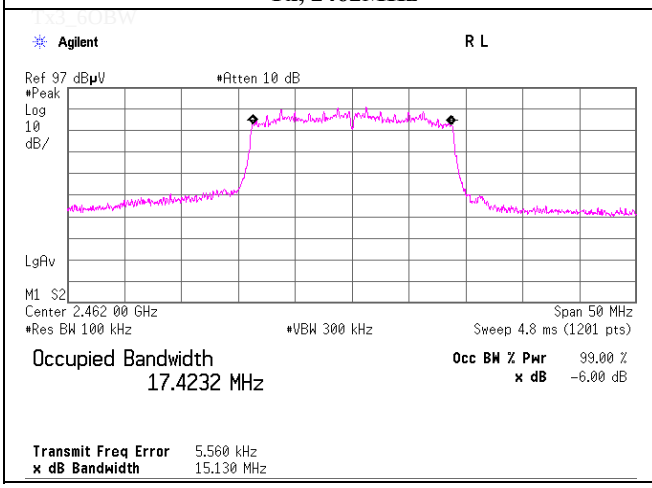
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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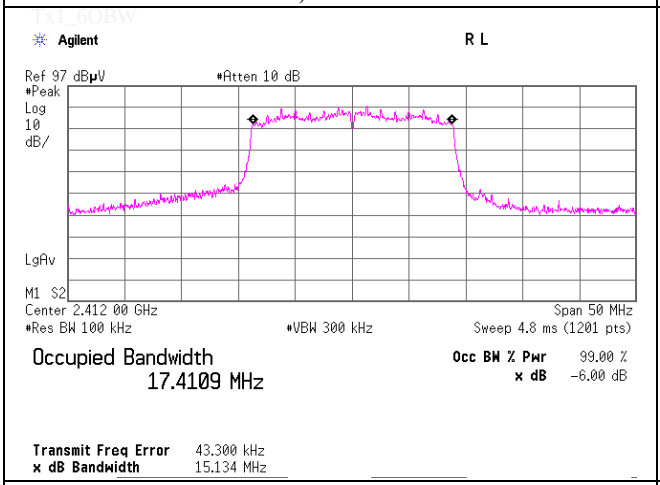
-6dB Bandwidth

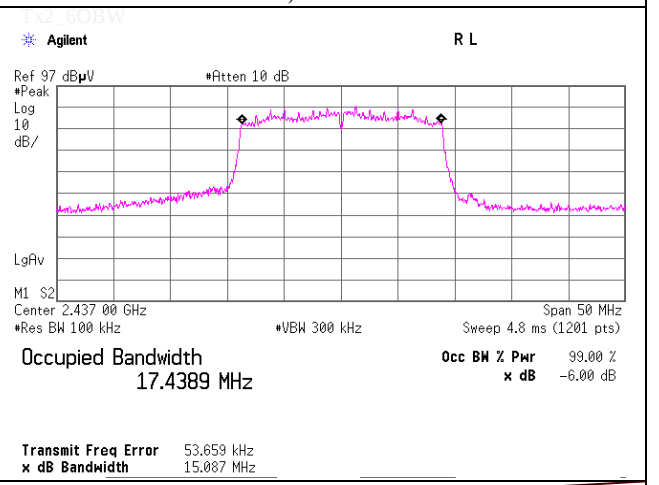
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 2(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	15.134	> 0.500
2437.0000	15.087	> 0.500
2462.0000	15.133	> 0.500

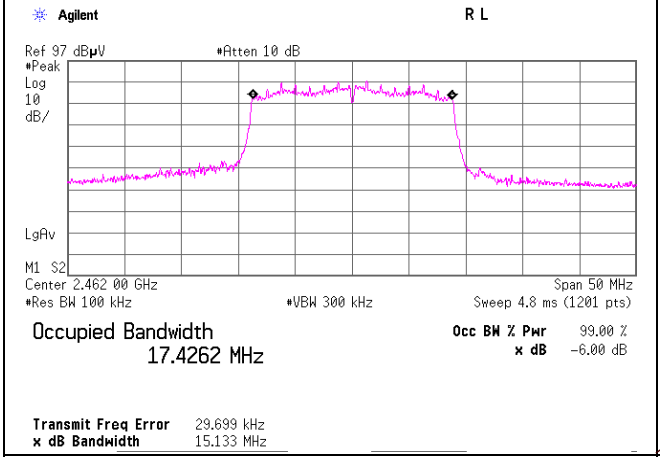
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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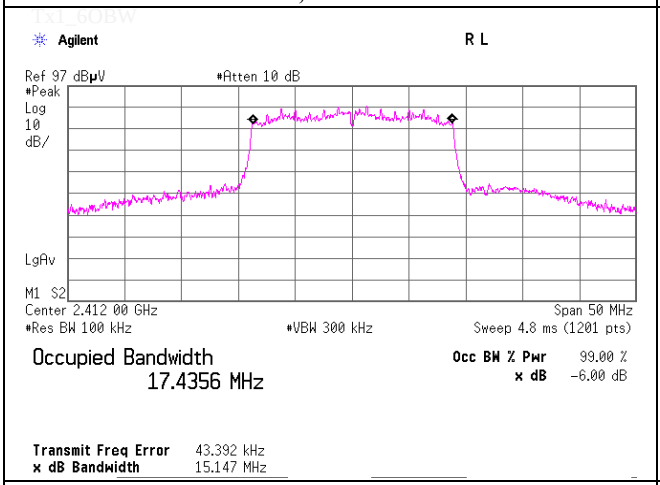
-6dB Bandwidth

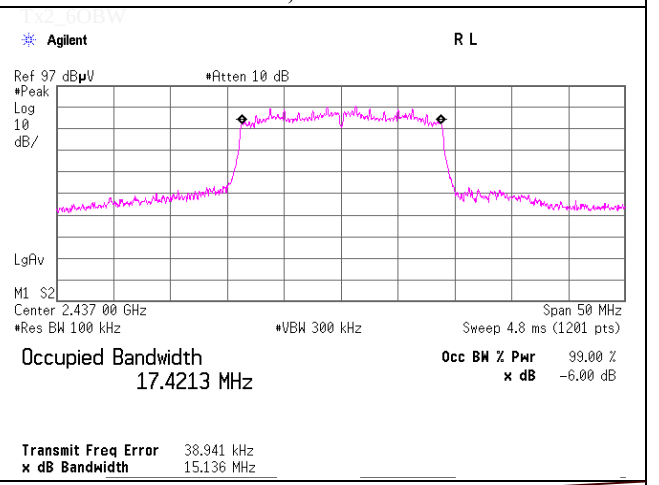
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 10(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	15.147	> 0.500
2437.0000	15.136	> 0.500
2462.0000	15.129	> 0.500

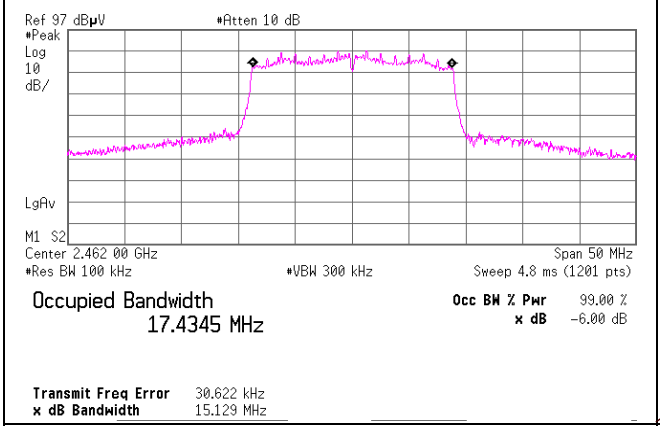
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



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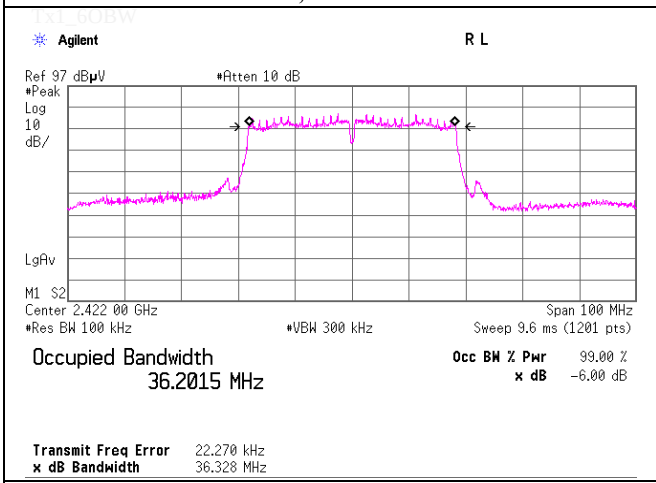
-6dB Bandwidth

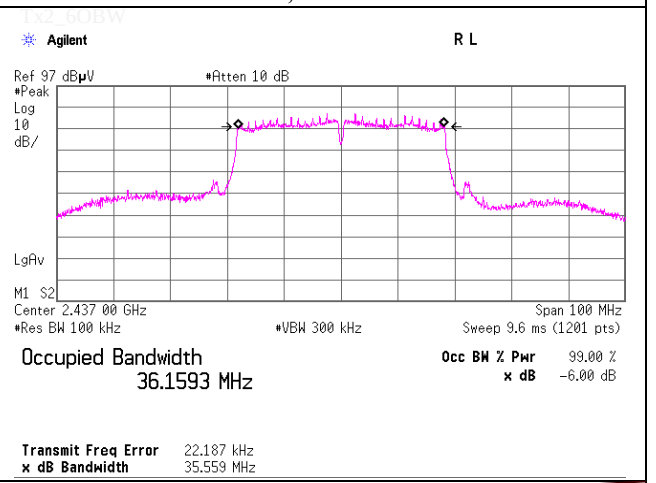
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2422.0000	36.328	> 0.500
2437.0000	35.559	> 0.500
2452.0000	36.410	> 0.500

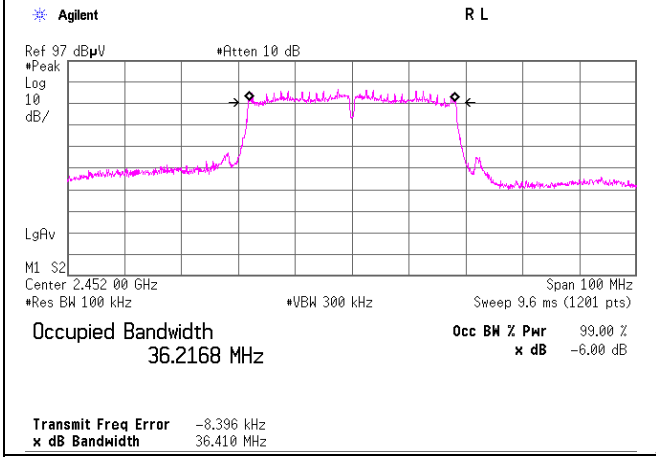
Tx, 2422MHz



Tx, 2437MHz



Tx, 2452MHz



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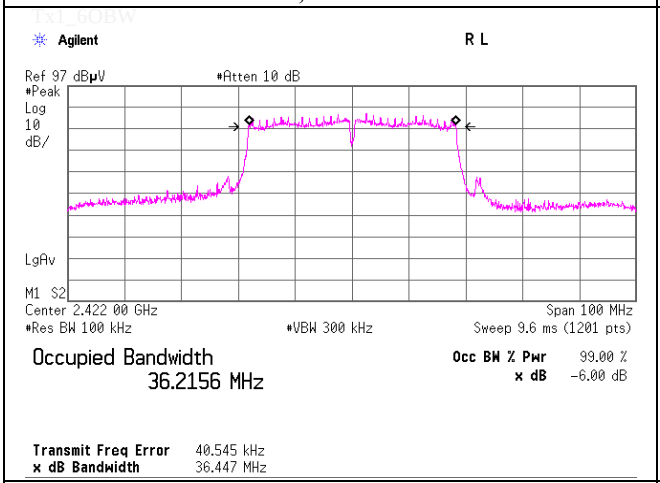
-6dB Bandwidth

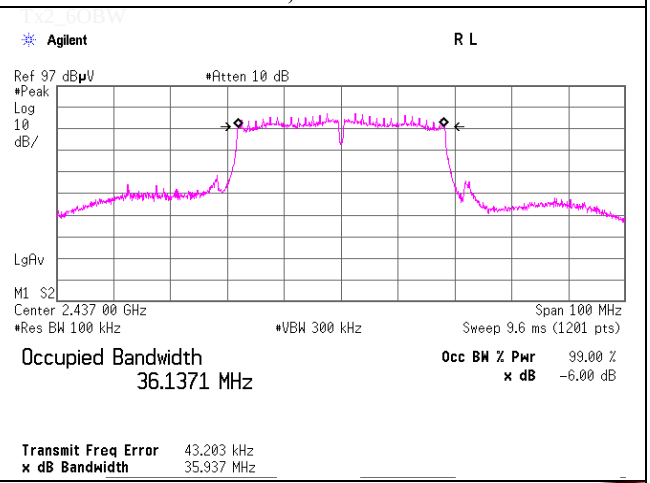
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2422.0000	36.447	> 0.500
2437.0000	35.937	> 0.500
2452.0000	36.372	> 0.500

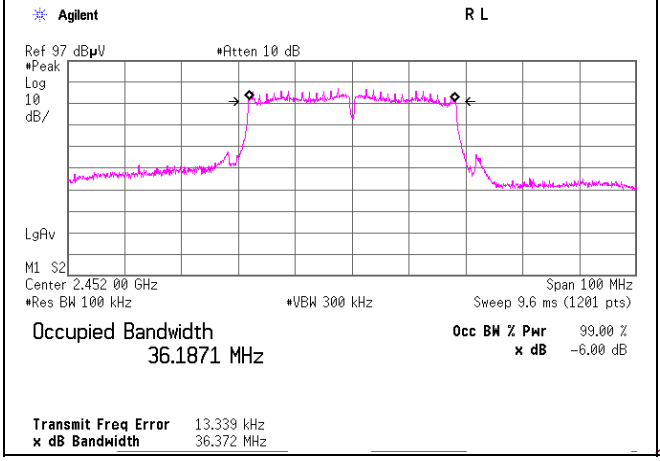
Tx, 2422MHz



Tx, 2437MHz



Tx, 2452MHz



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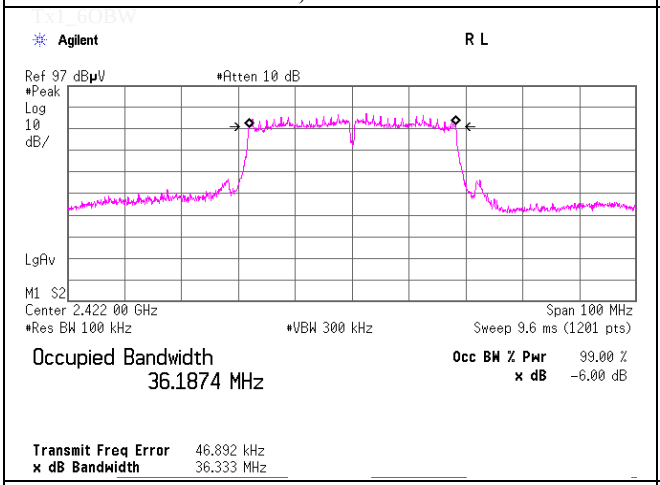
-6dB Bandwidth

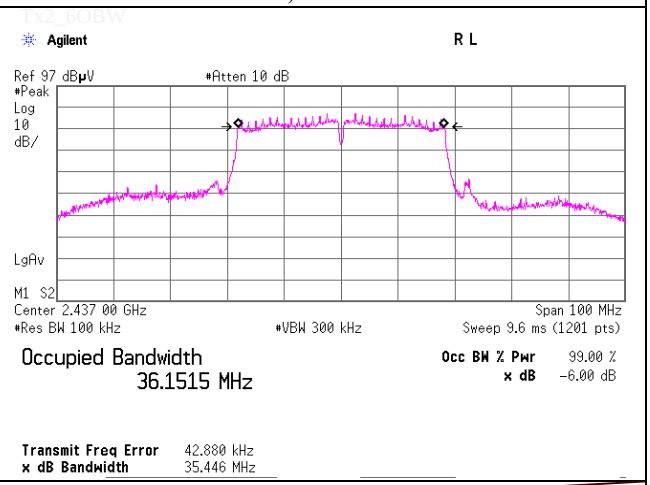
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2422.0000	36.333	> 0.500
2437.0000	35.446	> 0.500
2452.0000	36.073	> 0.500

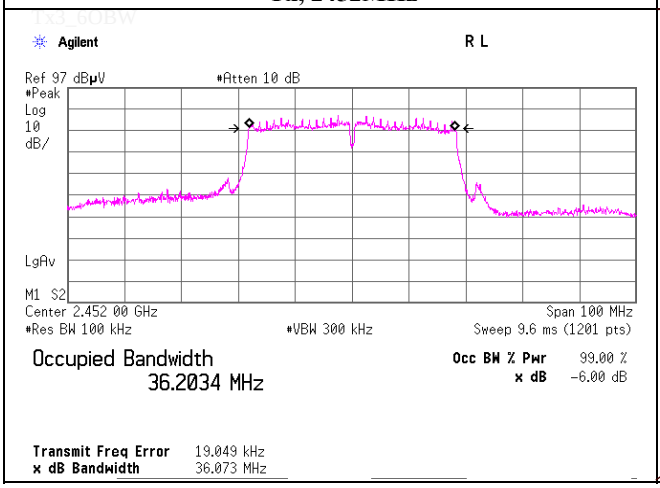
Tx, 2422MHz



Tx, 2437MHz



Tx, 2452MHz



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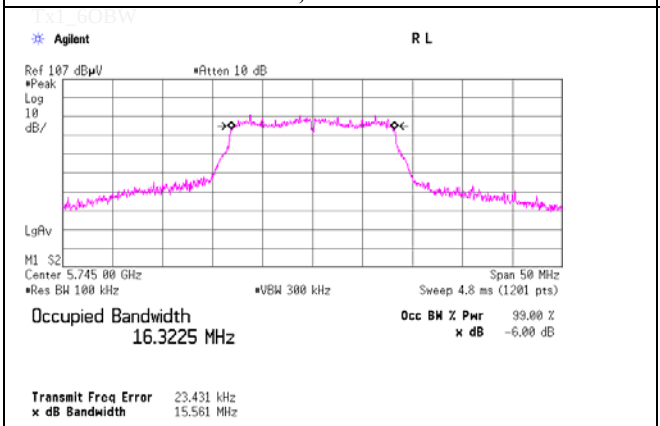
-6dB Bandwidth

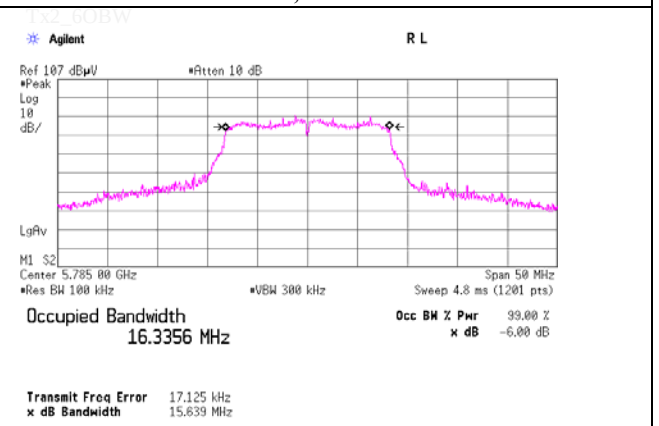
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 20, 2013	
Temperature / Humidity	22deg.C , 33%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
5745.0000	15.561	> 0.500
5785.0000	15.639	> 0.500
5825.0000	16.324	> 0.500

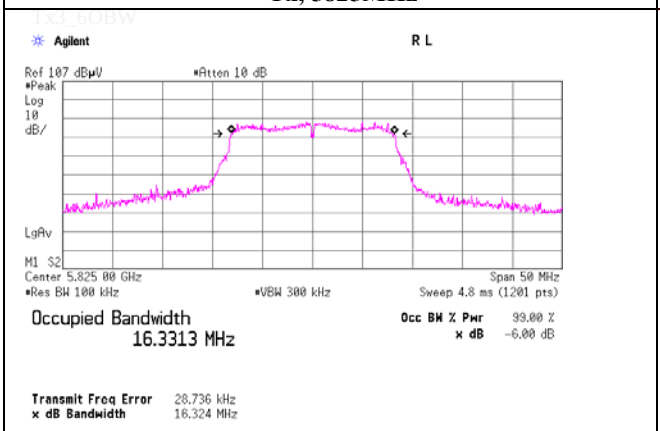
Tx, 5745MHz



Tx, 5785MHz



Tx, 5825MHz



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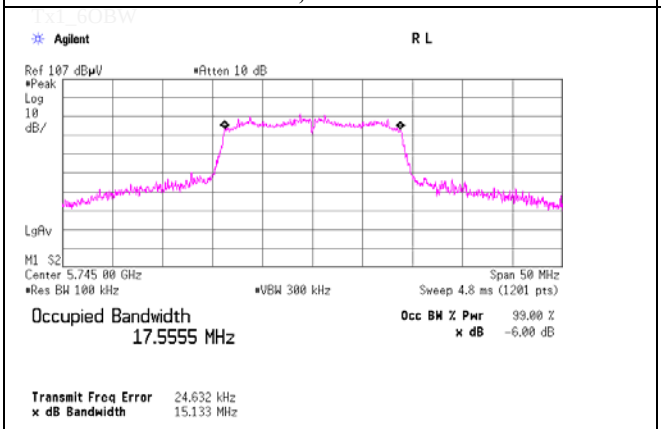
-6dB Bandwidth

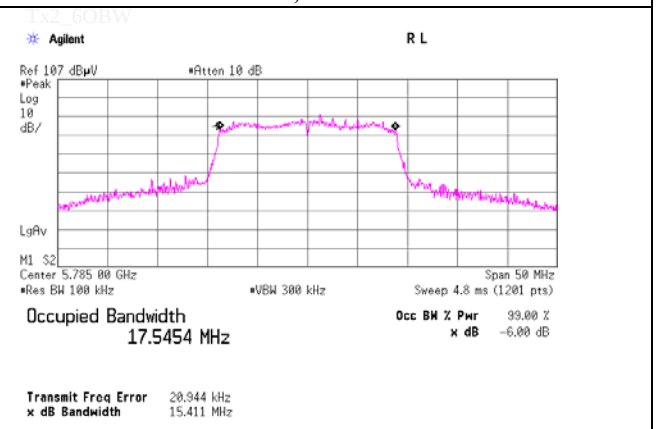
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 20, 2013	
Temperature / Humidity	22deg.C , 33%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
5745.0000	15.133	> 0.500
5785.0000	15.411	> 0.500
5825.0000	15.119	> 0.500

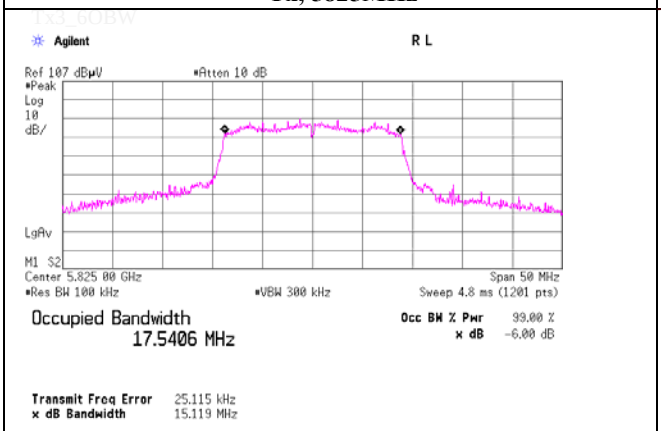
Tx, 5745MHz



Tx, 5785MHz



Tx, 5825MHz



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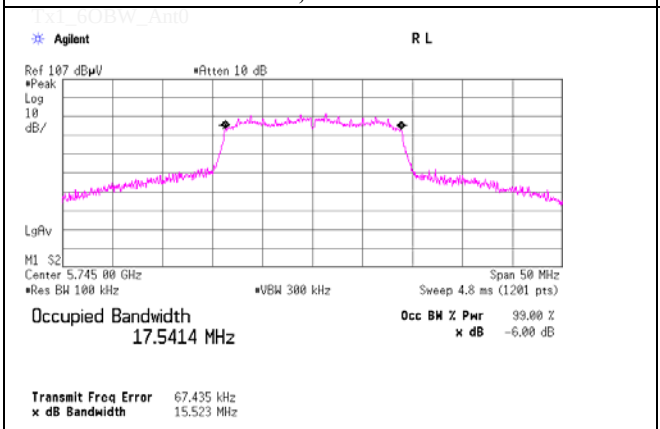
-6dB Bandwidth

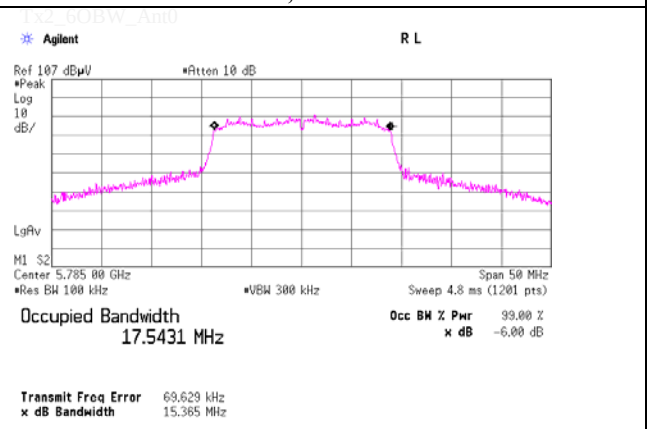
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 20, 2013	
Temperature / Humidity	22deg.C , 33%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 0(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
5745.0000	15.523	> 0.500
5785.0000	15.365	> 0.500
5825.0000	15.171	> 0.500

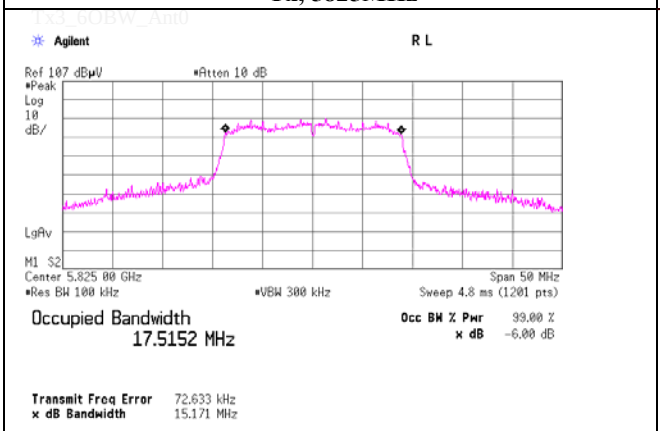
Tx, 5745MHz



Tx, 5785MHz



Tx, 5825MHz



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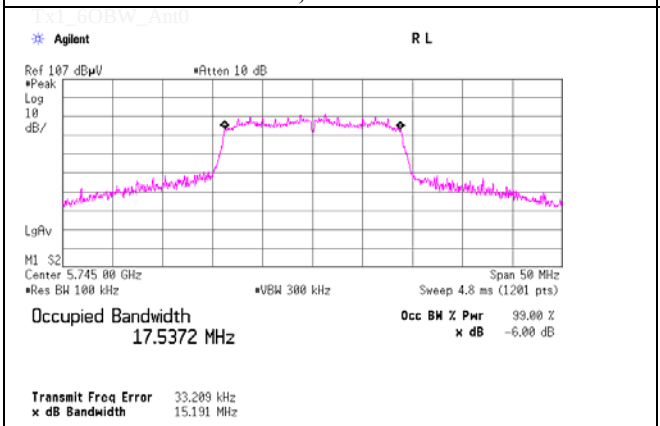
-6dB Bandwidth

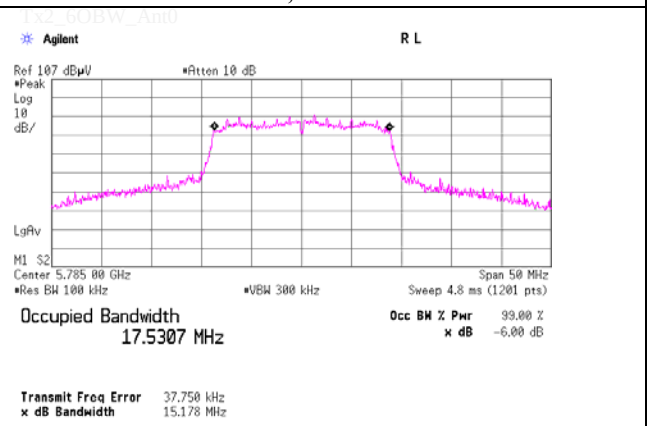
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 20, 2013	
Temperature / Humidity	22deg.C , 33%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
5745.0000	15.191	> 0.500
5785.0000	15.178	> 0.500
5825.0000	15.196	> 0.500

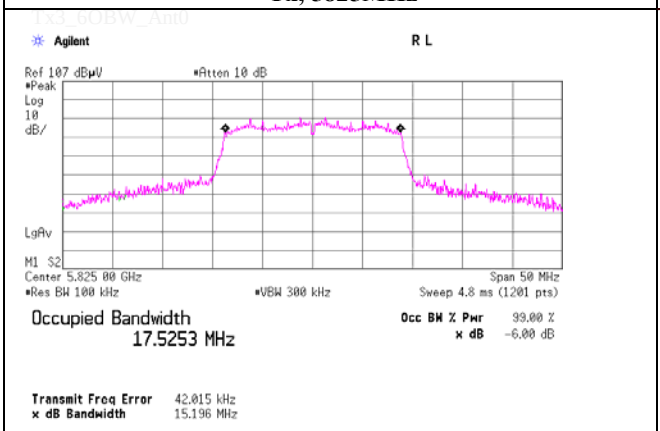
Tx, 5745MHz



Tx, 5785MHz



Tx, 5825MHz



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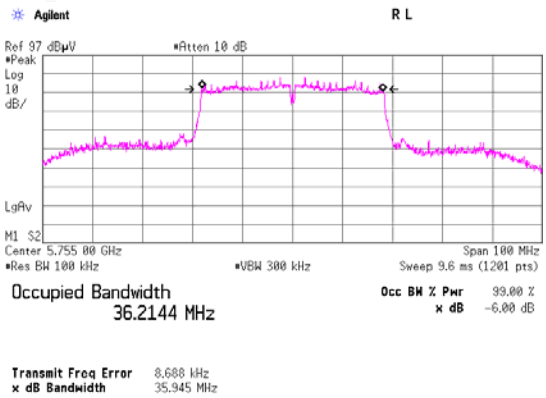
-6dB Bandwidth

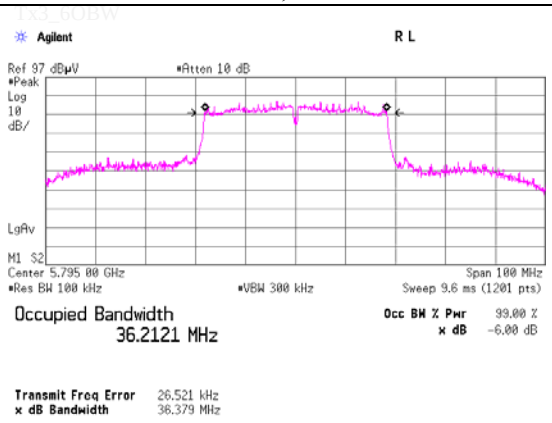
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 20, 2013	
Temperature / Humidity	22deg.C , 33%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
5755.0000	35.945	> 0.500
		> 0.500
5795.0000	36.379	> 0.500

Tx, 5755MHz



Tx, 5795MHz



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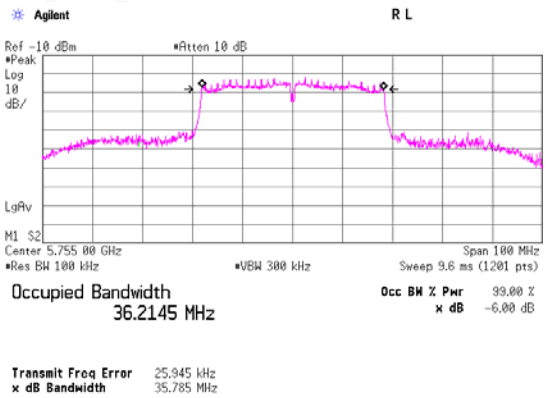
-6dB Bandwidth

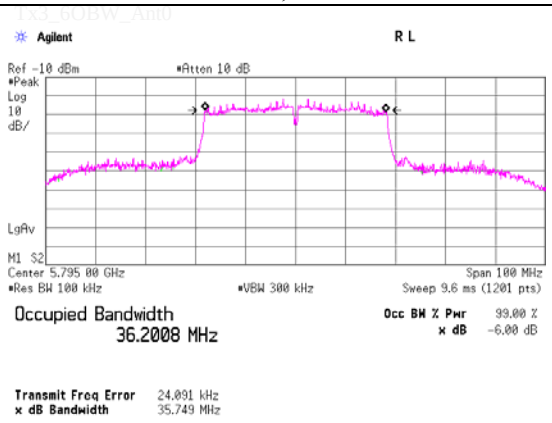
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 20, 2013	
Temperature / Humidity	22deg.C , 33%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
5755.0000	35.785	> 0.500
		> 0.500
5795.0000	35.749	> 0.500

Tx, 5755MHz



Tx, 5795MHz



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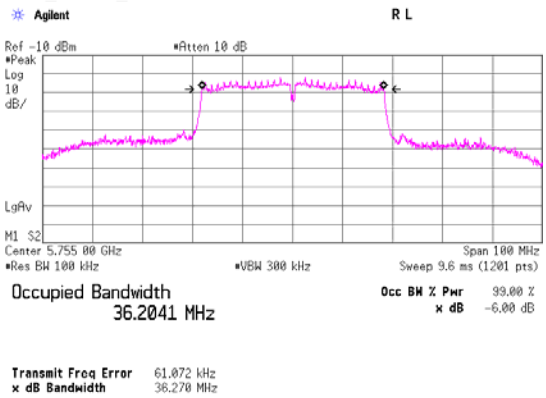
-6dB Bandwidth

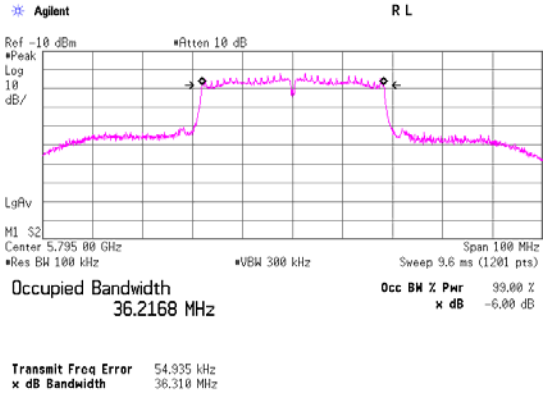
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 20, 2013	
Temperature / Humidity	22deg.C , 33%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
5755.0000	36.270	> 0.500
		> 0.500
5795.0000	36.310	> 0.500

Tx, 5755MHz



Tx, 5795MHz



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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room		
Date	February 7, 2013			
Temperature / Humidity	22deg.C , 31%RH			
Engineer	Shinichi Takano			
Mode	Tx, IEEE802.11b, PN9,	worst antenna :	0	worst data mode : 1 Mbps

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

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	2412.0	-3.59	1.11	20.21	17.73	59.29	30.00	1000	12.27
Mid	2437.0	-3.67	1.10	20.21	17.64	58.08	30.00	1000	12.36
High	2462.0	-3.78	1.11	20.21	17.54	56.75	30.00	1000	12.46

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

[Pre check]
Antenna 0

	Data rate [Mbps]	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]	
0	1	2437.0	-3.67	1.10	20.21	**17.64**	58.08	30.00	1000	**12.36**	**Worst**
0	2	2437.0	-3.73	1.10	20.21	17.58	57.28	30.00	1000	12.42	
0	5.5	2437.0	-3.81	1.10	20.21	17.50	56.23	30.00	1000	12.50	
0	11	2437.0	-3.74	1.10	20.21	17.57	57.15	30.00	1000	12.43	

Antenna 1

	Data rate [Mbps]	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
1	1	2437.0	-4.14	1.10	20.21	17.17	52.12	30.00	1000	12.83
1	2	2437.0	-4.28	1.10	20.21	17.03	50.47	30.00	1000	12.97
1	5.5	2437.0	-4.23	1.10	20.21	17.08	51.05	30.00	1000	12.92
1	11	2437.0	-4.31	1.10	20.21	17.00	50.12	30.00	1000	13.00

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

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room		
Date	February 7, 2013			
Temperature / Humidity	22deg.C , 31%RH			
Engineer	Shinichi Takano			
Mode	Tx, IEEE802.11g, PN9,	worst antenna :	0	worst data mode : 6 Mbps

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

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	2412.0	2.93	1.11	20.21	24.25	266.07	30.00	1000	5.75
Mid	2437.0	2.47	1.10	20.21	23.78	238.78	30.00	1000	6.22
High	2462.0	2.19	1.11	20.21	23.51	224.39	30.00	1000	6.49

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

[Pre check]
Antenna 0

	Data rate [Mbps]	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]	
0	6	2437.0	2.47	1.10	20.21	**23.78**	238.78	30.00	1000	**6.22**	**Worst**
0	9	2437.0	2.34	1.10	20.21	23.65	231.74	30.00	1000	6.35	
0	12	2437.0	2.29	1.10	20.21	23.60	229.09	30.00	1000	6.40	
0	18	2437.0	1.82	1.10	20.21	23.13	205.59	30.00	1000	6.87	
0	24	2437.0	1.86	1.10	20.21	23.17	207.49	30.00	1000	6.83	
0	36	2437.0	2.42	1.10	20.21	23.73	236.05	30.00	1000	6.27	
0	48	2437.0	2.01	1.10	20.21	23.32	214.78	30.00	1000	6.68	
0	54	2437.0	1.92	1.10	20.21	23.23	210.38	30.00	1000	6.77	

Antenna 1

	Data rate [Mbps]	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
1	6	2437.0	2.20	1.10	20.21	23.51	224.39	30.00	1000	6.49
1	9	2437.0	1.91	1.10	20.21	23.22	209.89	30.00	1000	6.78
1	12	2437.0	1.93	1.10	20.21	23.24	210.86	30.00	1000	6.76
1	18	2437.0	1.86	1.10	20.21	23.17	207.49	30.00	1000	6.83
1	24	2437.0	1.73	1.10	20.21	23.04	201.37	30.00	1000	6.96
1	36	2437.0	2.39	1.10	20.21	23.70	234.42	30.00	1000	6.30
1	48	2437.0	1.67	1.10	20.21	22.98	198.61	30.00	1000	7.02
1	54	2437.0	1.58	1.10	20.21	22.89	194.54	30.00	1000	7.11

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

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room		
Date	January 31, 2014			
Temperature / Humidity	26deg.C , 44%RH			
Engineer	Shinichi Takano			
Mode	Tx, IEEE802.11n(HT20), SISO, PN9,	worst antenna : 0	worst data mode :	2 (MCS)

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

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	2412.0	2.72	1.11	20.21	24.04	253.51	30.00	1000	5.96
Mid	2437.0	2.39	1.10	20.21	23.70	234.42	30.00	1000	6.30
High	2462.0	2.12	1.11	20.21	23.44	220.80	30.00	1000	6.56

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

[Pre check]
Antenna 0

	Mode (MCS)	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]	
0	0	2437.0	2.36	1.10	20.21	23.67	232.81	30.00	1000	6.33	
0	1	2437.0	2.25	1.10	20.21	23.56	226.99	30.00	1000	6.44	
0	2	2437.0	2.39	1.10	20.21	**23.70**	234.42	30.00	1000	**6.30**	**Worst**
0	3	2437.0	2.02	1.10	20.21	23.33	215.28	30.00	1000	6.67	
0	4	2437.0	1.92	1.10	20.21	23.23	210.38	30.00	1000	6.77	
0	5	2437.0	1.85	1.10	20.21	23.16	207.01	30.00	1000	6.84	
0	6	2437.0	1.89	1.10	20.21	23.20	208.93	30.00	1000	6.80	
0	7	2437.0	1.86	1.10	20.21	23.17	207.49	30.00	1000	6.83	

Antenna 1

	Mode (MCS)	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
1	0	2437.0	2.20	1.10	20.21	23.51	224.39	30.00	1000	6.49
1	1	2437.0	2.21	1.10	20.21	23.52	224.91	30.00	1000	6.48
1	2	2437.0	2.12	1.10	20.21	23.43	220.29	30.00	1000	6.57
1	3	2437.0	1.76	1.10	20.21	23.07	202.77	30.00	1000	6.93
1	4	2437.0	1.70	1.10	20.21	23.01	199.99	30.00	1000	6.99
1	5	2437.0	1.69	1.10	20.21	23.00	199.53	30.00	1000	7.00
1	6	2437.0	1.63	1.10	20.21	22.94	196.79	30.00	1000	7.06
1	7	2437.0	1.76	1.10	20.21	23.07	202.77	30.00	1000	6.93

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

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT20), CDD, PN9,	worst data mode : 2 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	248.89	222.33		26.73	471.22	30.00	1000	3.27
Mid	2437.0	243.78	214.78		26.61	458.56	30.00	1000	3.39
High	2462.0	247.17	218.78		26.68	465.95	30.00	1000	3.32

Antenna 0 (* 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	2.64	1.11	20.21	23.96	248.89	30.00	1000	6.04
Mid	2437.0	2.56	1.10	20.21	23.87	243.78	30.00	1000	6.13
High	2462.0	2.61	1.11	20.21	23.93	247.17	30.00	1000	6.07

Antenna 1 (* 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	2.15	1.11	20.21	23.47	222.33	30.00	1000	6.53
Mid	2437.0	2.01	1.10	20.21	23.32	214.78	30.00	1000	6.68
High	2462.0	2.08	1.11	20.21	23.40	218.78	30.00	1000	6.60

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

[Pre check]

Mode	Freq.	Reading Antenna 0		Reading Antenna 1		Reading Antenna 0 + 1		
(MCS)	[MHz]	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
0	2437.0	2.49	1.77	1.99	1.58	5.26	3.36	
1	2437.0	2.42	1.75	1.87	1.54	5.16	3.28	
2	2437.0	2.56	1.80	2.01	1.59	5.30	3.39	**Worst**
3	2437.0	2.29	1.69	1.79	1.51	5.06	3.20	
4	2437.0	2.11	1.63	1.75	1.50	4.94	3.12	
5	2437.0	2.17	1.65	1.61	1.45	4.91	3.10	
6	2437.0	1.94	1.56	1.58	1.44	4.77	3.00	
7	2437.0	2.08	1.61	1.78	1.51	4.94	3.12	

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT20), MIMO(SDM), PN9,	worst data mode : 10 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Result Ant 0 [mW]	Result Ant 1 [mW]		Result Ant 0 + Ant 1 [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	2412.0	238.78	224.91		26.66	463.69	30.00	1000	3.34
Mid	2437.0	228.56	212.81		26.45	441.37	30.00	1000	3.55
High	2462.0	233.88	222.33		26.59	456.21	30.00	1000	3.41

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	2412.0	2.46	1.11	20.21	23.78	238.78	30.00	1000	6.22
Mid	2437.0	2.28	1.10	20.21	23.59	228.56	30.00	1000	6.41
High	2462.0	2.37	1.11	20.21	23.69	233.88	30.00	1000	6.31

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	2412.0	2.20	1.11	20.21	23.52	224.91	30.00	1000	6.48
Mid	2437.0	1.97	1.10	20.21	23.28	212.81	30.00	1000	6.72
High	2462.0	2.15	1.11	20.21	23.47	222.33	30.00	1000	6.53

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

[Pre check]

Mode (MCS)	Freq. [MHz]	Reading Antenna 0 [dBm]	[mW]	Reading Antenna 1 [dBm]	[mW]	Reading Antenna 0 + 1 [dBm]	[mW]	
8	2437.0	1.93	1.56	1.93	1.56	4.94	3.12	
9	2437.0	1.71	1.48	1.47	1.40	4.60	2.89	
10	2437.0	2.28	1.69	1.97	1.57	5.14	3.26	**Worst**
11	2437.0	1.63	1.46	1.25	1.33	4.45	2.79	
12	2437.0	2.23	1.67	0.91	1.23	4.63	2.90	
13	2437.0	2.17	1.65	1.26	1.34	4.75	2.98	
14	2437.0	1.61	1.45	1.33	1.36	4.48	2.81	
15	2437.0	1.69	1.48	1.51	1.42	4.61	2.89	

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room		
Date	January 31, 2014			
Temperature / Humidity	26deg.C , 44%RH			
Engineer	Shinichi Takano			
Mode	Tx, IEEE802.11n (HT40), SISO, PN9,	worst antenna : 0	worst data mode :	0 (MCS)

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

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	2422.0	2.27	1.11	20.21	23.59	228.56	30.00	1000	6.41
Mid	2437.0	1.93	1.10	20.21	23.24	210.86	30.00	1000	6.76
High	2452.0	2.05	1.10	20.21	23.36	216.77	30.00	1000	6.64

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

[Pre check]
Antenna 0

	Mode (MCS)	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]	
0	0	2437.0	1.93	1.10	20.21	**23.24**	210.86	30.00	1000	**6.76**	**Worst**
0	1	2437.0	1.78	1.10	20.21	23.09	203.70	30.00	1000	6.91	
0	2	2437.0	1.25	1.10	20.21	22.56	180.30	30.00	1000	7.44	
0	3	2437.0	1.57	1.10	20.21	22.88	194.09	30.00	1000	7.12	
0	4	2437.0	1.13	1.10	20.21	22.44	175.39	30.00	1000	7.56	
0	5	2437.0	1.36	1.10	20.21	22.67	184.93	30.00	1000	7.33	
0	6	2437.0	1.18	1.10	20.21	22.49	177.42	30.00	1000	7.51	
0	7	2437.0	1.22	1.10	20.21	22.53	179.06	30.00	1000	7.47	

Antenna 1

	Mode (MCS)	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
1	0	2437.0	1.85	1.10	20.21	23.16	207.01	30.00	1000	6.84
1	1	2437.0	1.91	1.10	20.21	23.22	209.89	30.00	1000	6.78
1	2	2437.0	1.36	1.10	20.21	22.67	184.93	30.00	1000	7.33
1	3	2437.0	1.51	1.10	20.21	22.82	191.43	30.00	1000	7.18
1	4	2437.0	1.48	1.10	20.21	22.79	190.11	30.00	1000	7.21
1	5	2437.0	1.32	1.10	20.21	22.63	183.23	30.00	1000	7.37
1	6	2437.0	1.34	1.10	20.21	22.65	184.08	30.00	1000	7.35
1	7	2437.0	1.37	1.10	20.21	22.68	185.35	30.00	1000	7.32

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

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT40), CDD, PN9,	worst data mode : 0 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2422.0	221.31	213.80		26.39	435.11	30.00	1000	3.61
Mid	2437.0	211.84	205.12		26.20	416.95	30.00	1000	3.80
High	2452.0	217.27	210.86		26.32	428.13	30.00	1000	3.68

Antenna 0 (* 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	2.13	1.11	20.21	23.45	221.31	30.00	1000	6.55
Mid	2437.0	1.95	1.10	20.21	23.26	211.84	30.00	1000	6.74
High	2452.0	2.06	1.10	20.21	23.37	217.27	30.00	1000	6.63

Antenna 1 (* 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	1.98	1.11	20.21	23.30	213.80	30.00	1000	6.70
Mid	2437.0	1.81	1.10	20.21	23.12	205.12	30.00	1000	6.88
High	2452.0	1.93	1.10	20.21	23.24	210.86	30.00	1000	6.76

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

[Pre check]

Mode	Freq.	Reading Antenna 0		Reading Antenna 1		Reading Antenna 0 + 1		
(MCS)	[MHz]	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
0	2437.0	1.95	1.57	1.81	1.52	4.89	3.08	**Worst**
1	2437.0	1.93	1.56	1.71	1.48	4.83	3.04	
2	2437.0	1.82	1.52	1.69	1.48	4.77	3.00	
3	2437.0	1.62	1.45	1.67	1.47	4.66	2.92	
4	2437.0	1.57	1.44	1.62	1.45	4.61	2.89	
5	2437.0	1.48	1.41	1.57	1.44	4.54	2.84	
6	2437.0	1.54	1.43	1.52	1.42	4.54	2.84	
7	2437.0	1.56	1.43	1.54	1.43	4.56	2.86	

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT40), MIMO(SDM), PN9,	worst data mode : 8 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Result Ant 0 [mW]	Result Ant 1 [mW]		Result Ant 0 + Ant 1 [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	2422.0	213.30	207.49		26.24	420.80	30.00	1000	3.76
Mid	2437.0	207.49	197.70		26.08	405.19	30.00	1000	3.92
High	2452.0	209.89	204.17		26.17	414.07	30.00	1000	3.83

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	2422.0	1.97	1.11	20.21	23.29	213.30	30.00	1000	6.71
Mid	2437.0	1.86	1.10	20.21	23.17	207.49	30.00	1000	6.83
High	2452.0	1.91	1.10	20.21	23.22	209.89	30.00	1000	6.78

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	2422.0	1.85	1.11	20.21	23.17	207.49	30.00	1000	6.83
Mid	2437.0	1.65	1.10	20.21	22.96	197.70	30.00	1000	7.04
High	2452.0	1.79	1.10	20.21	23.10	204.17	30.00	1000	6.90

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

[Pre check]

Mode (MCS)	Freq. [MHz]	Reading Antenna 0 [dBm]	[mW]	Reading Antenna 1 [dBm]	[mW]	Reading Antenna 0 + 1 [dBm]	[mW]	
8	2437.0	1.86	1.53	1.65	1.46	4.77	3.00	**Worst**
9	2437.0	1.36	1.37	1.31	1.35	4.35	2.72	
10	2437.0	1.57	1.44	1.44	1.39	4.52	2.83	
11	2437.0	1.39	1.38	1.41	1.38	4.41	2.76	
12	2437.0	1.70	1.48	1.17	1.31	4.45	2.79	
13	2437.0	1.66	1.47	1.02	1.26	4.36	2.73	
14	2437.0	1.23	1.33	1.37	1.37	4.31	2.70	
15	2437.0	1.12	1.29	1.44	1.39	4.29	2.69	

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room		
Date	November 12, 2013			
Temperature / Humidity	23deg.C , 38%RH			
Engineer	Shinichi Takano			
Mode	Tx, IEEE802.11a, PN9,	worst antenna :	0	worst data mode : 6 Mbps

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

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	5745.0	0.32	1.76	20.09	22.17	164.82	30.00	1000	7.83
Mid	5785.0	0.18	1.75	20.09	22.02	159.22	30.00	1000	7.98
High	5825.0	-0.19	2.06	20.10	21.97	157.40	30.00	1000	8.03

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

[Pre check]
Antenna 0

	Data rate [Mbps]	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]	
0	6	5785.0	0.18	1.75	20.09	**22.02**	159.22	30.00	1000	**7.98**	**Worst**
0	9	5785.0	0.12	1.75	20.09	21.96	157.04	30.00	1000	8.04	
0	12	5785.0	0.07	1.75	20.09	21.91	155.24	30.00	1000	8.09	
0	18	5785.0	0.02	1.75	20.09	21.86	153.46	30.00	1000	8.14	
0	24	5785.0	-0.08	1.75	20.09	21.76	149.97	30.00	1000	8.24	
0	36	5785.0	-0.05	1.75	20.09	21.79	151.01	30.00	1000	8.21	
0	48	5785.0	0.01	1.75	20.09	21.85	153.11	30.00	1000	8.15	
0	54	5785.0	0.03	1.75	20.09	21.87	153.82	30.00	1000	8.13	

Antenna 1

	Data rate [Mbps]	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
1	6	5785.0	-1.38	1.75	20.09	20.46	111.17	30.00	1000	9.54
1	9	5785.0	-1.41	1.75	20.09	20.43	110.41	30.00	1000	9.57
1	12	5785.0	-1.48	1.75	20.09	20.36	108.64	30.00	1000	9.64
1	18	5785.0	-1.47	1.75	20.09	20.37	108.89	30.00	1000	9.63
1	24	5785.0	-1.49	1.75	20.09	20.35	108.39	30.00	1000	9.65
1	36	5785.0	-1.50	1.75	20.09	20.34	108.14	30.00	1000	9.66
1	48	5785.0	-1.45	1.75	20.09	20.39	109.40	30.00	1000	9.61
1	54	5785.0	-1.48	1.75	20.09	20.36	108.64	30.00	1000	9.64

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

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date	November 12, 2013
Temperature / Humidity	23deg.C , 38%RH
Engineer	Shinichi Takano
Mode	Tx, IEEE802.11n (HT20), SISO, PN9,worst antenna : 0 worst data mode : 0 (MCS)

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

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	5745.0	0.41	1.76	20.09	22.26	168.27	30.00	1000	7.74
Mid	5785.0	0.13	1.75	20.09	21.97	157.40	30.00	1000	8.03
High	5825.0	-0.24	2.06	20.10	21.92	155.60	30.00	1000	8.08

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

[Pre check]
Antenna 0

	Mode (MCS)	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]	
0	0	5785.0	0.13	1.75	20.09	**21.97**	157.40	30.00	1000	**8.03**	**Worst**
0	1	5785.0	0.11	1.75	20.09	21.95	156.68	30.00	1000	8.05	
0	2	5785.0	0.04	1.75	20.09	21.88	154.17	30.00	1000	8.12	
0	3	5785.0	-0.10	1.75	20.09	21.74	149.28	30.00	1000	8.26	
0	4	5785.0	0.07	1.75	20.09	21.91	155.24	30.00	1000	8.09	
0	5	5785.0	-0.13	1.75	20.09	21.71	148.25	30.00	1000	8.29	
0	6	5785.0	0.04	1.75	20.09	21.88	154.17	30.00	1000	8.12	
0	7	5785.0	0.00	1.75	20.09	21.84	152.76	30.00	1000	8.16	

Antenna 1

	Mode (MCS)	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
1	0	5785.0	-1.36	1.75	20.09	20.48	111.69	30.00	1000	9.52
1	1	5785.0	-1.49	1.75	20.09	20.35	108.39	30.00	1000	9.65
1	2	5785.0	-1.52	1.75	20.09	20.32	107.65	30.00	1000	9.68
1	3	5785.0	-1.58	1.75	20.09	20.26	106.17	30.00	1000	9.74
1	4	5785.0	-1.57	1.75	20.09	20.27	106.41	30.00	1000	9.73
1	5	5785.0	-1.56	1.75	20.09	20.28	106.66	30.00	1000	9.72
1	6	5785.0	-1.53	1.75	20.09	20.31	107.40	30.00	1000	9.69
1	7	5785.0	-1.57	1.75	20.09	20.27	106.41	30.00	1000	9.73

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

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT20), CDD, PN9,	worst data mode : 0 (MCS)

Antenna 0 + Antenna 1

Ch	Freq.	Result Ant 0	Result Ant 1		Result Ant 0 + Ant 1		Limit		Margin
	[MHz]	[mW]	[mW]		[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	5745.0	167.11	102.80		24.31	269.91	30.00	1000	5.69
Mid	5785.0	154.17	101.39		24.07	255.56	30.00	1000	5.93
High	5825.0	159.22	107.40		24.26	266.62	30.00	1000	5.74

Antenna 0 (* 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	5745.0	0.38	1.76	20.09	22.23	167.11	30.00	1000	7.77
Mid	5785.0	0.04	1.75	20.09	21.88	154.17	30.00	1000	8.12
High	5825.0	-0.14	2.06	20.10	22.02	159.22	30.00	1000	7.98

Antenna 1 (* 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	5745.0	-1.73	1.76	20.09	20.12	102.80	30.00	1000	9.88
Mid	5785.0	-1.78	1.75	20.09	20.06	101.39	30.00	1000	9.94
High	5825.0	-1.85	2.06	20.10	20.31	107.40	30.00	1000	9.69

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

[Pre check]

Mode	Freq.	Reading Antenna 0		Reading Antenna 1		Reading Antenna 0 + 1		
(MCS)	[MHz]	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
0	5785.0	0.04	1.01	-1.78	0.66	2.23	1.67	**Worst**
1	5785.0	-0.11	0.97	-1.88	0.65	2.10	1.62	
2	5785.0	-0.07	0.98	-1.86	0.65	2.14	1.64	
3	5785.0	-0.01	1.00	-1.90	0.65	2.16	1.64	
4	5785.0	0.01	1.00	-1.98	0.63	2.14	1.64	
5	5785.0	-0.02	1.00	-1.95	0.64	2.13	1.63	
6	5785.0	-0.04	0.99	-1.99	0.63	2.10	1.62	
7	5785.0	-0.06	0.99	-1.94	0.64	2.11	1.63	

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT20), MIMO(SDM), PN9,	worst data mode : 8 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Result Ant 0 [mW]	Result Ant 1 [mW]		Result Ant 0 + Ant 1 [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	5745.0	158.85	99.08		24.12	257.94	30.00	1000	5.88
Mid	5785.0	152.05	97.95		23.98	250.00	30.00	1000	6.02
High	5825.0	155.96	105.20		24.17	261.15	30.00	1000	5.83

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	5745.0	0.16	1.76	20.09	22.01	158.85	30.00	1000	7.99
Mid	5785.0	-0.02	1.75	20.09	21.82	152.05	30.00	1000	8.18
High	5825.0	-0.23	2.06	20.10	21.93	155.96	30.00	1000	8.07

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	5745.0	-1.89	1.76	20.09	19.96	99.08	30.00	1000	10.04
Mid	5785.0	-1.93	1.75	20.09	19.91	97.95	30.00	1000	10.09
High	5825.0	-1.94	2.06	20.10	20.22	105.20	30.00	1000	9.78

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

[Pre check]

Mode (MCS)	Freq. [MHz]	Reading Antenna 0 [dBm]	[mW]	Reading Antenna 1 [dBm]	[mW]	Reading Antenna 0 + 1 [dBm]	[mW]	
8	5785.0	-0.02	1.00	-1.93	0.64	2.14	1.64	**Worst**
9	5785.0	-0.15	0.97	-2.08	0.62	2.00	1.59	
10	5785.0	-0.04	0.99	-1.97	0.64	2.11	1.63	
11	5785.0	-0.09	0.98	-2.05	0.62	2.05	1.60	
12	5785.0	-0.12	0.97	-2.08	0.62	2.02	1.59	
13	5785.0	-0.08	0.98	-2.24	0.60	1.98	1.58	
14	5785.0	-0.13	0.97	-2.11	0.62	2.00	1.59	
15	5785.0	-0.05	0.99	-2.14	0.61	2.04	1.60	

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date	November 12, 2013
Temperature / Humidity	23deg.C , 38%RH
Engineer	Shinichi Takano
Mode	Tx, IEEE802.11n (HT40), SISO, PN9,worst antenna : 0 worst data mode : 0 (MCS)

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

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	5755.0	-0.17	1.76	20.09	21.68	147.23	30.00	1000	8.32
High	5795.0	-0.42	1.75	20.09	21.42	138.68	30.00	1000	8.58

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

[Pre check]
Antenna 0

	Mode (MCS)	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]	
0	0	5755.0	-0.17	1.76	20.09	**21.68**	147.23	30.00	1000	**8.32**	**Worst**
0	1	5755.0	-0.24	1.76	20.09	21.61	144.88	30.00	1000	8.39	
0	2	5755.0	-0.31	1.76	20.09	21.54	142.56	30.00	1000	8.46	
0	3	5755.0	-0.27	1.76	20.09	21.58	143.88	30.00	1000	8.42	
0	4	5755.0	-0.33	1.76	20.09	21.52	141.91	30.00	1000	8.48	
0	5	5755.0	-0.21	1.76	20.09	21.64	145.88	30.00	1000	8.36	
0	6	5755.0	-0.19	1.76	20.09	21.66	146.55	30.00	1000	8.34	
0	7	5755.0	-0.24	1.76	20.09	21.61	144.88	30.00	1000	8.39	

Antenna 1

	Mode (MCS)	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
1	0	5755.0	-1.82	1.76	20.09	20.03	100.69	30.00	1000	9.97
1	1	5755.0	-1.86	1.76	20.09	19.99	99.77	30.00	1000	10.01
1	2	5755.0	-1.85	1.76	20.09	20.00	100.00	30.00	1000	10.00
1	3	5755.0	-1.95	1.76	20.09	19.90	97.72	30.00	1000	10.10
1	4	5755.0	-1.88	1.76	20.09	19.97	99.31	30.00	1000	10.03
1	5	5755.0	-1.87	1.76	20.09	19.98	99.54	30.00	1000	10.02
1	6	5755.0	-1.91	1.76	20.09	19.94	98.63	30.00	1000	10.06
1	7	5755.0	-1.86	1.76	20.09	19.99	99.77	30.00	1000	10.01

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

Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT40), CDD, PN9,	worst data mode : 0 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Result Ant 0 [mW]	Result Ant 1 [mW]		Result Ant 0 + Ant 1 [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	5755.0	146.89	99.77		23.92	246.66	30.00	1000	6.08
High	5795.0	142.89	91.20		23.69	234.09	30.00	1000	6.31

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	5755.0	-0.18	1.76	20.09	21.67	146.89	30.00	1000	8.33
High	5795.0	-0.29	1.75	20.09	21.55	142.89	30.00	1000	8.45

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	5755.0	-1.86	1.76	20.09	19.99	99.77	30.00	1000	10.01
High	5795.0	-2.24	1.75	20.09	19.60	91.20	30.00	1000	10.40

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

[Pre check]

Mode (MCS)	Freq. [MHz]	Reading Antenna 0 [dBm]	[mW]	Reading Antenna 1 [dBm]	[mW]	Reading Antenna 0 + 1 [dBm]	[mW]	
0	5755.0	-0.18	0.96	-1.86	0.65	2.07	1.61	**Worst**
1	5755.0	-0.23	0.95	-1.97	0.64	2.00	1.58	
2	5755.0	-0.34	0.92	-2.01	0.63	1.92	1.55	
3	5755.0	-0.24	0.95	-1.98	0.63	1.99	1.58	
4	5755.0	-0.22	0.95	-2.07	0.62	1.96	1.57	
5	5755.0	-0.28	0.94	-1.99	0.63	1.96	1.57	
6	5755.0	-0.24	0.95	-2.11	0.62	1.94	1.56	
7	5755.0	-0.26	0.94	-2.09	0.62	1.93	1.56	

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Maximum Peak Conducted Output Power

(PKPM1)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n (HT40), MIMO(SDM), PN9,	worst data mode : 8 (MCS)

Antenna 0 + Antenna 1

Ch	Freq. [MHz]	Result Ant 0 [mW]	Result Ant 1 [mW]		Result Ant 0 + Ant 1 [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	5755.0	144.21	97.72		23.84	241.94	30.00	1000	6.16
High	5795.0	137.09	86.30		23.49	223.39	30.00	1000	6.51

Antenna 0 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	5755.0	-0.26	1.76	20.09	21.59	144.21	30.00	1000	8.41
High	5795.0	-0.47	1.75	20.09	21.37	137.09	30.00	1000	8.63

Antenna 1 (* P/M: Power Meter with power sensor)

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	[mW]	Limit [dBm]	[mW]	Margin [dB]
Low	5755.0	-1.95	1.76	20.09	19.90	97.72	30.00	1000	10.10
High	5795.0	-2.48	1.75	20.09	19.36	86.30	30.00	1000	10.64

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

[Pre check]

Mode (MCS)	Freq. [MHz]	Reading Antenna 0 [dBm]	[mW]	Reading Antenna 1 [dBm]	[mW]	Reading Antenna 0 + 1 [dBm]	[mW]	
8	5755.0	-0.26	0.94	-1.95	0.64	1.99	1.58	**Worst**
9	5755.0	-0.33	0.93	-2.06	0.62	1.90	1.55	
10	5755.0	-0.29	0.94	-2.01	0.63	1.94	1.56	
11	5755.0	-0.37	0.92	-2.02	0.63	1.89	1.55	
12	5755.0	-0.42	0.91	-2.08	0.62	1.84	1.53	
13	5755.0	-0.46	0.90	-2.16	0.61	1.78	1.51	
14	5755.0	-0.48	0.90	-2.07	0.62	1.81	1.52	
15	5755.0	-0.44	0.90	-2.11	0.62	1.82	1.52	

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Radiated Emission

Test place	No.3 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	December 11, 2013	February 10, 2014
Temperature / Humidity	26 deg.C, 31 %RH	25 deg.C , 33 %RH
Engineer	Shinichi Takano	Shinichi Takano
Mode	Tx, 2412 MHz	
	Tx, IEEE802.11b, PN9, worst antenna port 0, worst data mode 1Mbps	

(* 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	46.8	26.8	14.7	38.2	50.1	73.9	23.8	100	123	
Hori.	3216.013	PK	49.8	28.2	6.5	38.1	46.4	73.9	27.5	100	130	
Hori.	4824.000	PK	51.8	31.1	7.9	37.1	53.7	73.9	20.2	100	274	
Hori.	7236.000	PK	44.6	37.1	9.1	39.4	51.4	73.9	22.5	100	0	
Hori.	2390.000	AV	36.4	26.8	14.7	38.2	39.7	53.9	**14.2**	100	123	
Vert.	2390.000	PK	47.0	26.8	14.7	38.2	50.3	73.9	23.6	100	91	
Vert.	3215.992	PK	48.8	28.2	6.5	38.1	45.4	73.9	28.5	100	96	
Vert.	4824.000	PK	47.9	31.1	7.9	37.1	49.8	73.9	24.1	100	342	
Vert.	7236.000	PK	45.0	37.1	9.1	39.4	51.8	73.9	22.1	100	0	
Vert.	2390.000	AV	35.9	26.8	14.7	38.2	39.2	53.9	14.7	100	91	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3216.013	AV	44.6	28.2	6.5	38.1	0.4	41.6	53.9	12.3	
Hori.	4824.000	AV	46.8	31.1	7.9	37.1	0.4	49.1	53.9	**4.8**	
Hori.	7236.000	AV	36.3	37.1	9.1	39.4	0.4	43.5	53.9	10.4	
Vert.	3215.992	AV	42.3	28.2	6.5	38.1	0.4	39.3	53.9	14.6	
Vert.	4824.000	AV	42.4	31.1	7.9	37.1	0.4	44.7	53.9	9.2	
Vert.	7236.000	AV	36.5	37.1	9.1	39.4	0.4	43.7	53.9	10.2	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
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	92.6	26.8	14.7	38.2	95.9	-	-	
Hori.	2400.000	PK	48.4	26.8	14.7	38.2	51.7	75.9	24.2	
Vert.	2412.000	PK	93.1	26.8	14.7	38.2	96.4	-	-	
Vert.	2400.000	PK	47.4	26.8	14.7	38.2	50.7	76.4	25.7	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	December 11, 2013	February 10, 2014
Temperature / Humidity	26 deg.C, 31 %RH	25 deg.C , 33 %RH
Engineer	Shinichi Takano	Shinichi Takano
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11b, PN9, worst antenna port 0, worst data mode 1Mbps	

(* 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.	3249.345	PK	48.8	28.1	6.5	38.1	45.3	73.9	28.6	100	131	
Hori.	4874.000	PK	50.1	31.3	7.9	37.1	52.2	73.9	21.7	100	277	
Hori.	7311.000	PK	45.4	37.2	9.1	39.4	52.3	73.9	**21.6**	100	0	
Vert.	3249.355	PK	48.2	28.1	6.5	38.1	44.7	73.9	29.2	100	88	
Vert.	4874.000	PK	47.1	31.3	7.9	37.1	49.2	73.9	24.7	100	342	
Vert.	7311.000	PK	45.3	37.2	9.1	39.4	52.2	73.9	21.7	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3249.345	AV	43.1	28.1	6.5	38.1	0.4	40.0	53.9	13.9	
Hori.	4874.000	AV	45.5	31.3	7.9	37.1	0.4	48.0	53.9	**5.9**	
Hori.	7311.000	AV	35.9	37.2	9.1	39.4	0.4	43.2	53.9	10.7	
Vert.	3249.355	AV	42.7	28.1	6.5	38.1	0.4	39.6	53.9	14.3	
Vert.	4874.000	AV	41.4	31.3	7.9	37.1	0.4	43.9	53.9	10.0	
Vert.	7311.000	AV	36.0	37.2	9.1	39.4	0.4	43.3	53.9	10.6	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	December 11, 2013	February 10, 2014
Temperature / Humidity	26 deg.C, 31 %RH	25 deg.C , 33 %RH
Engineer	Shinichi Takano	Shinichi Takano
Mode	Tx, 2462 MHz	
	Tx, IEEE802.11b, PN9, worst antenna port 0, worst data mode 1Mbps	

(* 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	48.0	26.9	14.8	38.1	51.6	73.9	22.3	100	233	
Hori.	3282.000	PK	46.2	28.1	6.5	38.0	42.8	73.9	31.1	100	307	
Hori.	4924.000	PK	49.8	31.6	7.8	37.0	52.2	73.9	21.7	100	267	
Hori.	7386.000	PK	45.4	37.3	9.3	39.4	52.6	73.9	21.3	100	0	
Hori.	2483.500	AV	37.8	26.9	14.8	38.1	41.4	53.9	12.5	100	233	
Vert.	2483.500	PK	48.7	26.9	14.8	38.1	52.3	73.9	21.6	100	198	
Vert.	3282.708	PK	45.2	28.1	6.5	38.0	41.8	73.9	32.1	100	315	
Vert.	4924.000	PK	48.2	31.6	7.8	37.0	50.6	73.9	23.3	100	255	
Vert.	7386.000	PK	45.4	37.3	9.3	39.4	52.6	73.9	21.3	100	0	
Vert.	2483.500	AV	39.8	26.9	14.8	38.1	43.4	53.9	**10.5**	100	198	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3282.000	AV	39.0	28.1	6.5	38.0	0.4	36.0	53.9	17.9	
Hori.	4924.000	AV	45.8	31.6	7.8	37.0	0.4	48.6	53.9	**5.3**	
Hori.	7386.000	AV	35.6	37.3	9.3	39.4	0.4	43.2	53.9	10.7	
Vert.	3282.708	AV	39.1	28.1	6.5	38.0	0.4	36.1	53.9	17.8	
Vert.	4924.000	AV	43.0	31.6	7.8	37.0	0.4	45.8	53.9	8.1	
Vert.	7386.000	AV	36.3	37.3	9.3	39.4	0.4	43.9	53.9	10.0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 26, 2013	February 10, 2014
Temperature / Humidity	25 deg.C, 42 %RH	25 deg.C , 33 %RH
Engineer	Hikaru shirasawa	Shinichi Takano
Mode	Tx, 2412 MHz	
	Tx, IEEE802.11g, PN9, worst antenna port 0, worst data mode 6Mbps	

(* 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.	2384.233	PK	59.4	26.8	14.7	38.3	62.6	73.9	11.3	100	121	
Hori.	2390.000	PK	58.1	26.8	14.7	38.2	61.4	73.9	12.5	100	121	
Hori.	3216.012	PK	51.7	28.2	6.6	41.7	44.8	73.9	29.1	100	253	
Hori.	4824.000	PK	48.7	31.1	7.9	37.1	50.6	73.9	23.3	100	273	
Hori.	7236.000	PK	46.6	37.1	9.1	39.4	53.4	73.9	20.5	100	0	
Hori.	2384.233	AV	42.6	26.8	14.7	38.3	45.8	53.9	8.1	100	121	
Hori.	2390.000	AV	42.5	26.8	14.7	38.2	45.8	53.9	8.1	100	121	
Vert.	2384.409	PK	53.0	26.8	14.7	38.3	56.2	73.9	17.7	100	5	
Vert.	2390.000	PK	54.1	26.8	14.7	38.2	57.4	73.9	16.5	100	5	
Vert.	3215.956	PK	49.3	28.2	6.6	41.7	42.4	73.9	31.5	100	218	
Vert.	4824.000	PK	45.1	31.1	7.9	37.1	47.0	73.9	26.9	100	232	
Vert.	7236.000	PK	45.6	37.1	9.1	39.4	52.4	73.9	21.5	100	0	
Vert.	2384.409	AV	43.5	26.8	14.7	38.3	46.7	53.9	**7.2**	100	5	
Vert.	2390.000	AV	43.3	26.8	14.7	38.2	46.6	53.9	7.3	100	5	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3216.012	AV	47.3	28.2	6.6	41.7	0.4	40.8	53.9	13.1	
Hori.	4824.000	AV	38.4	31.1	7.9	37.1	0.4	40.7	53.9	13.2	
Hori.	7236.000	AV	36.6	37.1	9.1	39.4	0.4	43.8	53.9	**10.1**	
Vert.	3215.956	AV	43.8	28.2	6.6	41.7	0.4	37.3	53.9	16.6	
Vert.	4824.000	AV	36.1	31.1	7.9	37.1	0.4	38.4	53.9	15.5	
Vert.	7236.000	AV	36.4	37.1	9.1	39.4	0.4	43.6	53.9	10.3	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
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	89.3	26.8	14.7	38.2	92.6	-	-	
Hori.	2400.000	PK	51.6	26.8	14.7	38.2	54.9	72.6	17.7	
Vert.	2412.000	PK	89.3	26.8	14.7	38.2	92.6	-	-	
Vert.	2400.000	PK	50.6	26.8	14.7	38.2	53.9	72.6	18.7	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 26, 2013	February 10, 2014
Temperature / Humidity	25 deg.C, 42 %RH	25 deg.C , 33 %RH
Engineer	Hikaru shirasawa	Shinichi Takano
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11g, PN9, worst antenna port 0, worst data mode 6Mbps	

(* 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.	3249.343	PK	50.3	28.1	6.6	41.7	43.3	73.9	30.6	100	253	
Hori.	4874.000	PK	46.8	31.3	7.9	37.1	48.9	73.9	25.0	100	137	
Hori.	7311.000	PK	45.1	37.2	9.1	39.4	52.0	73.9	21.9	100	0	
Vert.	3249.568	PK	49.9	28.1	6.6	41.7	42.9	73.9	31.0	100	209	
Vert.	4874.000	PK	45.3	31.3	7.9	37.1	47.4	73.9	26.5	100	152	
Vert.	7311.000	PK	45.6	37.2	9.1	39.4	52.5	73.9	**21.4**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3249.343	AV	45.0	28.1	6.6	41.7	0.4	38.4	53.9	15.5	
Hori.	4874.000	AV	37.3	31.3	7.9	37.1	0.4	39.8	53.9	14.1	
Hori.	7311.000	AV	36.0	37.2	9.1	39.4	0.4	43.3	53.9	10.6	
Vert.	3249.568	AV	44.3	28.1	6.6	41.7	0.4	37.7	53.9	16.2	
Vert.	4874.000	AV	35.7	31.3	7.9	37.1	0.4	38.2	53.9	15.7	
Vert.	7311.000	AV	36.3	37.2	9.1	39.4	0.4	43.6	53.9	**10.3**	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 26, 2013	February 10, 2014
Temperature / Humidity	25 deg.C, 42 %RH	25 deg.C , 33 %RH
Engineer	Hikaru shirasawa	Shinichi Takano
Mode	Tx, 2462 MHz	
	Tx, IEEE802.11g, PN9, worst antenna port 0, worst data mode 6Mbps	

(* 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	55.4	26.9	14.8	38.1	59.0	73.9	14.9	100	231	
Hori.	2490.420	PK	52.4	26.9	14.8	38.1	56.0	73.9	17.9	100	231	
Hori.	3282.465	PK	49.9	28.1	6.6	41.7	42.9	73.9	31.0	100	256	
Hori.	4924.000	PK	46.5	31.6	7.8	37.0	48.9	73.9	25.0	100	139	
Hori.	7386.000	PK	44.8	37.3	9.3	39.4	52.0	73.9	21.9	100	0	
Hori.	2483.500	AV	45.3	26.9	14.8	38.1	48.9	53.9	5.0	100	231	
Hori.	2490.420	AV	43.4	26.9	14.8	38.1	47.0	53.9	6.9	100	231	
Vert.	2483.500	PK	56.7	26.9	14.8	38.1	60.3	73.9	13.6	100	196	
Vert.	2490.420	PK	55.8	26.9	14.8	38.1	59.4	73.9	14.5	100	196	
Vert.	3282.670	PK	49.3	28.1	6.6	41.7	42.3	73.9	31.6	100	198	
Vert.	4924.000	PK	46.8	31.6	7.8	37.0	49.2	73.9	24.7	100	256	
Vert.	7386.000	PK	45.3	37.3	9.3	39.4	52.5	73.9	21.4	100	0	
Vert.	2483.500	AV	46.9	26.9	14.8	38.1	50.5	53.9	**3.4**	100	196	
Vert.	2490.420	AV	46.2	26.9	14.8	38.1	49.8	53.9	4.1	100	196	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3282.465	AV	43.6	28.1	6.6	41.7	0.4	37.0	53.9	16.9	
Hori.	4924.000	AV	37.0	31.6	7.8	37.0	0.4	39.8	53.9	14.1	
Hori.	7386.000	AV	35.7	37.3	9.3	39.4	0.4	43.3	53.9	10.6	
Vert.	3282.670	AV	43.4	28.1	6.6	41.7	0.4	36.8	53.9	17.1	
Vert.	4924.000	AV	36.4	31.6	7.8	37.0	0.4	39.2	53.9	14.7	
Vert.	7386.000	AV	36.0	37.3	9.3	39.4	0.4	43.6	53.9	**10.3**	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 26, 2013	January 25, 2014
Temperature / Humidity	25 deg.C, 42 %RH	23 deg.C , 31 %RH
Engineer	Tatsuya Arai	Shinichi Takano
Mode	Tx, 2412 MHz	
	Tx, IEEE802.11n (HT20), CDD, PN9, worst data mode 2(MCS)	

(* 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.	390.489	QP	33.1	16.1	9.0	32.0	26.2	46.0	19.8	100	97	
Hori.	2390.000	PK	63.2	26.8	14.7	38.2	66.5	73.9	7.4	100	45	
Hori.	3216.055	PK	50.6	28.2	6.6	41.7	43.7	73.9	30.2	100	146	
Hori.	4824.000	PK	46.9	31.1	7.9	37.1	48.8	73.9	25.1	100	288	
Hori.	7236.000	PK	48.3	37.1	9.1	39.4	55.1	73.9	18.8	118	303	
Hori.	2390.000	AV	45.3	26.8	14.7	38.2	48.6	53.9	5.3	100	45	
Vert.	78.935	QP	57.3	6.3	7.4	32.1	38.9	40.0	**1.1**	100	106	
Vert.	91.804	QP	56.0	8.5	7.5	32.1	39.9	43.5	3.6	100	167	
Vert.	117.544	QP	44.4	12.7	7.2	32.1	32.2	43.5	11.3	100	148	
Vert.	157.855	QP	42.2	14.8	7.8	32.1	32.7	43.5	10.8	100	162	
Vert.	390.489	QP	33.6	16.1	9.0	32.0	26.7	46.0	19.3	128	170	
Vert.	2390.000	PK	61.8	26.8	14.7	38.2	65.1	73.9	8.8	100	60	
Vert.	3216.055	PK	51.9	28.2	6.6	41.7	45.0	73.9	28.9	102	280	
Vert.	4824.000	PK	47.0	31.1	7.9	37.1	48.9	73.9	25.0	104	355	
Vert.	7236.000	PK	46.3	37.1	9.1	39.4	53.1	73.9	20.8	100	359	
Vert.	2390.000	AV	46.3	26.8	14.7	38.2	49.6	53.9	4.3	100	60	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3216.055	AV	45.0	28.2	6.6	41.7	0.4	38.5	53.9	15.4	
Hori.	4824.000	AV	38.2	31.1	7.9	37.1	0.4	40.5	53.9	13.4	
Hori.	7236.000	AV	38.3	37.1	9.1	39.4	0.4	45.5	53.9	**8.4**	
Vert.	3216.055	AV	47.7	28.2	6.6	41.7	0.4	41.2	53.9	12.7	
Vert.	4824.000	AV	37.8	31.1	7.9	37.1	0.4	40.1	53.9	13.8	
Vert.	7236.000	AV	37.5	37.1	9.1	39.4	0.4	44.7	53.9	9.2	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
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	92.9	26.8	14.7	38.2	96.2	-	-	
Hori.	2400.000	PK	58.0	26.8	14.7	38.2	61.3	76.2	14.9	
Vert.	2412.000	PK	94.0	26.8	14.7	38.2	97.3	-	-	
Vert.	2400.000	PK	55.0	26.8	14.7	38.2	58.3	77.3	19.0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 26, 2013	January 25, 2014
Temperature / Humidity	25 deg.C, 42 %RH	23 deg.C , 31 %RH
Engineer	Tatsuya Arai	Shinichi Takano
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11n (HT20), CDD, PN9, worst data mode 2(MCS)	

(* 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.	3249.373	PK	48.7	28.1	6.6	41.7	41.7	73.9	32.2	100	318	
Hori.	4874.000	PK	46.2	31.3	7.9	37.1	48.3	73.9	25.6	100	219	
Hori.	7311.000	PK	47.3	37.2	9.1	39.4	54.2	73.9	**19.7**	100	236	
Vert.	3249.373	PK	50.6	28.1	6.6	41.7	43.6	73.9	30.3	110	268	
Vert.	4874.000	PK	45.8	31.3	7.9	37.1	47.9	73.9	26.0	100	254	
Vert.	7311.000	PK	47.3	37.2	9.1	39.4	54.2	73.9	**19.7**	117	359	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3249.373	AV	42.6	28.1	6.6	41.7	0.4	36.0	53.9	17.9	
Hori.	4874.000	AV	37.1	31.3	7.9	37.1	0.4	39.6	53.9	14.3	
Hori.	7311.000	AV	37.6	37.2	9.1	39.4	0.4	44.9	53.9	**9.0**	
Vert.	3249.373	AV	45.4	28.1	6.6	41.7	0.4	38.8	53.9	15.1	
Vert.	4874.000	AV	36.8	31.3	7.9	37.1	0.4	39.3	53.9	14.6	
Vert.	7311.000	AV	37.6	37.2	9.1	39.4	0.4	44.9	53.9	**9.0**	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 26, 2013	January 25, 2014
Temperature / Humidity	25 deg.C, 42 %RH	23 deg.C , 31 %RH
Engineer	Tatsuya Arai	Shinichi Takano
Mode	Tx, 2462 MHz	
	Tx, IEEE802.11n (HT20), CDD, PN9, worst data mode 2(MCS)	

(* 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	26.9	14.8	38.1	62.0	73.9	11.9	100	49	
Hori.	3282.722	PK	48.1	28.1	6.6	41.7	41.1	73.9	32.8	100	248	
Hori.	4924.000	PK	46.3	31.6	7.8	37.0	48.7	73.9	25.2	100	224	
Hori.	7386.000	PK	45.3	37.3	9.3	39.4	52.5	73.9	21.4	108	95	
Hori.	2483.500	AV	47.6	26.9	14.8	38.1	51.2	53.9	**2.7**	100	49	
Vert.	2483.500	PK	61.9	26.9	14.8	38.1	65.5	73.9	8.4	100	34	
Vert.	3282.722	PK	49.7	28.1	6.6	41.7	42.7	73.9	31.2	100	270	
Vert.	4924.000	PK	48.0	31.6	7.8	37.0	50.4	73.9	23.5	100	256	
Vert.	7386.000	PK	47.7	37.3	9.3	39.4	54.9	73.9	19.0	100	175	
Vert.	2483.500	AV	47.4	26.9	14.8	38.1	51.0	53.9	2.9	100	34	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3282.722	AV	41.0	28.1	6.6	41.7	0.4	34.4	53.9	19.5	
Hori.	4924.000	AV	37.5	31.6	7.8	37.0	0.4	40.3	53.9	13.6	
Hori.	7386.000	AV	37.1	37.3	9.3	39.4	0.4	44.7	53.9	9.2	
Vert.	3282.722	AV	43.3	28.1	6.6	41.7	0.4	36.7	53.9	17.2	
Vert.	4924.000	AV	38.3	31.6	7.8	37.0	0.4	41.1	53.9	12.8	
Vert.	7386.000	AV	38.2	37.3	9.3	39.4	0.4	45.8	53.9	**8.1**	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 26, 2013	January 25, 2014
Temperature / Humidity	25 deg.C, 42 %RH	23 deg.C , 31 %RH
Engineer	Tatsuya Arai	Shinichi Takano
Mode	Tx, 2422 MHz	
	Tx, IEEE802.11n (HT40), CDD, PN9, worst data mode 0(MCS)	

(* 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.	2377.000	PK	57.3	26.8	14.7	38.3	60.5	73.9	13.4	100	48	
Hori.	2390.000	PK	61.3	26.8	14.7	38.2	64.6	73.9	9.3	100	48	
Hori.	3229.369	PK	50.0	28.1	6.6	41.7	43.0	73.9	30.9	100	144	
Hori.	4844.000	PK	45.6	31.2	7.9	37.1	47.6	73.9	26.3	100	266	
Hori.	7386.000	PK	44.3	37.3	9.3	39.4	51.5	73.9	22.4	100	0	
Hori.	2377.000	AV	47.6	26.8	14.7	38.3	50.8	53.9	3.1	100	48	
Hori.	2390.000	AV	48.5	26.8	14.7	38.2	51.8	53.9	2.1	100	48	
Vert.	2377.000	PK	58.6	26.8	14.7	38.3	61.8	73.9	12.1	100	81	
Vert.	2390.000	PK	69.0	26.8	14.7	38.2	72.3	73.9	1.6	100	81	
Vert.	3229.369	PK	50.9	28.1	6.6	41.7	43.9	73.9	30.0	100	241	
Vert.	4844.000	PK	44.1	31.2	7.9	37.1	46.1	73.9	27.8	100	31	
Vert.	7386.000	PK	44.6	37.3	9.3	39.4	51.8	73.9	22.1	100	0	
Vert.	2377.000	AV	46.0	26.8	14.7	38.3	49.2	53.9	4.7	100	81	
Vert.	2390.000	AV	49.1	26.8	14.7	38.2	52.4	53.9	**1.5**	100	81	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3229.369	AV	43.8	28.1	6.6	41.7	0.9	37.7	53.9	16.2	
Hori.	4844.000	AV	36.4	31.2	7.9	37.1	0.9	39.3	53.9	14.6	
Hori.	7386.000	AV	35.9	37.3	9.3	39.4	0.9	44.0	53.9	**9.9**	
Vert.	3229.369	AV	45.9	28.1	6.6	41.7	0.9	39.8	53.9	14.1	
Vert.	4844.000	AV	35.9	31.2	7.9	37.1	0.9	38.8	53.9	15.1	
Vert.	7386.000	AV	35.6	37.3	9.3	39.4	0.9	43.7	53.9	10.2	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
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	91.5	26.8	14.7	38.2	94.8	-	-	
Hori.	2400.000	PK	60.0	26.8	14.7	38.2	63.3	74.8	11.5	
Vert.	2422.000	PK	92.9	26.8	14.7	38.2	96.2	-	-	
Vert.	2400.000	PK	58.4	26.8	14.7	38.2	61.7	76.2	14.5	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 26, 2013	January 25, 2014
Temperature / Humidity	25 deg.C, 42 %RH	23 deg.C , 31 %RH
Engineer	Tatsuya Arai	Shinichi Takano
Mode	Tx, 2437 MHz	
	Tx, IEEE802.11n (HT40), CDD, PN9, worst data mode 0(MCS)	

(* 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.	3249.376	PK	48.9	28.1	6.6	41.7	41.9	73.9	32.0	100	144	
Hori.	4874.000	PK	44.4	31.3	7.9	37.1	46.5	73.9	27.4	100	221	
Hori.	7311.000	PK	44.9	37.2	9.1	39.4	51.8	73.9	22.1	100	0	
Vert.	3249.376	PK	51.6	28.1	6.6	41.7	44.6	73.9	29.3	100	257	
Vert.	4874.000	PK	43.7	31.3	7.9	37.1	45.8	73.9	28.1	100	34	
Vert.	7311.000	PK	45.2	37.2	9.1	39.4	52.1	73.9	**21.8**	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3249.376	AV	41.7	28.1	6.6	41.7	0.9	35.6	53.9	18.3	
Hori.	4874.000	AV	35.8	31.3	7.9	37.1	0.9	38.8	53.9	15.1	
Hori.	7311.000	AV	36.3	37.2	9.1	39.4	0.9	44.1	53.9	9.8	
Vert.	3249.376	AV	46.7	28.1	6.6	41.7	0.9	40.6	53.9	13.3	
Vert.	4874.000	AV	34.8	31.3	7.9	37.1	0.9	37.8	53.9	16.1	
Vert.	7311.000	AV	36.4	37.2	9.1	39.4	0.9	44.2	53.9	**9.7**	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 26, 2013	January 25, 2014
Temperature / Humidity	25 deg.C, 42 %RH	23 deg.C , 31 %RH
Engineer	Tatsuya Arai	Shinichi Takano
Mode	Tx, 2452 MHz	
	Tx, IEEE802.11n (HT40), CDD, PN9, worst data mode 0(MCS)	

(* 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	60.6	26.9	14.8	38.1	64.2	73.9	9.7	100	51	
Hori.	2498.565	PK	53.6	26.9	14.8	38.1	57.2	73.9	16.7	100	51	
Hori.	3269.376	PK	47.5	28.1	6.6	41.7	40.5	73.9	33.4	100	74	
Hori.	4904.000	PK	46.0	31.5	7.8	37.0	48.3	73.9	25.6	100	285	
Hori.	7356.000	PK	46.4	37.2	9.2	39.4	53.4	73.9	20.5	107	94	
Hori.	2483.500	AV	45.9	26.9	14.8	38.1	49.5	53.9	4.4	100	51	
Hori.	2498.565	AV	45.1	26.9	14.8	38.1	48.7	53.9	5.2	100	51	
Vert.	2483.500	PK	59.9	26.9	14.8	38.1	63.5	73.9	10.4	100	359	
Vert.	2498.565	PK	55.6	26.9	14.8	38.1	59.2	73.9	14.7	100	359	
Vert.	3269.376	PK	49.1	28.1	6.6	41.7	42.1	73.9	31.8	100	277	
Vert.	4904.000	PK	45.4	31.5	7.8	37.0	47.7	73.9	26.2	100	167	
Vert.	7356.000	PK	45.7	37.2	9.2	39.4	52.7	73.9	21.2	100	0	
Vert.	2483.500	AV	47.2	26.9	14.8	38.1	50.8	53.9	**3.1**	100	359	
Vert.	2498.565	AV	47.1	26.9	14.8	38.1	50.7	53.9	3.2	100	359	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	3269.376	AV	40.6	28.1	6.6	41.7	0.9	34.5	53.9	19.4	
Hori.	4904.000	AV	35.6	31.5	7.8	37.0	0.9	38.8	53.9	15.1	
Hori.	7356.000	AV	37.1	37.2	9.2	39.4	0.9	45.0	53.9	**8.9**	
Vert.	3269.376	AV	42.0	28.1	6.6	41.7	0.9	35.9	53.9	18.0	
Vert.	4904.000	AV	35.4	31.5	7.8	37.0	0.9	38.6	53.9	15.3	
Vert.	7356.000	AV	36.8	37.2	9.2	39.4	0.9	44.7	53.9	9.2	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber
Date	November 20, 2013	November 21, 2013	November 22 2013
Temperature / Humidity	20 deg.C, 40 %RH	27 deg.C, 26 %RH	25 deg.C, 39 %RH
Engineer	Akio Hayashi	Akio Hayashi	Akio Hayashi
Mode	Tx, 5745 MHz		

Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

(* 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.	11490.000	PK	45.7	40.6	9.7	39.4	56.6	73.9	**17.3**	100	100	
Hori.	17235.000	PK	45.5	40.8	2.6	40.6	48.3	73.9	25.6	100	0	
Vert.	11490.000	PK	45.7	40.6	9.7	39.4	56.6	73.9	**17.3**	100	100	
Vert.	17235.000	PK	45.1	40.8	2.6	40.6	47.9	73.9	26.0	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	11490.000	AV	36.7	40.6	9.7	39.4	0.4	48.0	53.9	5.9	
Hori.	17235.000	AV	35.4	40.8	2.6	40.6	0.4	38.6	53.9	15.3	
Vert.	11490.000	AV	36.9	40.6	9.7	39.4	0.4	48.2	53.9	**5.7**	
Vert.	17235.000	AV	35.5	40.8	2.6	40.6	0.4	38.7	53.9	15.2	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
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.	5745.000	PK	89.3	32.4	17.0	40.7	98.0	-	-	
Hori.	5725.000	PK	47.9	32.4	17.0	40.7	56.6	78.0	21.4	
Vert.	5745.000	PK	88.1	32.4	17.0	40.7	96.8	-	-	
Vert.	5725.000	PK	47.7	32.4	17.0	40.7	56.4	76.8	20.4	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber
Date	November 21, 2013	November 22 2013
Temperature / Humidity	27 deg.C, 26 %RH	25 deg.C, 39 %RH
Engineer	Akio Hayashi	Akio Hayashi
Mode	Tx, 5785 MHz	
	Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps	

(* 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.	11570.000	PK	47.3	40.5	9.7	39.3	58.2	73.9	**15.7**	100	100	
Hori.	17355.000	PK	45.0	41.9	2.8	40.6	49.1	73.9	24.8	100	0	
Vert.	11570.000	PK	46.3	40.5	9.7	39.3	57.2	73.9	16.7	100	100	
Vert.	17355.000	PK	45.1	41.9	2.8	40.6	49.2	73.9	24.7	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	11570.000	AV	37.3	40.5	9.7	39.3	0.4	48.6	53.9	**5.3**	
Hori.	17355.000	AV	37.0	41.9	2.8	40.6	0.4	41.5	53.9	12.4	
Vert.	11570.000	AV	37.3	40.5	9.7	39.3	0.4	48.6	53.9	**5.3**	
Vert.	17355.000	AV	36.5	41.9	2.8	40.6	0.4	41.0	53.9	12.9	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.3 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber
Date	November 20, 2013	November 21, 2013	November 22 2013
Temperature / Humidity	20 deg.C, 40 %RH	27 deg.C, 26 %RH	25 deg.C, 39 %RH
Engineer	Akio Hayashi	Akio Hayashi	Akio Hayashi
Mode	Tx, 5825 MHz		

Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

(* 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.	11650.000	PK	46.8	40.4	9.8	39.3	57.7	73.9	**16.2**	100	100	
Hori.	17475.000	PK	45.3	42.9	2.8	40.5	50.5	73.9	23.4	100	0	
Vert.	11650.000	PK	46.5	40.4	9.8	39.3	57.4	73.9	16.5	100	100	
Vert.	17475.000	PK	44.6	42.9	2.8	40.5	49.8	73.9	24.1	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	11650.000	AV	37.5	40.4	9.8	39.3	0.4	48.8	53.9	**5.1**	
Hori.	17475.000	AV	35.8	42.9	2.8	40.5	0.4	41.4	53.9	12.5	
Vert.	11650.000	AV	37.1	40.4	9.8	39.3	0.4	48.4	53.9	5.5	
Vert.	17475.000	AV	35.9	42.9	2.8	40.5	0.4	41.5	53.9	12.4	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
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.	5825.000	PK	89.0	32.4	17.1	40.6	97.9	-	-	
Hori.	5850.000	PK	42.0	32.3	17.1	40.6	50.8	77.9	27.1	
Hori.	5857.875	PK	41.8	32.3	17.1	40.6	50.6	77.9	27.3	
Vert.	5825.000	PK	86.5	32.4	17.1	40.6	95.4	-	-	
Vert.	5850.000	PK	41.4	32.3	17.1	40.6	50.2	75.4	25.2	
Vert.	5857.875	PK	41.0	32.3	17.1	40.6	49.8	75.4	25.6	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	November 20, 2013	November 21, 2013	November 22 2013	November 26, 2013
Temperature / Humidity	20 deg.C, 40 %RH	27 deg.C, 26 %RH	25 deg.C, 39 %RH	25 deg.C, 42 %RH
Engineer	Akio Hayashi	Akio Hayashi	Akio Hayashi	Tatsuya Arai
Mode	Tx, 5745 MHz			
	Tx, IEEE802.11n (HT20), CDD, PN9, worst data mode 0(MCS)			

(* 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.	390.664	QP	34.7	16.1	9.0	32.0	27.8	46.0	18.2	100	92	
Hori.	11490.000	PK	46.0	40.6	9.7	39.4	56.9	73.9	17.0	100	100	
Hori.	17235.000	PK	44.4	40.8	2.6	40.6	47.2	73.9	26.7	100	0	
Vert.	80.355	QP	56.4	6.3	7.4	32.1	38.0	40.0	**2.0**	100	2	
Vert.	119.051	QP	48.4	12.9	7.2	32.1	36.4	43.5	7.1	100	211	
Vert.	151.217	QP	41.7	14.6	7.7	32.1	31.9	43.5	11.6	100	171	
Vert.	390.664	QP	33.7	16.1	9.0	32.0	26.8	46.0	19.2	122	176	
Vert.	11490.000	PK	45.8	40.6	9.7	39.4	56.7	73.9	17.2	100	100	
Vert.	17235.000	PK	44.2	40.8	2.6	40.6	47.0	73.9	26.9	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	11490.000	AV	36.7	40.6	9.7	39.4	0.4	48.0	53.9	5.9	
Hori.	17235.000	AV	35.4	40.8	2.6	40.6	0.4	38.6	53.9	15.3	
Vert.	11490.000	AV	37.4	40.6	9.7	39.4	0.4	48.7	53.9	**5.2**	
Vert.	17235.000	AV	35.6	40.8	2.6	40.6	0.4	38.8	53.9	15.1	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
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.	5745.000	PK	92.2	32.4	17.0	40.7	100.9	-	-	
Hori.	5725.000	PK	55.8	32.4	17.0	40.7	64.5	80.9	16.4	
Vert.	5745.000	PK	92.8	32.4	17.0	40.7	101.5	-	-	
Vert.	5725.000	PK	57.1	32.4	17.0	40.7	65.8	81.5	15.7	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber
Date	November 21, 2013	November 22 2013
Temperature / Humidity	27 deg.C, 26 %RH	25 deg.C, 39 %RH
Engineer	Akio Hayashi	Akio Hayashi
Mode	Tx, 5785 MHz	
	Tx, IEEE802.11n (HT20), CDD, PN9, worst data mode 0(MCS)	

(* 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.	11570.000	PK	46.7	40.5	9.7	39.3	57.6	73.9	16.3	100	100	
Hori.	17335.000	PK	45.8	41.7	2.8	40.6	49.7	73.9	24.2	100	0	
Vert.	11570.000	PK	48.7	40.5	9.7	39.3	59.6	73.9	**14.3**	100	100	
Vert.	17335.000	PK	46.4	41.7	2.8	40.6	50.3	73.9	23.6	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	11570.000	AV	37.5	40.5	9.7	39.3	0.4	48.8	53.9	5.1	
Hori.	17335.000	AV	36.2	41.7	2.8	40.6	0.4	40.5	53.9	13.4	
Vert.	11570.000	AV	37.7	40.5	9.7	39.3	0.4	49.0	53.9	**4.9**	
Vert.	17335.000	AV	35.9	41.7	2.8	40.6	0.4	40.2	53.9	13.7	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber
Date	November 20, 2013	November 21, 2013	November 22 2013
Temperature / Humidity	20 deg.C, 40 %RH	27 deg.C, 26 %RH	25 deg.C, 39 %RH
Engineer	Akio Hayashi	Akio Hayashi	Akio Hayashi
Mode	Tx, 5825 MHz		
	Tx, IEEE802.11n (HT20), CDD, PN9, worst data mode 0(MCS)		

(* 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.	11650.000	PK	46.7	40.4	9.8	39.3	57.6	73.9	16.3	100	110	
Hori.	17475.000	PK	45.0	42.9	2.8	40.5	50.2	73.9	23.7	100	0	
Vert.	11650.000	PK	46.8	40.4	9.8	39.3	57.7	73.9	**16.2**	100	100	
Vert.	17475.000	PK	45.5	42.9	2.8	40.5	50.7	73.9	23.2	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	11650.000	AV	37.4	40.4	9.8	39.3	0.4	48.7	53.9	**5.2**	
Hori.	17475.000	AV	36.1	42.9	2.8	40.5	0.4	41.7	53.9	12.2	
Vert.	11650.000	AV	37.3	40.4	9.8	39.3	0.4	48.6	53.9	5.3	
Vert.	17475.000	AV	35.8	42.9	2.8	40.5	0.4	41.4	53.9	12.5	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
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.	5825.000	PK	92.0	32.4	17.1	40.6	100.9	-	-	
Hori.	5850.000	PK	46.6	32.3	17.1	40.6	55.4	80.9	25.5	
Vert.	5825.000	PK	90.6	32.4	17.1	40.6	99.5	-	-	
Vert.	5850.000	PK	47.3	32.3	17.1	40.6	56.1	79.5	23.4	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber
Date	November 20, 2013	November 21, 2013	November 22 2013
Temperature / Humidity	20 deg.C, 40 %RH	27 deg.C, 26 %RH	25 deg.C, 39 %RH
Engineer	Akio Hayashi	Akio Hayashi	Akio Hayashi
Mode	Tx, 5755 MHz		
	Tx, IEEE802.11n (HT40), CDD, PN9, worst data mode 0(MCS)		

(* 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.	11510.000	PK	46.1	40.5	9.7	39.4	56.9	73.9	**17.0**	100	100	
Hori.	17265.000	PK	45.2	41.1	2.7	40.6	48.4	73.9	25.5	100	0	
Vert.	11510.000	PK	45.5	40.5	9.7	39.4	56.3	73.9	17.6	100	100	
Vert.	17265.000	PK	44.9	41.1	2.7	40.6	48.1	73.9	25.8	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	11510.000	AV	36.7	40.5	9.7	39.4	0.9	48.4	53.9	**5.5**	
Hori.	17265.000	AV	35.7	41.1	2.7	40.6	0.9	39.8	53.9	14.1	
Vert.	11510.000	AV	36.7	40.5	9.7	39.4	0.9	48.4	53.9	**5.5**	
Vert.	17265.000	AV	35.9	41.1	2.7	40.6	0.9	40.0	53.9	13.9	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
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.	5755.000	PK	92.3	32.4	17.1	40.6	101.2	-	-	
Hori.	5725.000	PK	60.0	32.4	17.0	40.7	68.7	81.2	12.5	
Vert.	5755.000	PK	90.6	32.4	17.1	40.6	99.5	-	-	
Vert.	5725.000	PK	60.3	32.4	17.0	40.7	69.0	79.5	10.5	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber	No.2 Semi Anechoic Chamber
Date	November 20, 2013	November 21, 2013	November 22 2013
Temperature / Humidity	20 deg.C, 40 %RH	27 deg.C, 26 %RH	25 deg.C, 39 %RH
Engineer	Akio Hayashi	Akio Hayashi	Akio Hayashi
Mode	Tx, 5795 MHz		
	Tx, IEEE802.11n (HT40), CDD, PN9, worst data mode 0(MCS)		

(* 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.	11590.000	PK	47.3	40.4	9.7	39.3	58.1	73.9	**15.8**	100	100	
Hori.	17385.000	PK	44.8	42.1	2.8	40.6	49.1	73.9	24.8	100	0	
Vert.	11590.000	PK	46.3	40.4	9.7	39.3	57.1	73.9	16.8	100	100	
Vert.	17385.000	PK	45.1	42.1	2.8	40.6	49.4	73.9	24.5	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	11590.000	AV	37.6	40.4	9.7	39.3	0.9	49.3	53.9	**4.6**	
Hori.	17385.000	AV	36.0	42.1	2.8	40.6	0.9	41.2	53.9	12.7	
Vert.	11590.000	AV	37.5	40.4	9.7	39.3	0.9	49.2	53.9	4.7	
Vert.	17385.000	AV	36.2	42.1	2.8	40.6	0.9	41.4	53.9	12.5	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

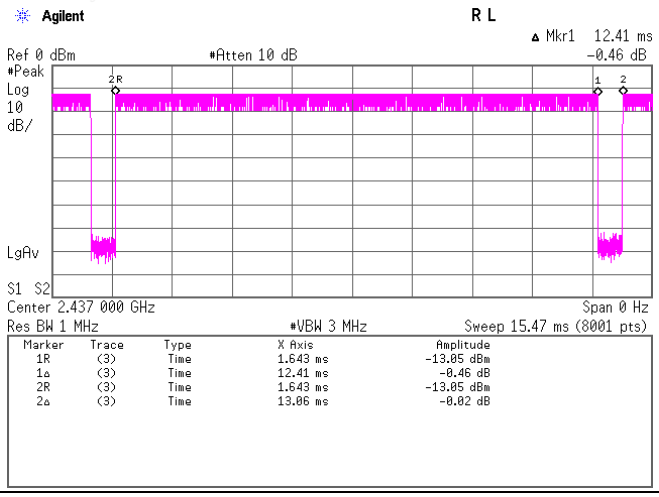
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	5850.000	PK	44.4	32.3	17.1	40.6	53.2	-	-	
Hori.	5795.000	PK	88.4	32.4	17.1	40.6	97.3	33.2	-64.1	
Vert.	5850.000	PK	49.3	32.3	17.1	40.6	58.1	-	-	
Vert.	5795.000	PK	90.3	32.4	17.1	40.6	99.2	38.1	-61.1	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 16, 2013	
Temperature / Humidity	27deg.C , 43%RH	
Engineer	Shinichi Takano	

Duty Factor Calculation chart

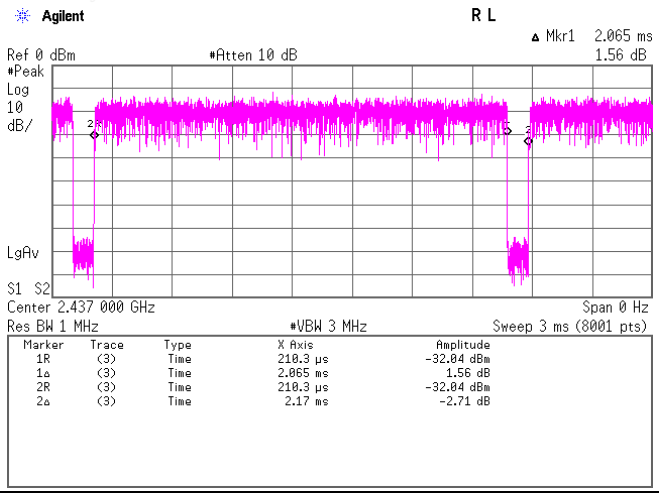
Tx, IEEE802.11b, PN9, worst antenna port 0, worst data mode 1Mbps

Duty Factor Calculation	
Duty Factor: 20log (1/duty cycle) = 0.4dB	
duty cycle = 12.41 / 13.06 = 0.95 (95%)	
Tx2_duty1  	Tx2_duty2

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Duty Factor Calculation chart

Tx, IEEE802.11g, PN9, worst antenna port 1, worst data mode 6Mbps

Duty Factor Calculation	
Duty Factor: 20log (1/duty cycle) = 0.4dB	
duty cycle = 2.065 / 2.17 = 0.952 (95.2%)	
Tx2_duty1  	Tx2_duty2

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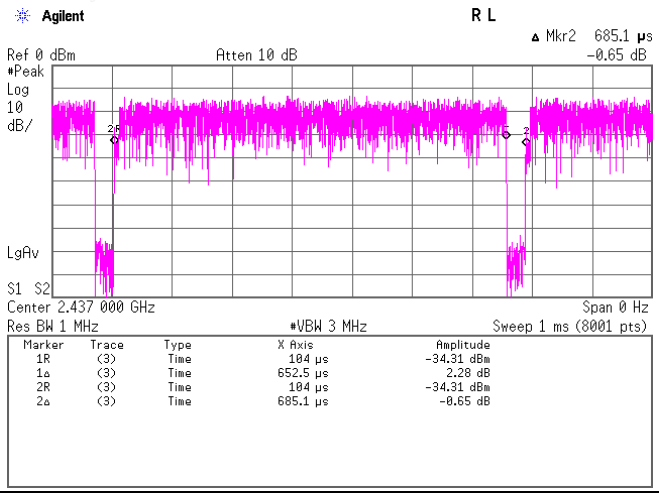
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 16, 2013	
Temperature / Humidity	27deg.C , 43%RH	
Engineer	Shinichi Takano	

Duty Factor Calculation chart

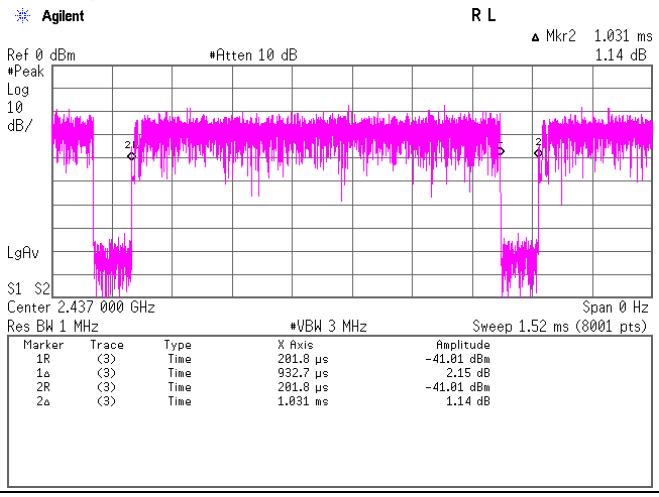
Tx, IEEE802.11n (HT20), CDD, PN9, worst data mode 2(MCS)

Duty Factor Calculation	
Duty Factor: 20log (1/duty cycle) = 0.4dB	
duty cycle = 0.6525 / 0.6851 = 0.952 (95.2%)	
Tx2_duty1  	Tx2_duty2

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 16, 2013	
Temperature / Humidity	27deg.C , 43%RH	
Engineer	Shinichi Takano	

Duty Factor Calculation chart

Tx, IEEE802.11n (HT40), CDD, PN9, worst data mode 0(MCS)

Duty Factor Calculation	
Duty Factor: 20log (1/duty cycle) = 0.9dB	
duty cycle = 0.9327 / 1.031 = 0.905 (90.5%)	
Tx2_duty1  	Tx2_duty2

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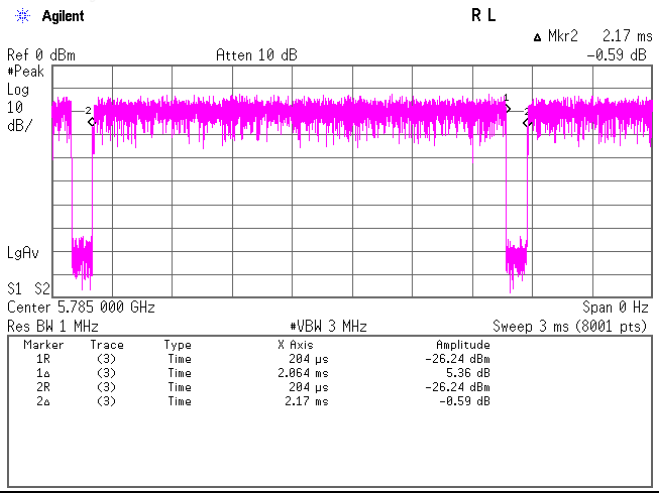
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Duty Factor Calculation chart

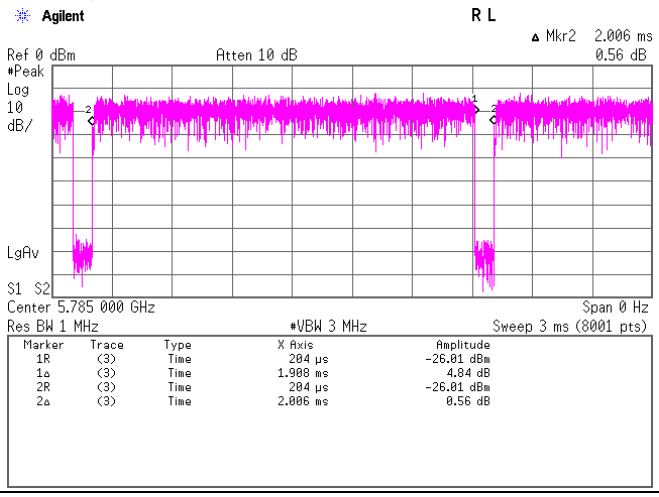
Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

Duty Factor Calculation	
Duty Factor: 20log (1/duty cycle) = 0.4dB	
duty cycle = 2.064 / 2.17 = 0.951 (95.1%)	
Tx2_duty1  	Tx2_duty2

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Duty Factor Calculation chart

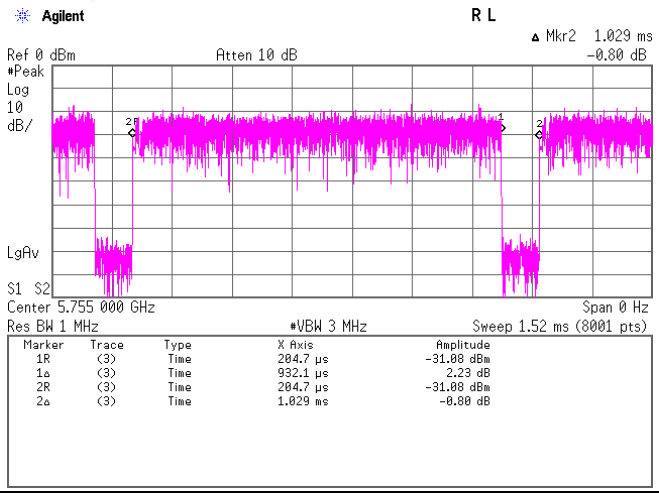
Tx, IEEE802.11n (HT20), CDD, PN9, worst data mode 0(MCS)

Duty Factor Calculation	
Duty Factor: 20log (1/duty cycle) = 0.4dB	
duty cycle = 1.908 / 2.006 = 0.951 (95.1%)	
Tx2_duty1  	Tx2_duty2

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Duty Factor Calculation chart

Tx, IEEE802.11n (HT40), CDD, PN9, worst data mode 0(MCS)

Duty Factor Calculation	
Duty Factor: 20log (1/duty cycle) = 0.9dB	
duty cycle = 0.9321 / 1.029 = 0.906 (90.6%)	
Tx2_duty1  	Tx2_duty2

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Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	

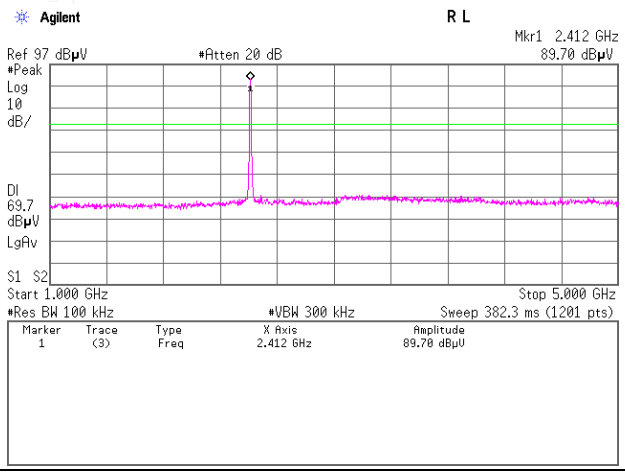
Spurious emission (Conducted)

Tx, IEEE802.11b, PN9, worst antenna port 0, worst data mode 1Mbps

Tx, 2412MHz (above 1GHz)

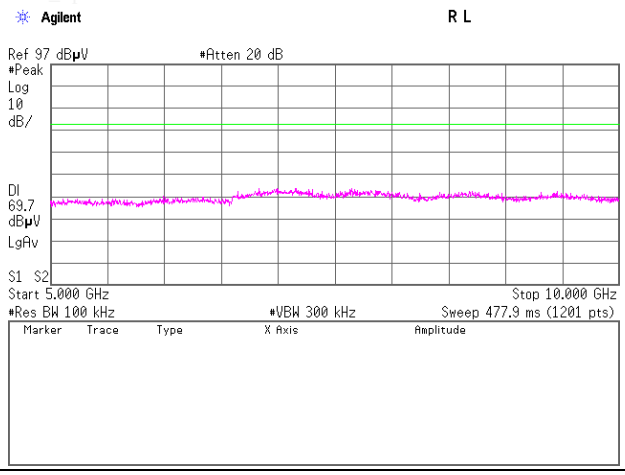
1GHz - 5GHz

Tx1_SpuriousG1



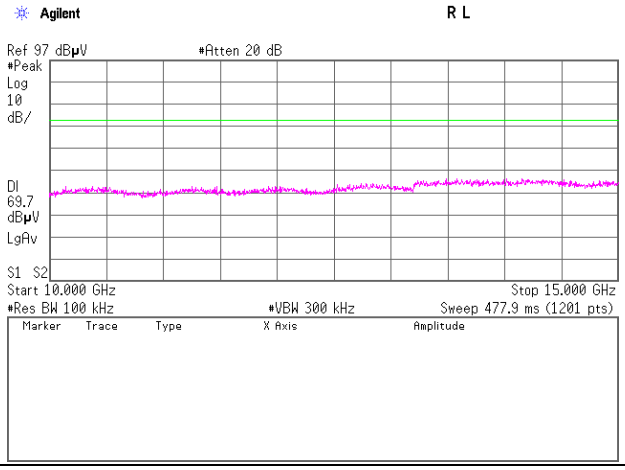
5GHz - 10GHz

Tx1_SpuriousG2



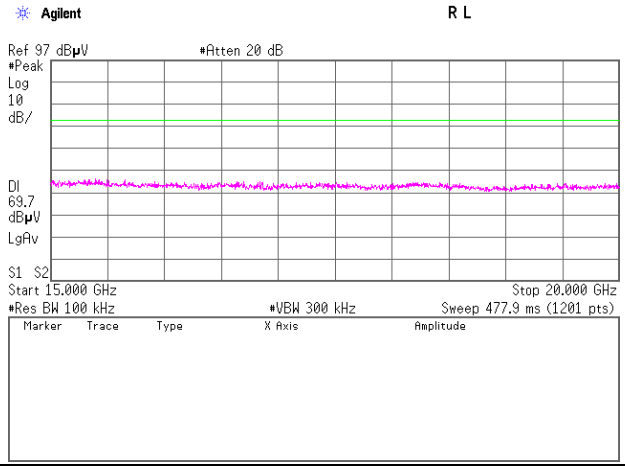
10GHz - 15GHz

Tx1_SpuriousG3



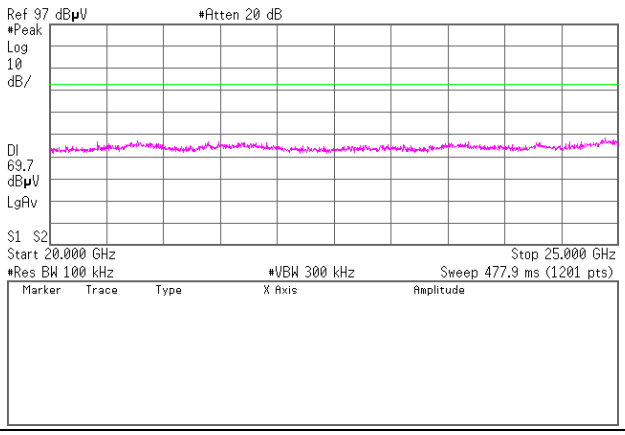
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6

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Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	

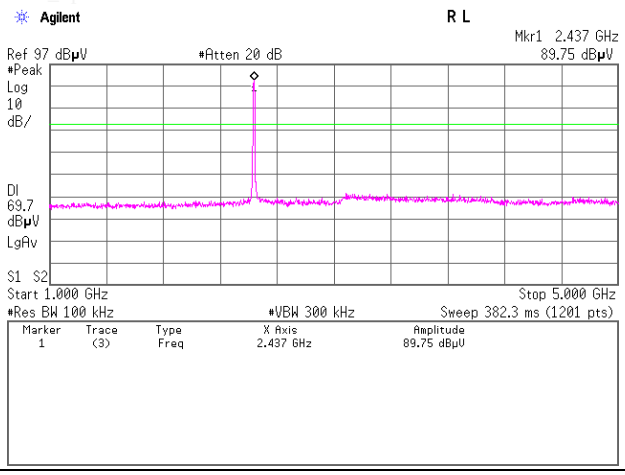
Spurious emission (Conducted)

Tx, IEEE802.11b, PN9, worst antenna port 0, worst data mode 1Mbps

Tx, 2437MHz (above 1GHz)

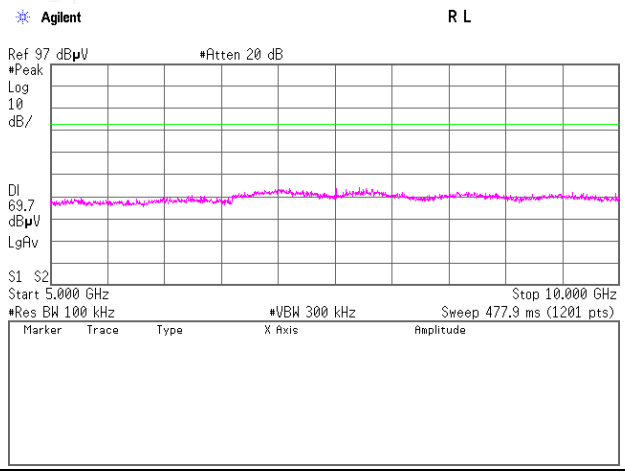
1GHz - 5GHz

Tx2_SpuriousG1



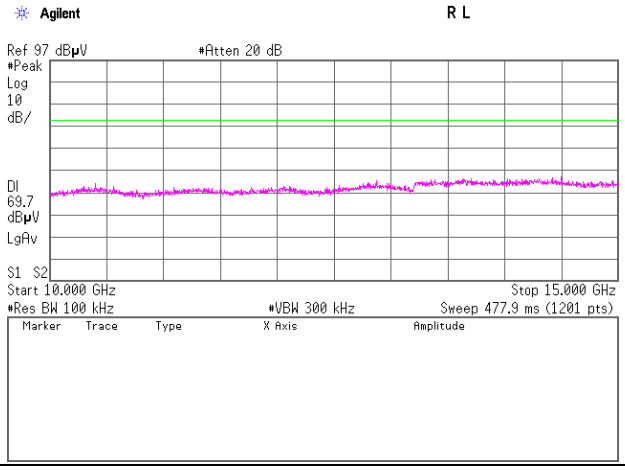
5GHz - 10GHz

Tx2_SpuriousG2



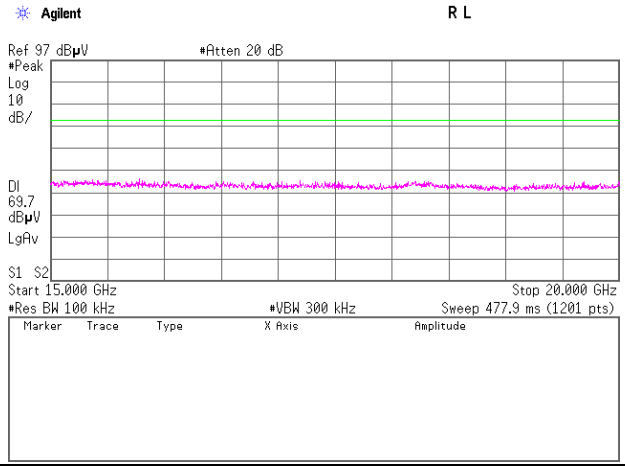
10GHz - 15GHz

Tx2_SpuriousG3



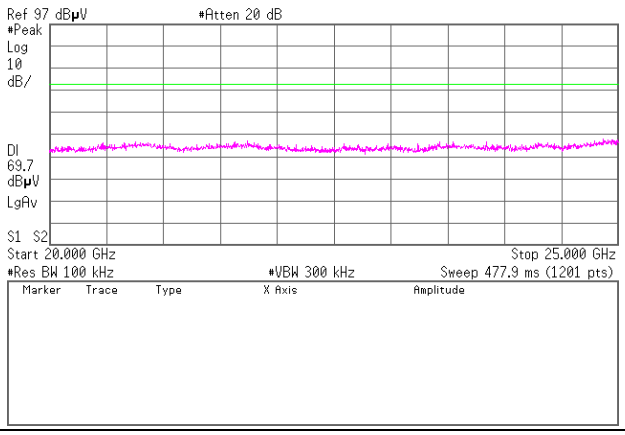
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6

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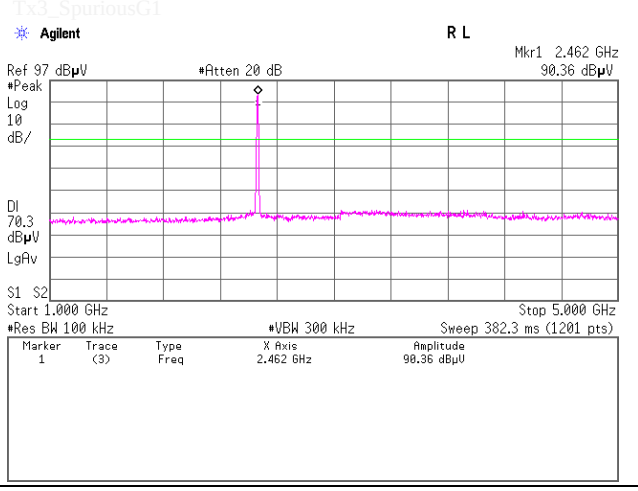
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

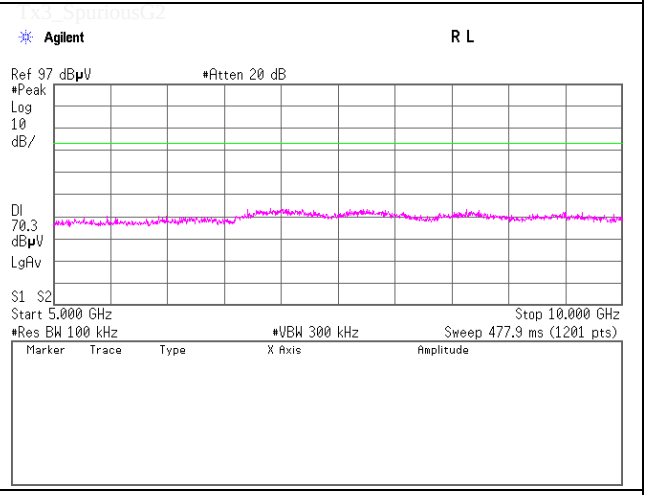
Tx, IEEE802.11b, PN9, worst antenna port 0, worst data mode 1Mbps

Tx, 2462MHz (above 1GHz)

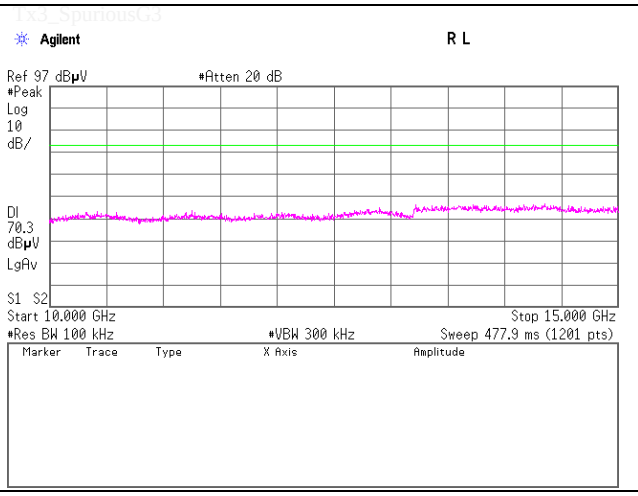
1GHz - 5GHz



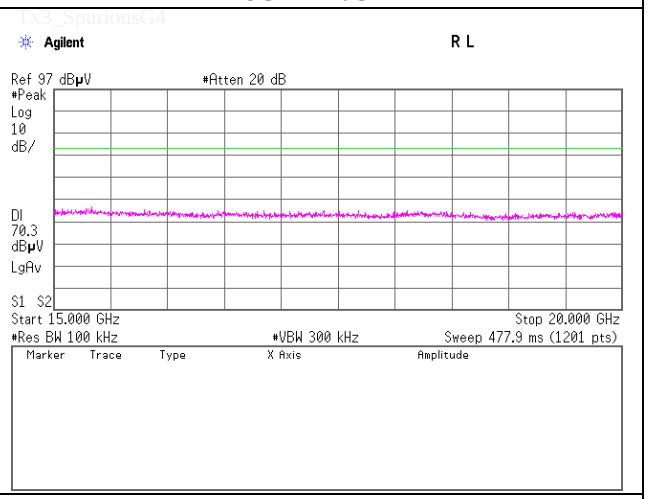
5GHz - 10GHz



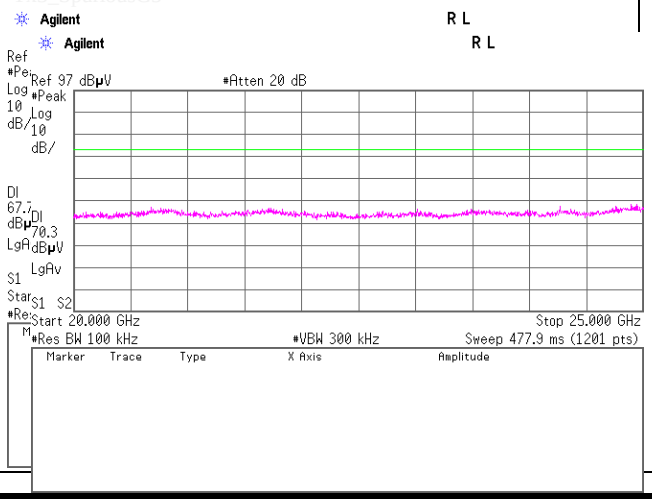
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	

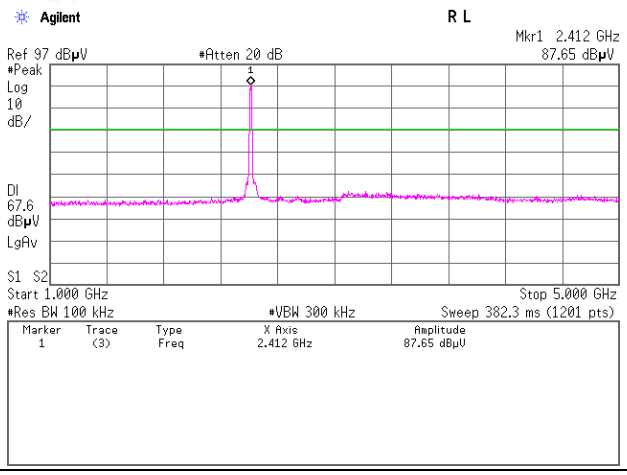
Spurious emission (Conducted)

Tx, IEEE802.11g, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 2412MHz (above 1GHz)

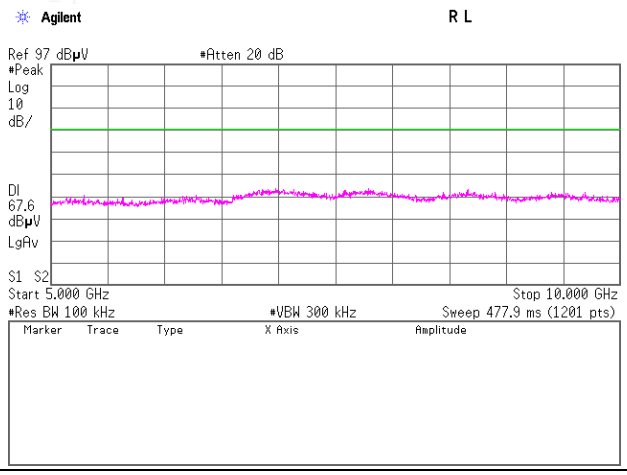
1GHz - 5GHz

Tx1_SpuriousG1



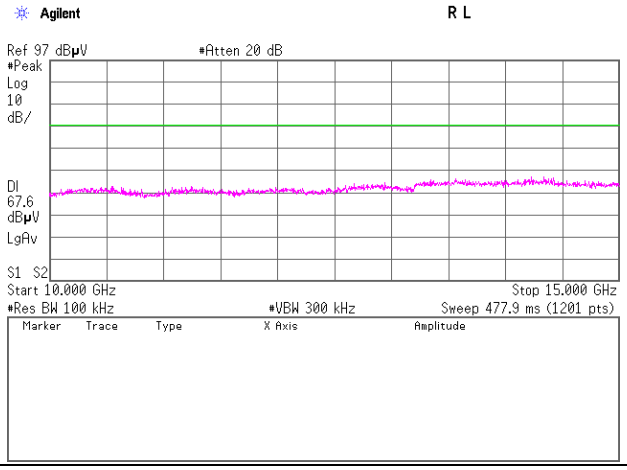
5GHz - 10GHz

Tx1_SpuriousG2



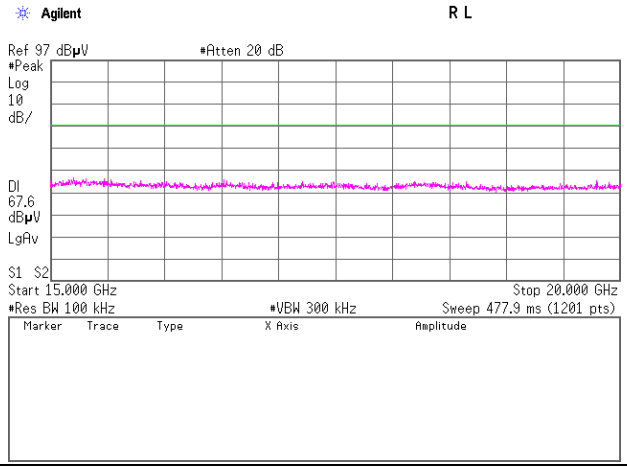
10GHz - 15GHz

Tx1_SpuriousG3



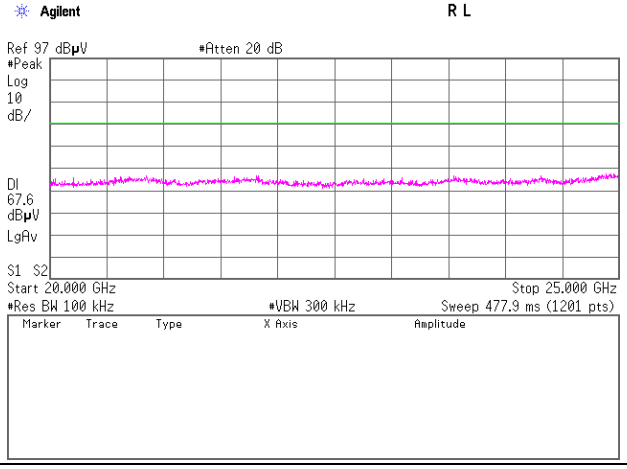
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6

UL Japan, Inc.
Shonan EMC Lab.
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Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	

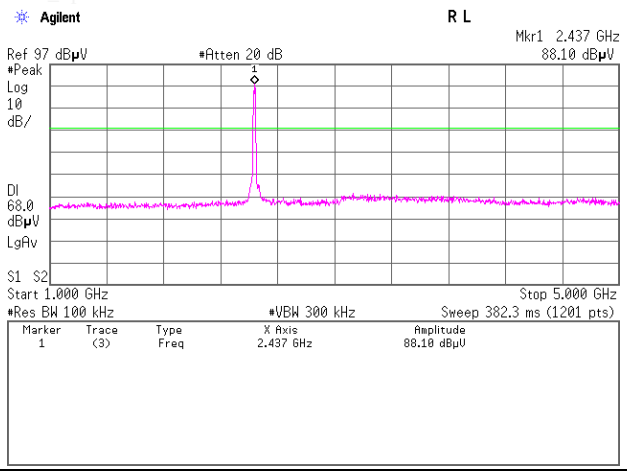
Spurious emission (Conducted)

Tx, IEEE802.11g, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 2437MHz (above 1GHz)

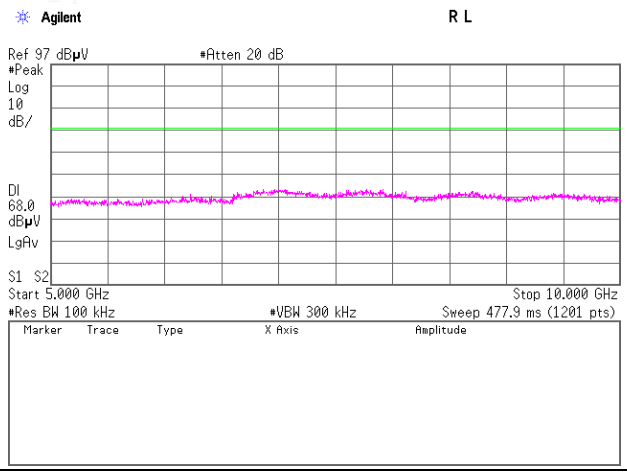
1GHz - 5GHz

Tx2_SpuriousG1



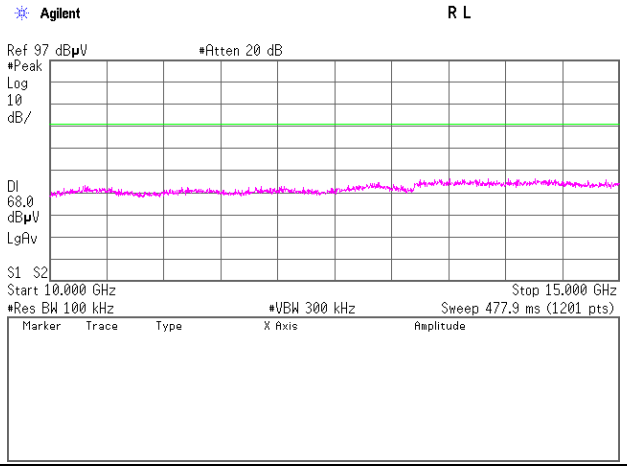
5GHz - 10GHz

Tx2_SpuriousG2



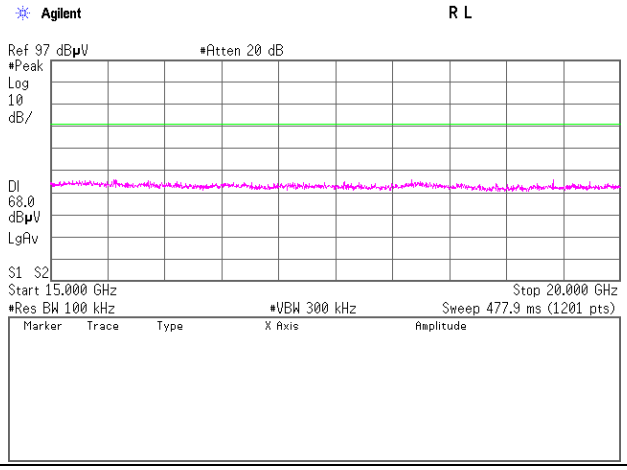
10GHz - 15GHz

Tx2_SpuriousG3



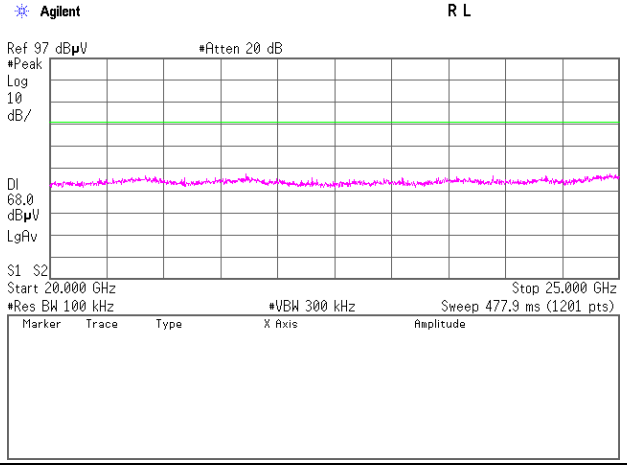
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	

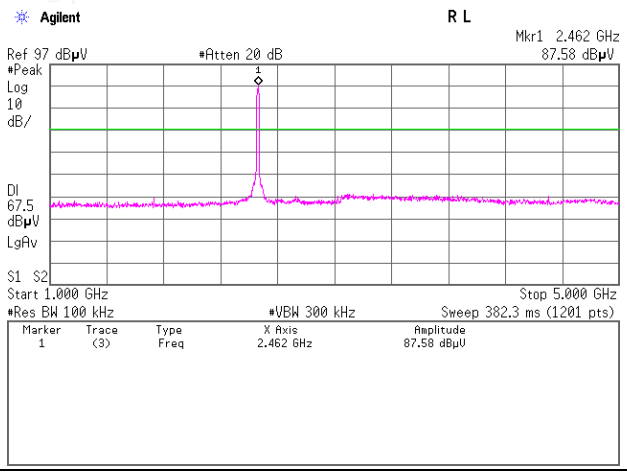
Spurious emission (Conducted)

Tx, IEEE802.11g, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 2462MHz (above 1GHz)

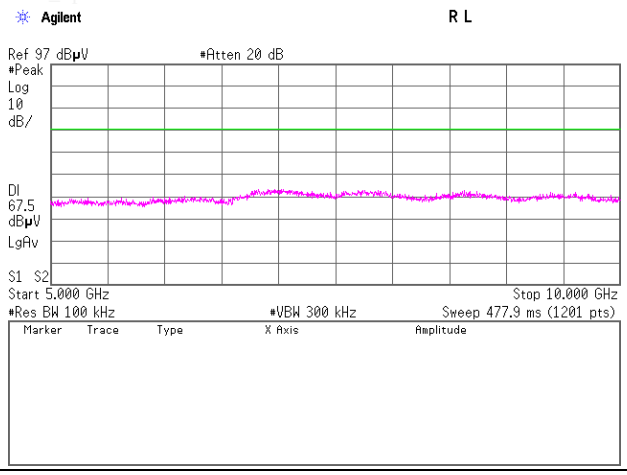
1GHz - 5GHz

Tx3_SpuriousG1



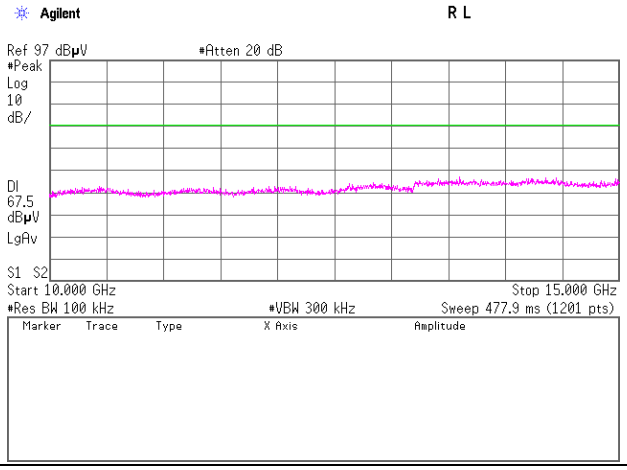
5GHz - 10GHz

Tx3_SpuriousG2



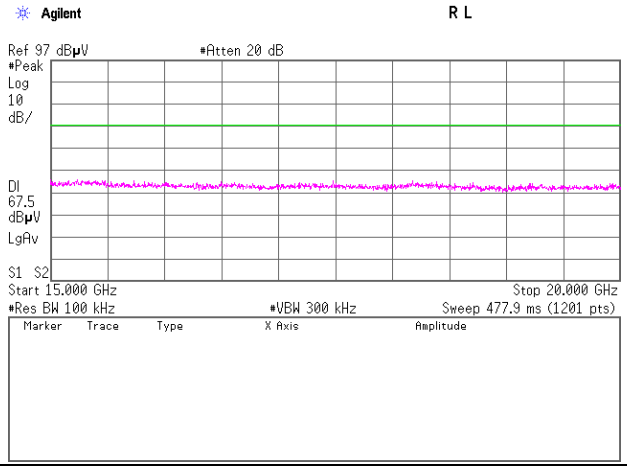
10GHz - 15GHz

Tx3_SpuriousG3



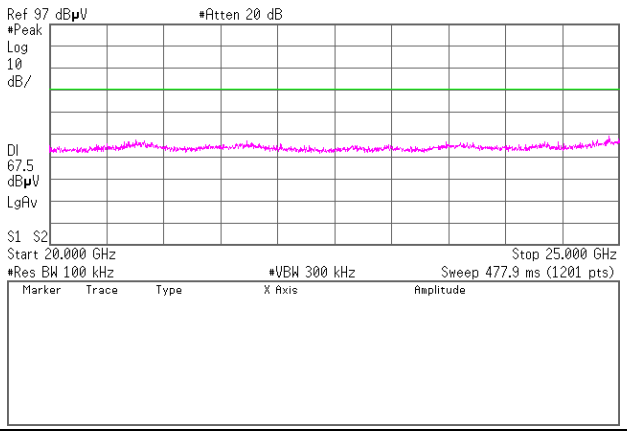
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6

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Shonan EMC Lab.
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Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

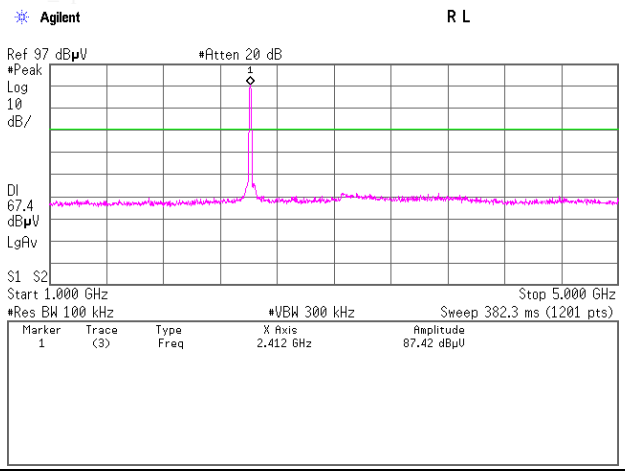
Spurious emission (Conducted)

Tx, IEEE802.11n(HT20), SISO, PN9, worst antenna port 0, worst data mode 2(MCS)

Tx, 2412MHz (above 1GHz)

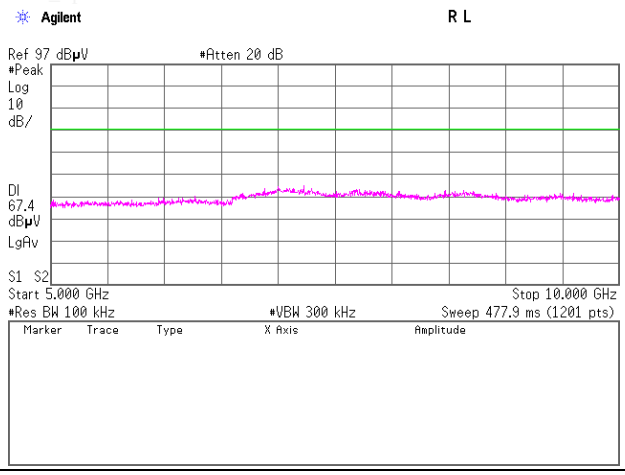
1GHz - 5GHz

Tx1_SpuriousG1



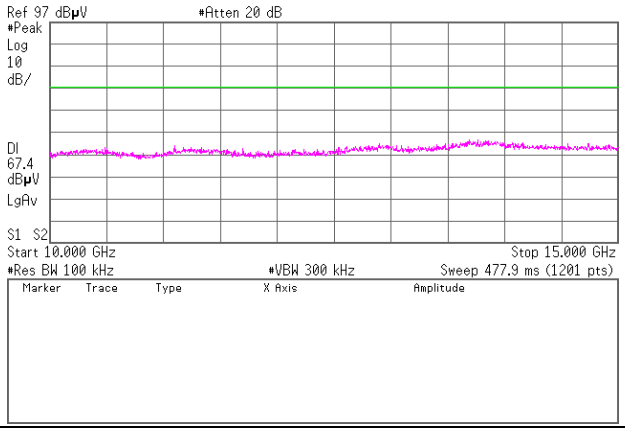
5GHz - 10GHz

Tx1_SpuriousG2



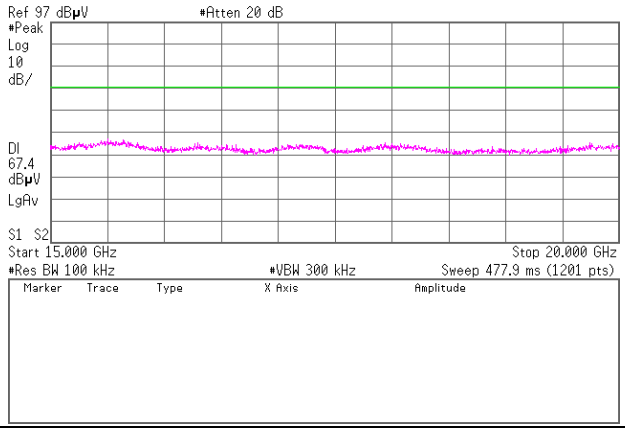
10GHz - 15GHz

Tx1_SpuriousG3



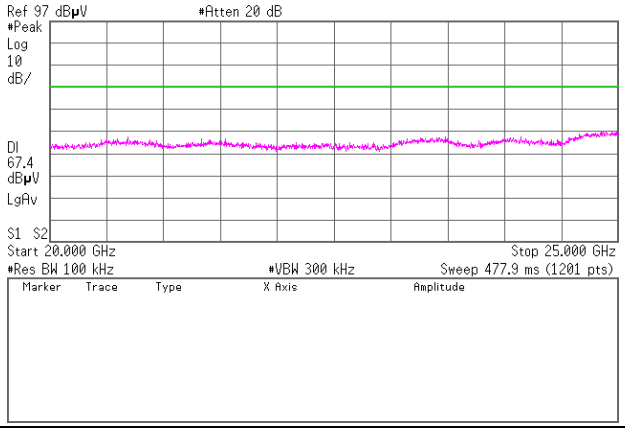
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

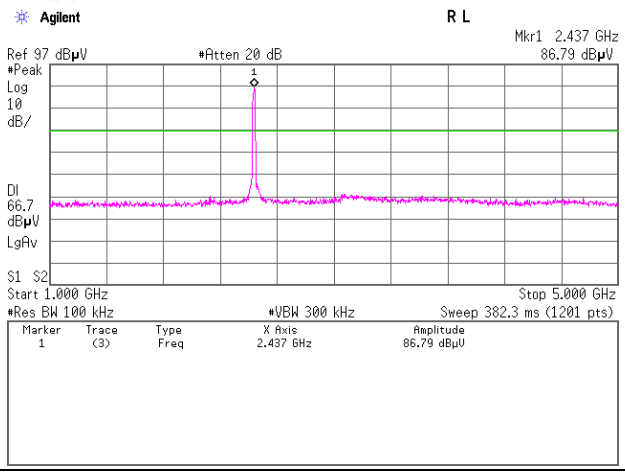
Spurious emission (Conducted)

Tx, IEEE802.11n(HT20), SISO, PN9, worst antenna port 0, worst data mode 2(MCS)

Tx, 2437MHz (above 1GHz)

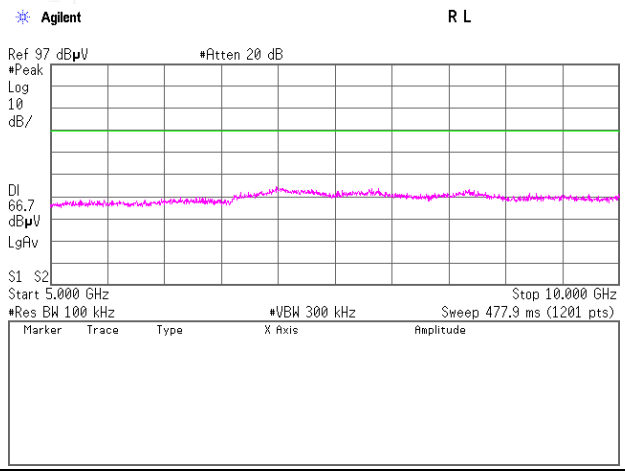
1GHz - 5GHz

Tx2_SpuriousG1



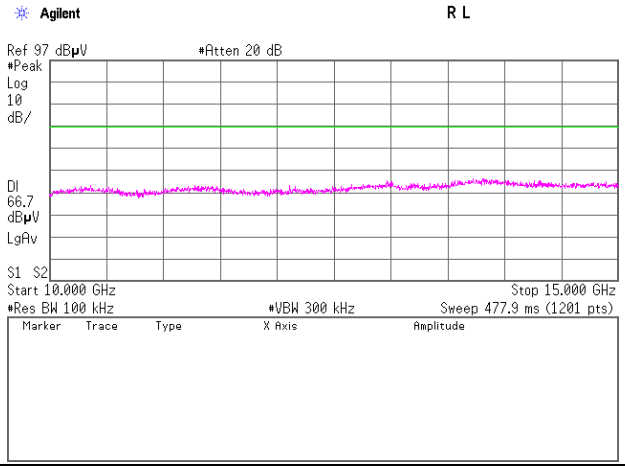
5GHz - 10GHz

Tx2_SpuriousG2



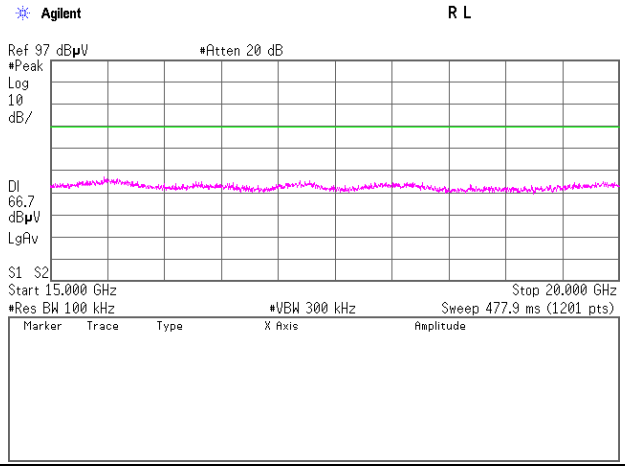
10GHz - 15GHz

Tx2_SpuriousG3



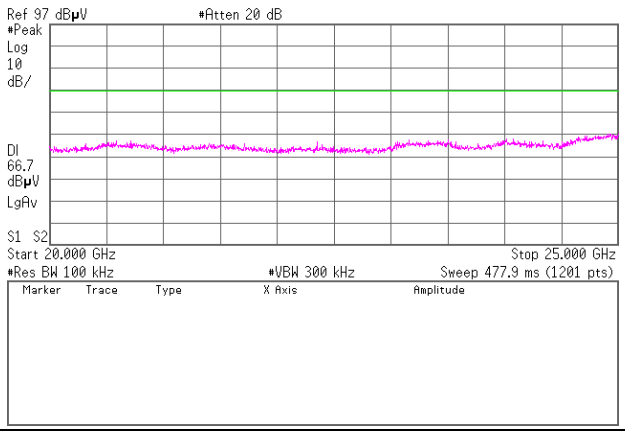
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6

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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

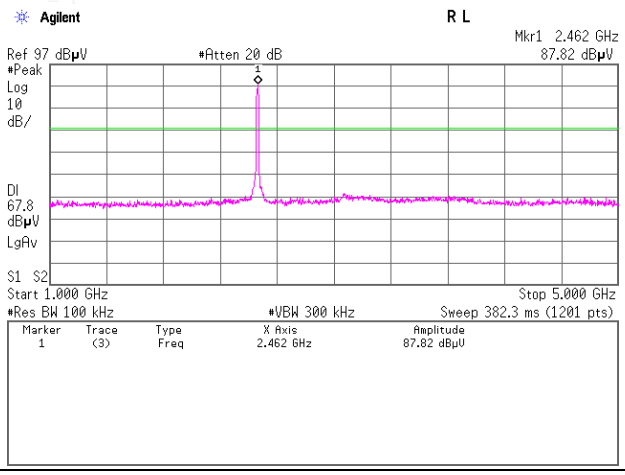
Spurious emission (Conducted)

Tx, IEEE802.11n(HT20), SISO, PN9, worst antenna port 0, worst data mode 2(MCS)

Tx, 2462MHz (above 1GHz)

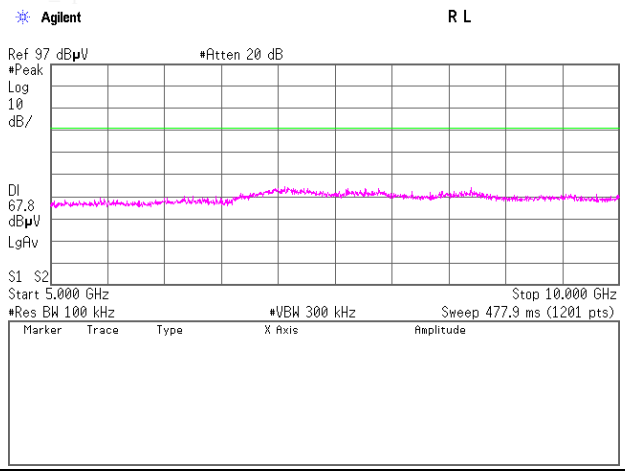
1GHz - 5GHz

Tx3_SpuriousG1



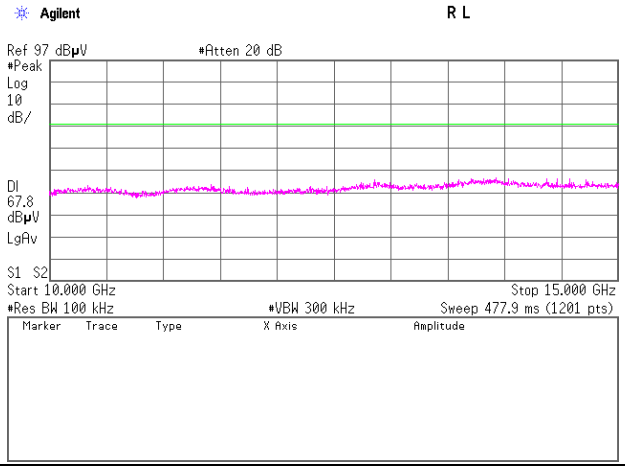
5GHz - 10GHz

Tx3_SpuriousG2



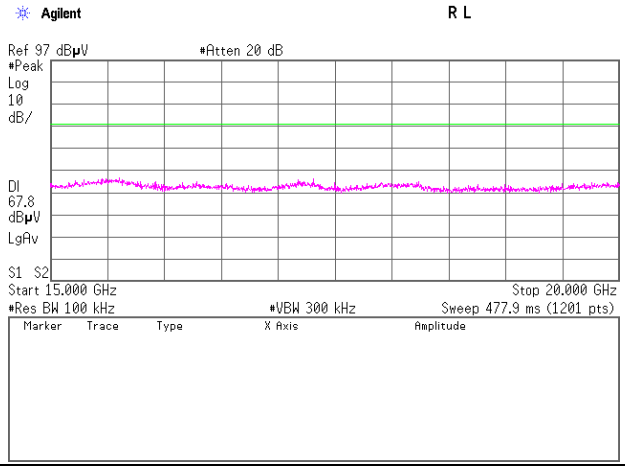
10GHz - 15GHz

Tx3_SpuriousG3



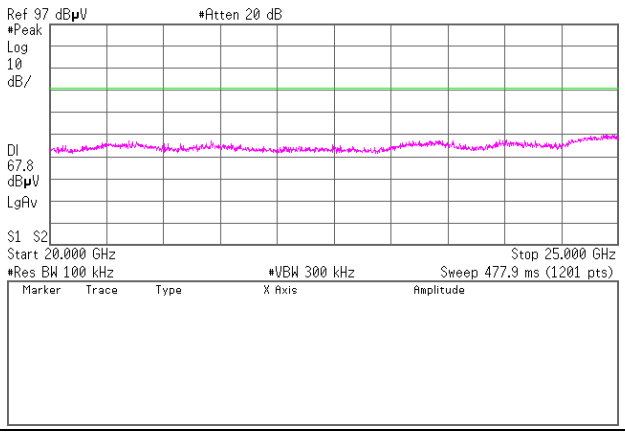
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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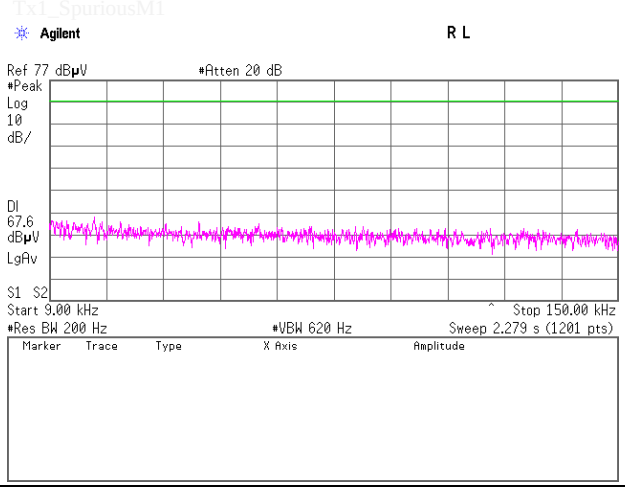
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

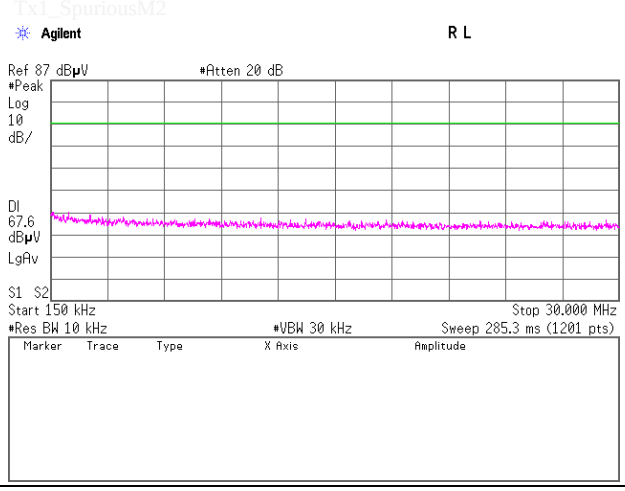
Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 2(MCS)

Tx, 2412MHz (below 1GHz)

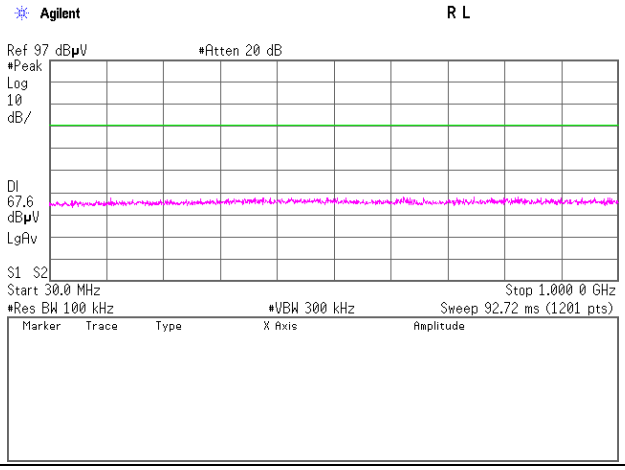
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

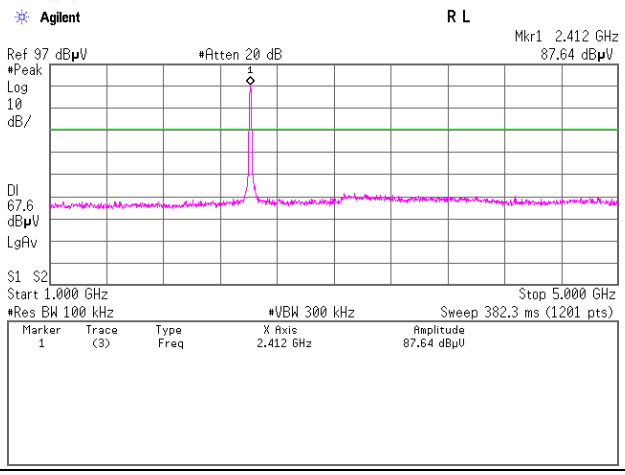
Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 2(MCS)

Tx, 2412MHz (above 1GHz)

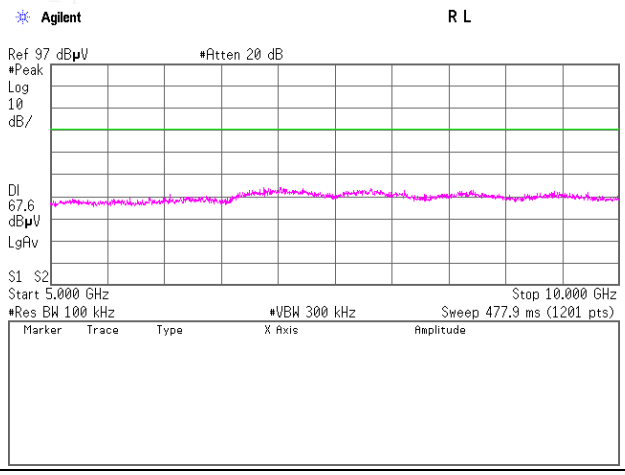
1GHz - 5GHz

Tx1_SpuriousG1



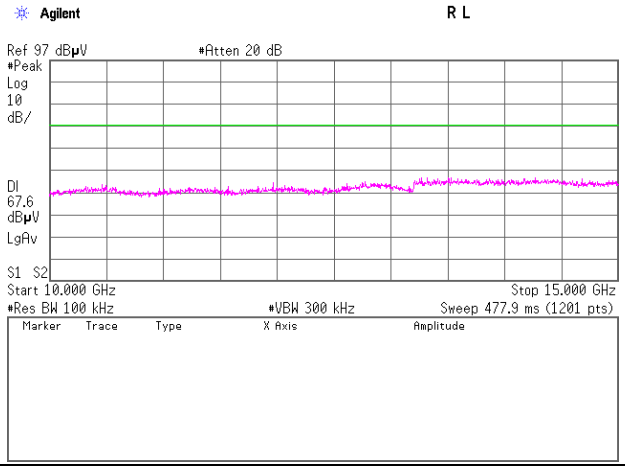
5GHz - 10GHz

Tx1_SpuriousG2



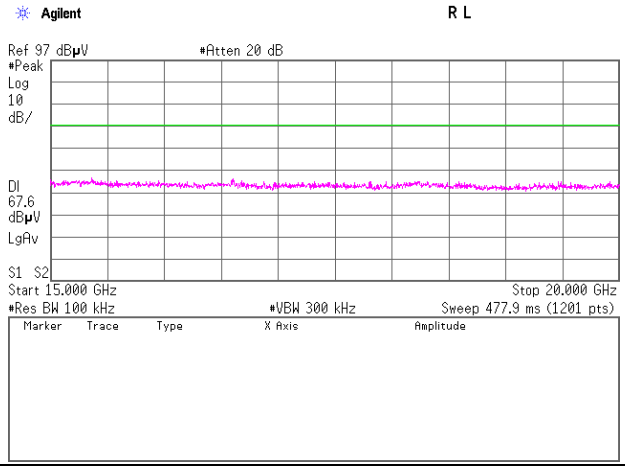
10GHz - 15GHz

Tx1_SpuriousG3



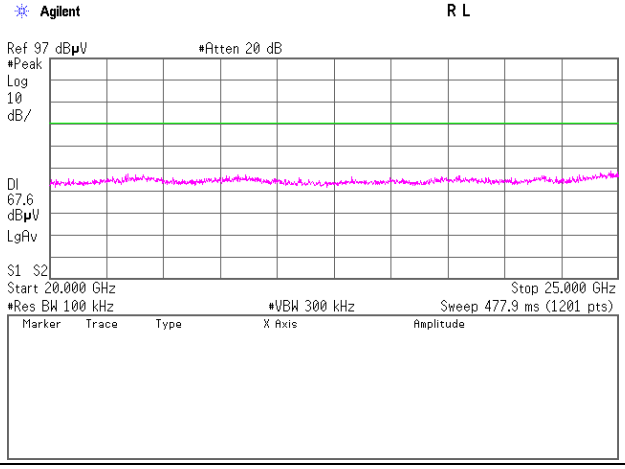
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6_Ant0

UL Japan, Inc.
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Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

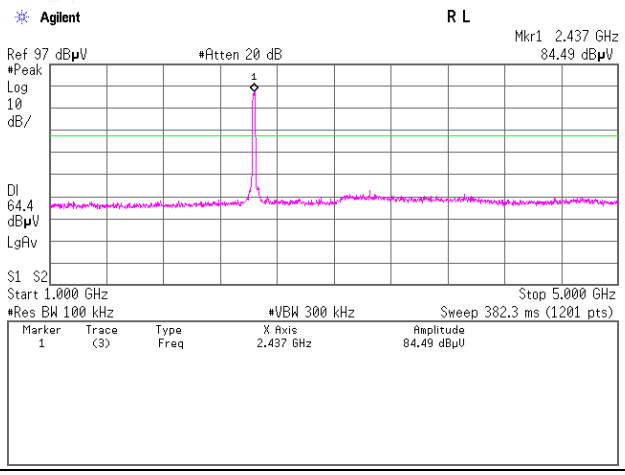
Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 2(MCS)

Tx, 2437MHz (above 1GHz)

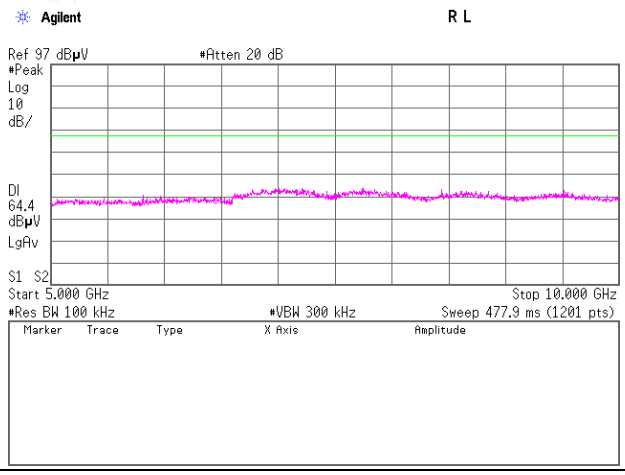
1GHz - 5GHz

Tx2_SpuriousG1



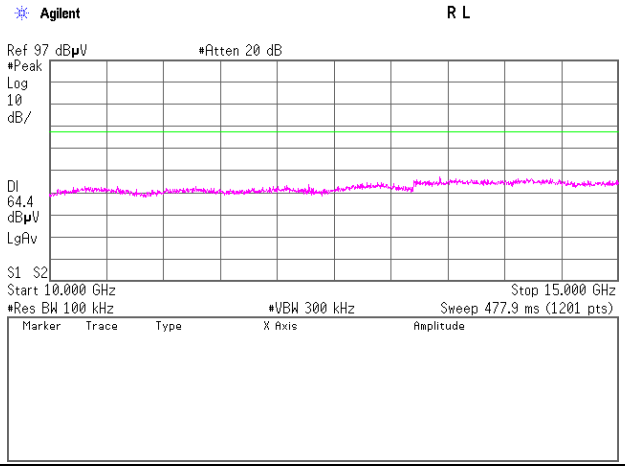
5GHz - 10GHz

Tx2_SpuriousG2



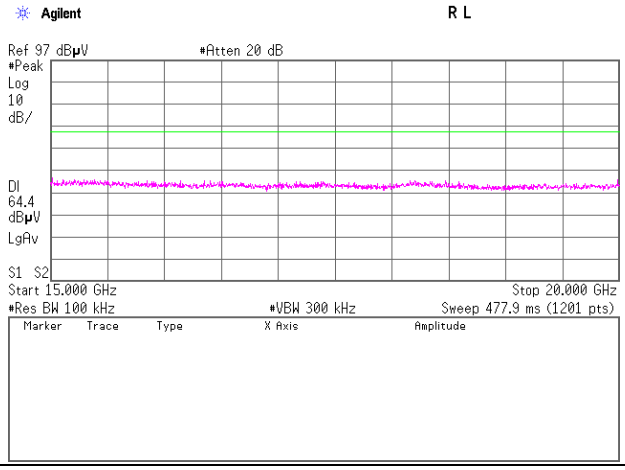
10GHz - 15GHz

Tx2_SpuriousG3



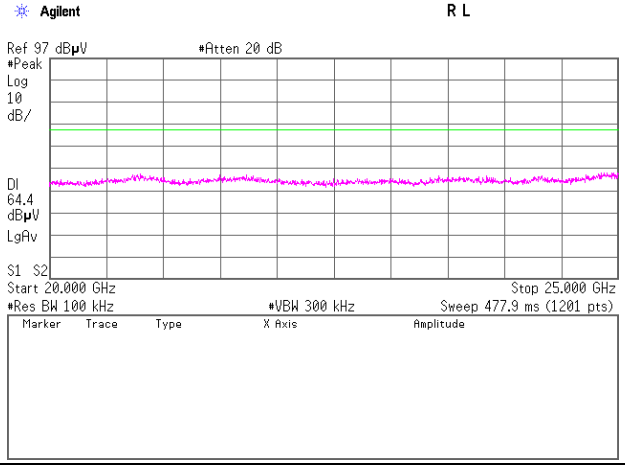
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6_Ant0

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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

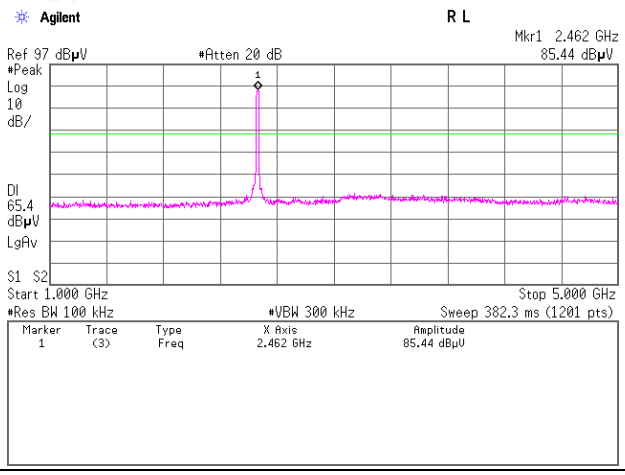
Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 2(MCS)

Tx, 2462MHz (above 1GHz)

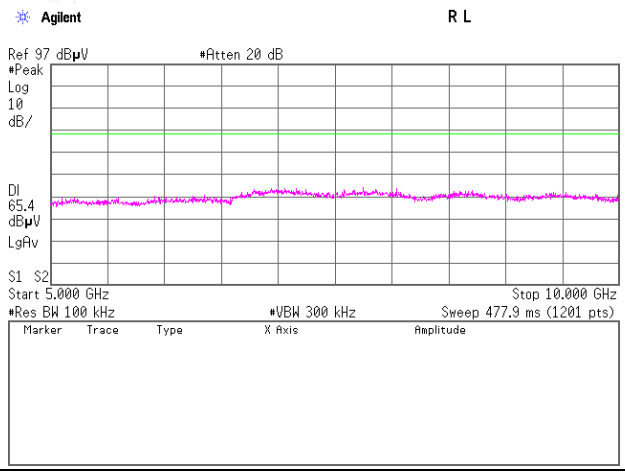
1GHz - 5GHz

Tx3_SpuriousG1



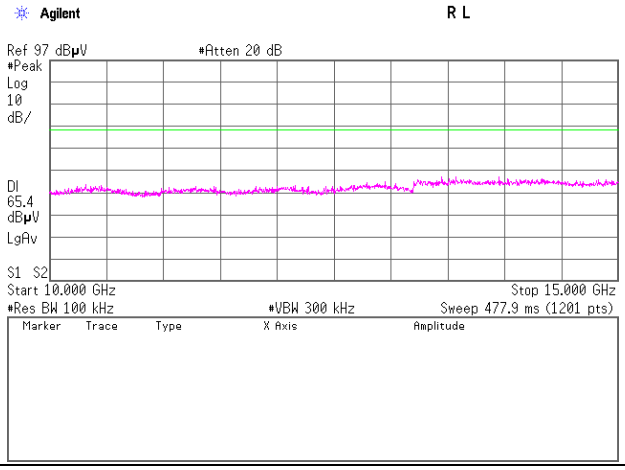
5GHz - 10GHz

Tx3_SpuriousG2



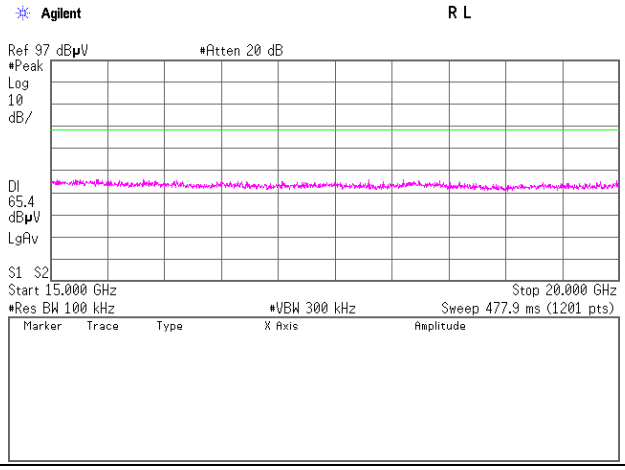
10GHz - 15GHz

Tx3_SpuriousG3



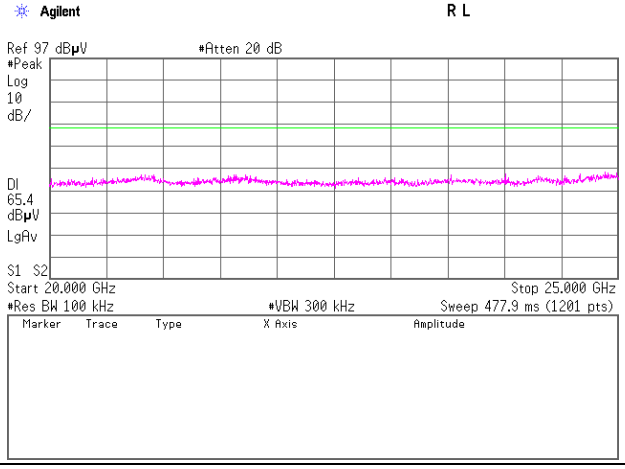
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6_Ant0

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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

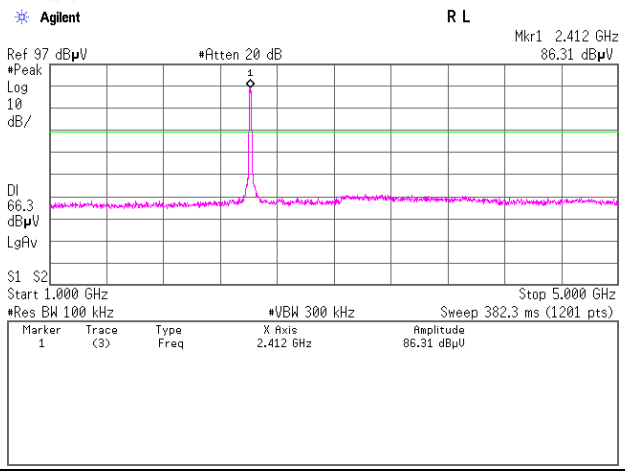
Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 10(MCS)

Tx, 2412MHz (above 1GHz)

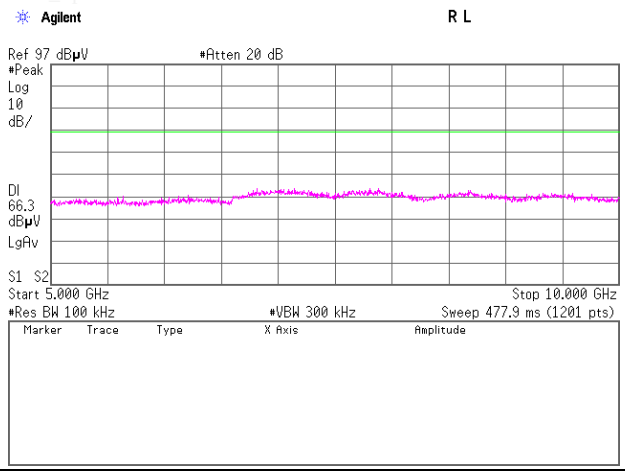
1GHz - 5GHz

Tx1_SpuriousG1



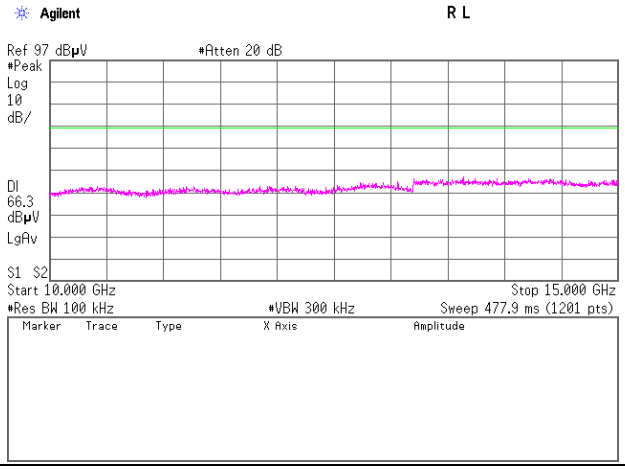
5GHz - 10GHz

Tx1_SpuriousG2



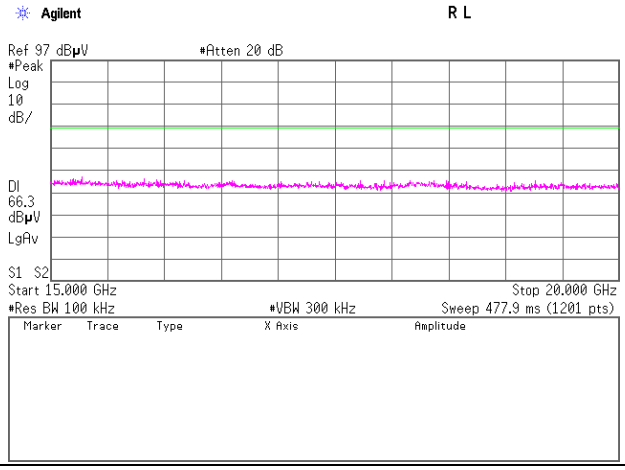
10GHz - 15GHz

Tx1_SpuriousG3



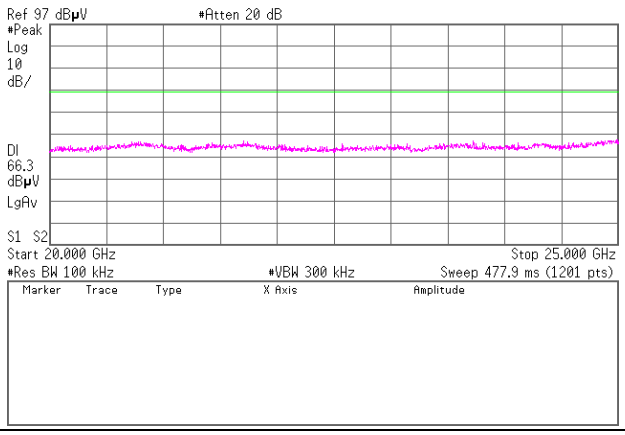
15GHz - 20GHz

Tx1_SpuriousG4_Ant0



20GHz - 25GHz

Tx1_SpuriousG5_Ant0



Tx1_SpuriousG6_Ant0

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

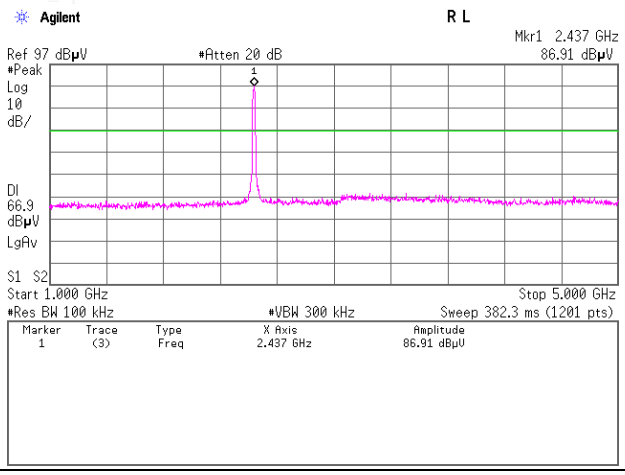
Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 10(MCS)

Tx, 2437MHz (above 1GHz)

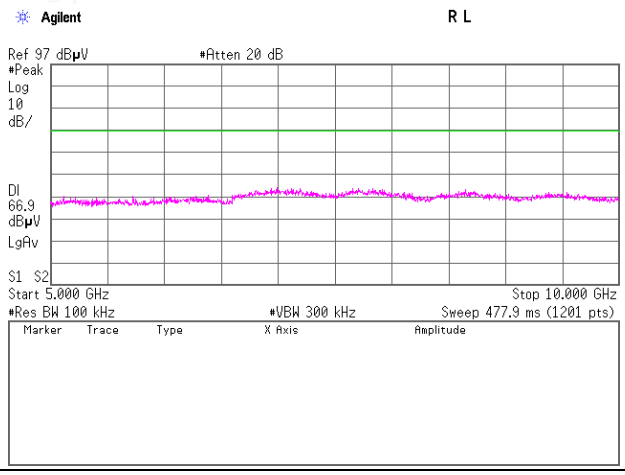
1GHz - 5GHz

Tx2_SpuriousG1



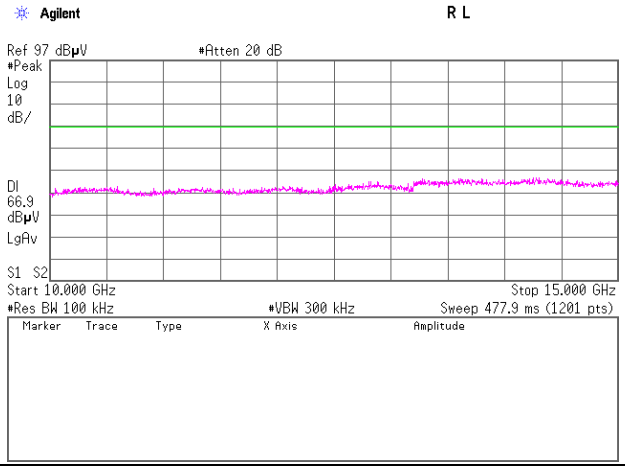
5GHz - 10GHz

Tx2_SpuriousG2



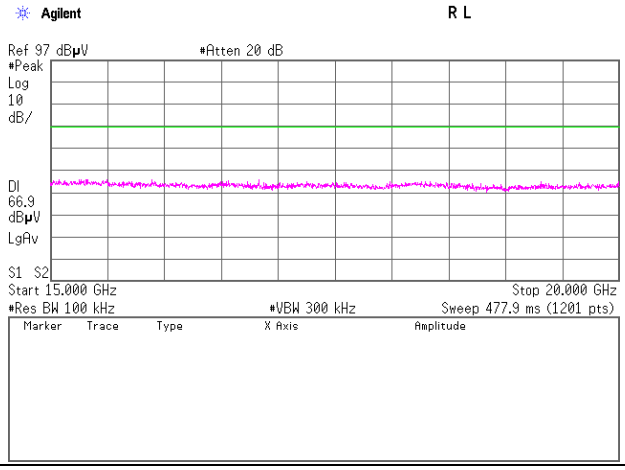
10GHz - 15GHz

Tx2_SpuriousG3



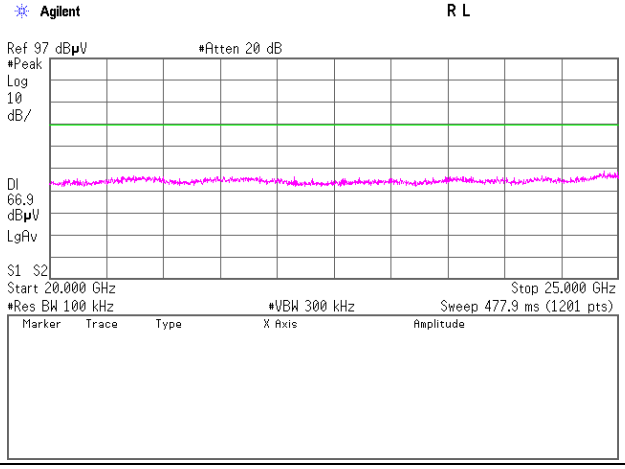
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6_Ant0

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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

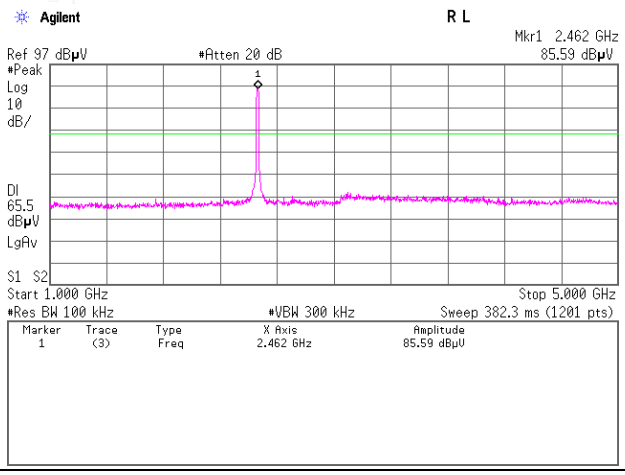
Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 10(MCS)

Tx, 2462MHz (above 1GHz)

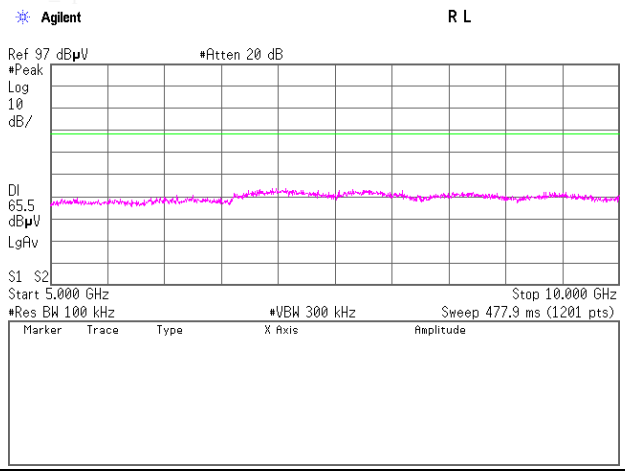
1GHz - 5GHz

Tx3_SpuriousG1



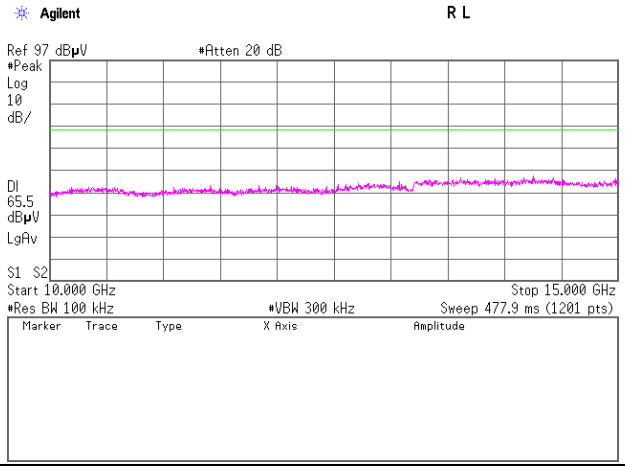
5GHz - 10GHz

Tx3_SpuriousG2



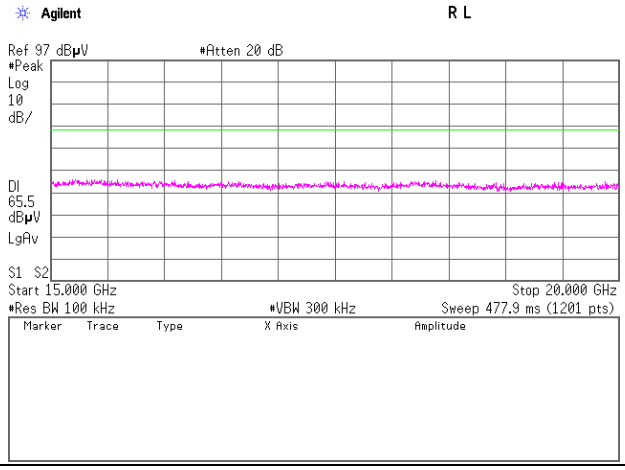
10GHz - 15GHz

Tx3_SpuriousG3



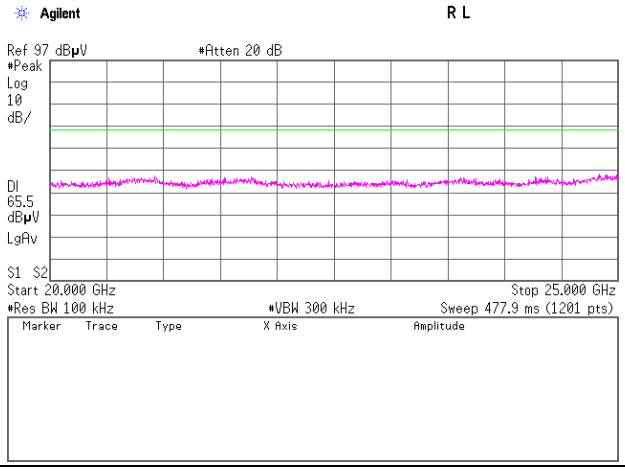
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6_Ant0

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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

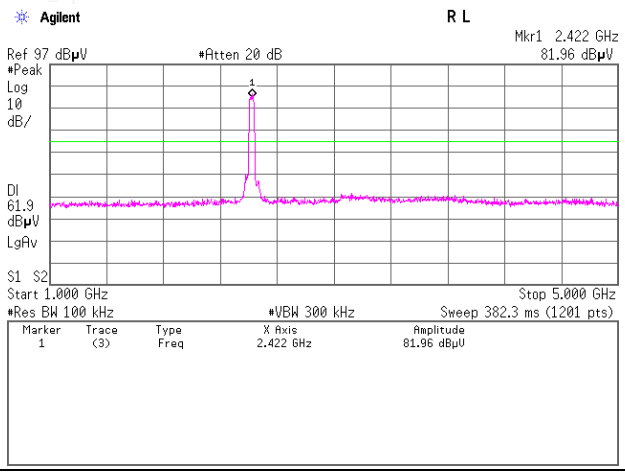
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 2422MHz (above 1GHz)

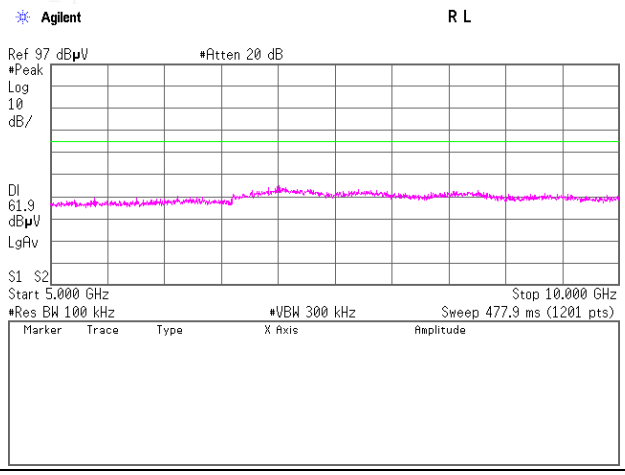
1GHz - 5GHz

Tx1_SpuriousG1



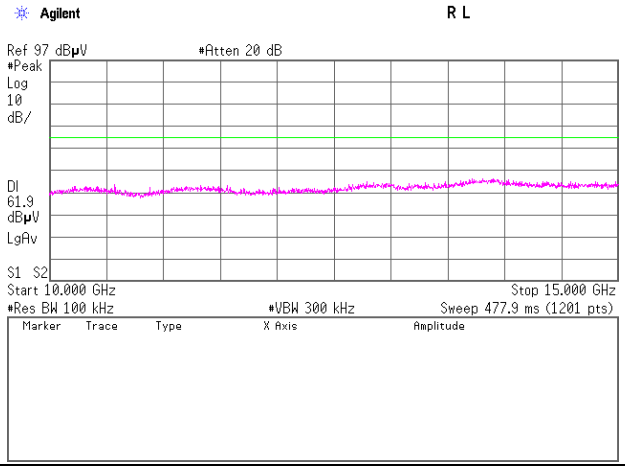
5GHz - 10GHz

Tx1_SpuriousG2



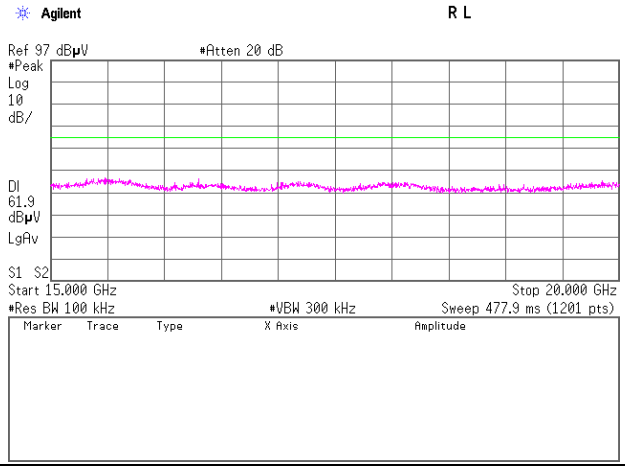
10GHz - 15GHz

Tx1_SpuriousG3



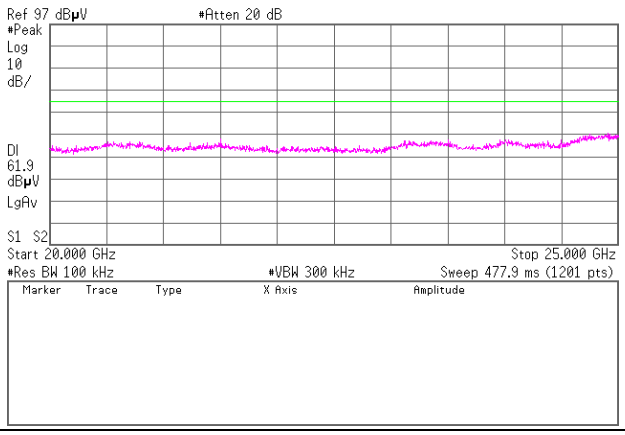
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6

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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

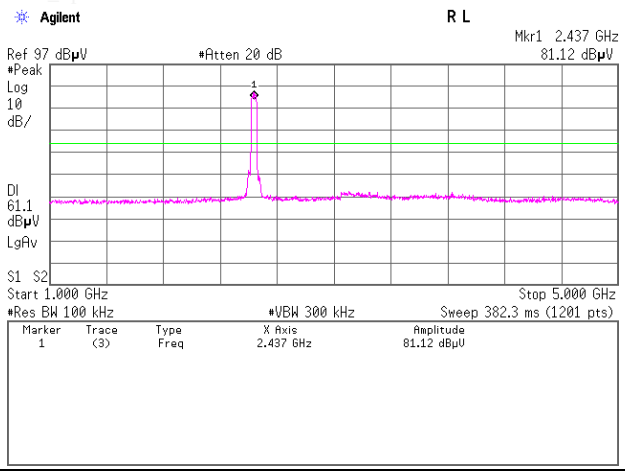
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 2437MHz (above 1GHz)

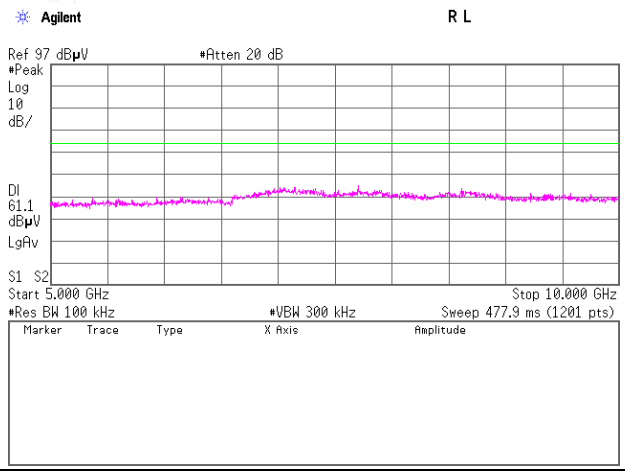
1GHz - 5GHz

Tx2_SpuriousG1



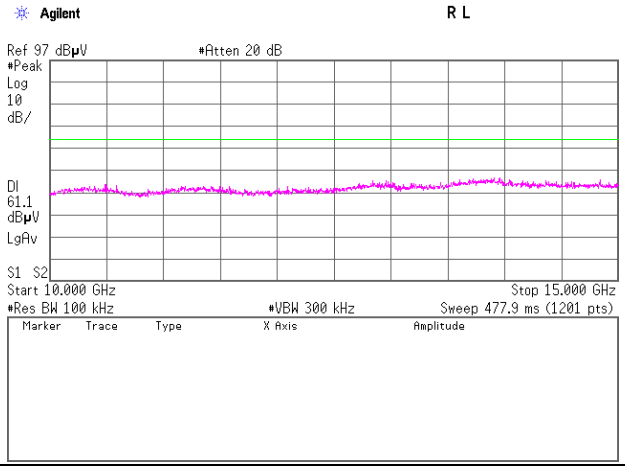
5GHz - 10GHz

Tx2_SpuriousG2



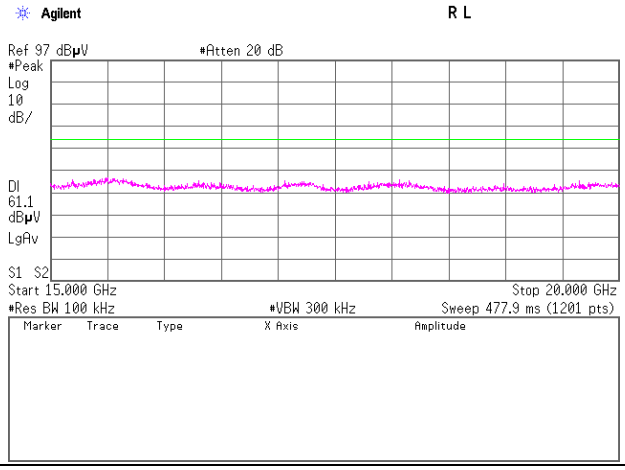
10GHz - 15GHz

Tx2_SpuriousG3



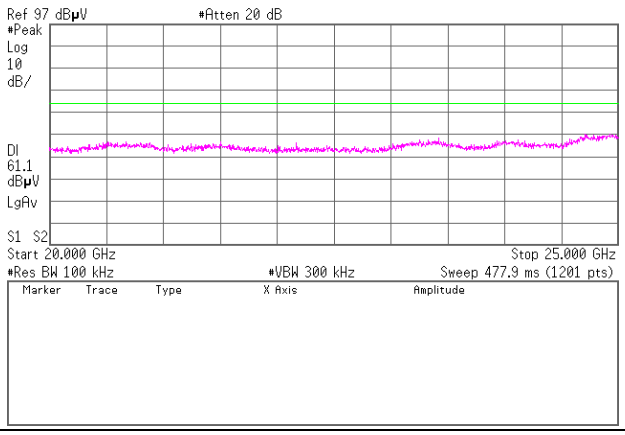
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

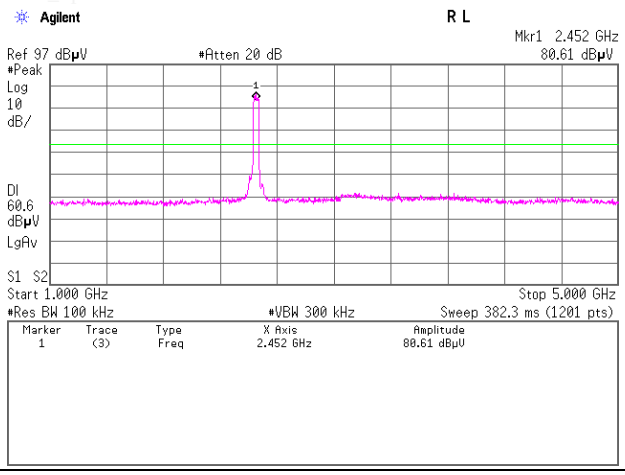
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 2452MHz (above 1GHz)

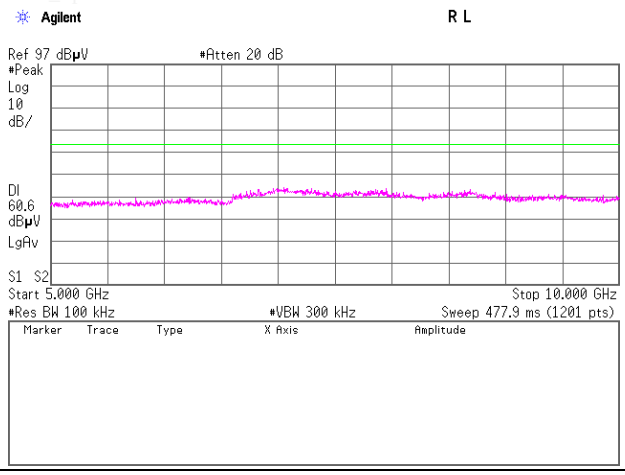
1GHz - 5GHz

Tx3_SpuriousG1



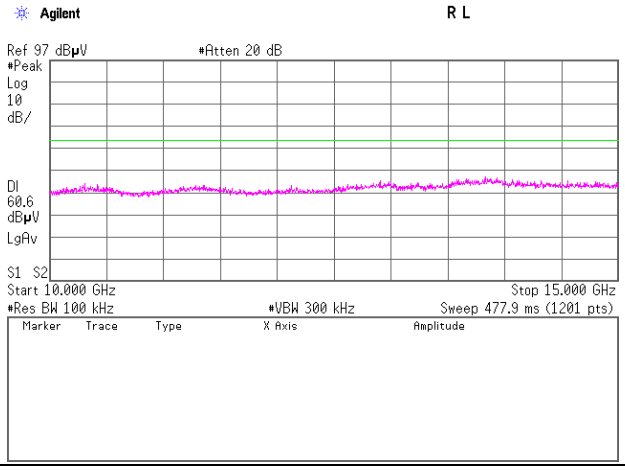
5GHz - 10GHz

Tx3_SpuriousG2



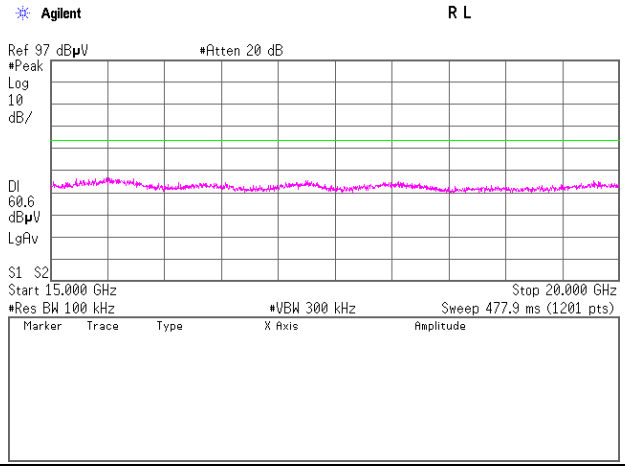
10GHz - 15GHz

Tx3_SpuriousG3



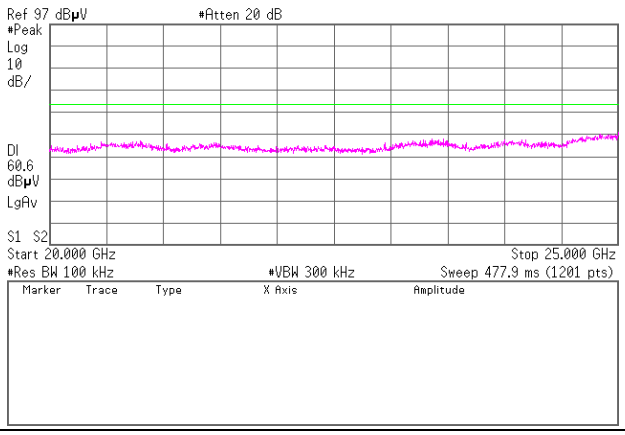
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6

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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

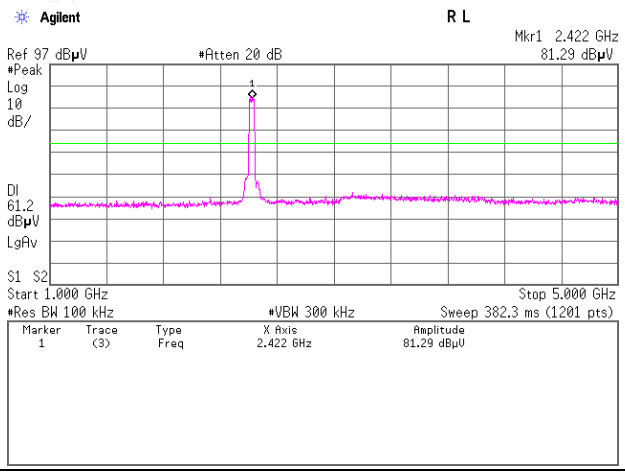
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 2422MHz (above 1GHz)

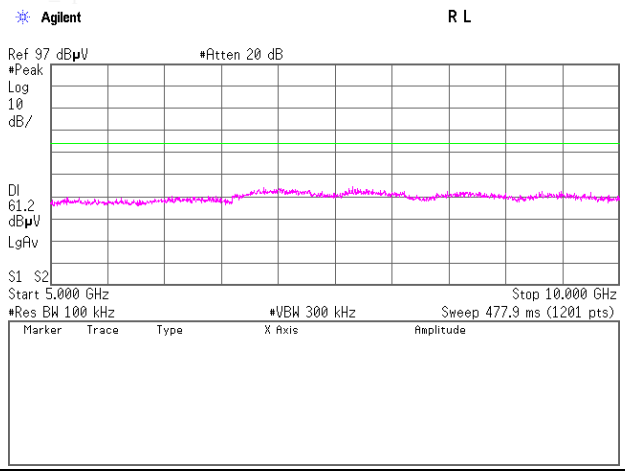
1GHz - 5GHz

Tx1_SpuriousG1



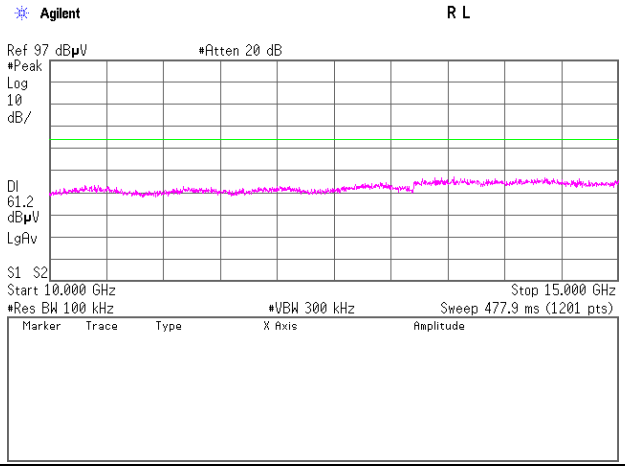
5GHz - 10GHz

Tx1_SpuriousG2



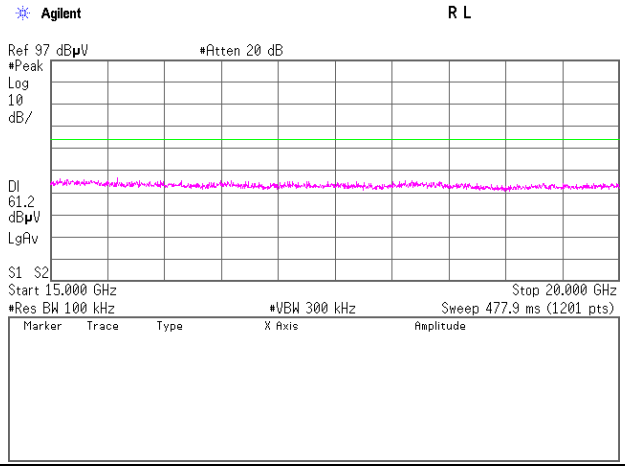
10GHz - 15GHz

Tx1_SpuriousG3



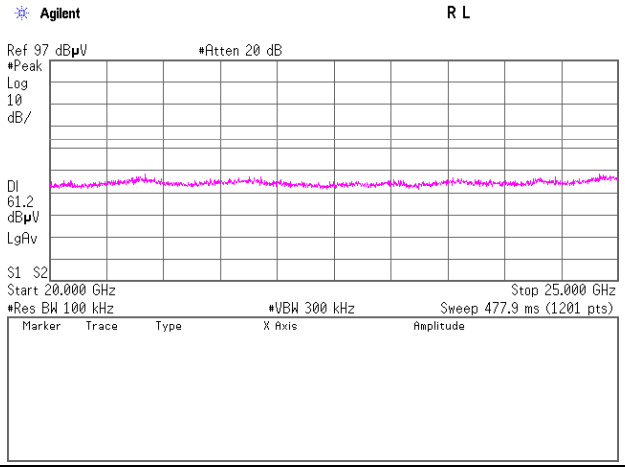
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6_Ant0

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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

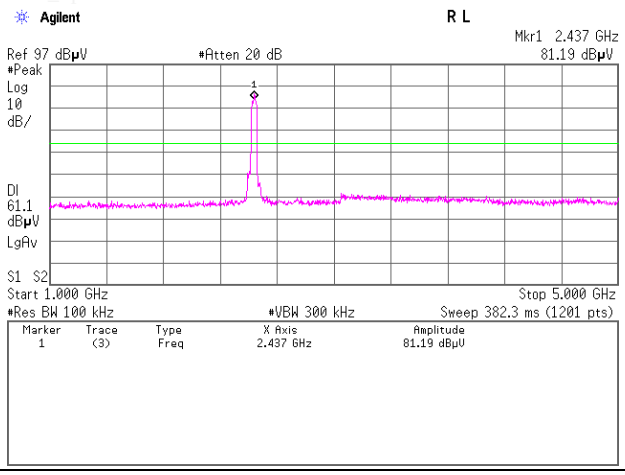
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 2437MHz (above 1GHz)

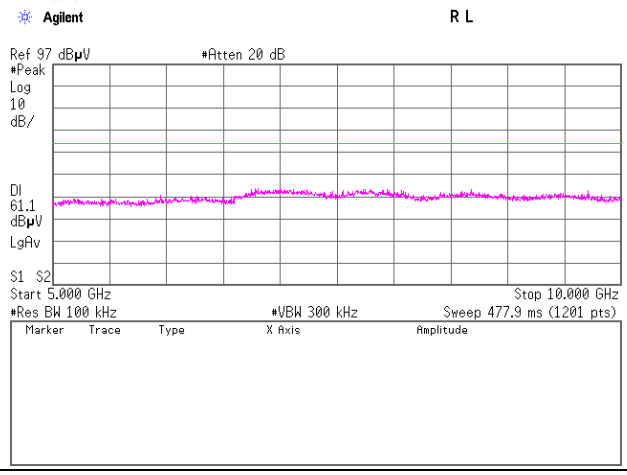
1GHz - 5GHz

Tx2_SpuriousG1



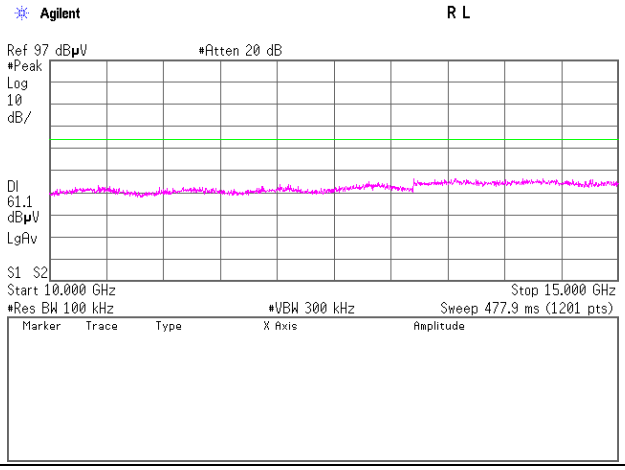
5GHz - 10GHz

Tx2_SpuriousG2



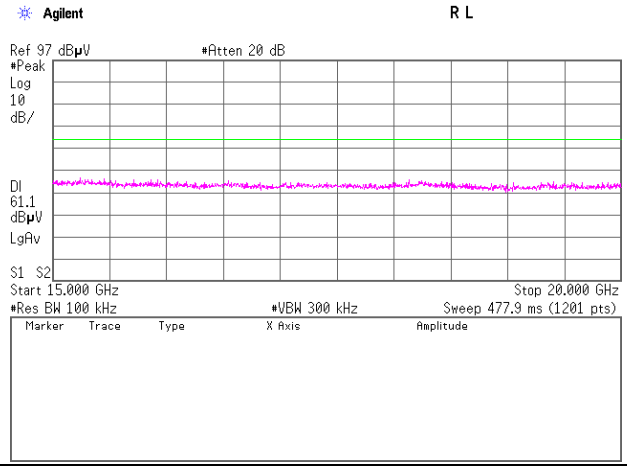
10GHz - 15GHz

Tx2_SpuriousG3



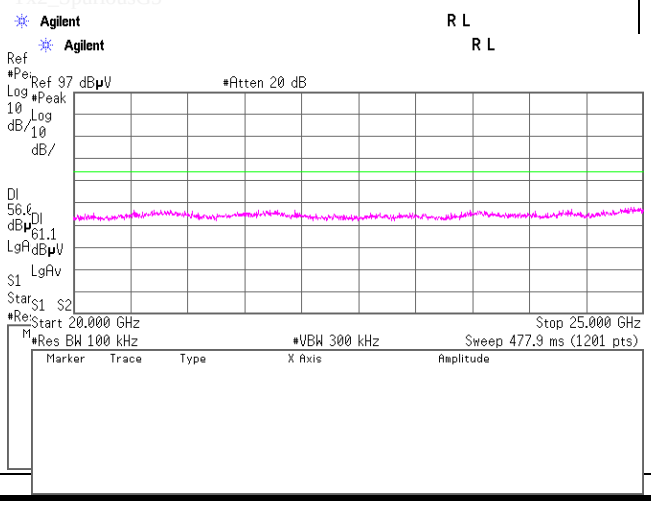
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6_Ant0

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
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Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

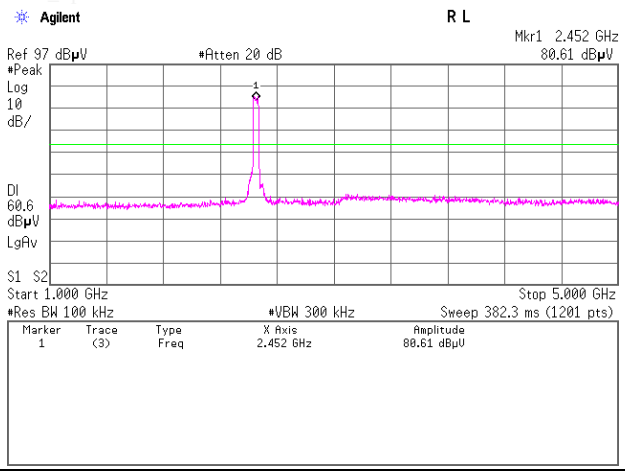
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 2452MHz (above 1GHz)

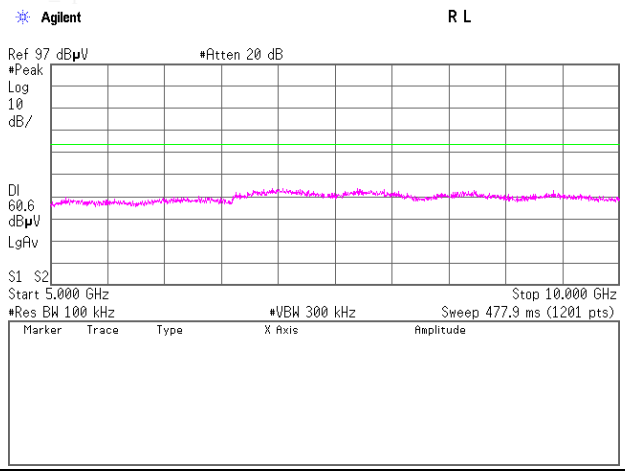
1GHz - 5GHz

Tx3_SpuriousG1



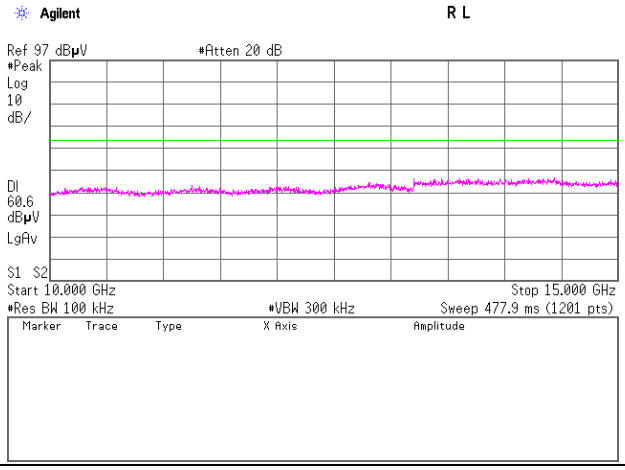
5GHz - 10GHz

Tx3_SpuriousG2



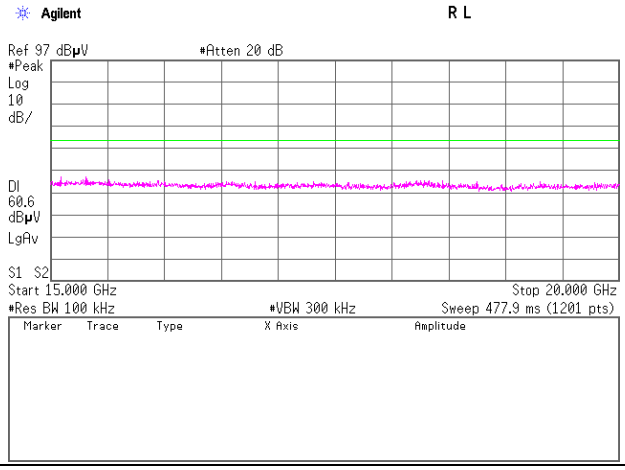
10GHz - 15GHz

Tx3_SpuriousG3



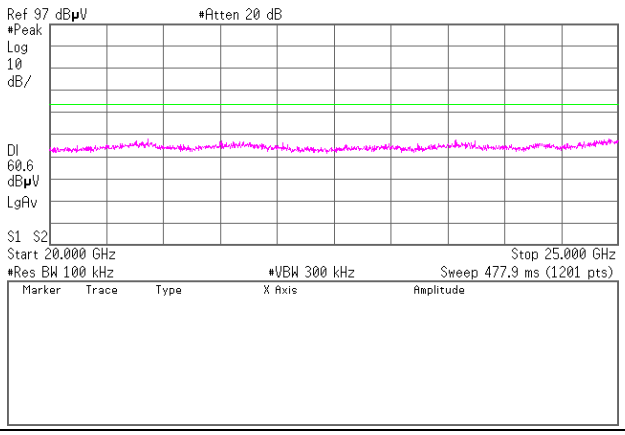
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6_Ant0

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
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Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

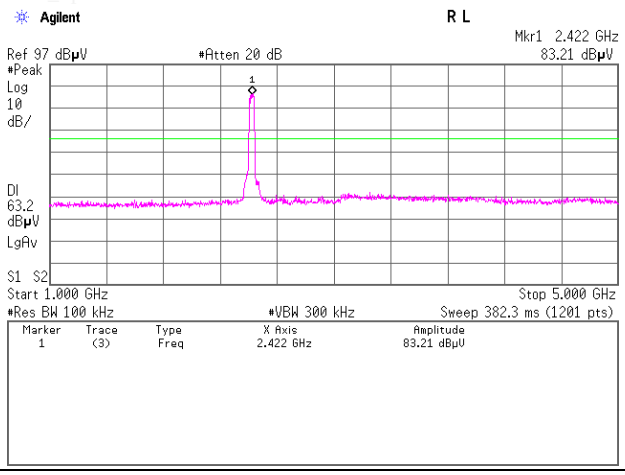
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 2422MHz (above 1GHz)

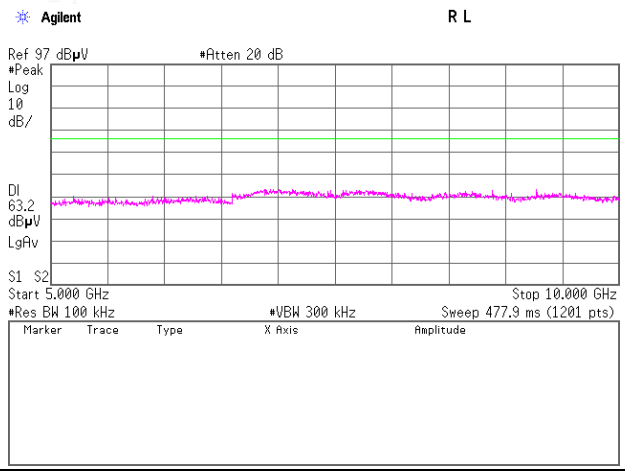
1GHz - 5GHz

Tx1_SpuriousG1



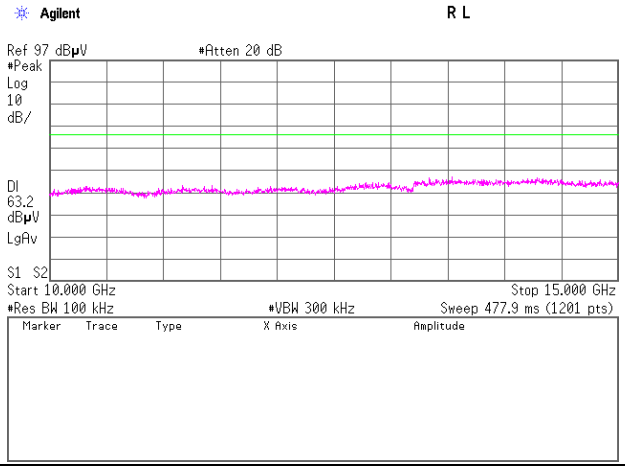
5GHz - 10GHz

Tx1_SpuriousG2



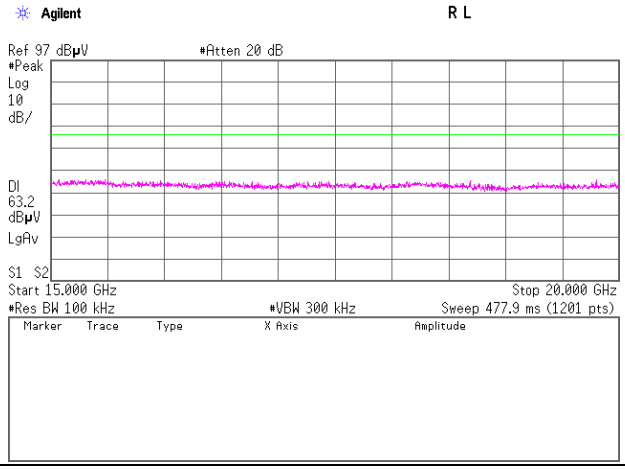
10GHz - 15GHz

Tx1_SpuriousG3



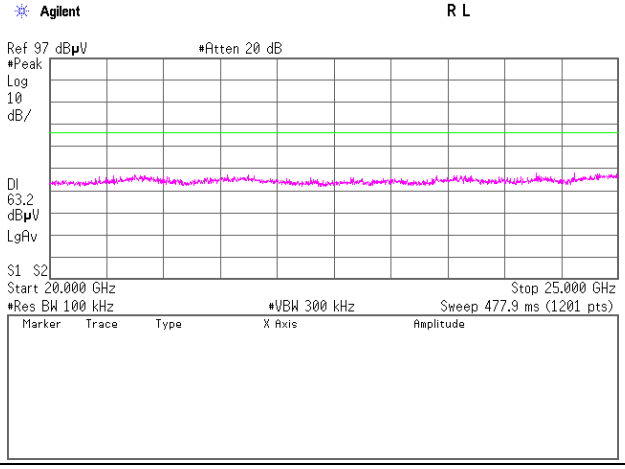
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6_Ant0

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

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

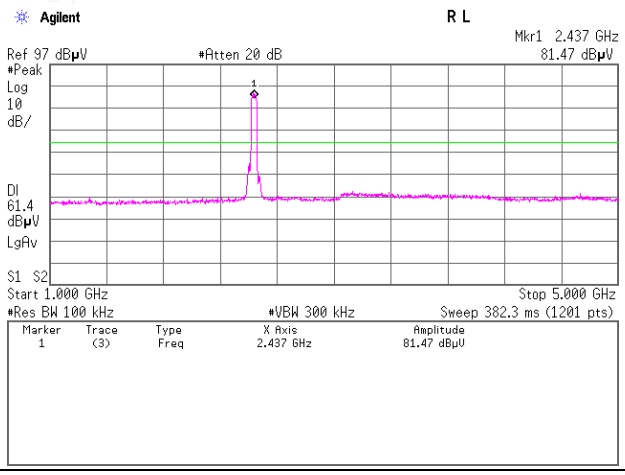
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 2437MHz (above 1GHz)

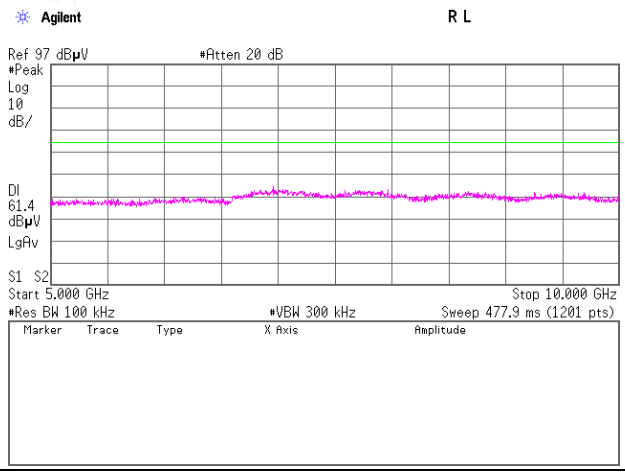
1GHz - 5GHz

Tx2_SpuriousG1



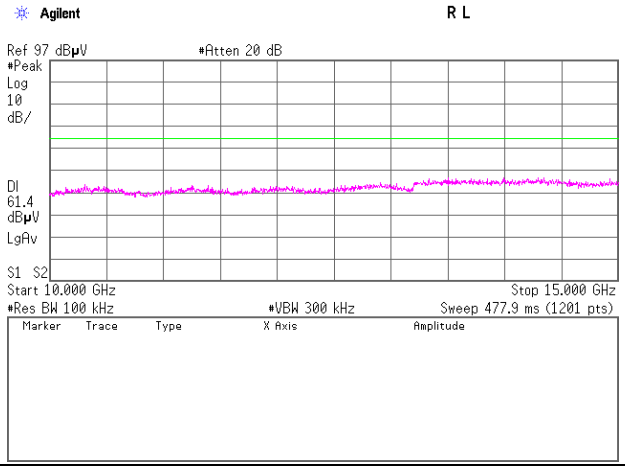
5GHz - 10GHz

Tx2_SpuriousG2



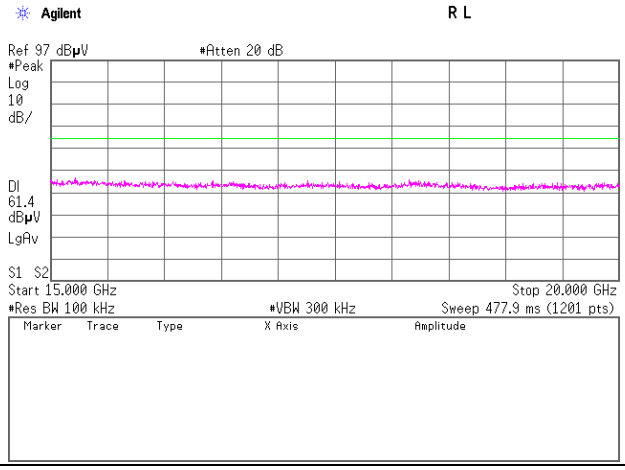
10GHz - 15GHz

Tx2_SpuriousG3



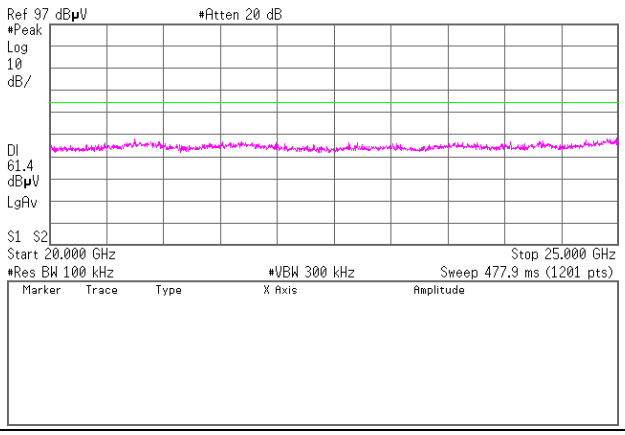
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6_Ant0

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

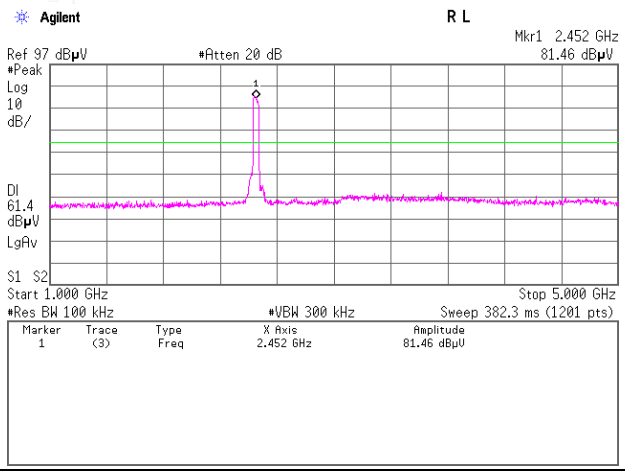
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 2452MHz (above 1GHz)

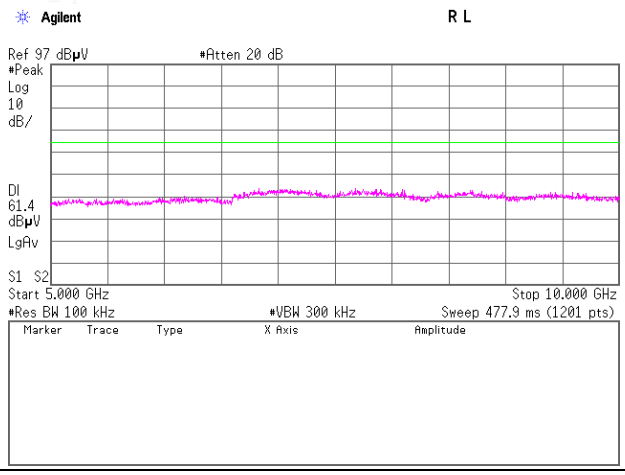
1GHz - 5GHz

Tx3_SpuriousG1



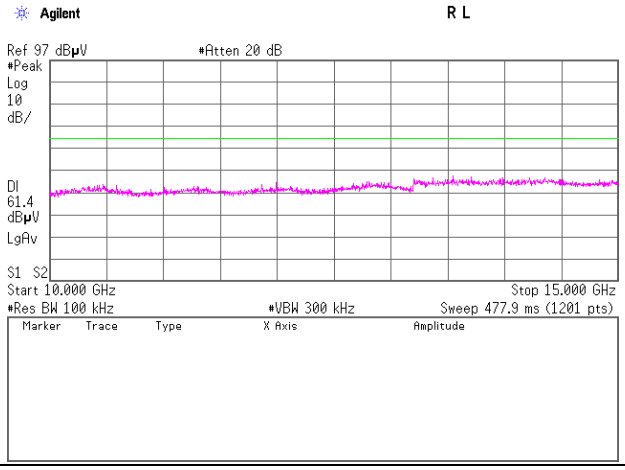
5GHz - 10GHz

Tx3_SpuriousG2



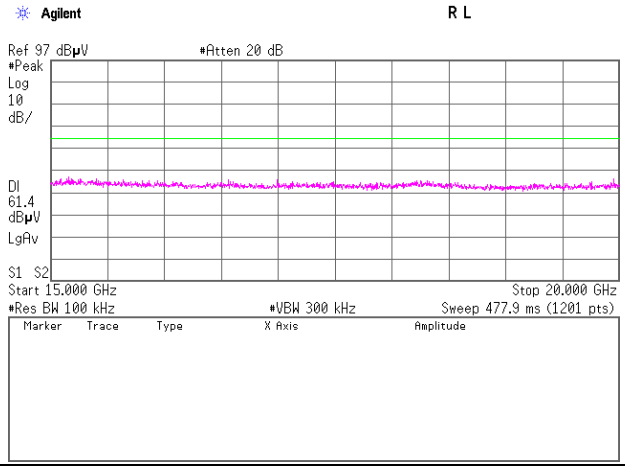
10GHz - 15GHz

Tx3_SpuriousG3



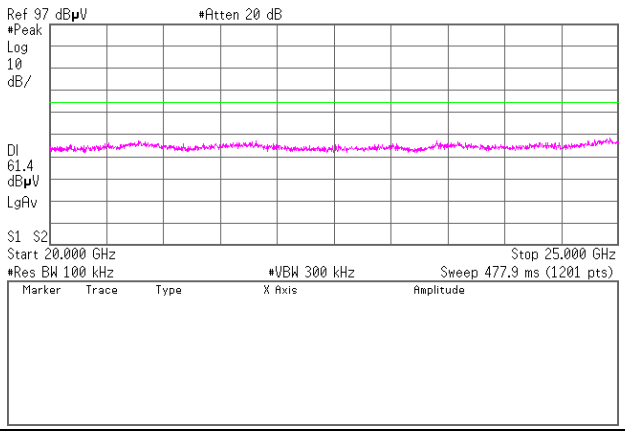
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6_Ant0

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
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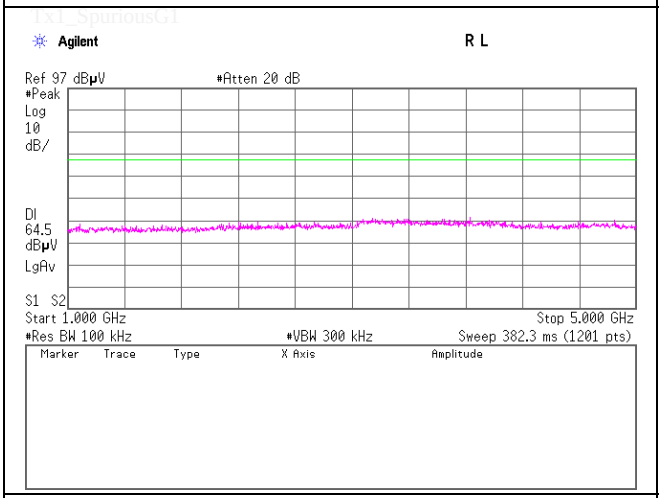
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

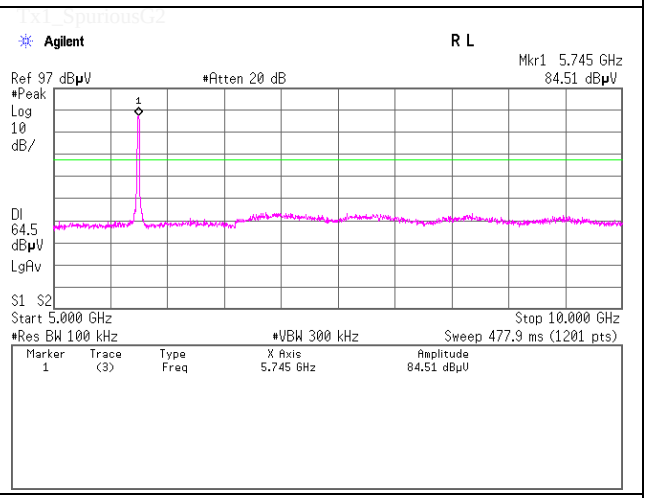
Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 5745MHz (above 1GHz)(1/2)

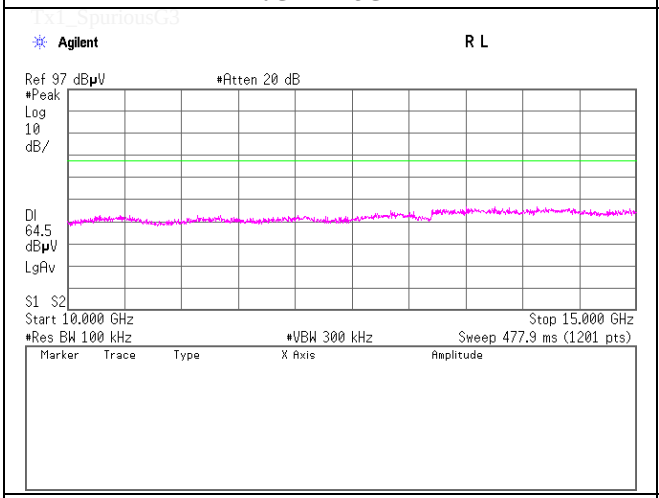
1GHz - 5GHz



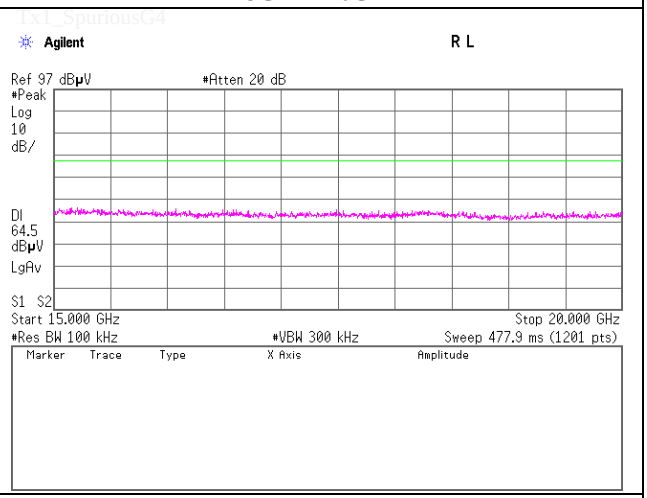
5GHz - 10GHz



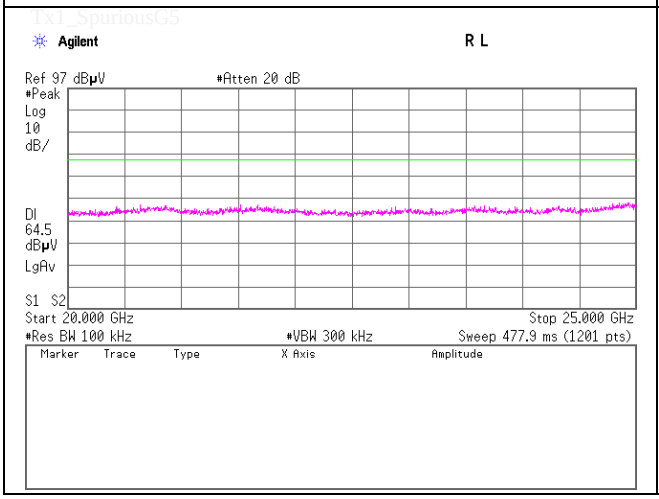
10GHz - 15GHz



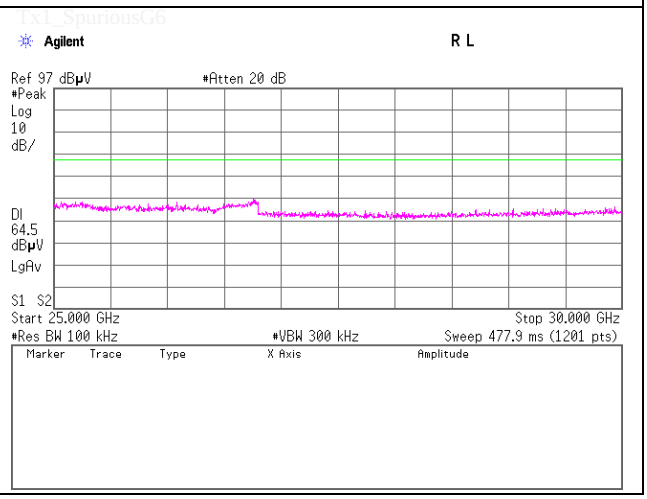
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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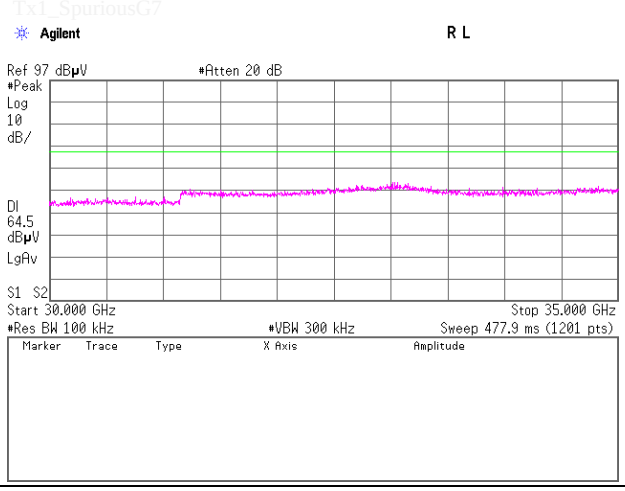
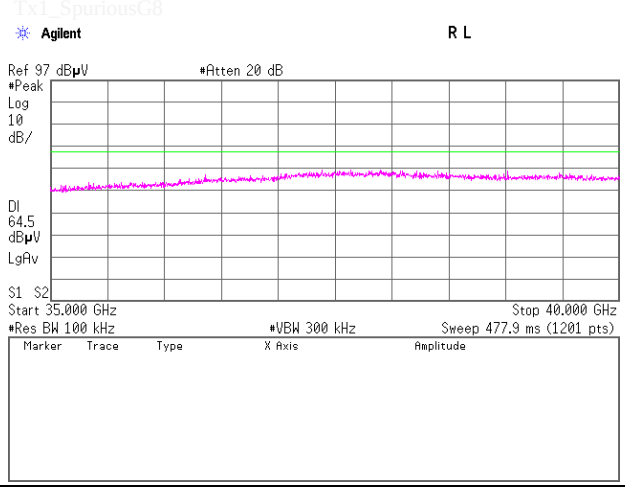
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 5745MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

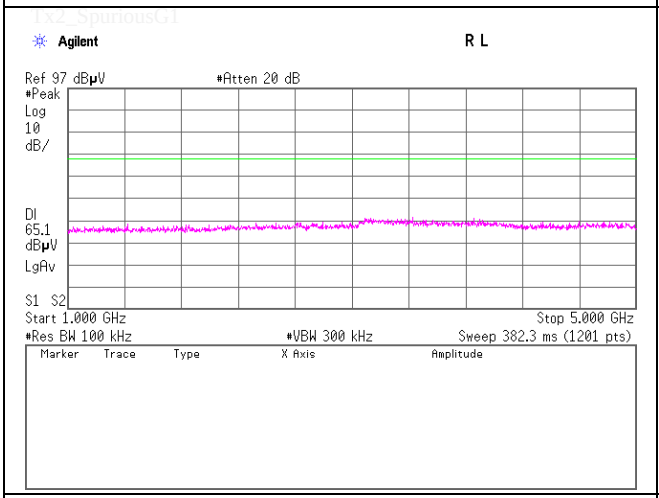
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

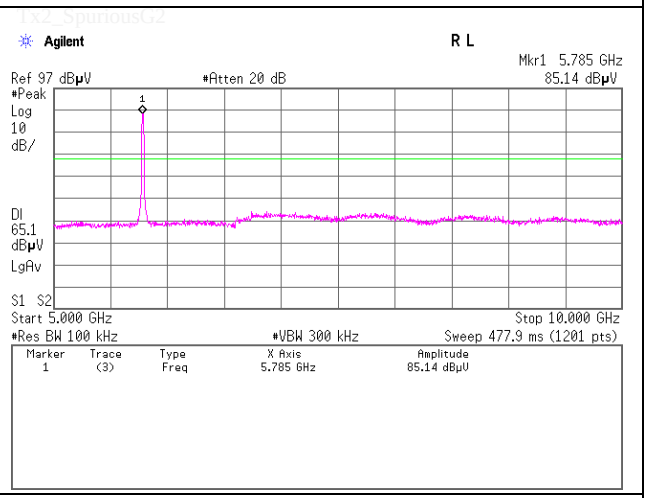
Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 5785MHz (above 1GHz)(1/2)

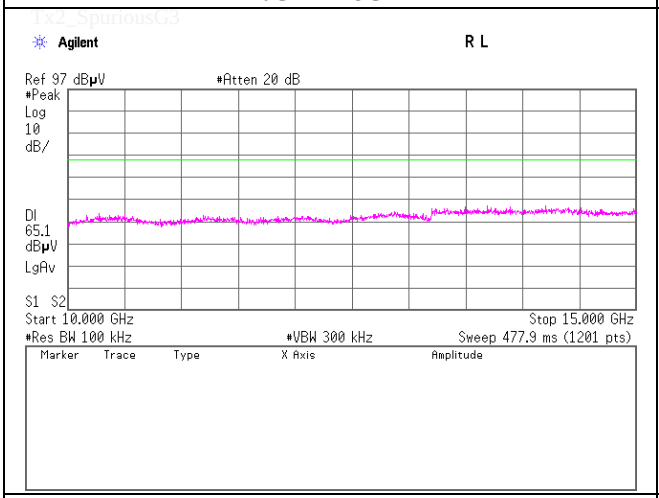
1GHz - 5GHz



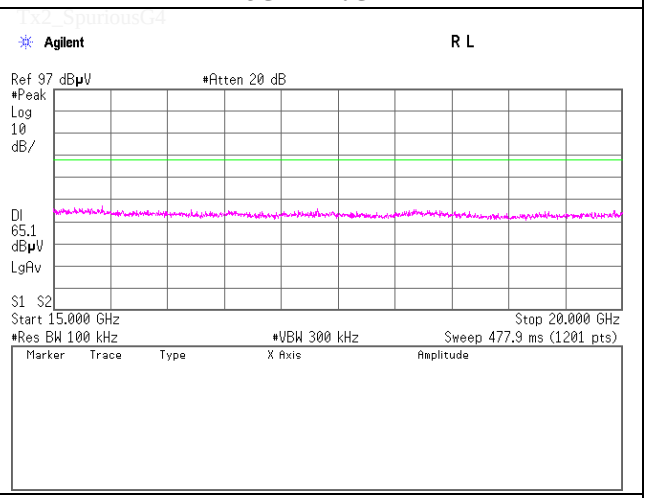
5GHz - 10GHz



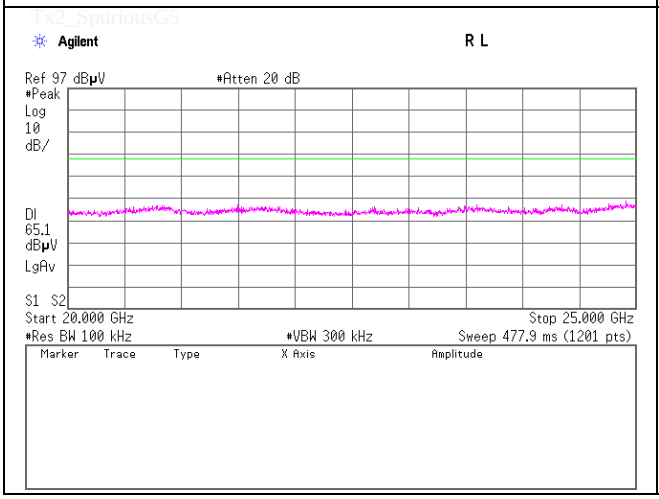
10GHz - 15GHz



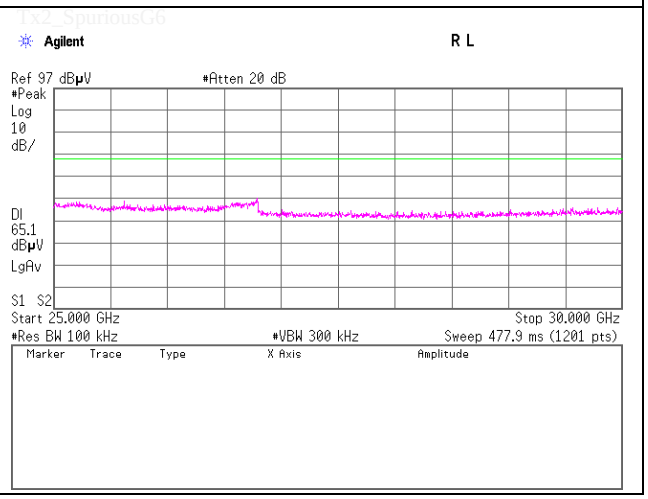
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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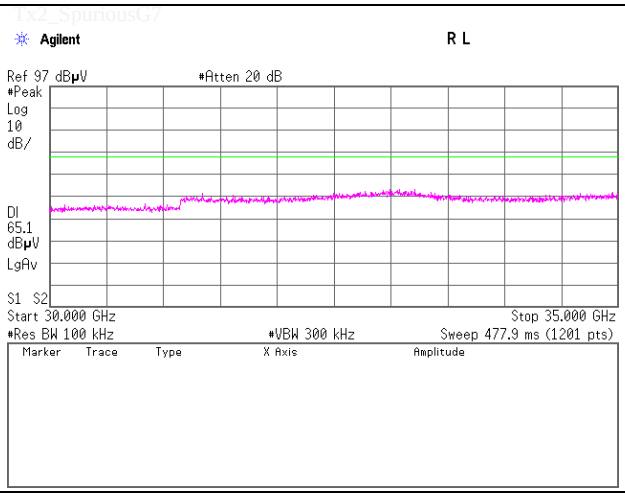
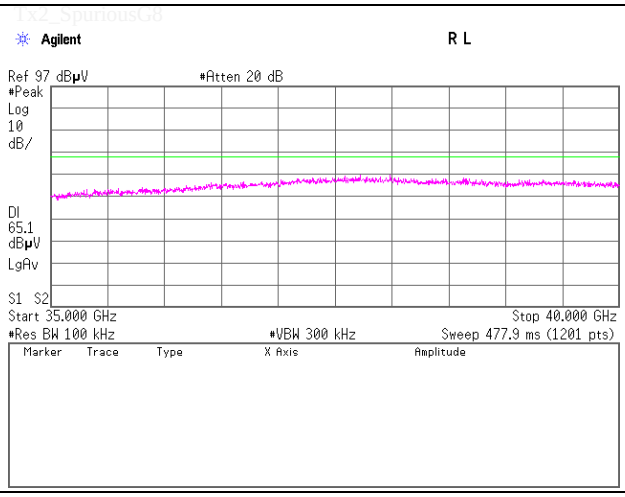
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 5785MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

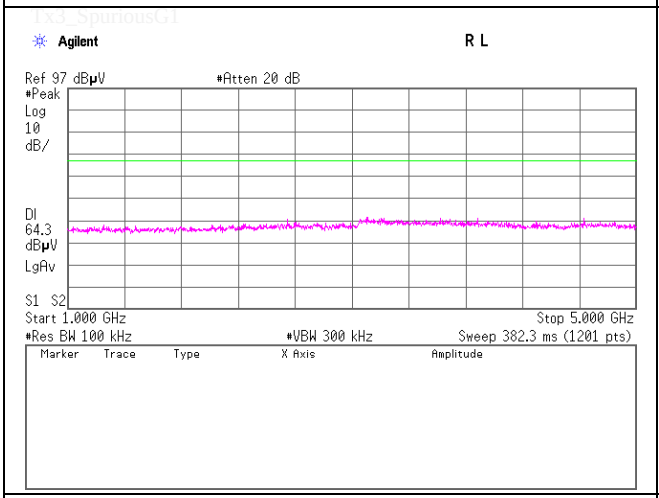
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

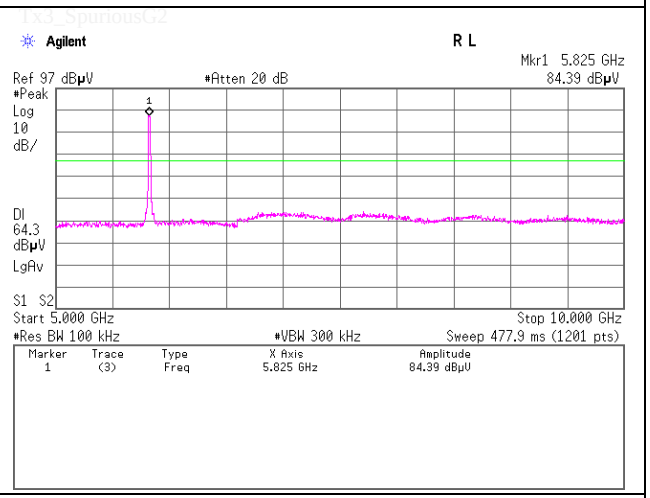
Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 5825MHz (above 1GHz)(1/2)

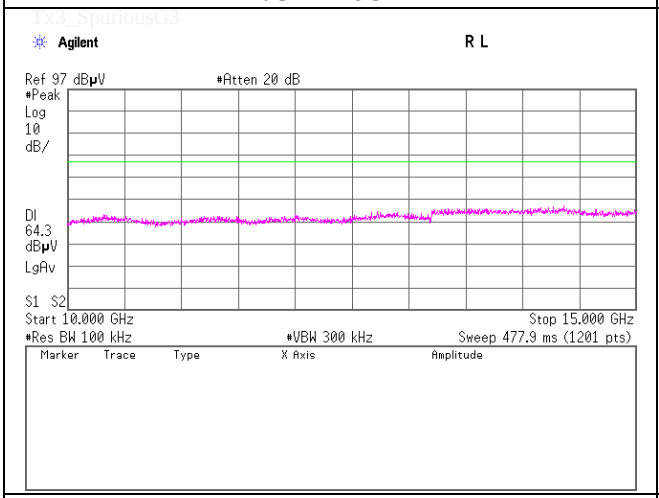
1GHz - 5GHz



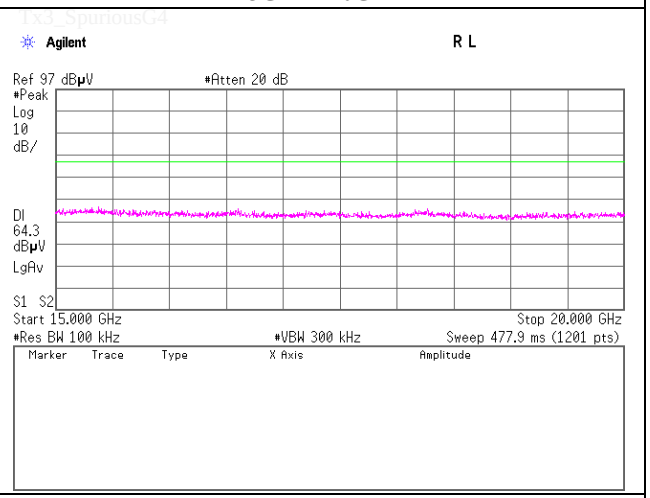
5GHz - 10GHz



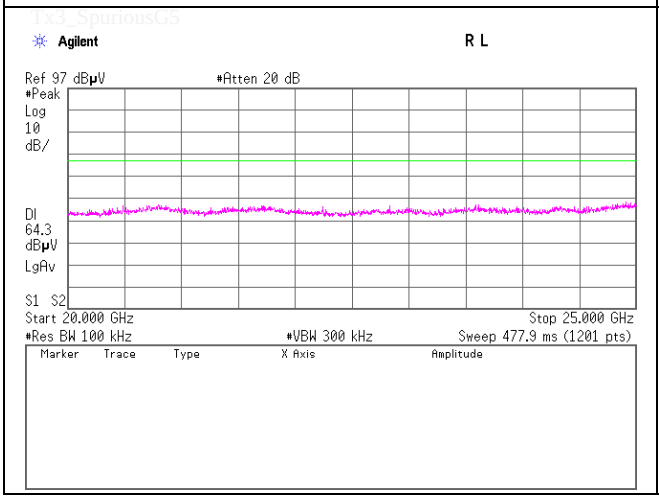
10GHz - 15GHz



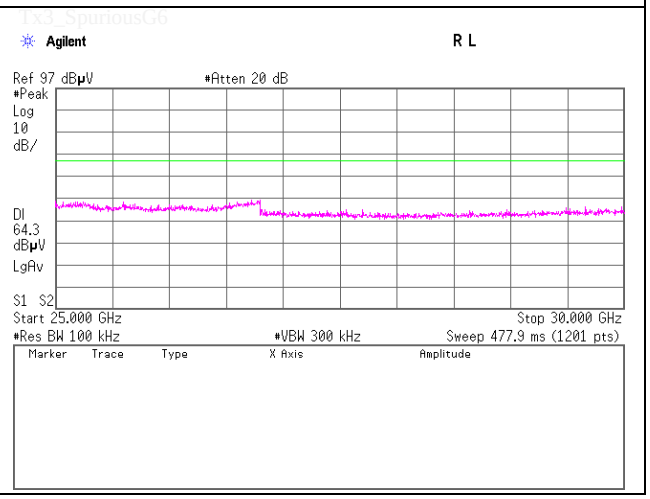
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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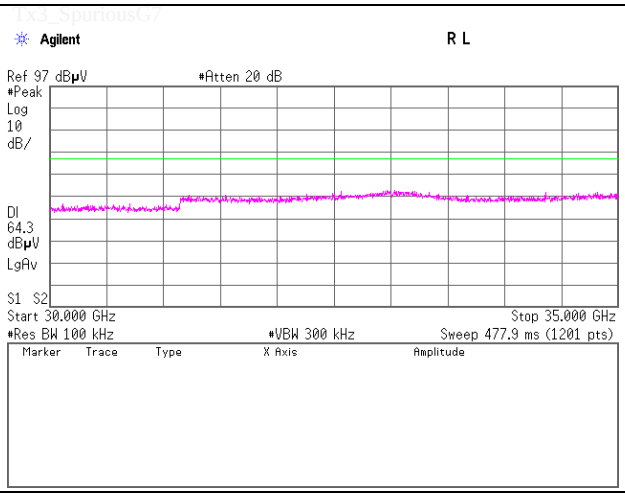
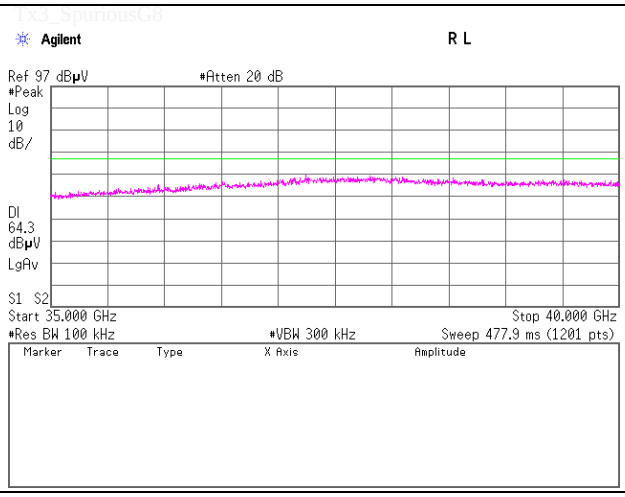
Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 5825MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

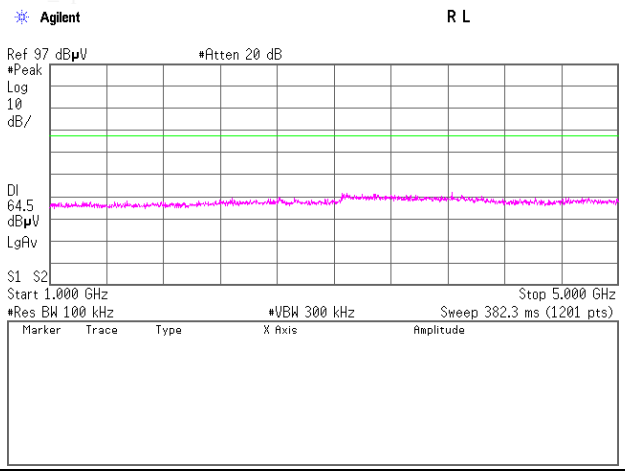
Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5745MHz (above 1GHz)(1/2)

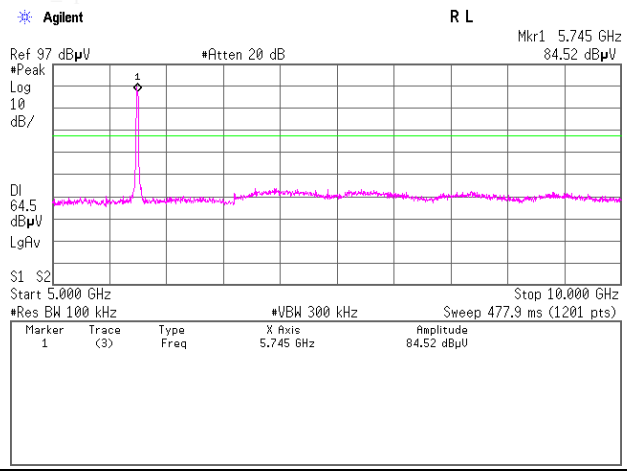
1GHz - 5GHz

Tx1_SpuriousG1



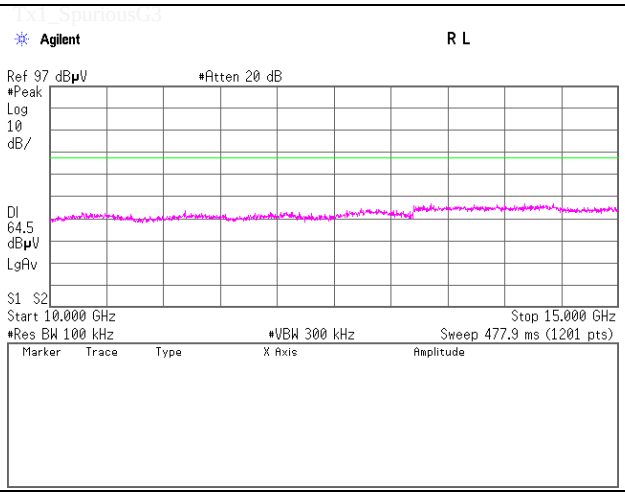
5GHz - 10GHz

Tx1_SpuriousG2



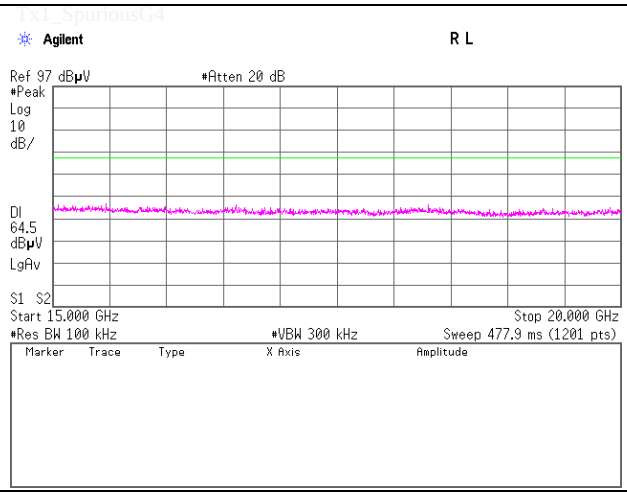
10GHz - 15GHz

Tx1_SpuriousG3



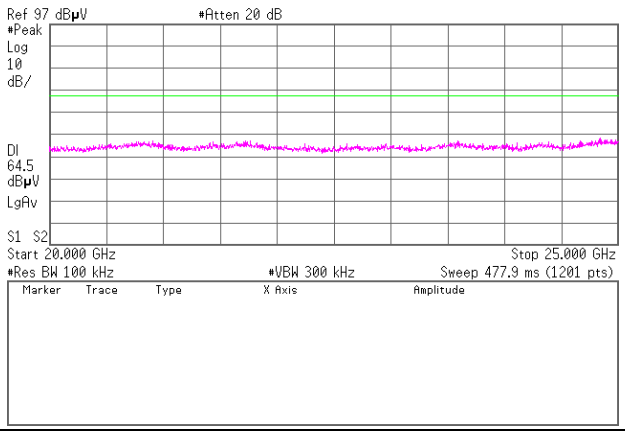
15GHz - 20GHz

Tx1_SpuriousG4



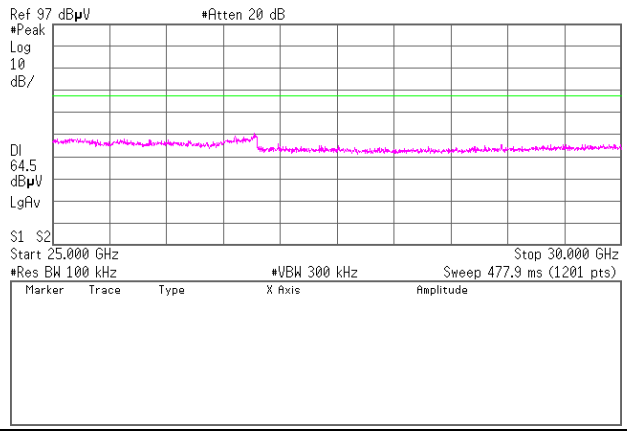
20GHz - 25GHz

Tx1_SpuriousG5



25GHz - 30GHz

Tx1_SpuriousG6



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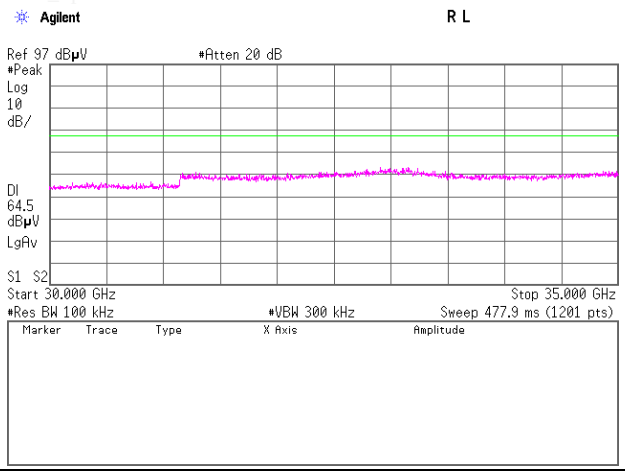
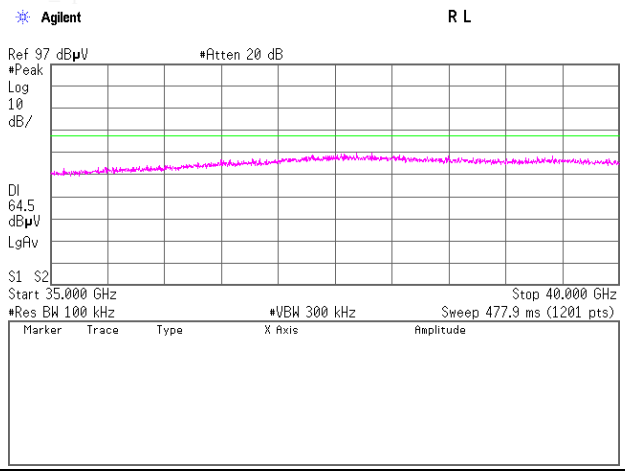
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5745MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

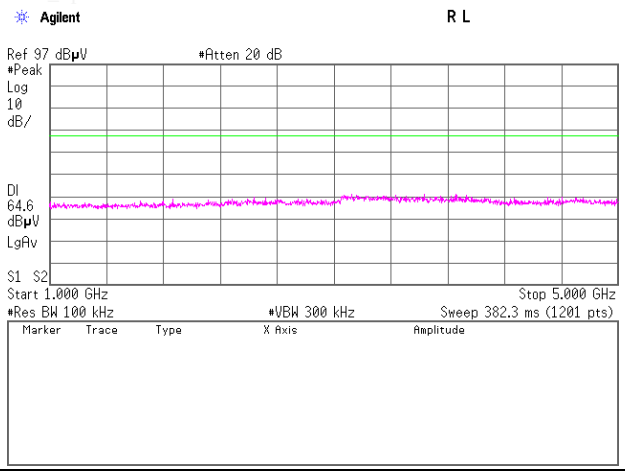
Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5785MHz (above 1GHz)(1/2)

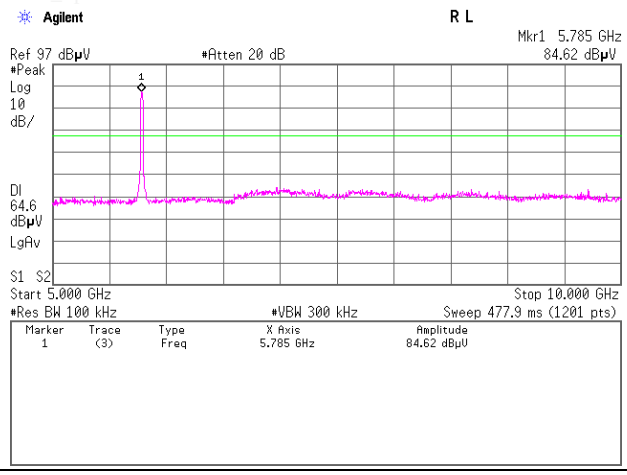
1GHz - 5GHz

Tx2_SpuriousG1



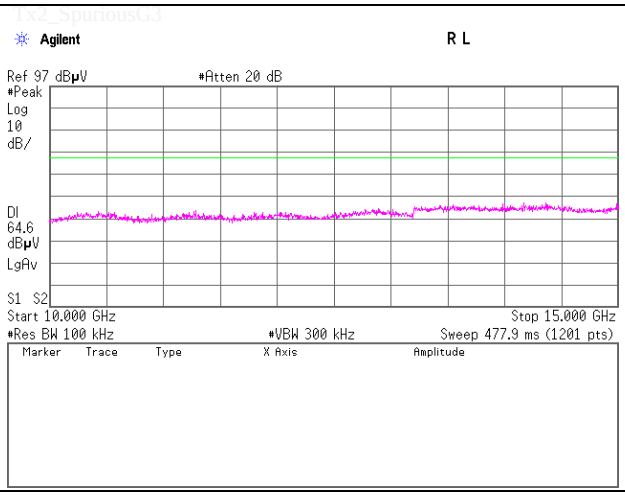
5GHz - 10GHz

Tx2_SpuriousG2



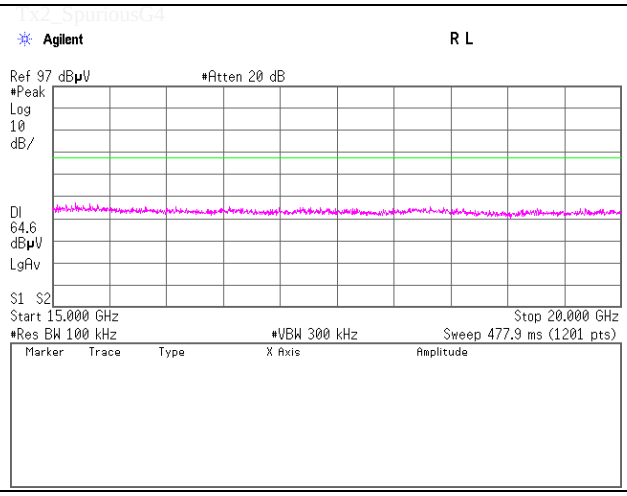
10GHz - 15GHz

Tx2_SpuriousG3



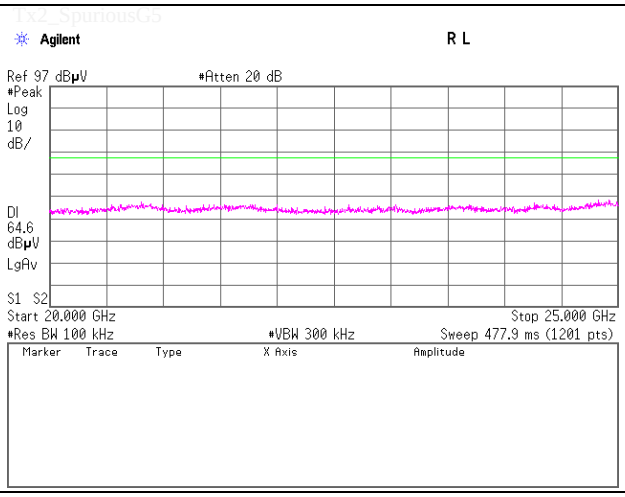
15GHz - 20GHz

Tx2_SpuriousG4



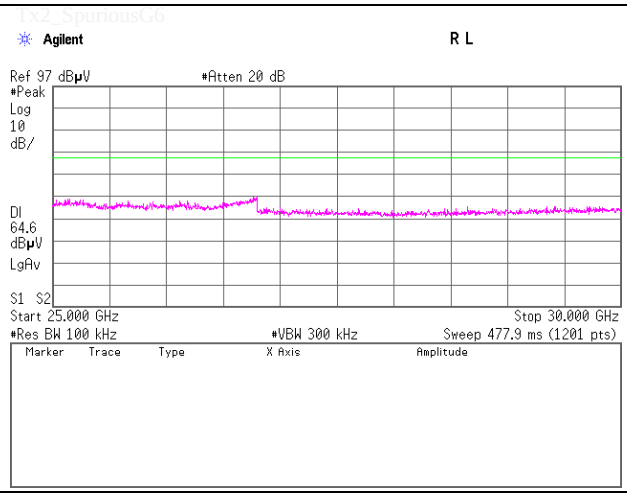
20GHz - 25GHz

Tx2_SpuriousG5



25GHz - 30GHz

Tx2_SpuriousG6



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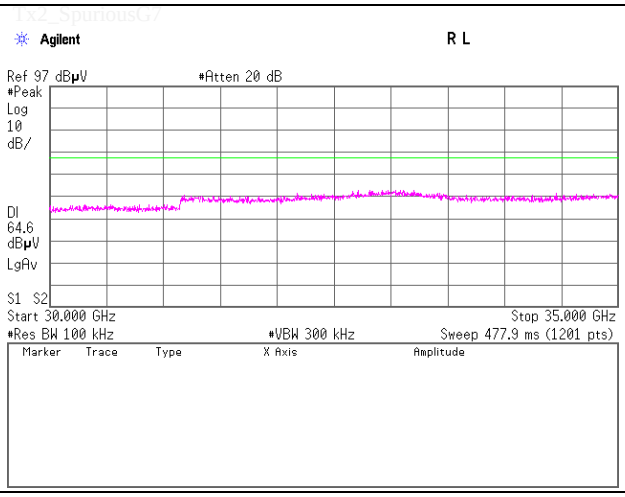
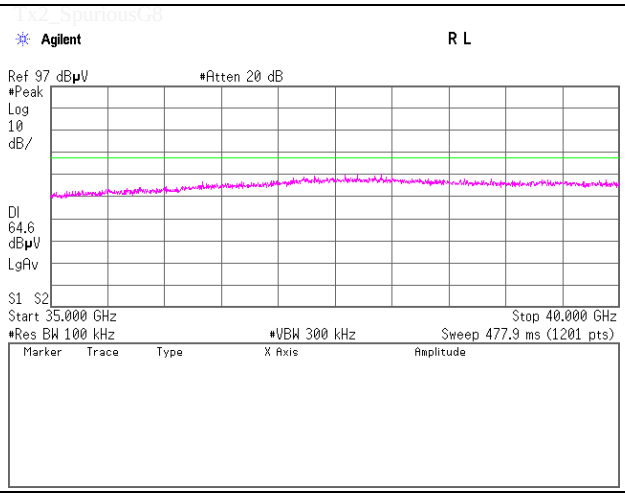
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5785MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

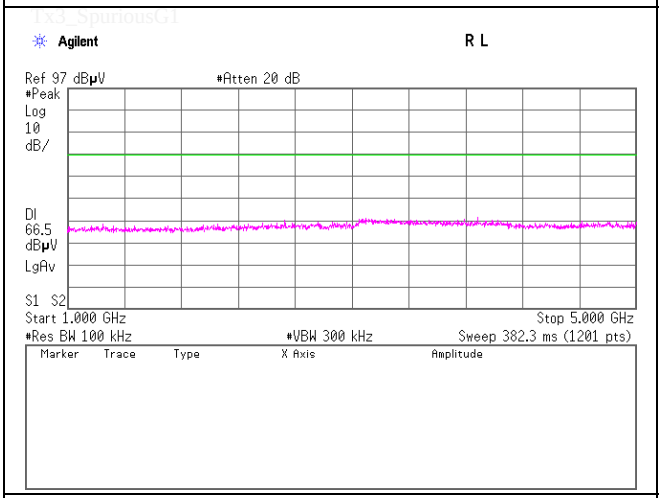
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

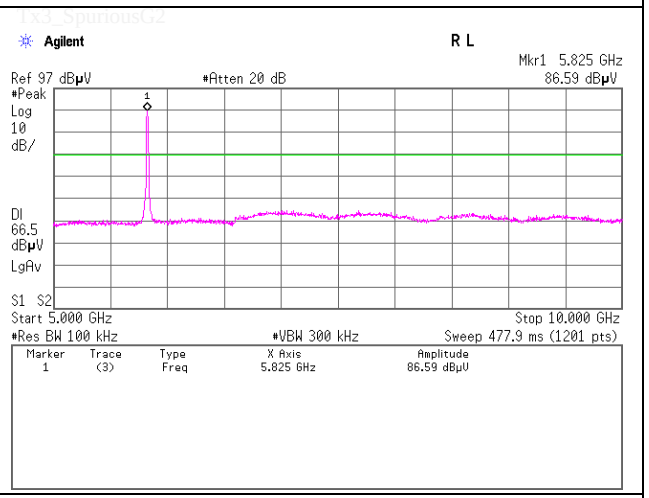
Tx, IEEE802.11n (HT20), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5825MHz (above 1GHz)(1/2)

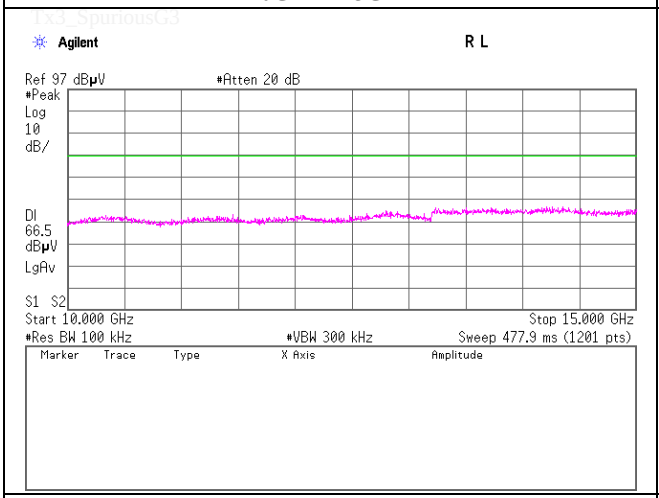
1GHz - 5GHz



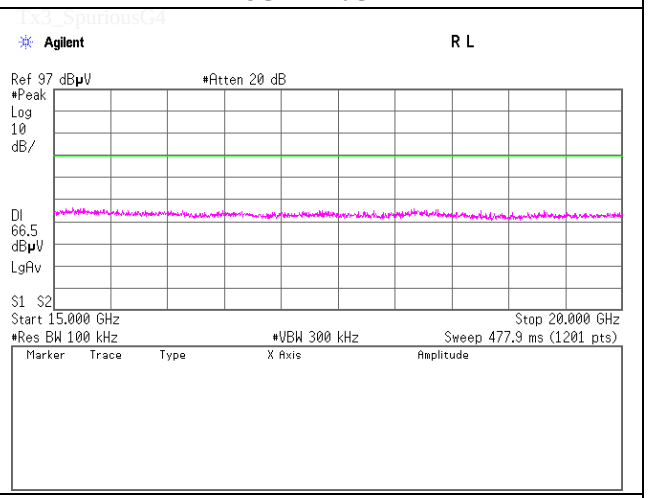
5GHz - 10GHz



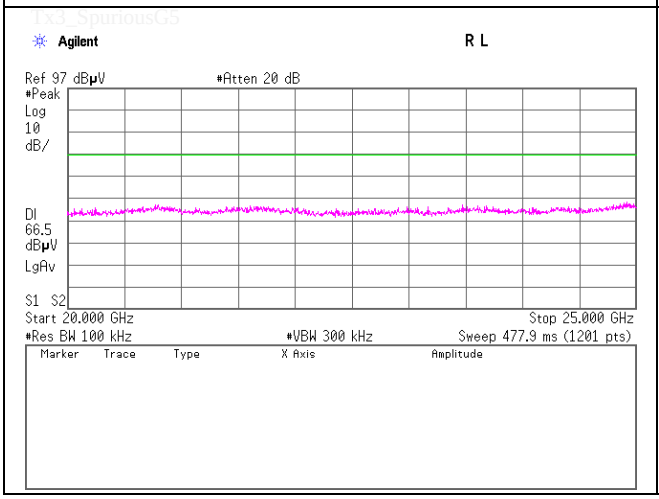
10GHz - 15GHz



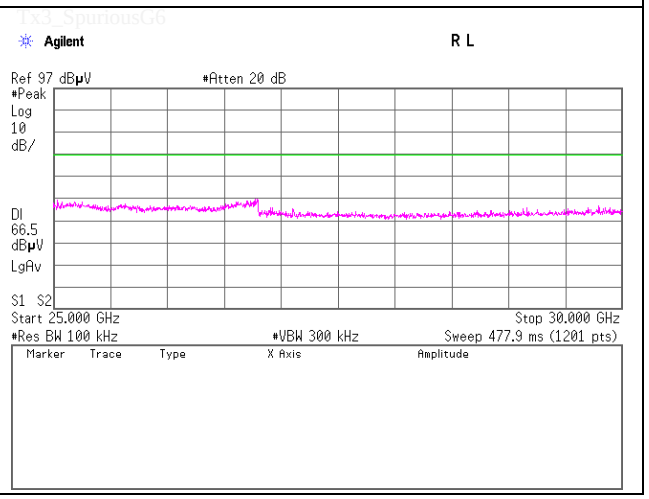
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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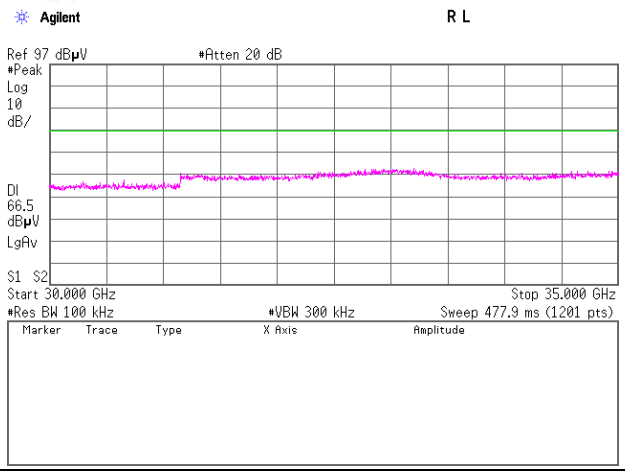
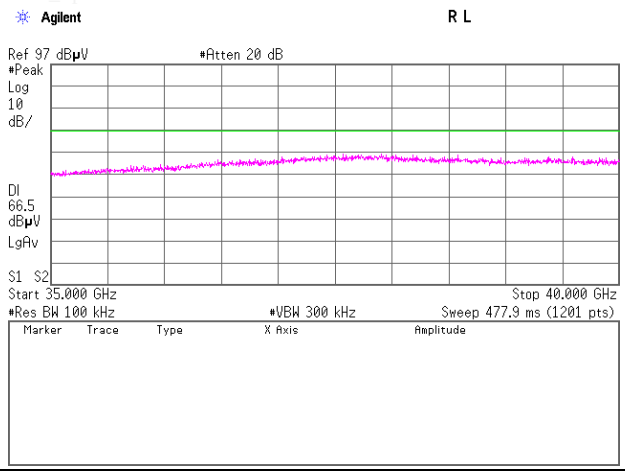
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5825MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

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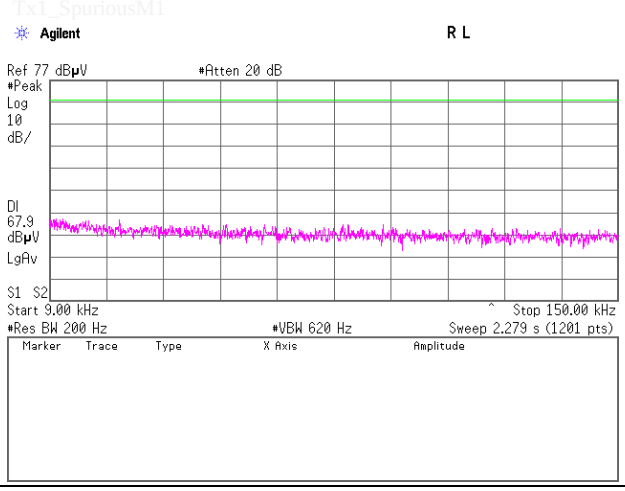
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

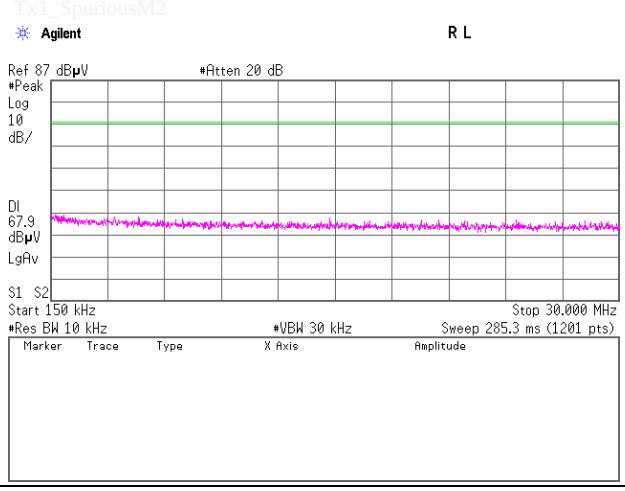
Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5745MHz (below 1GHz)

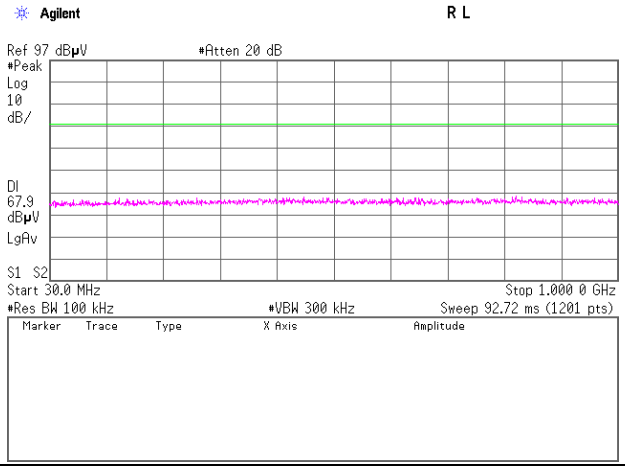
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



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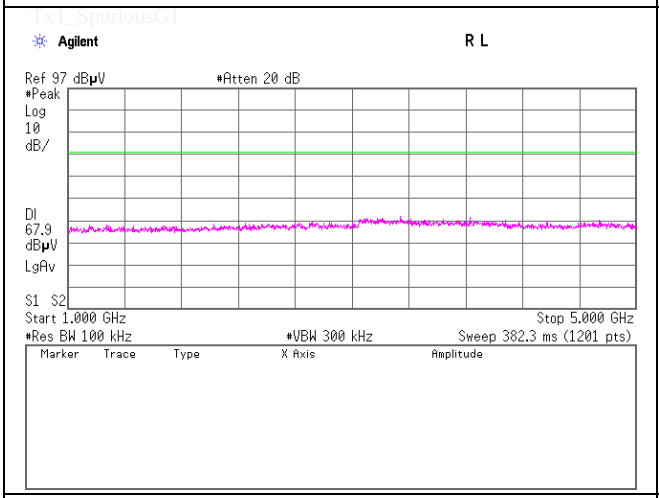
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

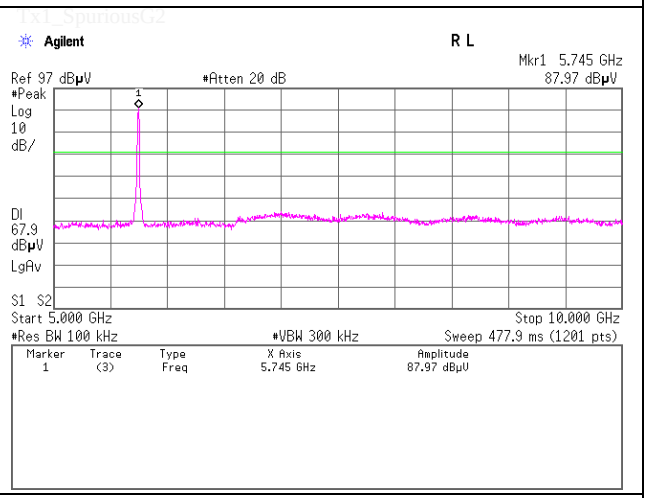
Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5745MHz (above 1GHz)(1/2)

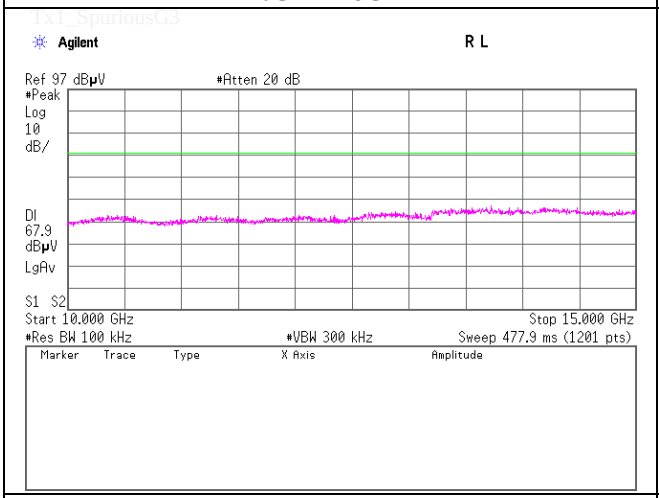
1GHz - 5GHz



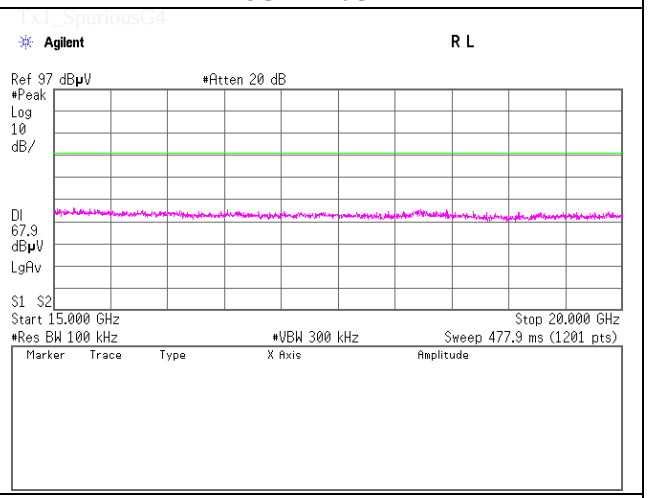
5GHz - 10GHz



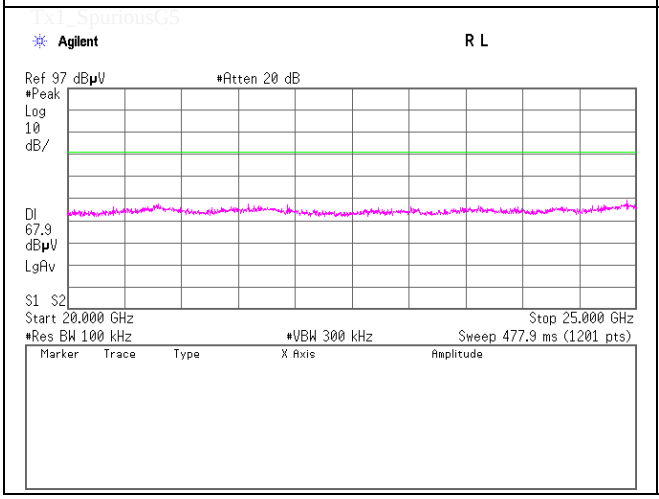
10GHz - 15GHz



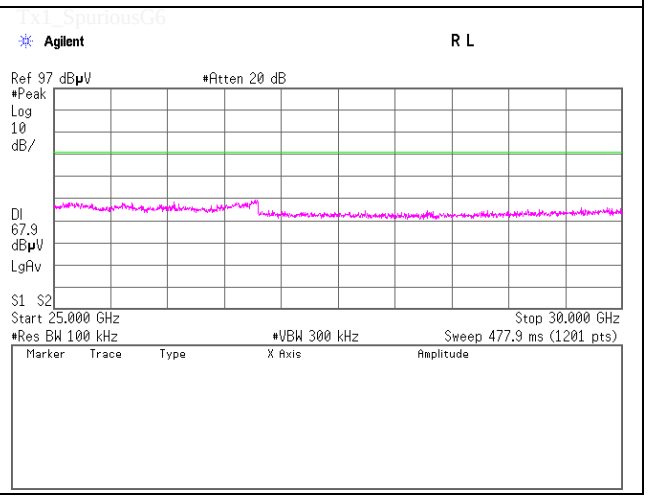
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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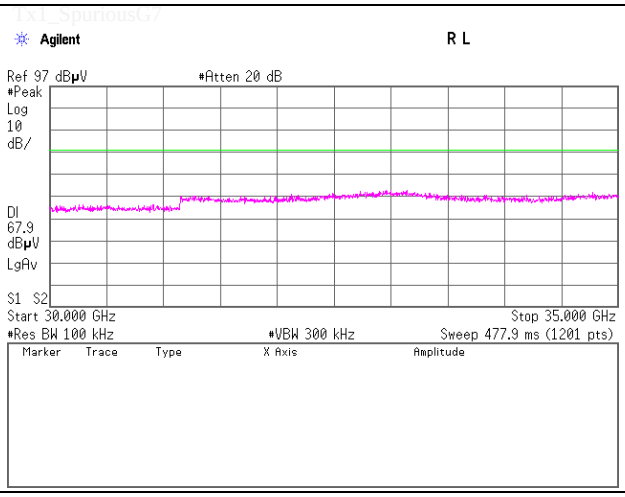
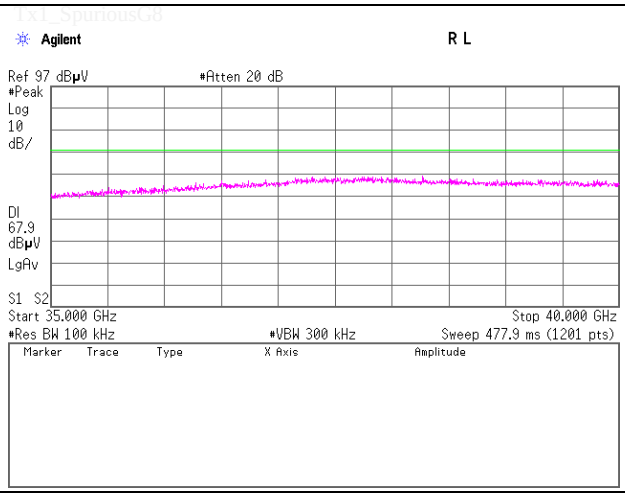
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5745MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

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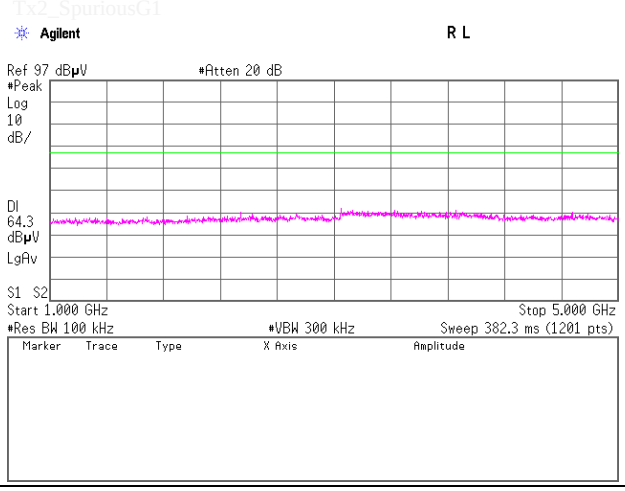
Engineer	Shinichi Takano	

Spurious emission (Conducted)

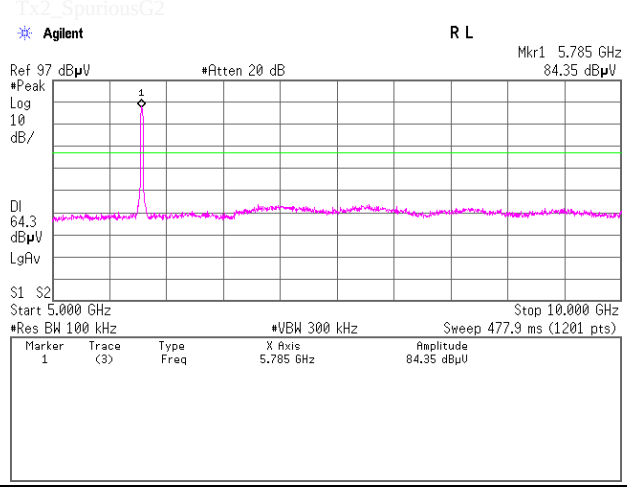
Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5785MHz (above 1GHz)(1/2)

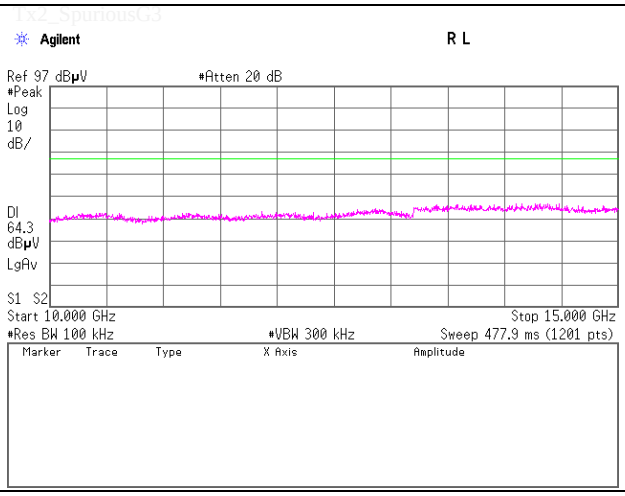
1GHz - 5GHz



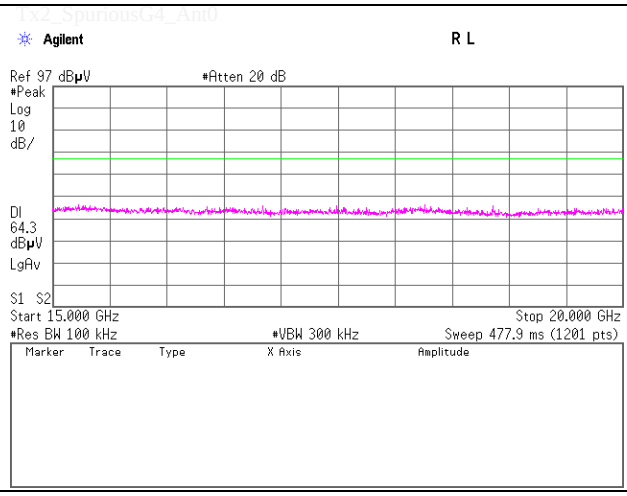
5GHz - 10GHz



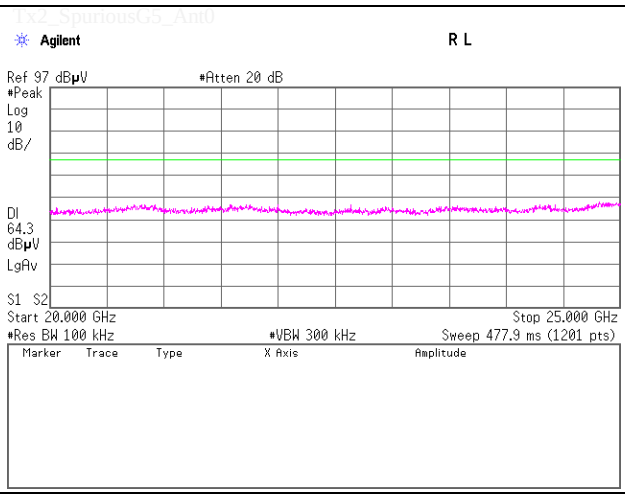
10GHz - 15GHz



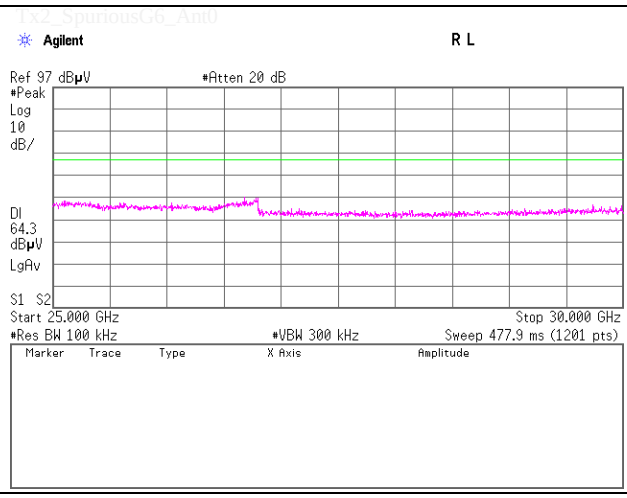
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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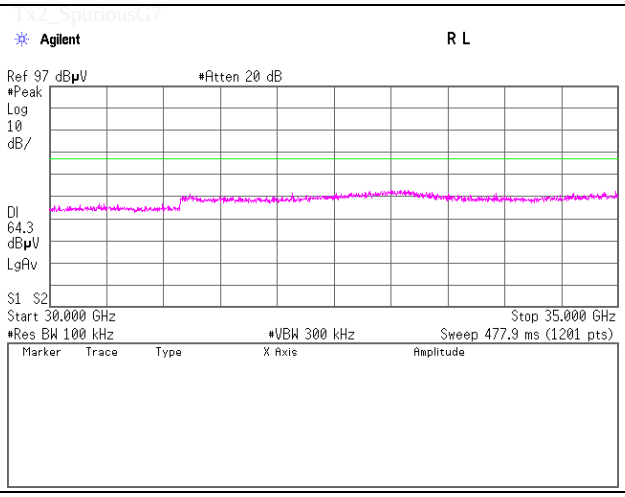
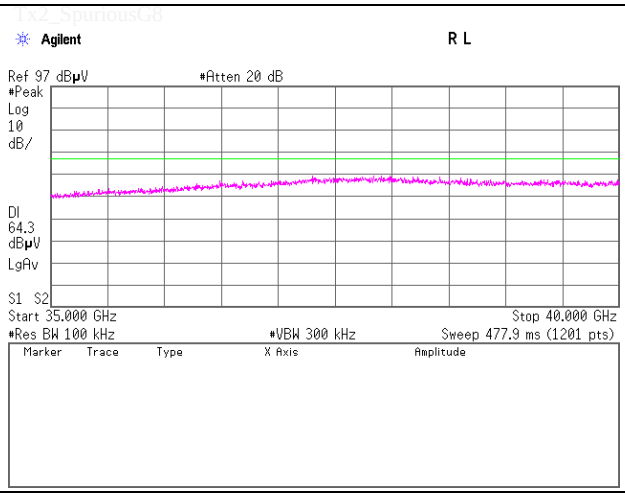
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5785MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

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Engineer	Shinichi Takano	

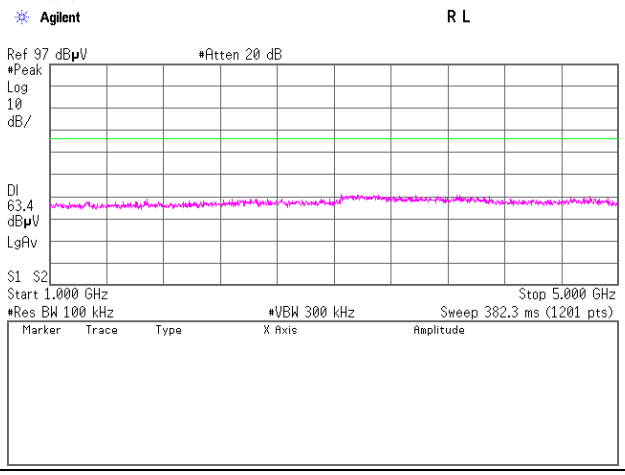
Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5825MHz (above 1GHz)(1/2)

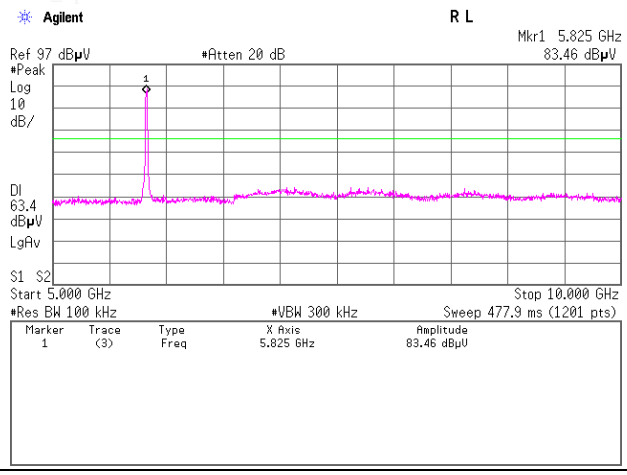
1GHz - 5GHz

Tx3_SpuriousG1



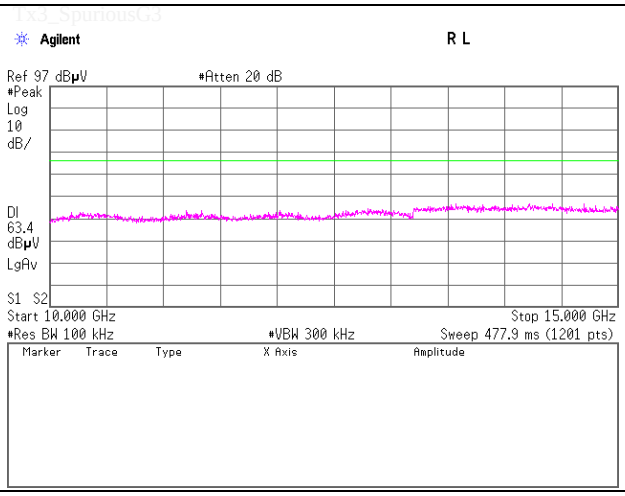
5GHz - 10GHz

Tx3_SpuriousG2



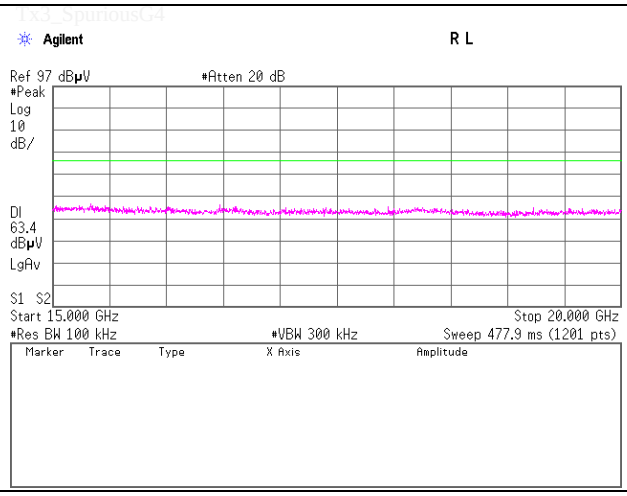
10GHz - 15GHz

Tx3_SpuriousG3



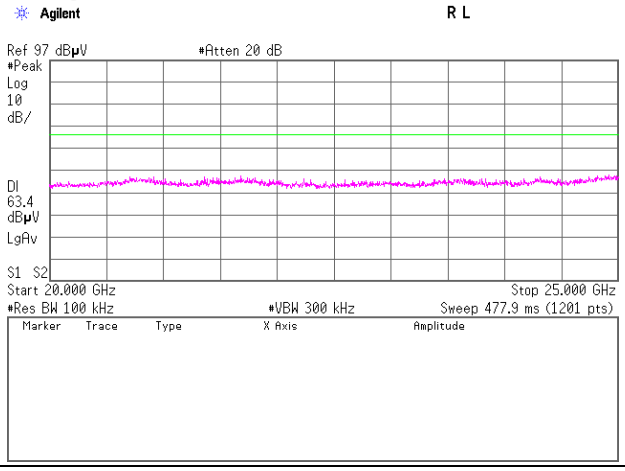
15GHz - 20GHz

Tx3_SpuriousG4



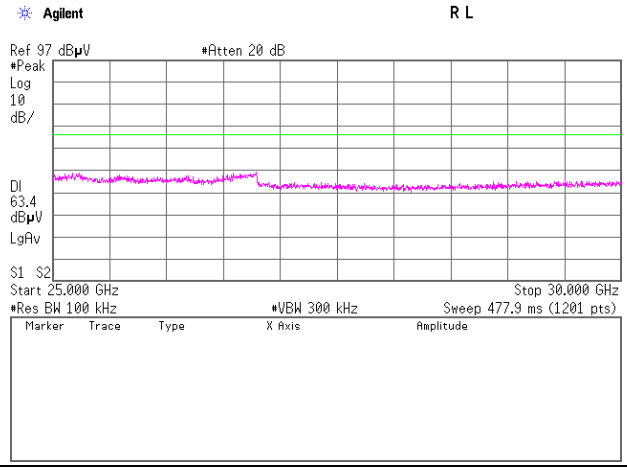
20GHz - 25GHz

Tx3_SpuriousG5



25GHz - 30GHz

Tx3_SpuriousG6



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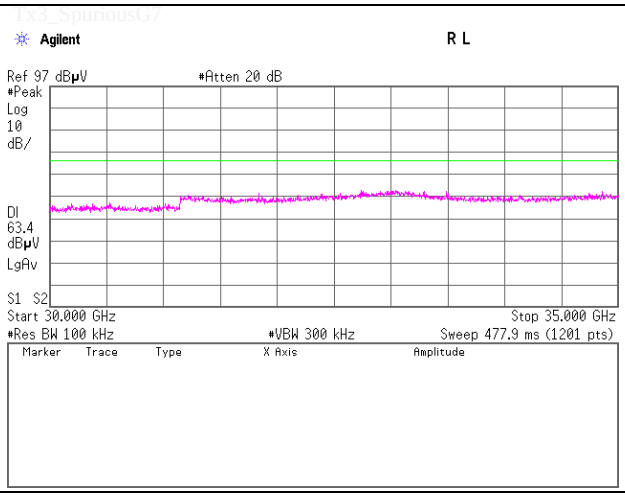
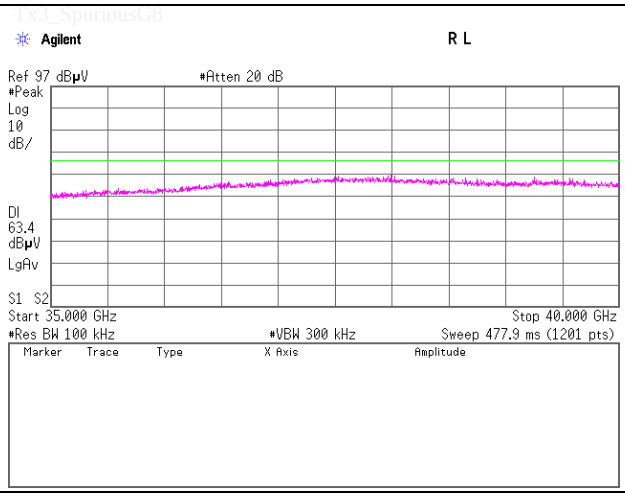
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5825MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

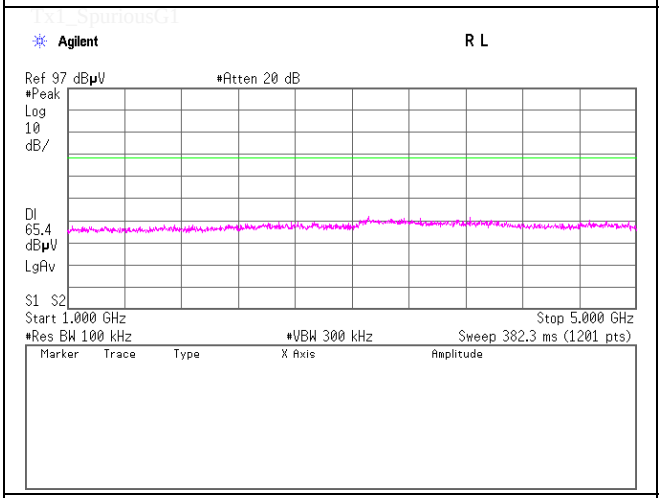
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

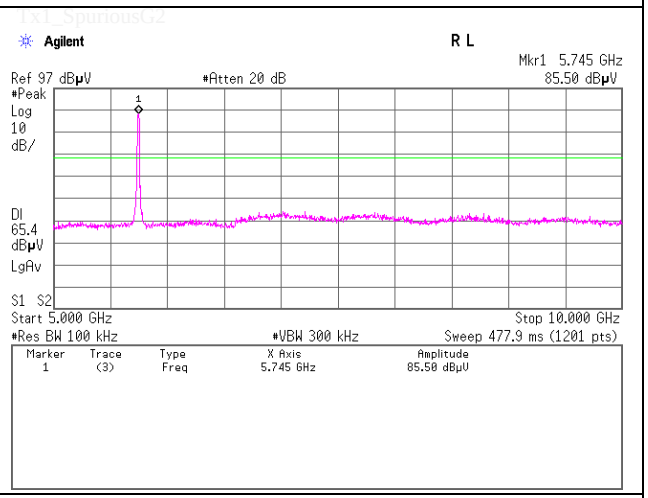
Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5745MHz (above 1GHz)(1/2)

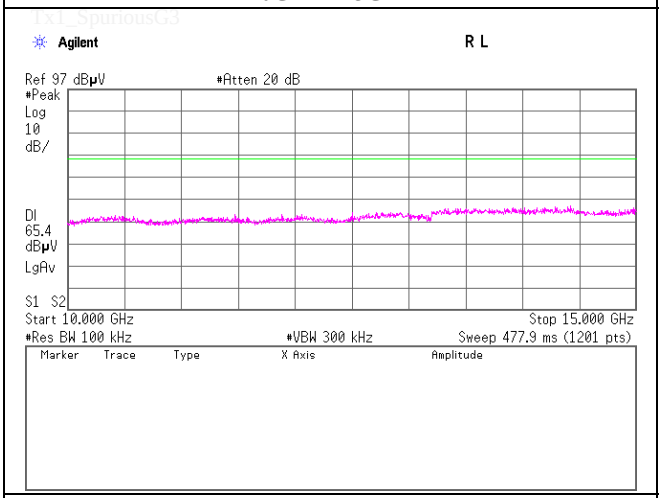
1GHz - 5GHz



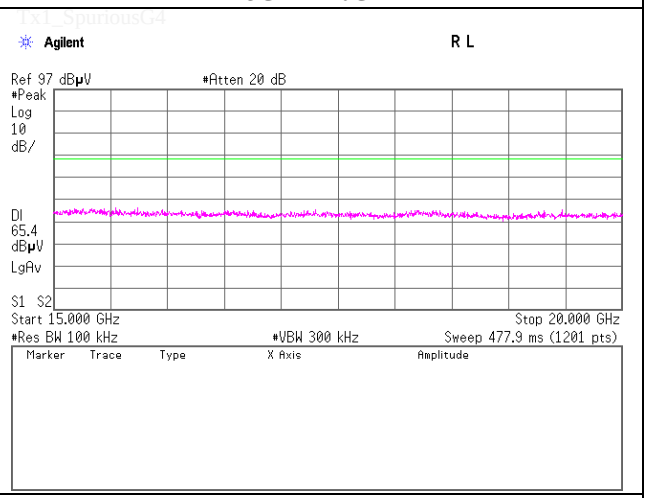
5GHz - 10GHz



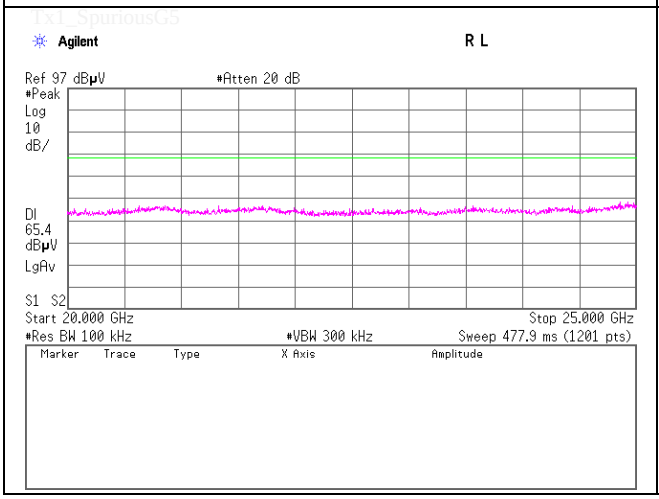
10GHz - 15GHz



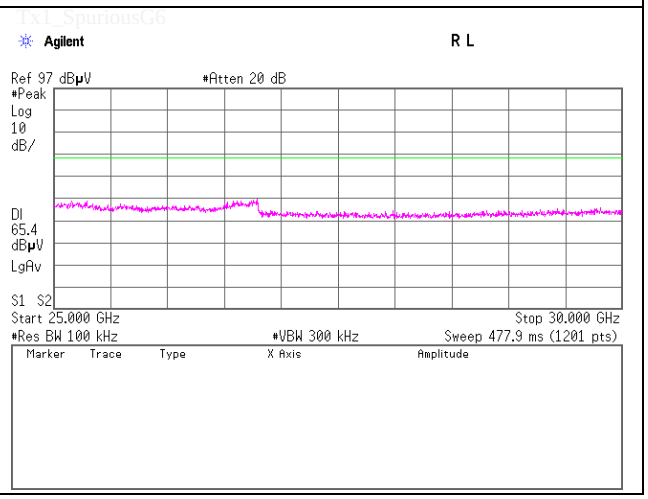
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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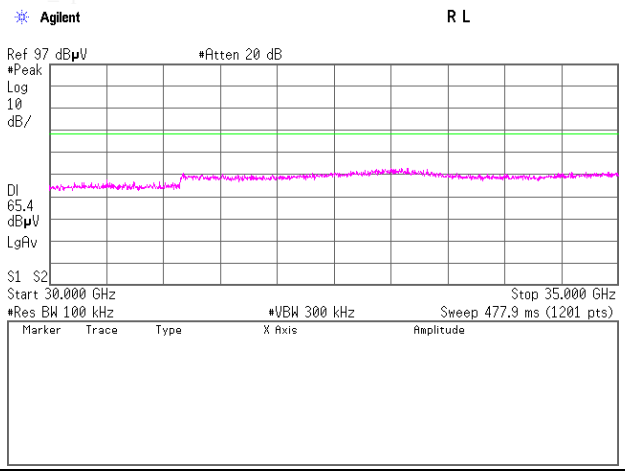
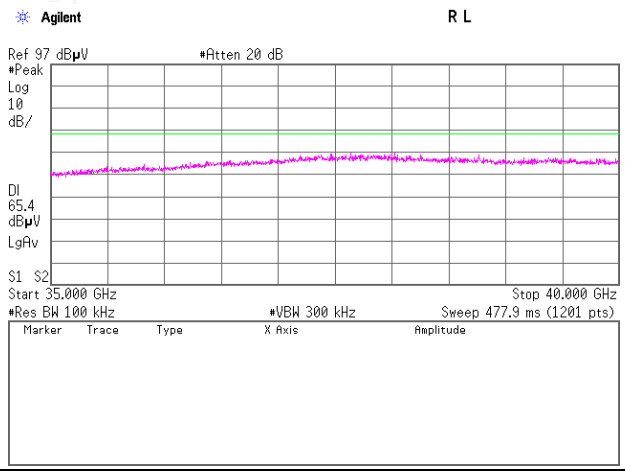
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5745MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

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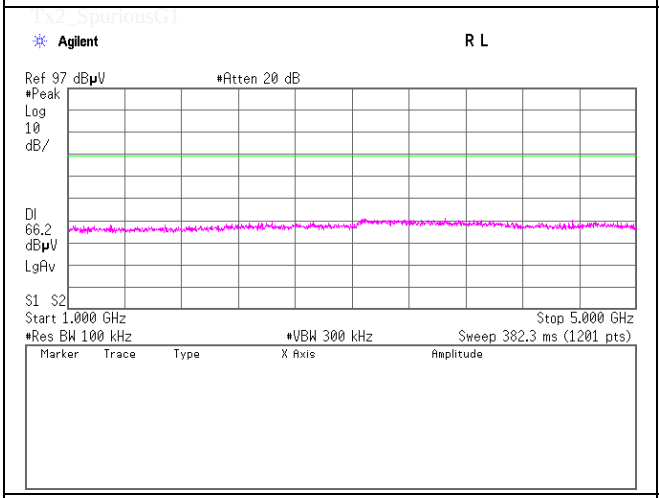
Spurious emission (Conducted)

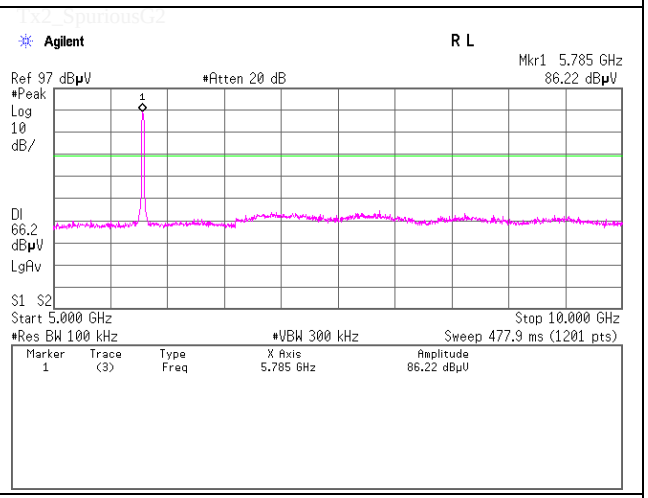
Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5785MHz (above 1GHz)(1/2)

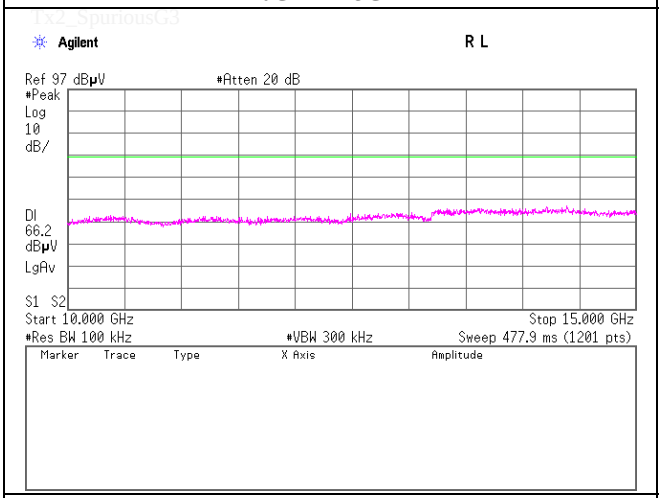
1GHz - 5GHz



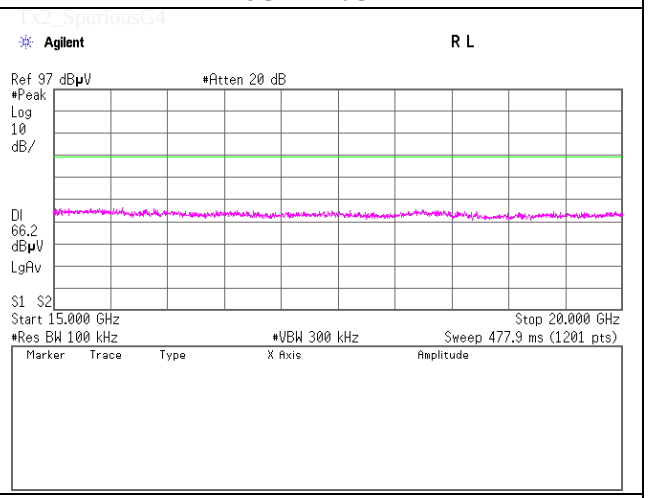
5GHz - 10GHz



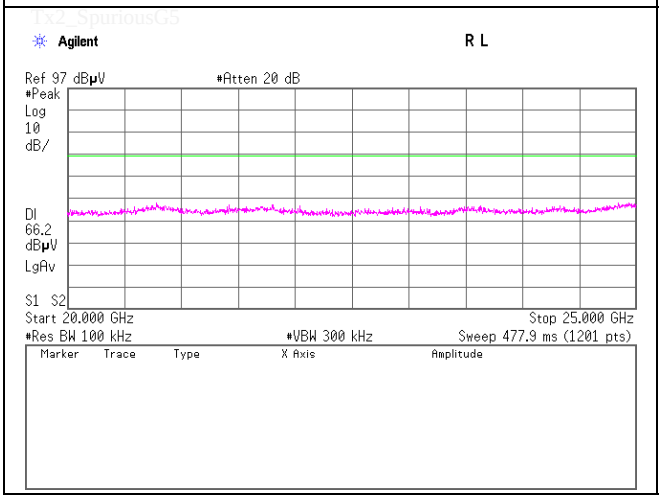
10GHz - 15GHz



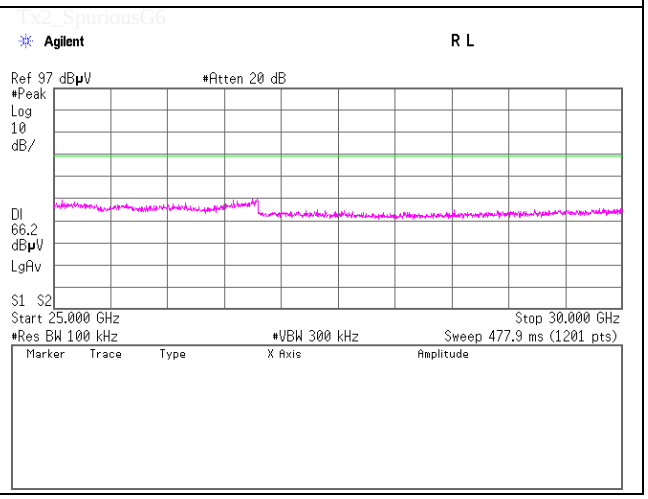
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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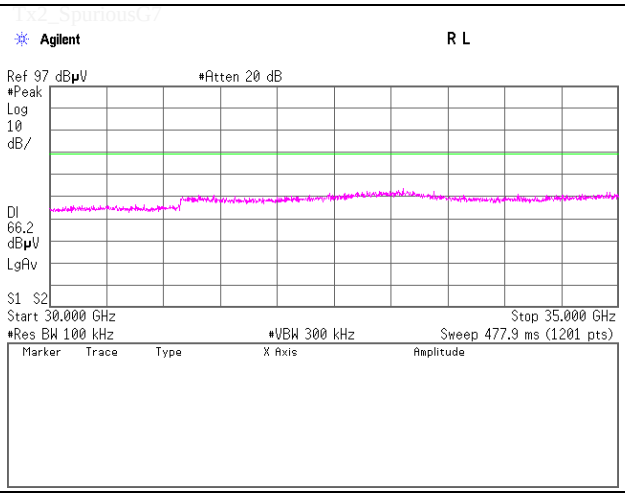
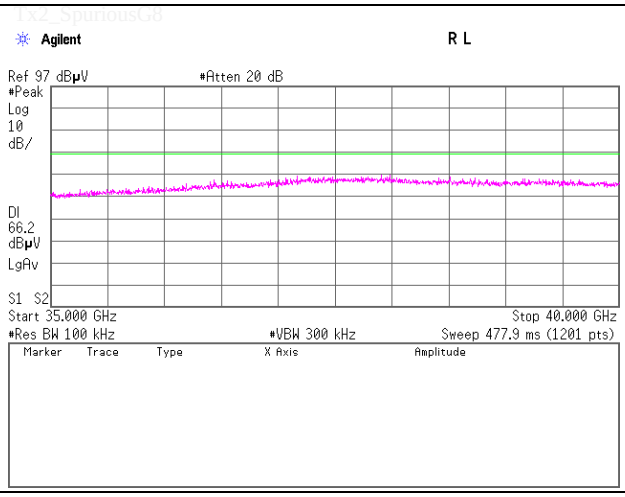
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5785MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
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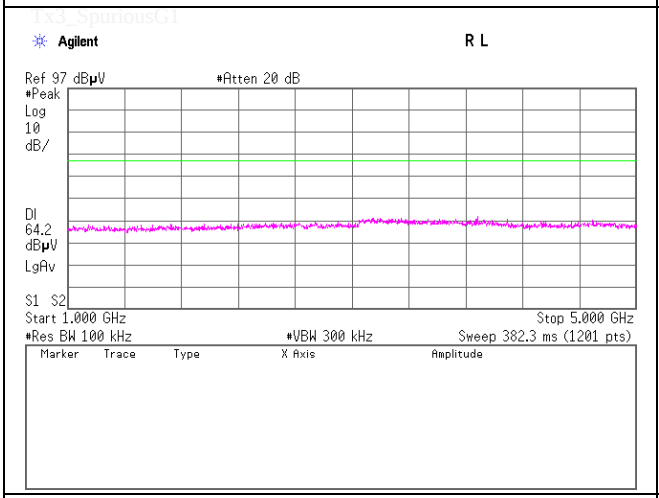
Engineer	Shinichi Takano	

Spurious emission (Conducted)

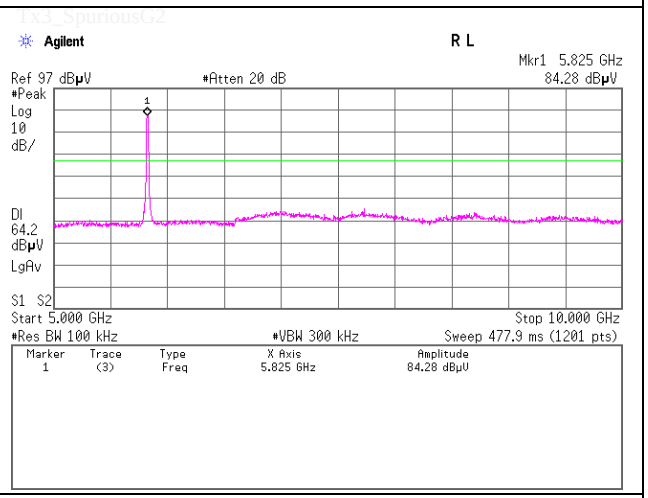
Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5825MHz (above 1GHz)(1/2)

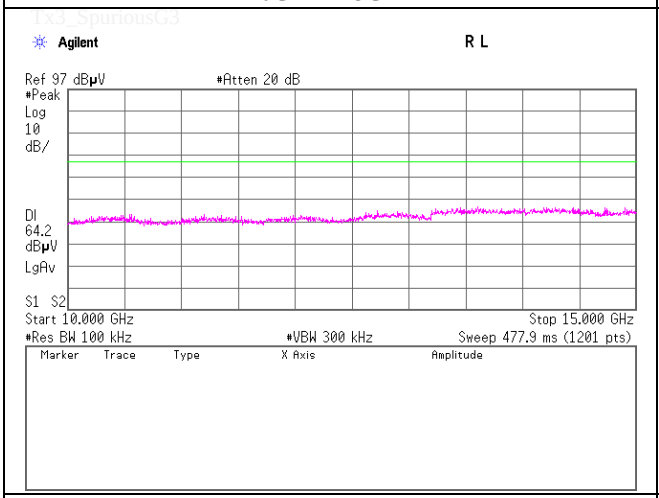
1GHz - 5GHz



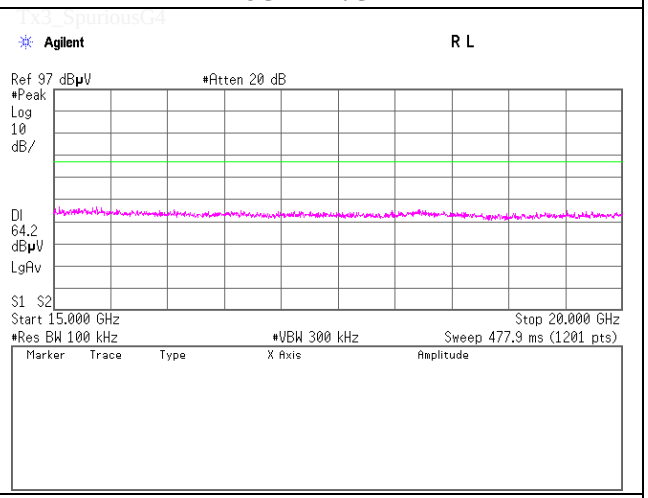
5GHz - 10GHz



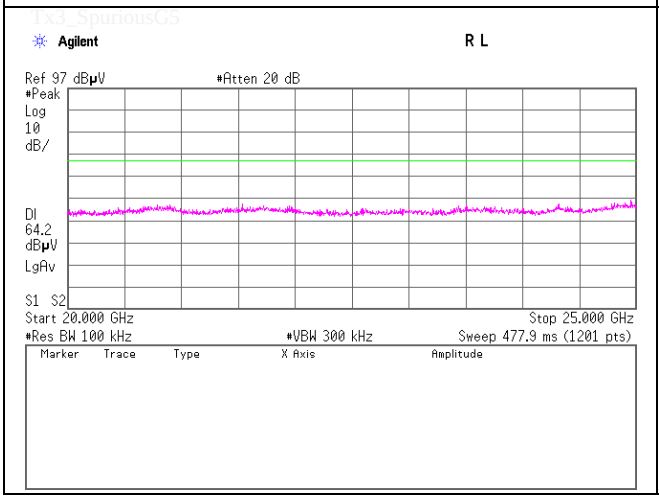
10GHz - 15GHz



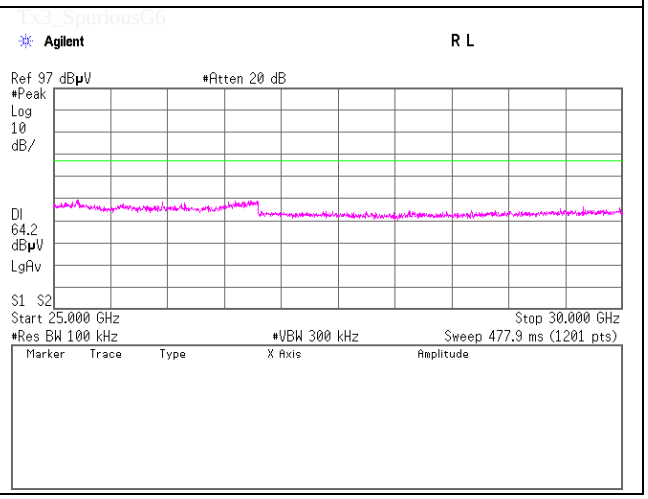
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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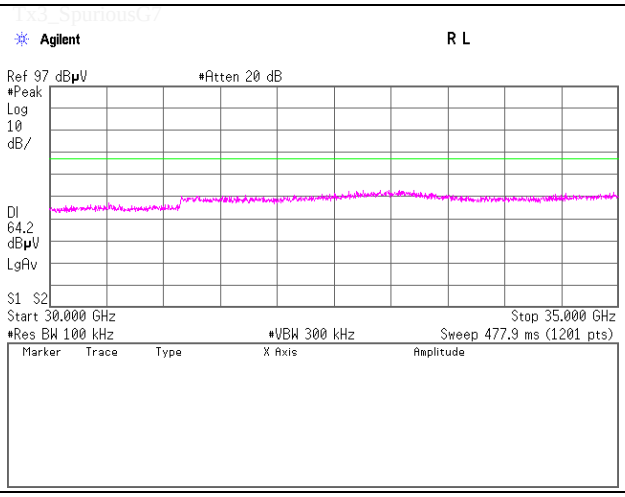
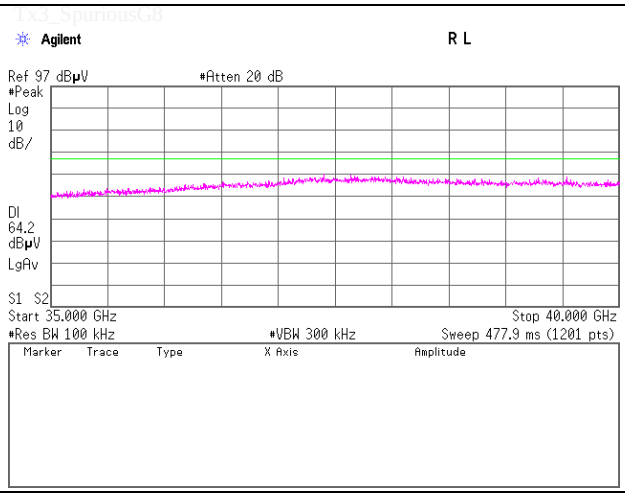
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5825MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

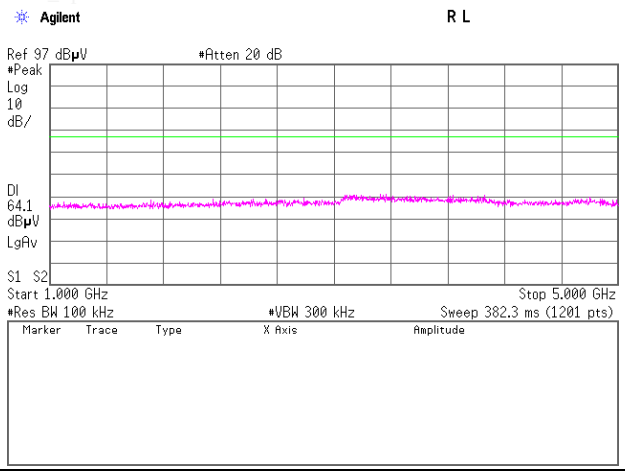
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5755MHz (above 1GHz)(1/2)

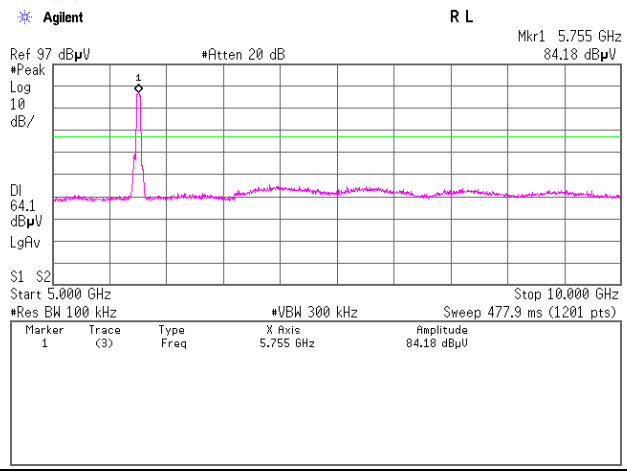
1GHz - 5GHz

Tx1_SpuriousG1



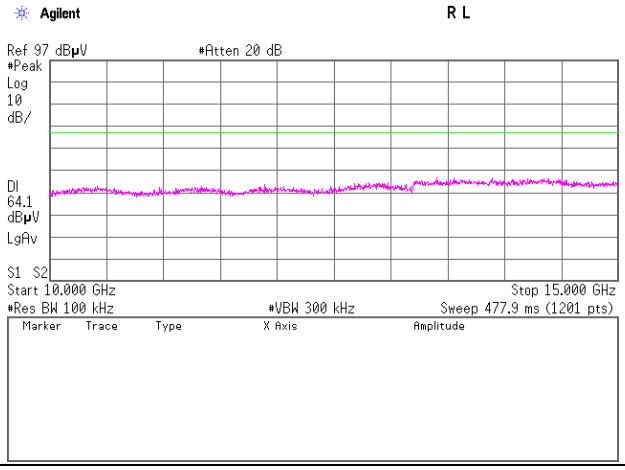
5GHz - 10GHz

Tx1_SpuriousG2



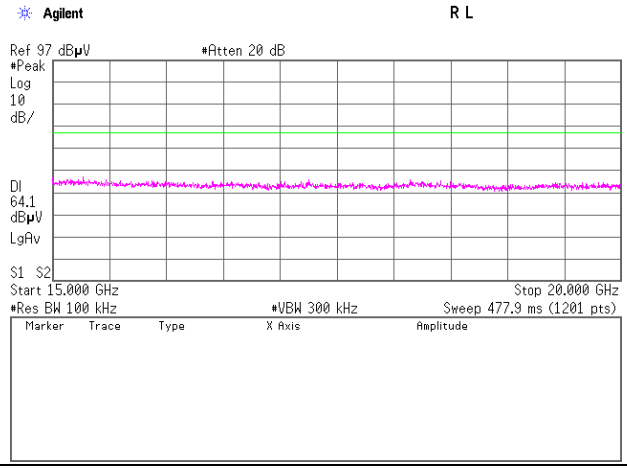
10GHz - 15GHz

Tx1_SpuriousG3



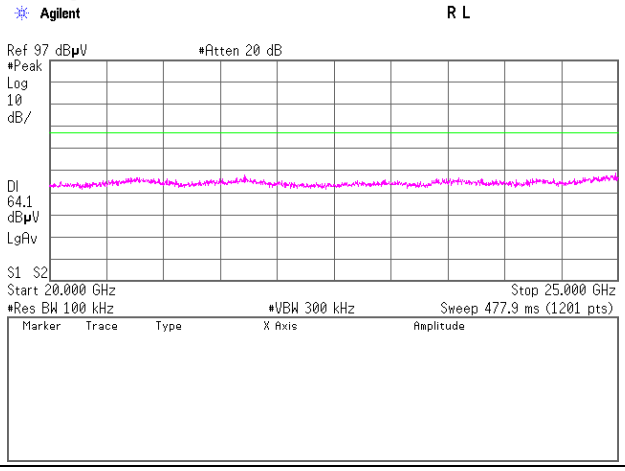
15GHz - 20GHz

Tx1_SpuriousG4



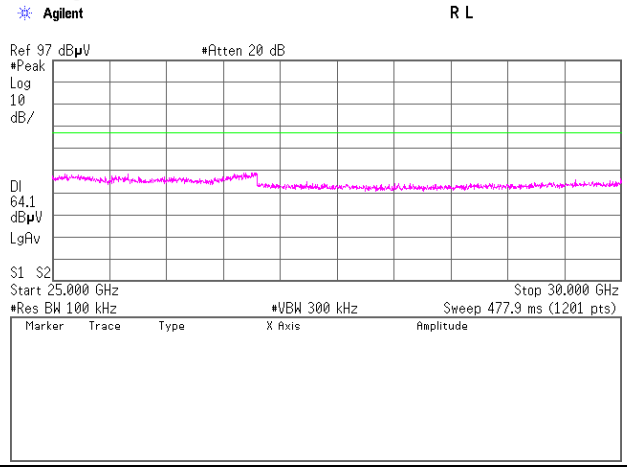
20GHz - 25GHz

Tx1_SpuriousG5



25GHz - 30GHz

Tx1_SpuriousG6



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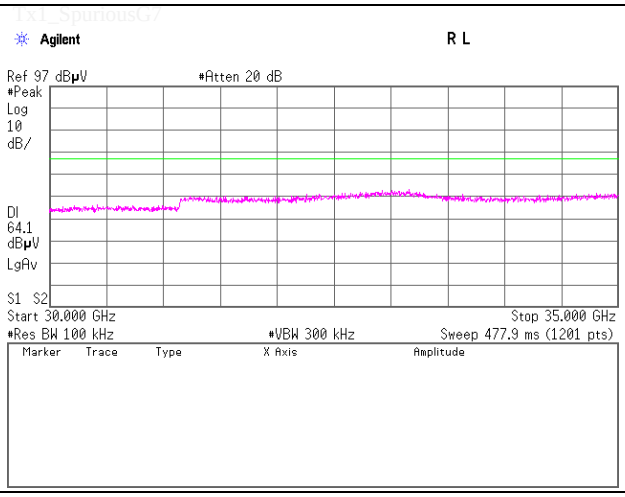
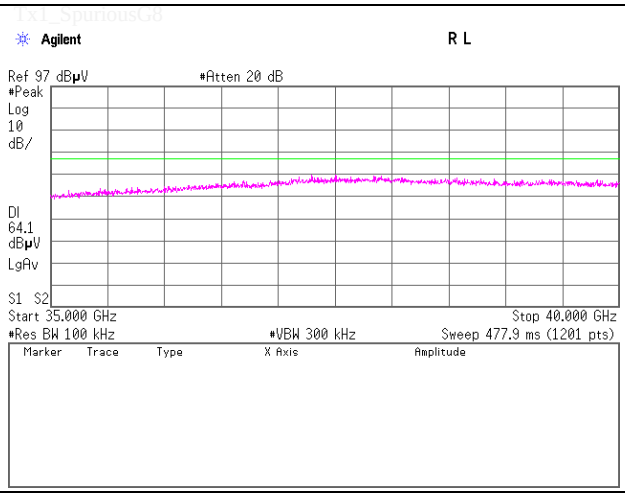
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5755MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

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Engineer	Shinichi Takano	

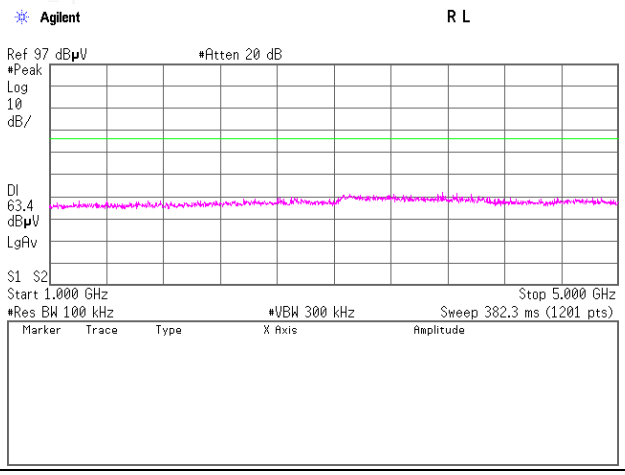
Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5795MHz (above 1GHz)(1/2)

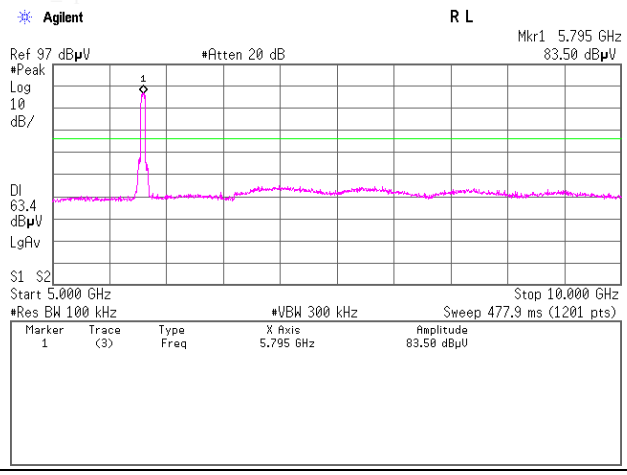
1GHz - 5GHz

Tx3_SpuriousG1



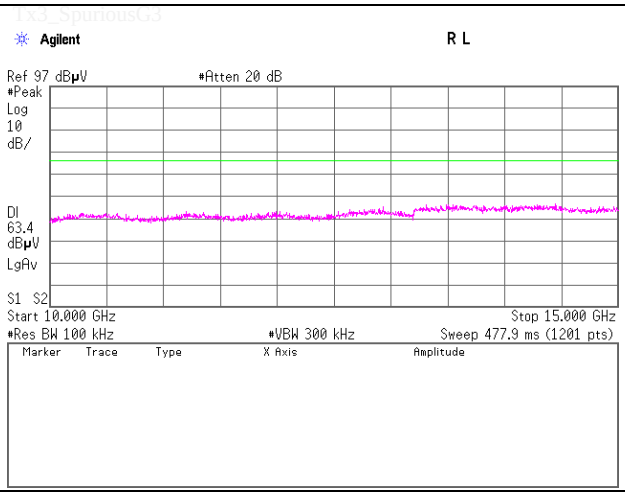
5GHz - 10GHz

Tx3_SpuriousG2



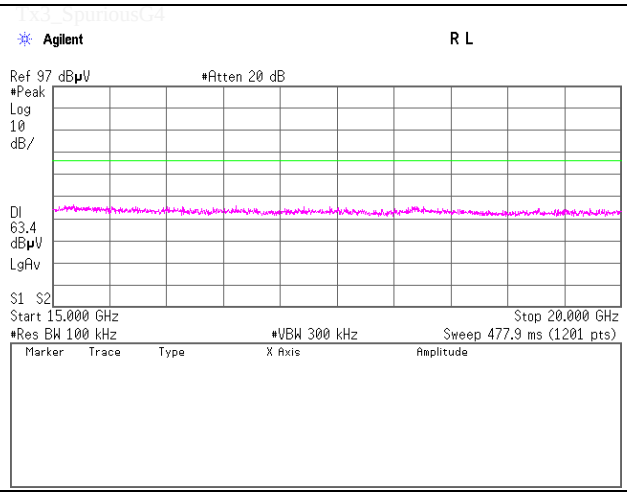
10GHz - 15GHz

Tx3_SpuriousG3



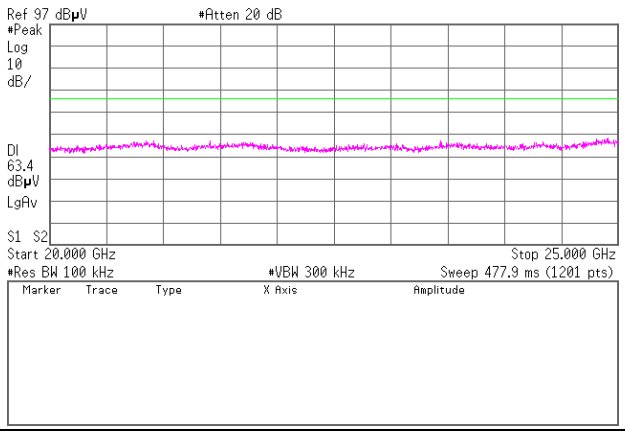
15GHz - 20GHz

Tx3_SpuriousG4



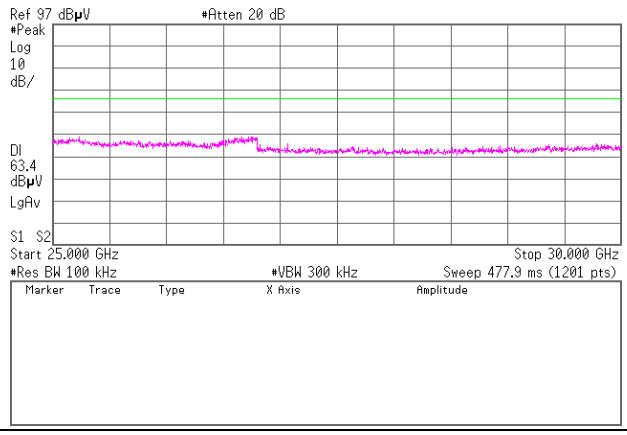
20GHz - 25GHz

Tx3_SpuriousG5



25GHz - 30GHz

Tx3_SpuriousG6



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Date	November 12, 2013	
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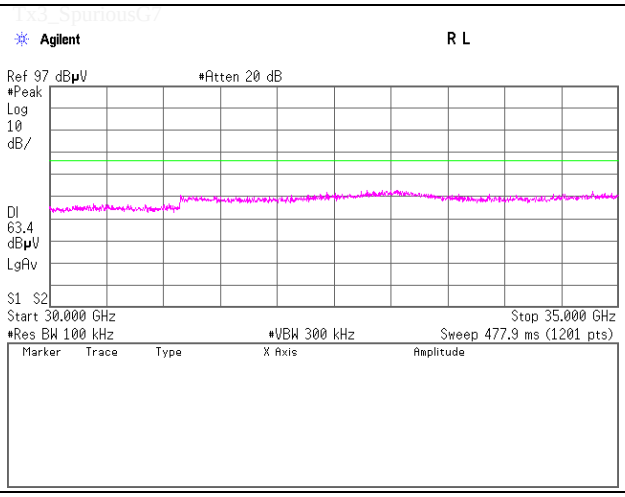
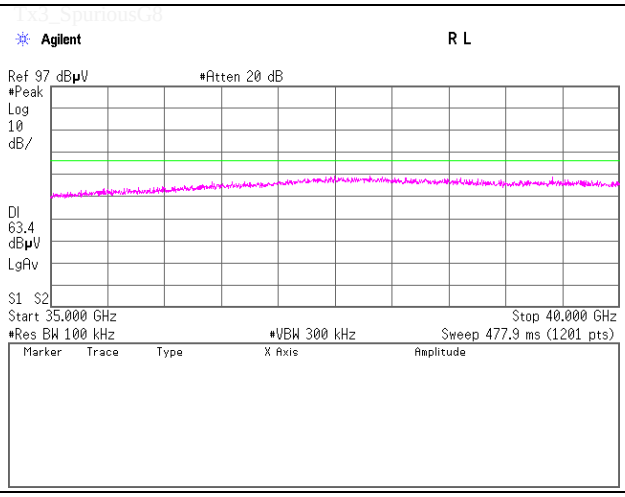
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

Tx, 5795MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

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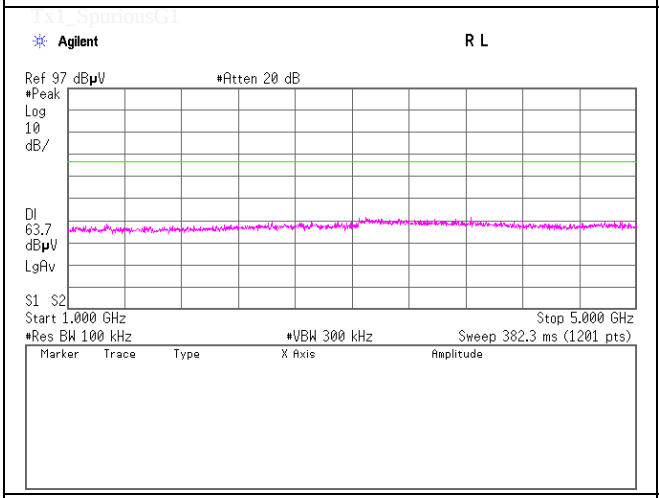
Engineer	Shinichi Takano	

Spurious emission (Conducted)

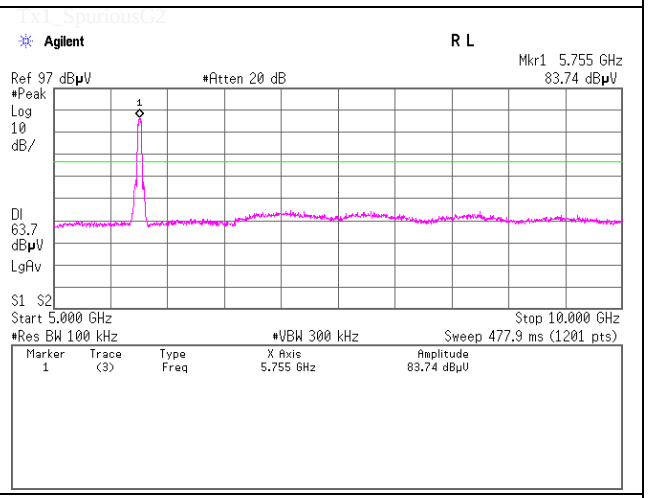
Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5755MHz (above 1GHz)(1/2)

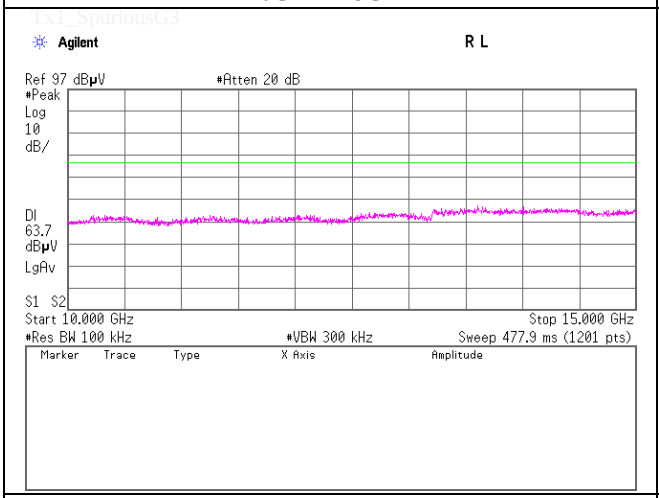
1GHz - 5GHz



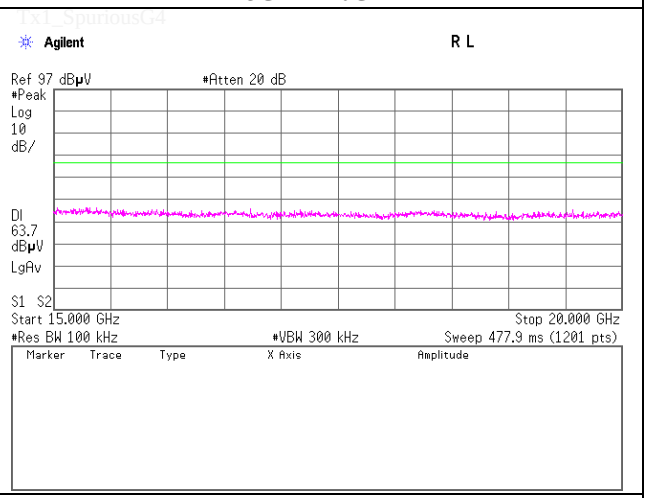
5GHz - 10GHz



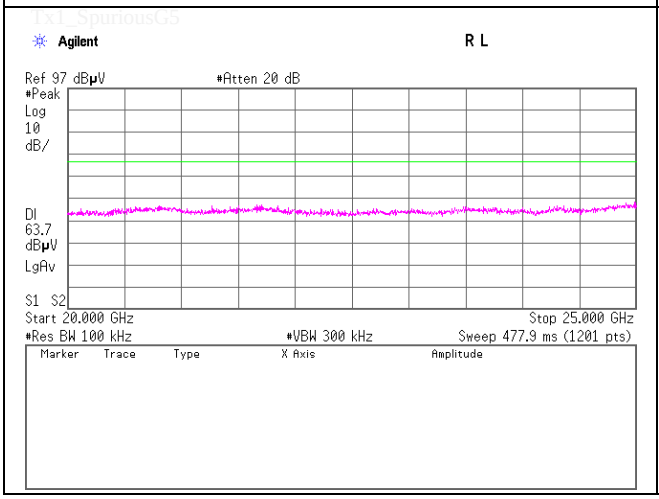
10GHz - 15GHz



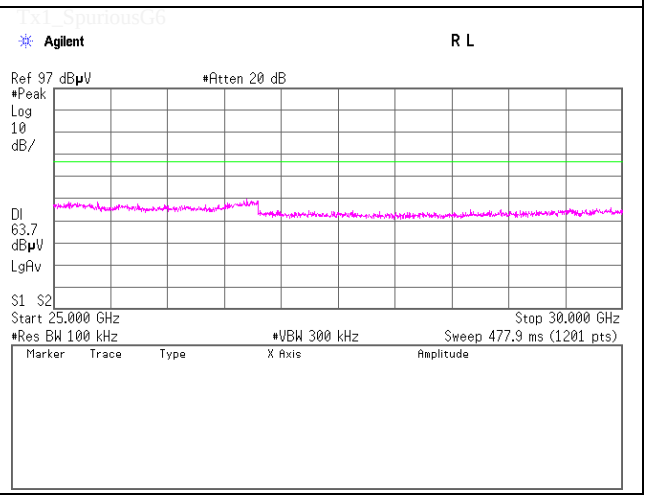
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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Date	November 12, 2013	
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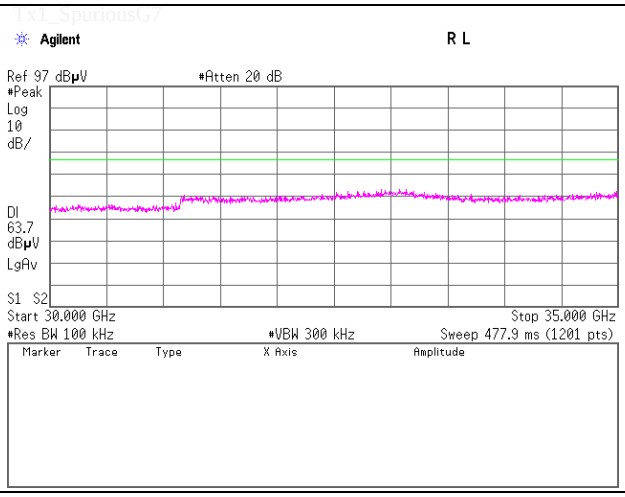
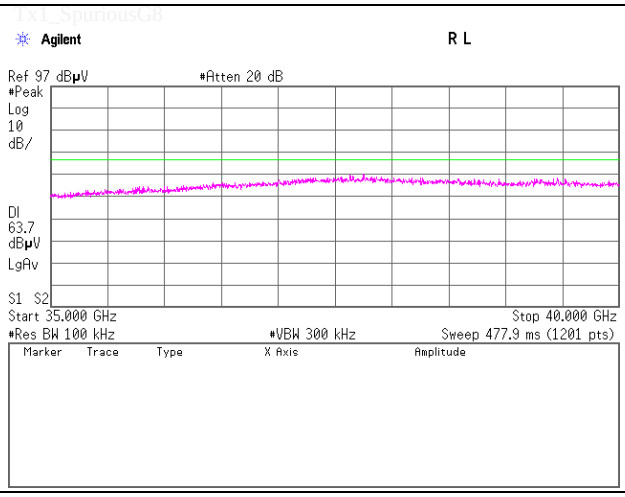
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5755MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

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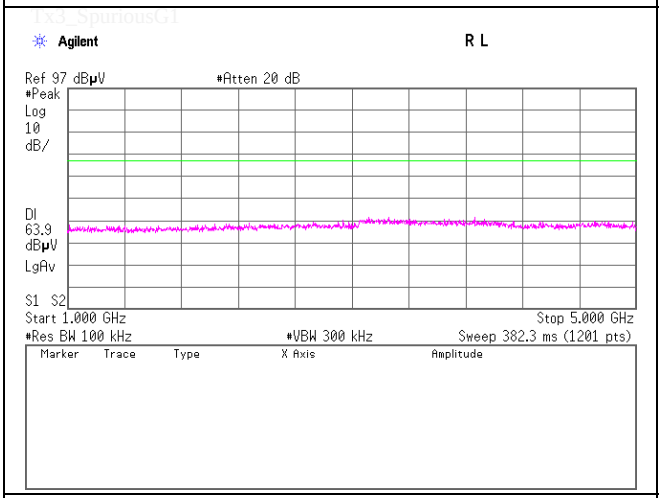
Spurious emission (Conducted)

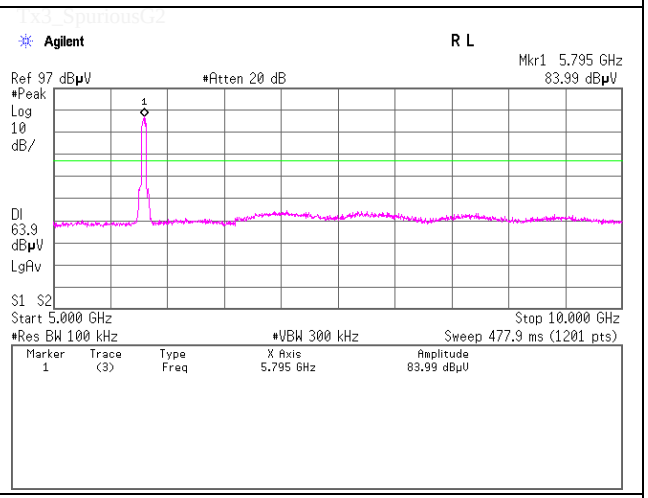
Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5795MHz (above 1GHz)(1/2)

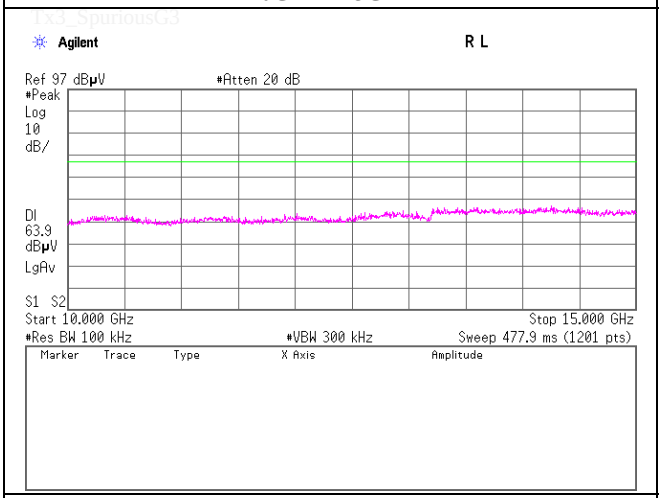
1GHz - 5GHz



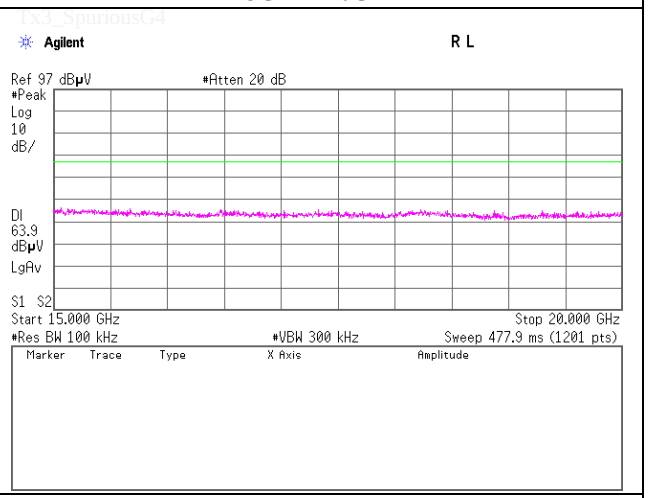
5GHz - 10GHz



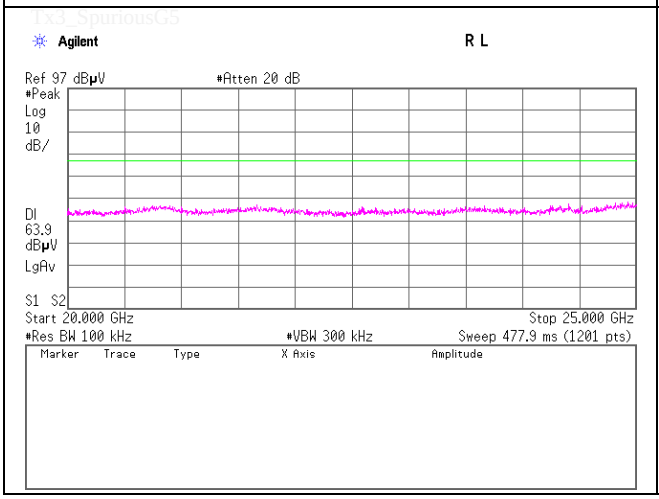
10GHz - 15GHz



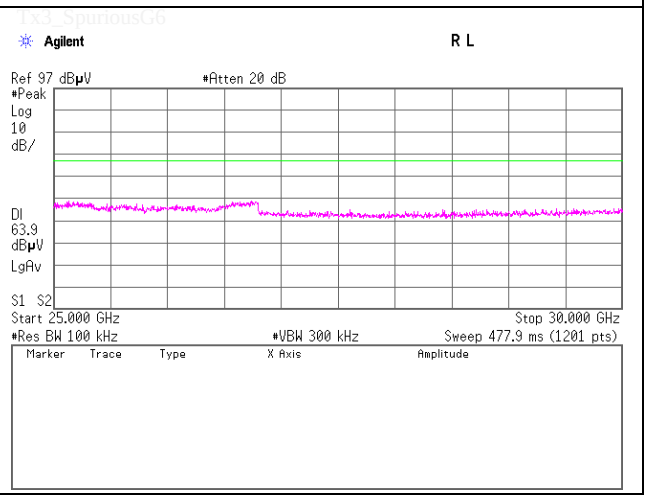
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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Date	November 12, 2013	
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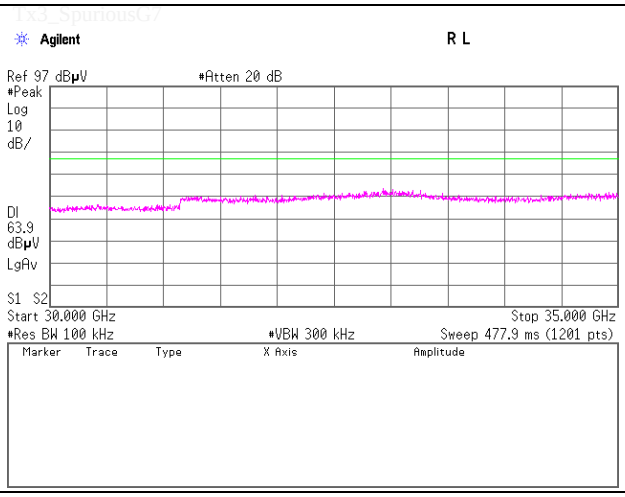
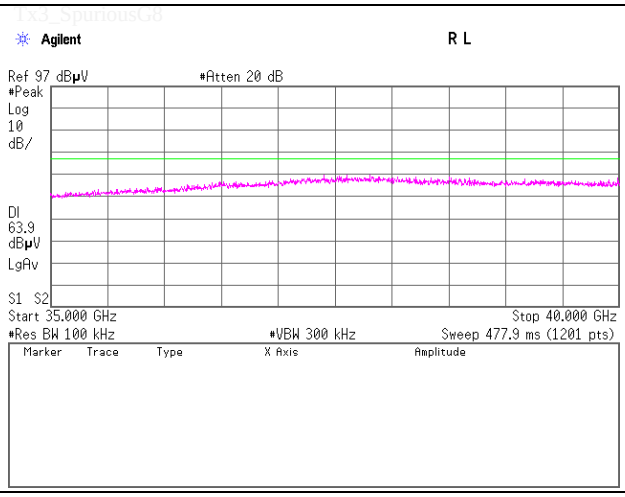
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 5795MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

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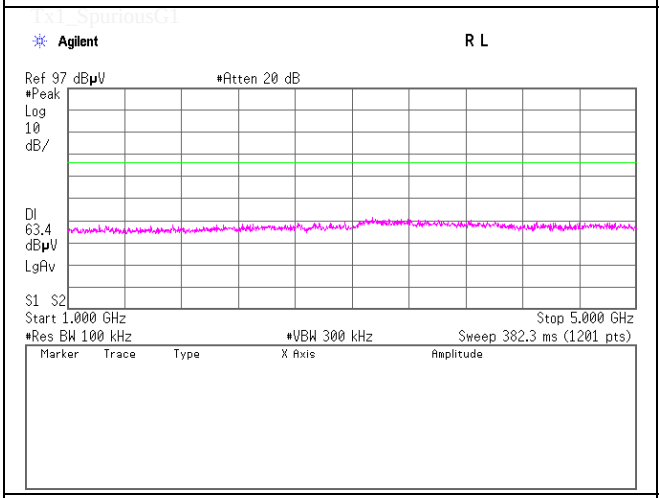
Spurious emission (Conducted)

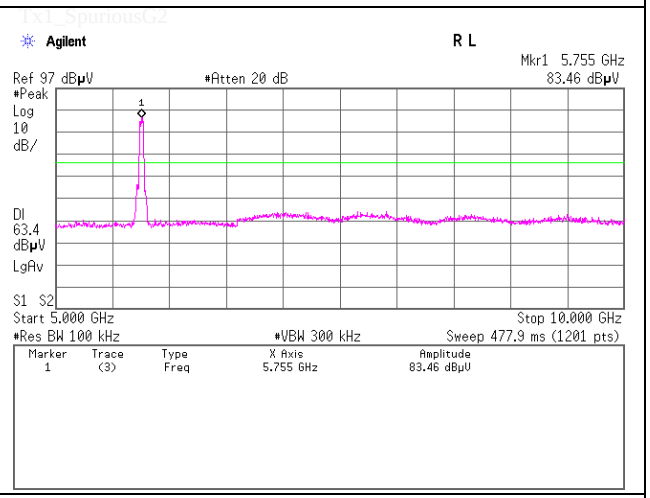
Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5755MHz (above 1GHz)(1/2)

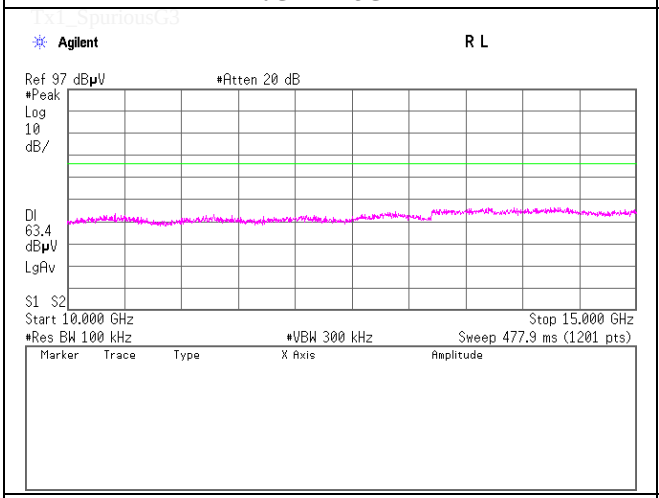
1GHz - 5GHz



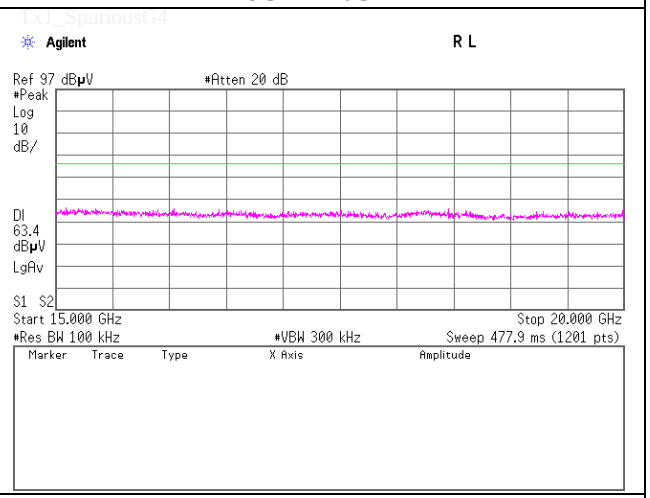
5GHz - 10GHz



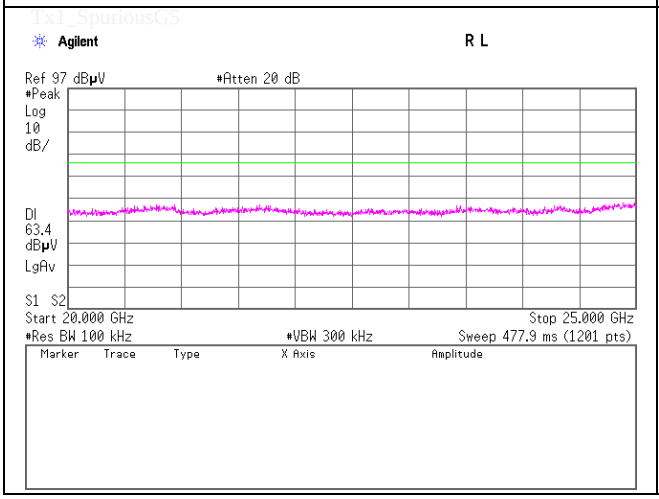
10GHz - 15GHz



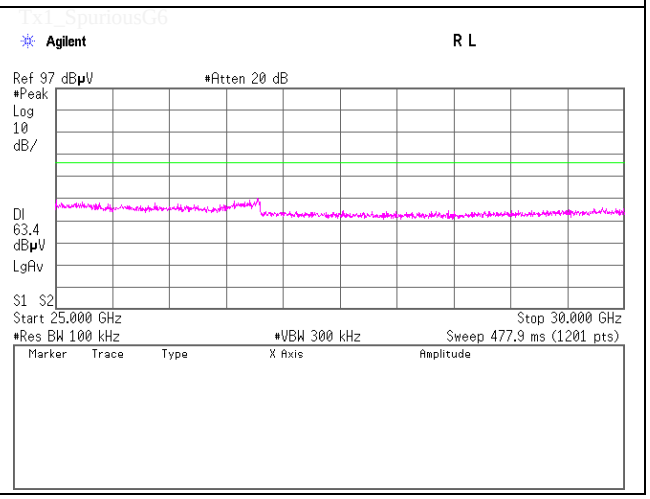
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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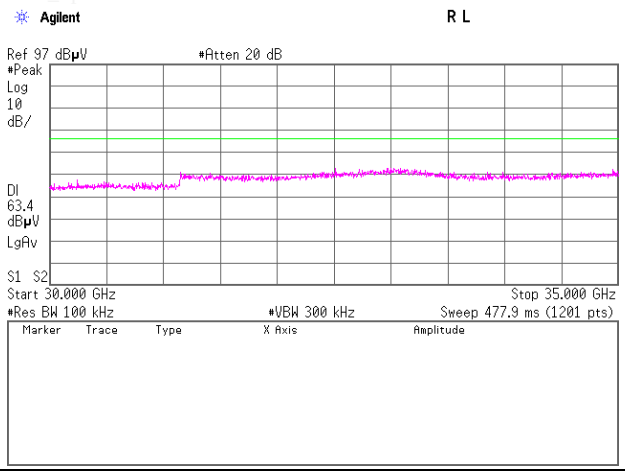
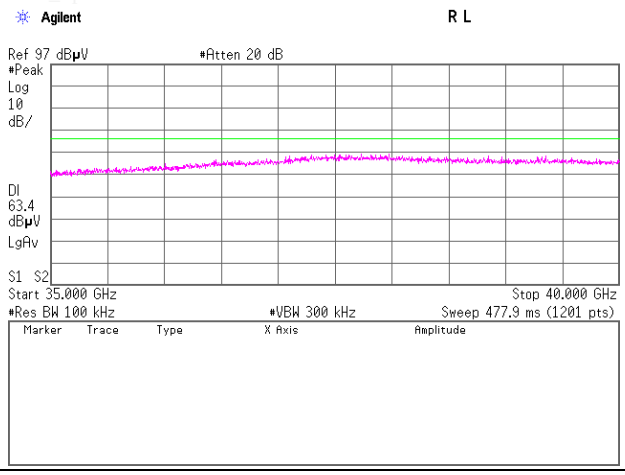
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5755MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

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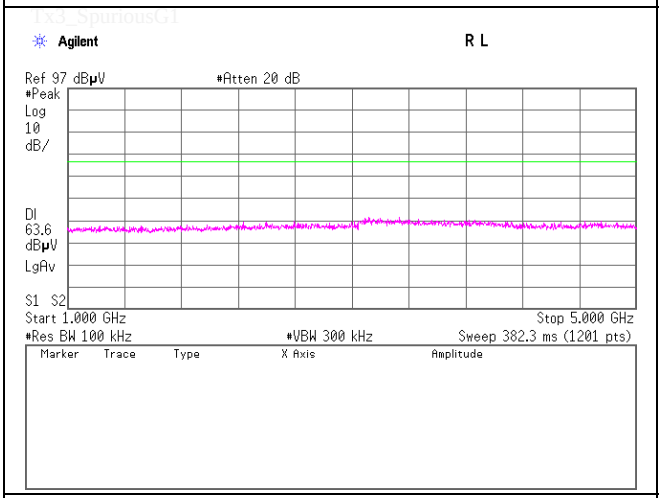
Engineer	Shinichi Takano	

Spurious emission (Conducted)

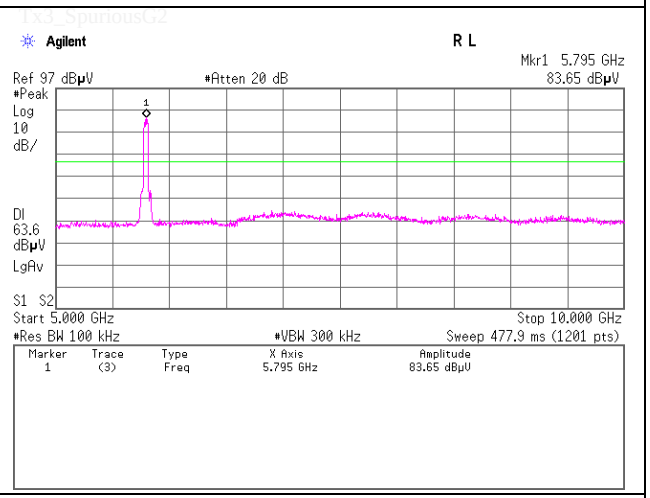
Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5795MHz (above 1GHz)(1/2)

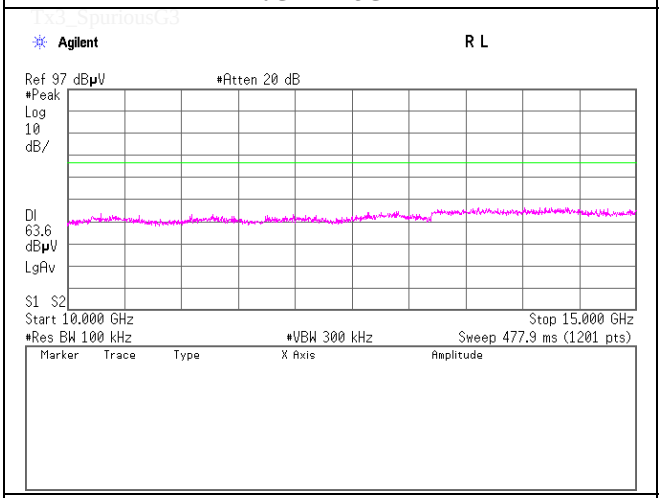
1GHz - 5GHz



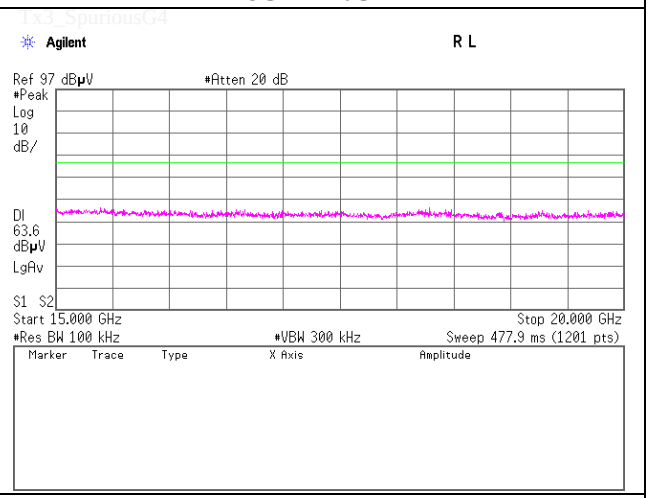
5GHz - 10GHz



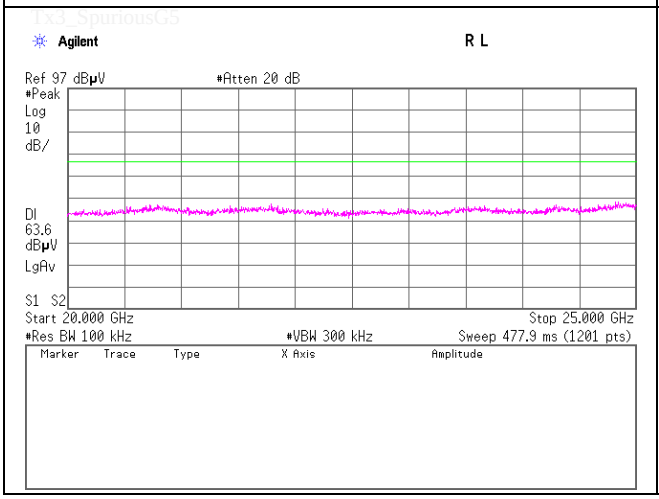
10GHz - 15GHz



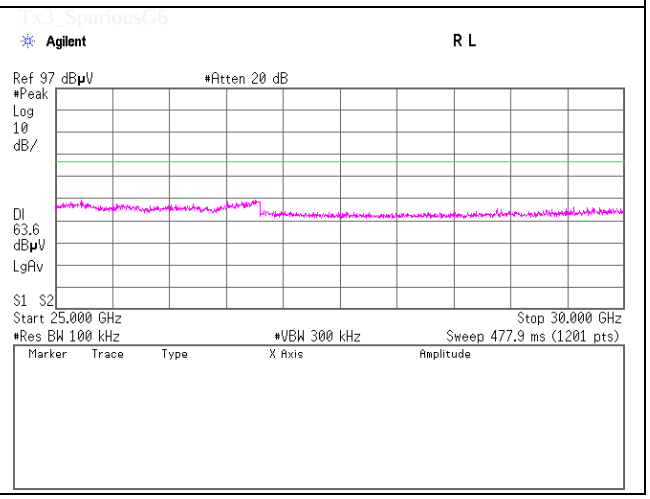
15GHz - 20GHz



20GHz - 25GHz



25GHz - 30GHz



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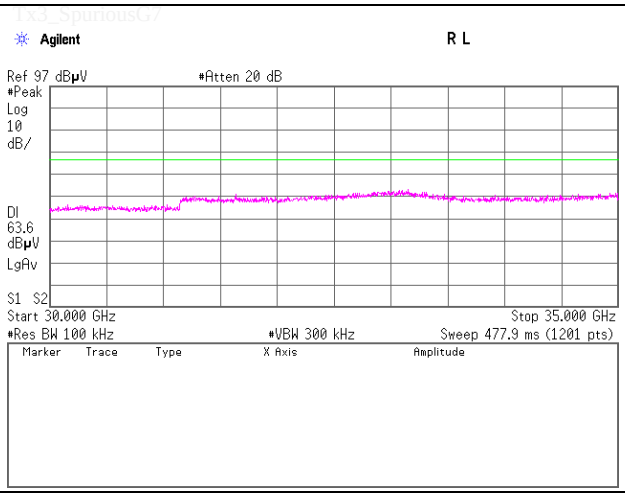
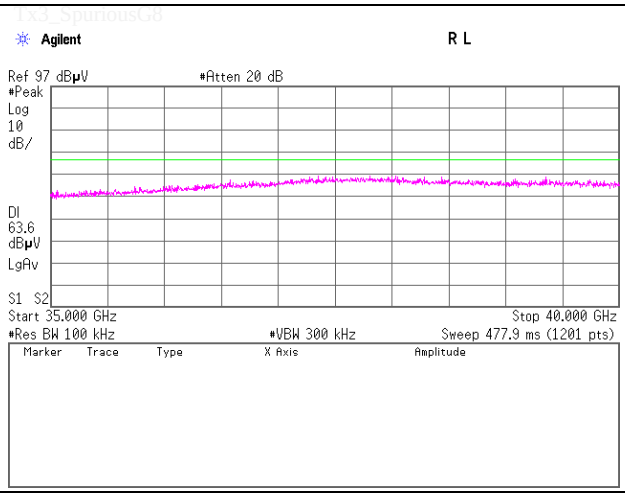
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

Tx, 5795MHz (above 1GHz)(2/2)

30GHz - 35GHz	35GHz - 40GHz
	

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	

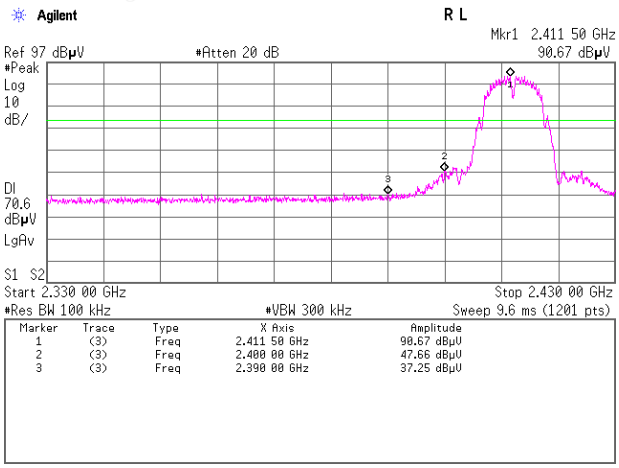
Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11b, PN9, worst antenna port 0, worst data mode 1Mbps

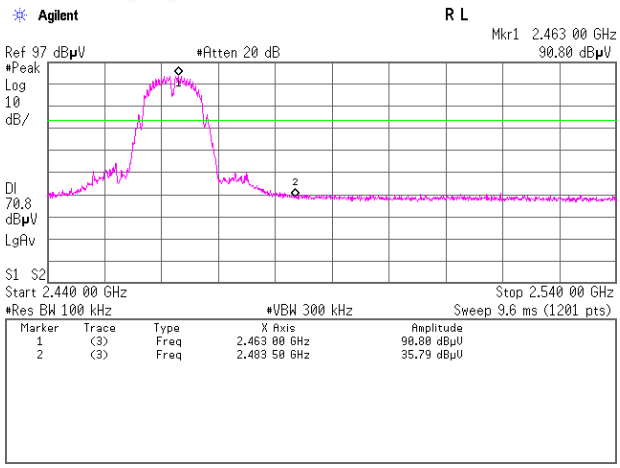
Tx, 2412MHz

Tx1_BandEdgeLow



Tx, 2462MHz

Tx3_BandEdgeHigh



Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 7, 2013	
Temperature / Humidity	22deg.C , 31%RH	
Engineer	Shinichi Takano	

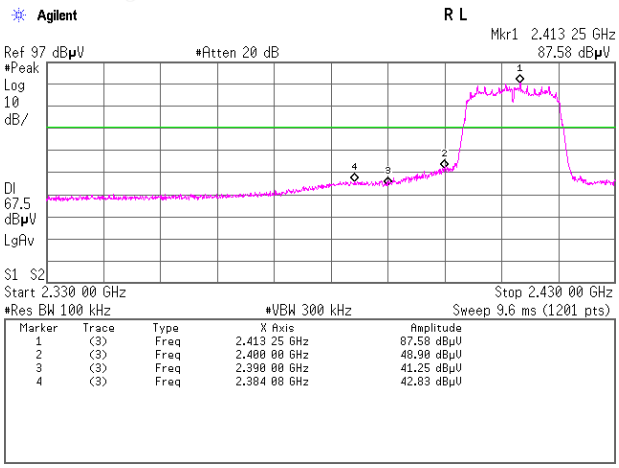
Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11g, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 2412MHz

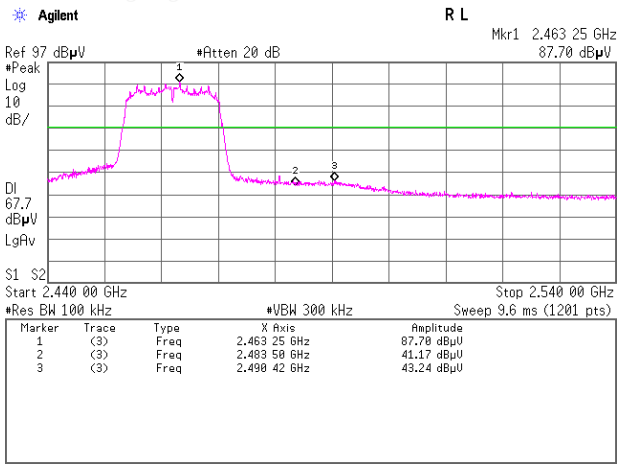
Tx1_BandEdgeLow



Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	2.413 25 GHz	87.58 dBµV
2	(3)	Freq	2.400 00 GHz	48.90 dBµV
3	(3)	Freq	2.390 00 GHz	41.25 dBµV
4	(3)	Freq	2.384 08 GHz	42.83 dBµV

Tx, 2462MHz

Tx3_BandEdgeHigh



Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	2.463 25 GHz	87.70 dBµV
2	(3)	Freq	2.483 50 GHz	41.17 dBµV
3	(3)	Freq	2.490 42 GHz	43.24 dBµV

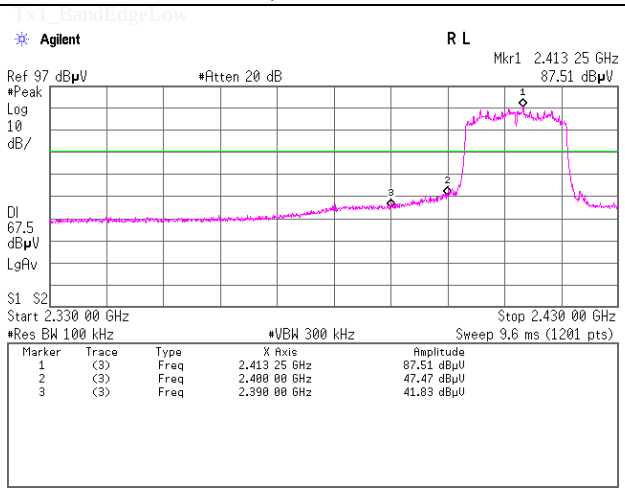
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

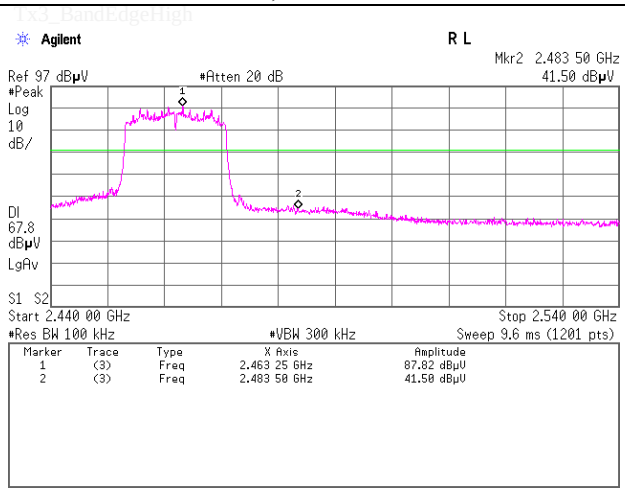
Band Edge compliance

Tx, IEEE802.11n(HT20), SISO, PN9, worst antenna port 0, worst data mode 2(MCS)

Tx, 2412MHz



Tx, 2462MHz



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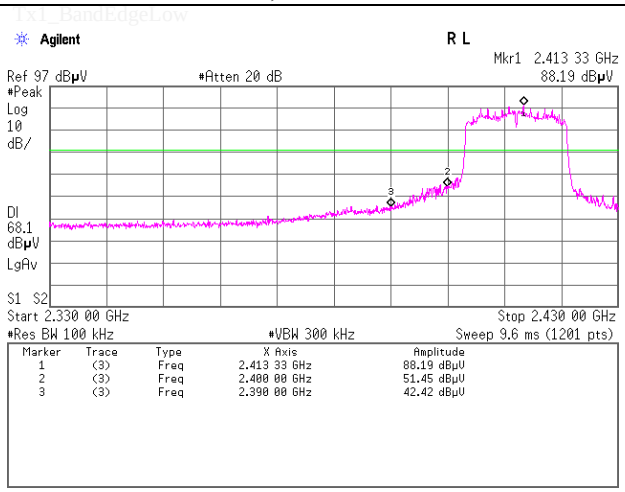
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

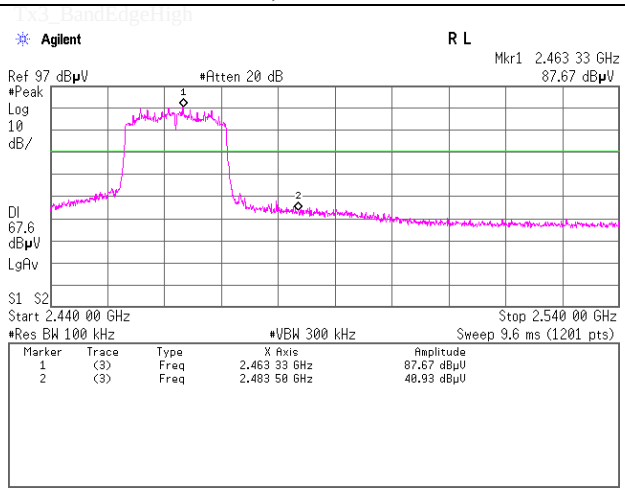
Band Edge compliance

Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 2(MCS)

Tx, 2412MHz



Tx, 2462MHz



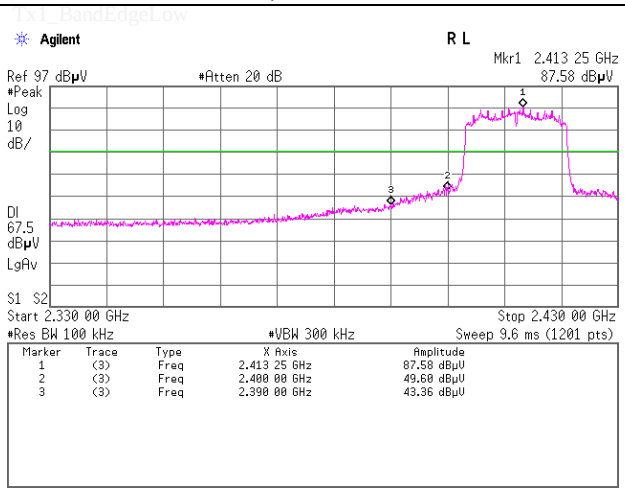
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

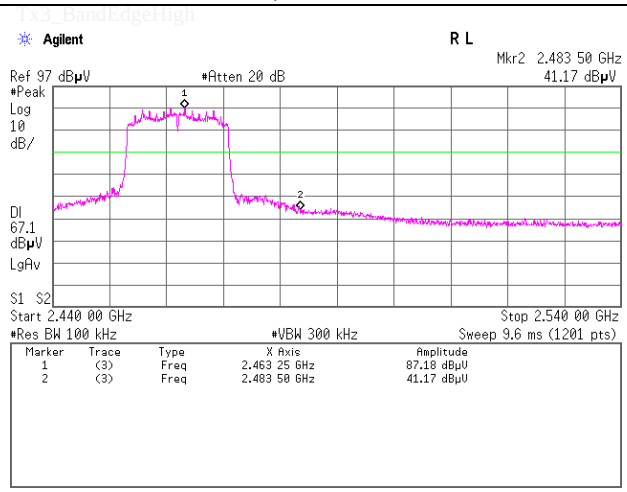
Band Edge compliance

Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 10(MCS)

Tx, 2412MHz



Tx, 2462MHz



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Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

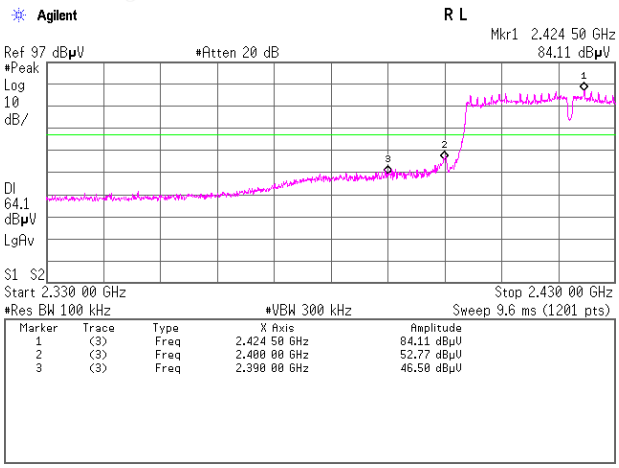
Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

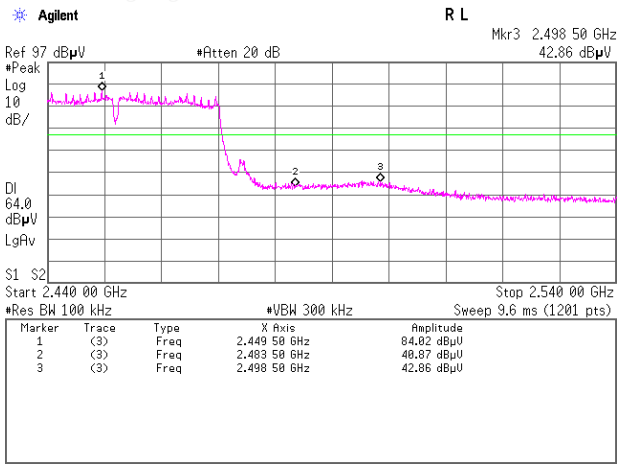
Tx, 2422MHz

Tx1_BandEdgeLow



Tx, 2452MHz

Tx3_BandEdgeHigh



Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

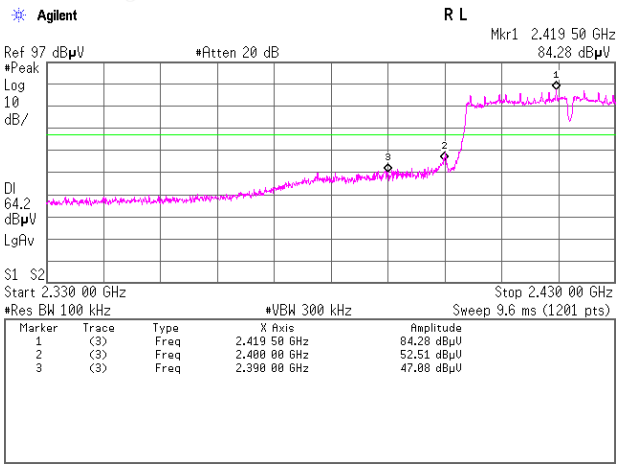
Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)

Tx, 2422MHz

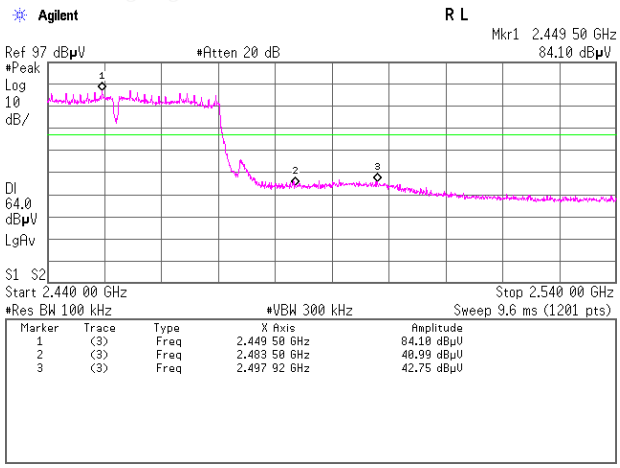
Tx1_BandEdgeLow



Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	2.419 50 GHz	84.28 dBµV
2	(3)	Freq	2.400 00 GHz	52.51 dBµV
3	(3)	Freq	2.390 00 GHz	47.08 dBµV

Tx, 2452MHz

Tx3_BandEdgeHigh



Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	2.449 50 GHz	84.10 dBµV
2	(3)	Freq	2.483 50 GHz	40.99 dBµV
3	(3)	Freq	2.497 92 GHz	42.75 dBµV

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	January 31, 2014	
Temperature / Humidity	26deg.C , 44%RH	
Engineer	Shinichi Takano	

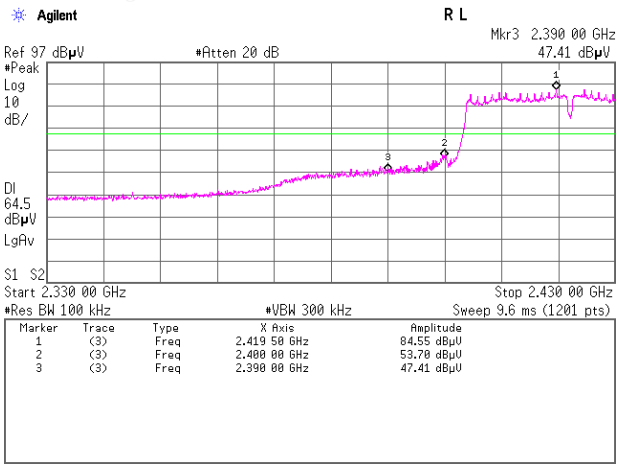
Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT40), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

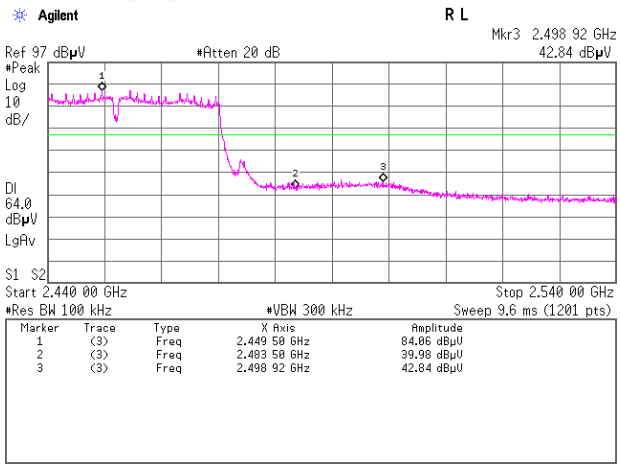
Tx, 2422MHz

Tx1_BandEdgeLow



Tx, 2452MHz

Tx3_BandEdgeHigh



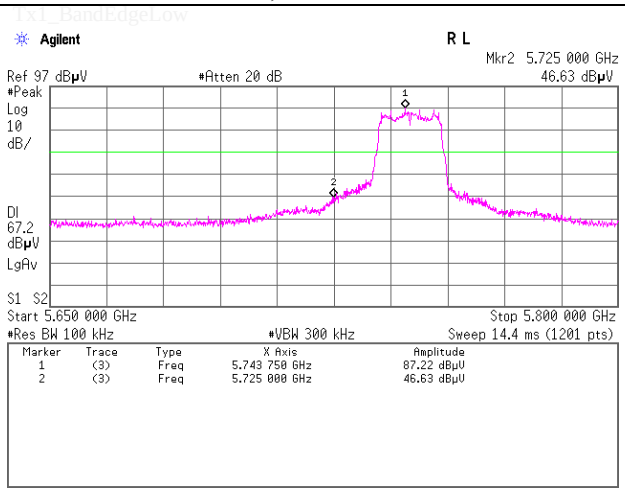
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

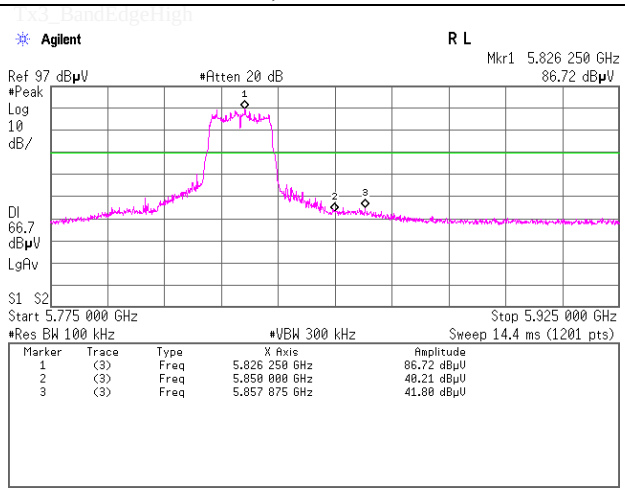
Band Edge compliance

Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 6Mbps

Tx, 5745MHz



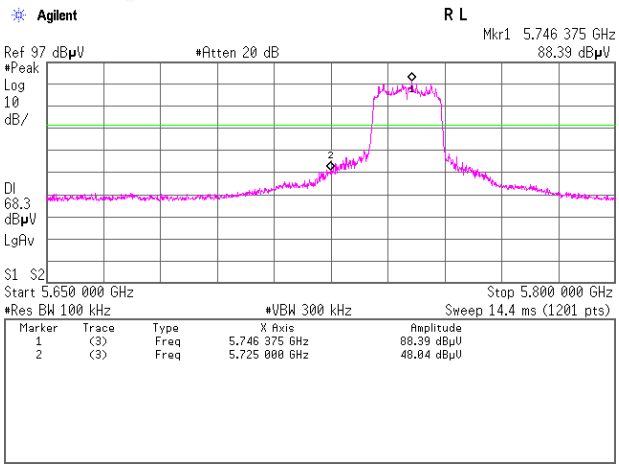
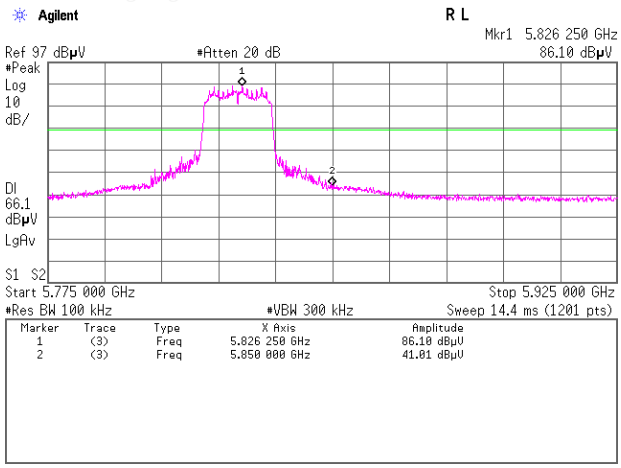
Tx, 5825MHz



Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT20), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)	
Tx, 5745MHz	**Tx, 5825MHz**
Tx1_BandEdgeLow  	Tx3_BandEdgeHigh 

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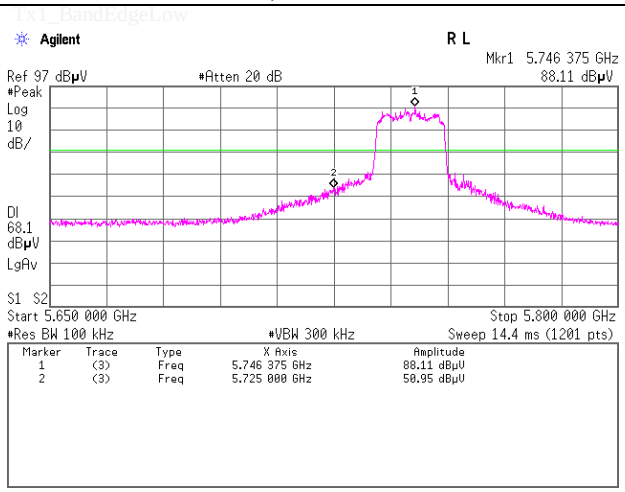
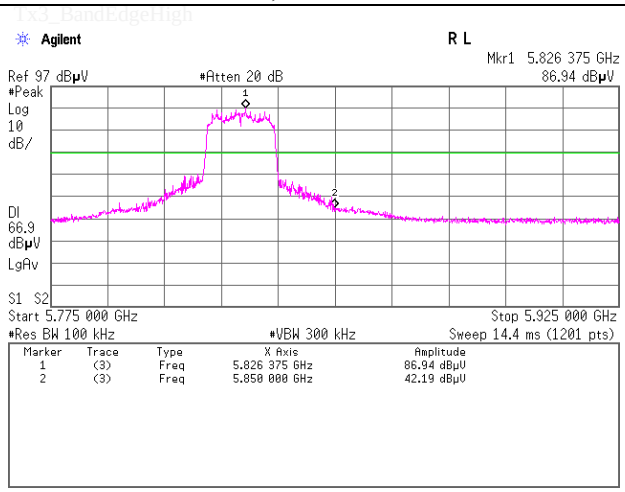
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT20), CDD, PN9, antenna port 0, worst data mode 0(MCS)	
Tx, 5745MHz	**Tx, 5825MHz**
	

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

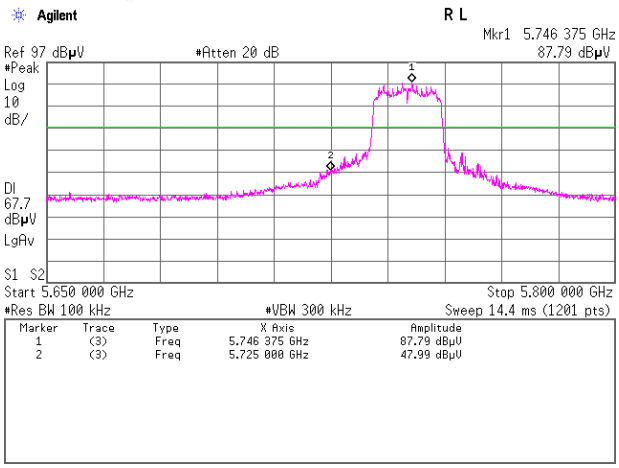
Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT20), MIMO(SDM), PN9, antenna port 0, worst data mode 8(MCS)

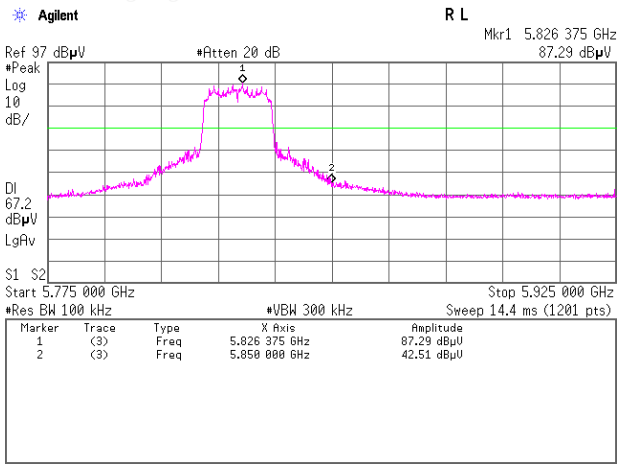
Tx, 5745MHz

Tx1_BandEdgeLow



Tx, 5825MHz

Tx3_BandEdgeHigh



Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

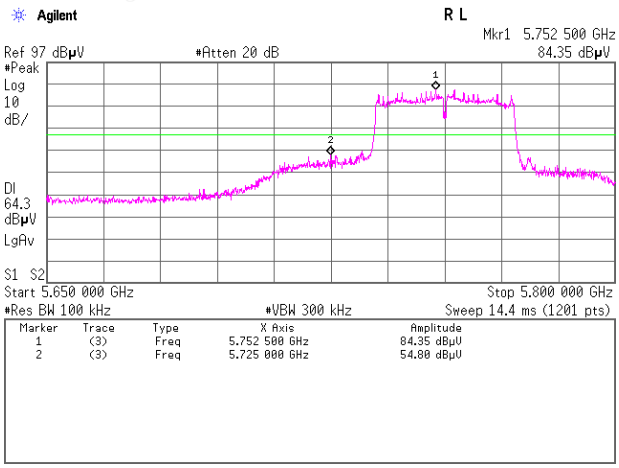
Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT40), SISO, PN9, worst antenna port 0, worst data mode 0(MCS)

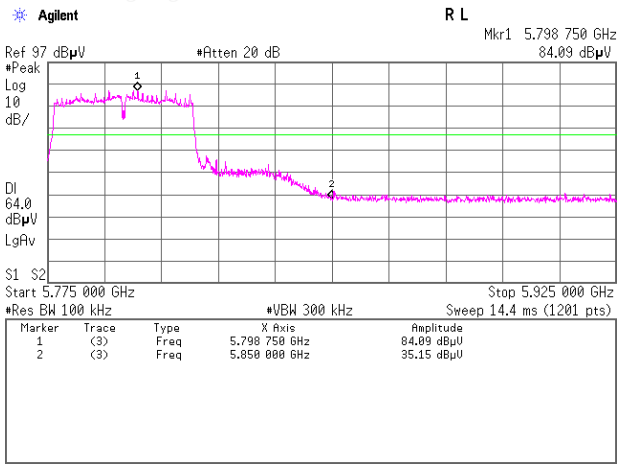
Tx, 5755MHz

Tx1_BandEdgeLow



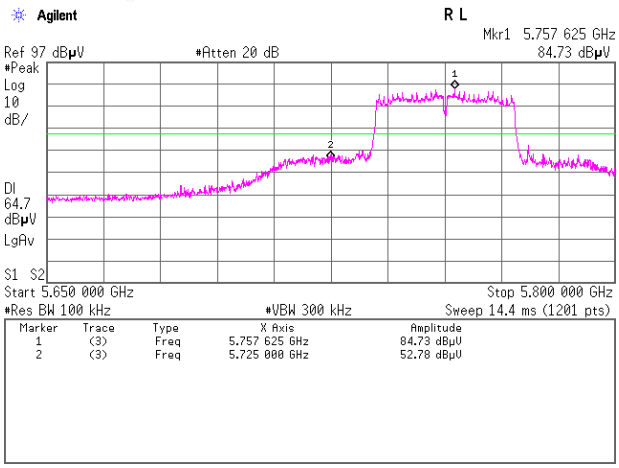
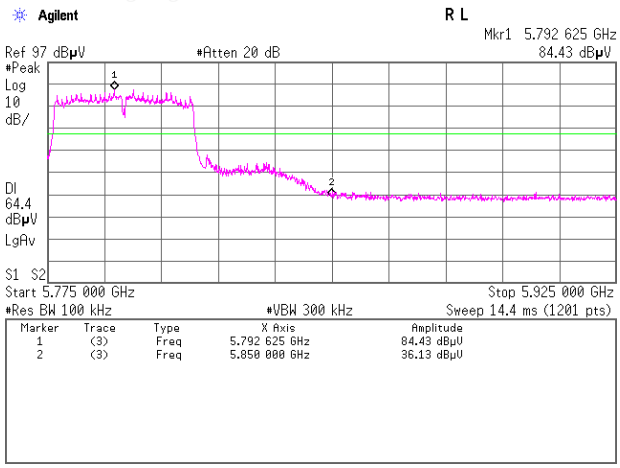
Tx, 5795MHz

Tx3_BandEdgeHigh



Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 12, 2013	
Temperature / Humidity	23deg.C , 38%RH	
Engineer	Shinichi Takano	

Spurious emission (Conducted)

Band Edge compliance

Tx, IEEE802.11n (HT40), CDD, PN9, antenna port 0, worst data mode 0(MCS)	
Tx, 5755MHz	**Tx, 5795MHz**
Tx1_BandEdgeLow	Tx3_BandEdgeHigh