



RADIO TEST REPORT

Test Report No. : 32DE0237-SH-01-A

Applicant : Sony Energy Devices Corporation
Type of Equipment : Energy Storage System
Model No. : IJ1001SNBT
FCC ID : AK8IJ1001SNBT
Test regulation : FCC Part15 Subpart C: 2012
Test result : Complied

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

Date of test: February 9 to March 15, 2012

Representative test engineer:

Shinichi Takano
Engineer of WiSE Japan,
UL Verification Service

Approved by :

Go Ishiwata
Manager of WiSE Japan,
UL Verification Service

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



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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

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13-EM-F0429

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SECTION 1: Customer information

Company Name : Sony Energy Devices Corporation
Brand Name : SONY
Address : 2 Toinokuchi, Motomiya, Motomiya-shi, Fukushima 969-1180 Japan
Telephone Number : +81-243-33-4643
Facsimile Number : +81-243-33-4469
Contact Person : Noriyasu Kikuchi

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

2.1 Identification of E.U.T.

Type of Equipment : Energy Storage System
Model No. : IJ1001SNBT
Serial No. : 0800461001B5F415
Rating : AC output voltage:240V
Operating frequency:60Hz
AC output current: 4.375A
AC output power: 1.05kW
Receipt Date of Sample : February 7, 2012
Country of Mass-production : Japan
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No modification by the test lab.

2.2 Product description

Model: IJ1001SNBT (referred to as the EUT in this report) is an Energy Storage System.

Clock frequency(ies) in the system : 40MHz

Radio specification

Equipment type : Transceiver
Frequency of operation : 2412-2462MHz
Bandwidth & channel spacing : Bandwidth:
20MHz (IEEE 802.11b, 11g, 11n-HT20) / 40MHz (IEEE 802.11n-HT40)
Channel spacing: 5MHz
Type of modulation : DSSS: CCK, DQPSK, DBPSK
OFDM: 64QAM, 16QAM, QPSK, BPSK
Antenna type : Dipole
Antenna connector type : U.FL
Antenna gain with cable loss : -1.0 dBi
ITU code : D1D, G1D
Operation temperature range : 0 to +60 deg.C.

FCC 15.31 (e)

The RF transmitter has its own regulator.

The RF transmitter is constantly provided voltage (DC3.3V) through its own regulator regardless of input voltage.

Therefore, this EUT complies with the requirement.

FCC 15.203

The EUT has an external antenna connector, but it is installed by the professionals. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C: 2012, final revised on February 1, 2012
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.209 Radiated emission limits, general requirements
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz,
and 5725-5850MHz

The EUT has been tested for compliance with FCC Part 15 Subpart B: 2012. Refer to the test report: 32DE0237-SH-01-B.

3.2 Procedures & Results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.4:2009 7. AC powerline conducted emission measurements	FCC 15.207	-	N/A	3.2dB Freq.: 0.15000MHz Detector: Average Phase: L2 Mode: Tx 2412MHz, IEEE 802.11b	Complied
6dB bandwidth	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (a)(2) & 15.209	Conducted	N/A	* See data	Complied
Maximum peak output power	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (b)(3) & 15.209	Conducted	N/A		Complied
Spurious emission & Restricted band edges	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.109, 15.247 (d) & 15.209	Conducted / Radiated	N/A	3.1dB Freq.: 2400.000MHz Detector: Peak Polarization: Horizontal Mode: Tx 2422MHz, IEEE 802.11n-40HT	Complied
Power density	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (e) & 15.209	Conducted	N/A	* See data	Complied

Note: UL Japan's Work Procedures No.13-EM-W0420 and 13-EM-W0422
These tests were also referred to "Guidance on Measurement for Digital Transmission Systems Section15.247".

3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied bandwidth (99%)	ANSI C63.4:2009 13. Measurement of intentional radiators, 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.

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3.4 Uncertainty

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

Item	Frequency range	No.1 SAC ^{*1} /SR ^{*2} (±)	No.2 SAC/SR (±)	No.3 SAC/SR (±)
Conducted emission (AC Mains) AMN/LISN	150kHz-30MHz	3.6 dB	3.6 dB	3.6 dB
Radiated emission (Measurement distance: 3m)	9kHz-30MHz	3.7 dB	3.7 dB	3.6 dB
	30MHz-300MHz	4.9 dB	5.1 dB	5.0 dB
	300MHz-1GHz	5.0 dB	5.2 dB	5.0 dB
	1GHz-15GHz	4.8 dB	4.8 dB	4.9 dB
Radiated emission (Measurement distance: 1m)	15GHz-18GHz	5.6 dB	5.6 dB	5.6 dB
	18GHz-40GHz	4.8 dB	4.3 dB	4.4 dB

*1: SAC=Semi-Anechoic Chamber

*2: SR= Shielded Room is applied besides radiated emission

Conducted emission test

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

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: (±) 1.7dB

Spurious emission (Conducted) measurement (1G-3GHz) uncertainty for this test was: (±) 2.3dB

Spurious emission (Conducted) measurement (3G-18GHz) uncertainty for this test was: (±) 3.0dB

Spurious emission (Conducted) measurement (18G-26.5GHz) uncertainty for this test was: (±) 2.9dB

Bandwidth measurement uncertainty for this test was: (±) 5.4%

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3.5 Test location

UL Japan, Inc. Shonan EMC Lab.

1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN

Telephone number : +81 463 50 6400

Facsimile number : +81 463 50 6401

JAB Accreditation No. : RTL02610

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

3.6 Test setup, Data of test & Test instruments

Refer to APPENDIX 1 to 3.

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

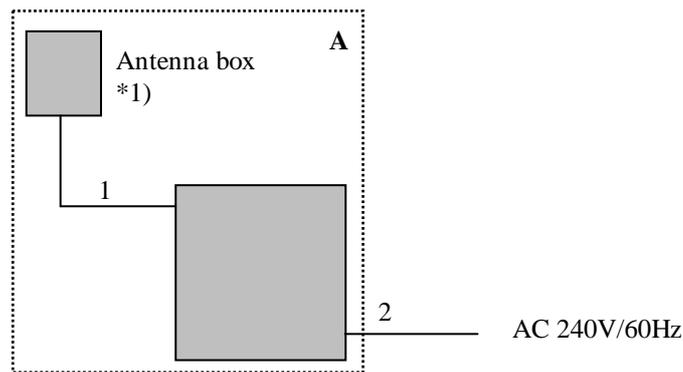
4.1 Operating mode

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

Test item	Mode	Tested frequency	Power setting *1)	Worst data rate *2)
All items	Transmitting IEEE 802.11b	2412MHz, 2437MHz, 2462MHz	16dBm	11Mbps, PN9
	Transmitting IEEE 802.11g			18Mbps, PN9
	Transmitting IEEE 802.11n -20HT	2422MHz, 2437MHz, 2452MHz		6.5MCS0, PN9
	Transmitting IEEE 802.11g-40HT			13.5MCS0, PN9
*1) Average power was set by the software: art.exe, Revision 0.9 BUILD#34 ART_11n				
*2) The worst condition was determined based on the test result of Maximum Peak Output Power (Low Channel)				

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	Energy Storage System	IJ1001SNBT	0800461001B5F415	SONY	EUT

List of cables used

No.	Cable Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Antenna	0.8	Unshielded	Unshielded	-
2	AC Power	2.2	Unshielded	Unshielded	-

*1) The equipment is used with the fixed direction of antenna.

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1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Facsimile : +81 463 50 6401

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 wooden platform of nominal size, 0.7m by 1.0m, raised 0.8m above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from LISN and excess AC cable was bundled in center. 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).

An overview sweep with peak detection has been performed.

The measurements had been performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver.

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

5.5 Results

Summary of the test results : Pass
Refer to APPENDIX 1

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

Test procedure

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

Summary of the test results: Pass
Refer to APPENDIX 1

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SECTION 7: Maximum peak output power

Test procedure

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

Summary of the test results: Pass
Refer to APPENDIX 1

SECTION 8: Spurious emission (Antenna port conducted)

Test procedure

The spurious emission was measured with a spectrum analyzer connected to the antenna port.

In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.

Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.
(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=10kHz)

Summary of the test results: Pass
Refer to APPENDIX 1

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SECTION 9: Radiated emission

9.1 Operating environment

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

9.2 Test configuration

EUT was placed on a wooden platform of nominal size, 0.7m by 1.0m, raised 0.8m above the conducting ground plane. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Photographs of the set up are shown in APPENDIX 3.

9.3 Test conditions

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

9.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3m (below 15GHz) / 1m (above 15GHz). Measurements were performed with quasi-peak, peak and average detector. The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization.

The radiated emission measurements were made with the following detection of the test receiver and spectrum analyzer.

Frequency	30-1000MHz	1-25GHz		20dBc
Detection type	Quasi-Peak	Peak	* Average	Peak
IF Bandwidth	120kHz	RBW: 1MHz VBW: 3MHz	RBW: 1MHz VBW: 10Hz	RBW: 100kHz VBW: 300kHz

* When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.
The duty rate of carrier was 100%.

The EUT was tested in the direction normally used.

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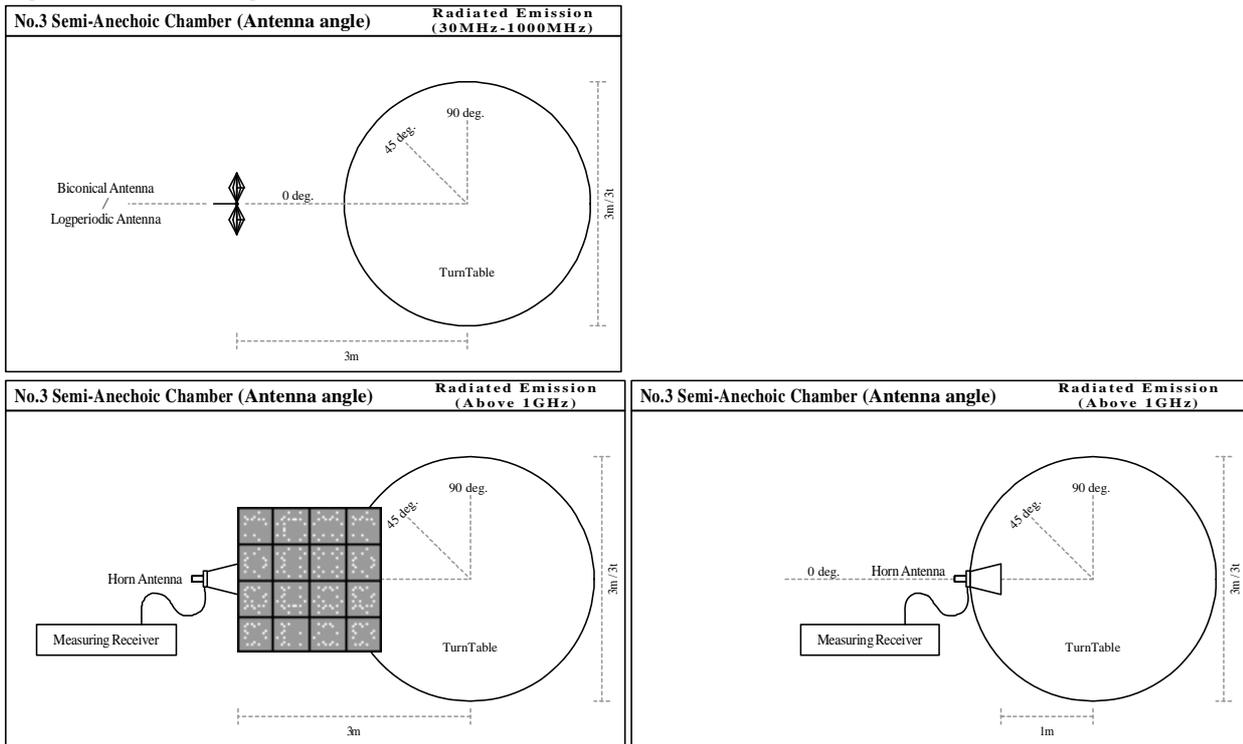
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Figure 1. Antenna angle



9.5 Band edge

Band edge level at 2400MHz is less than 20dB of peak point of the carrier. Band edge level at 2390MHz and 2483.5MHz is below the limits of FCC 15.209. Refer to the data.

9.6 Results

Summary of the test results : Pass *No noise was detected above the 6th order harmonics.
Refer to APPENDIX 1

SECTION 10: Peak Power density

Test procedure

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

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

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

Summary of the test results: Pass
Refer to APPENDIX 1

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Contents of APPENDIXES

APPENDIX 1: Test data

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

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Conducted emission
Radiated emission

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DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

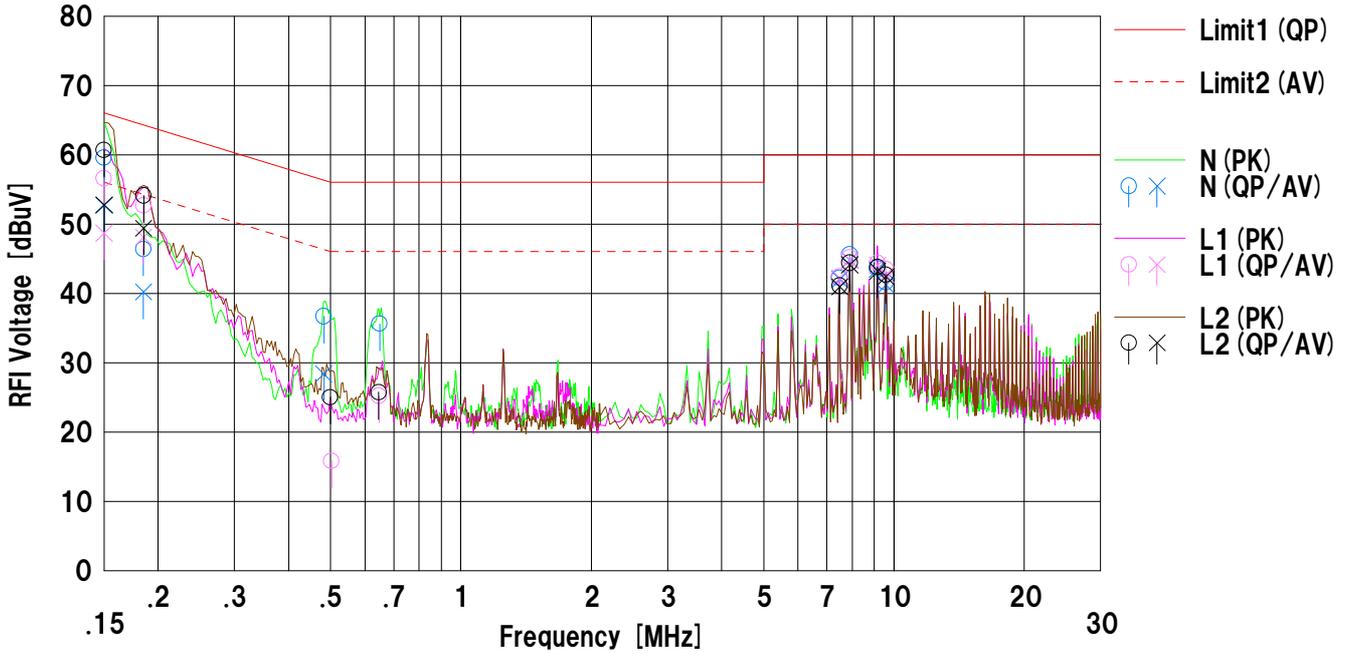
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : LJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11b 2412MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	46.0	39.1	13.6	59.6	52.7	66.0	56.0	6.4	3.3	N	
2	0.18488	32.8	26.6	13.6	46.4	40.2	64.2	54.2	17.8	14.0	N	
3	0.48267	23.3	15.0	13.4	36.7	28.4	56.2	46.2	19.5	17.8	N	
4	0.64921	22.2	---	13.4	35.6	---	56.0	46.0	20.4	---	N	
5	7.48573	28.6	28.4	13.6	42.2	42.0	60.0	50.0	17.8	8.0	N	
6	7.90127	32.0	31.2	13.6	45.6	44.8	60.0	50.0	14.4	5.2	N	
7	9.14931	29.9	29.7	13.7	43.6	43.4	60.0	50.0	16.4	6.6	N	
8	9.56505	27.9	27.5	13.7	41.6	41.2	60.0	50.0	18.4	8.8	N	
9	0.15000	43.0	35.1	13.6	56.6	48.7	66.0	56.0	9.4	7.3	L1	
10	0.18500	39.1	34.5	13.6	52.7	48.1	64.2	54.2	11.5	6.1	L1	
11	0.50249	2.4	---	13.4	15.8	---	56.0	46.0	40.2	---	L1	
12	0.64670	11.8	---	13.4	25.2	---	56.0	46.0	30.8	---	L1	
13	7.48654	28.8	28.6	13.6	42.4	42.2	60.0	50.0	17.6	7.8	L1	
14	7.90288	31.6	31.2	13.6	45.2	44.8	60.0	50.0	14.8	5.2	L1	
15	9.15131	30.7	30.3	13.7	44.4	44.0	60.0	50.0	15.6	6.0	L1	
16	9.56705	29.8	29.0	13.7	43.5	42.7	60.0	50.0	16.5	7.3	L1	
17	0.15000	47.1	39.2	13.6	60.7	52.8	66.0	56.0	5.3	3.2	L2	
18	0.18515	40.5	35.8	13.6	54.1	49.4	64.2	54.2	10.1	4.8	L2	
19	0.49973	11.6	---	13.4	25.0	---	56.0	46.0	31.0	---	L2	
20	0.64650	12.3	---	13.4	25.7	---	56.0	46.0	30.3	---	L2	
21	7.49014	27.5	27.3	13.6	41.1	40.9	60.0	50.0	18.9	9.1	L2	
22	7.90568	30.8	30.5	13.6	44.4	44.1	60.0	50.0	15.6	5.9	L2	
23	9.15412	30.1	29.5	13.7	43.8	43.2	60.0	50.0	16.2	6.8	L2	
24	9.56886	29.0	28.7	13.7	42.7	42.4	60.0	50.0	17.3	7.6	L2	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

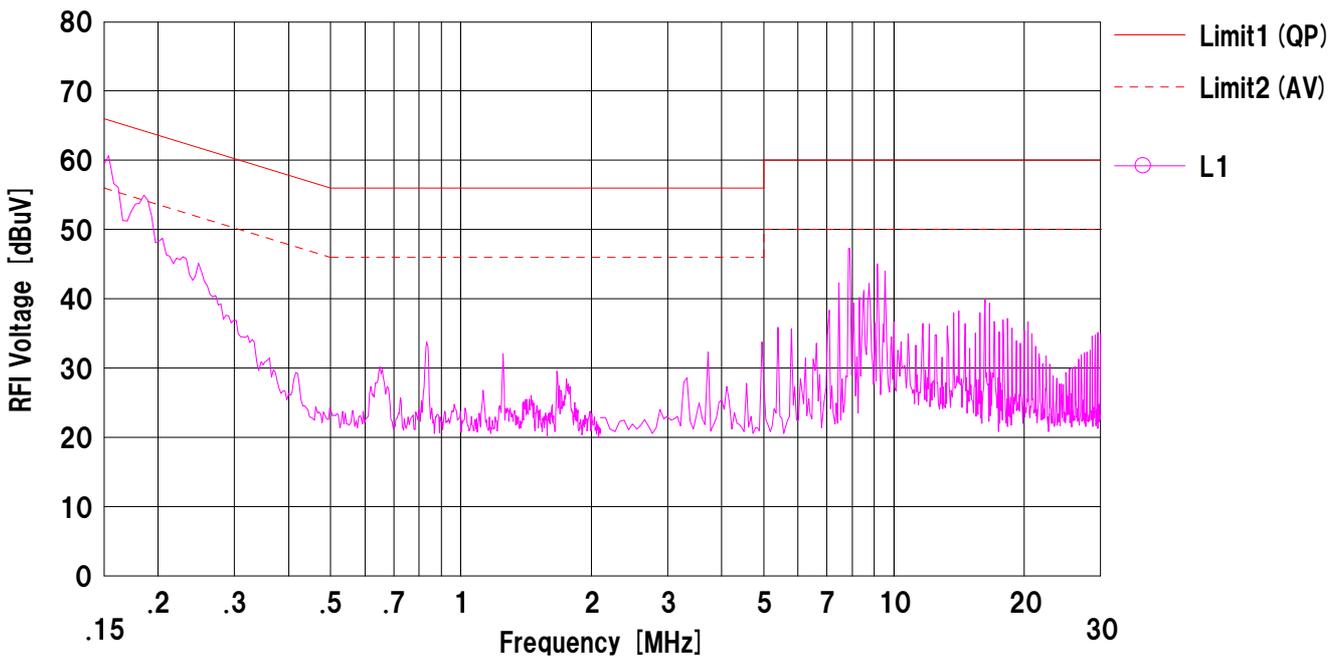
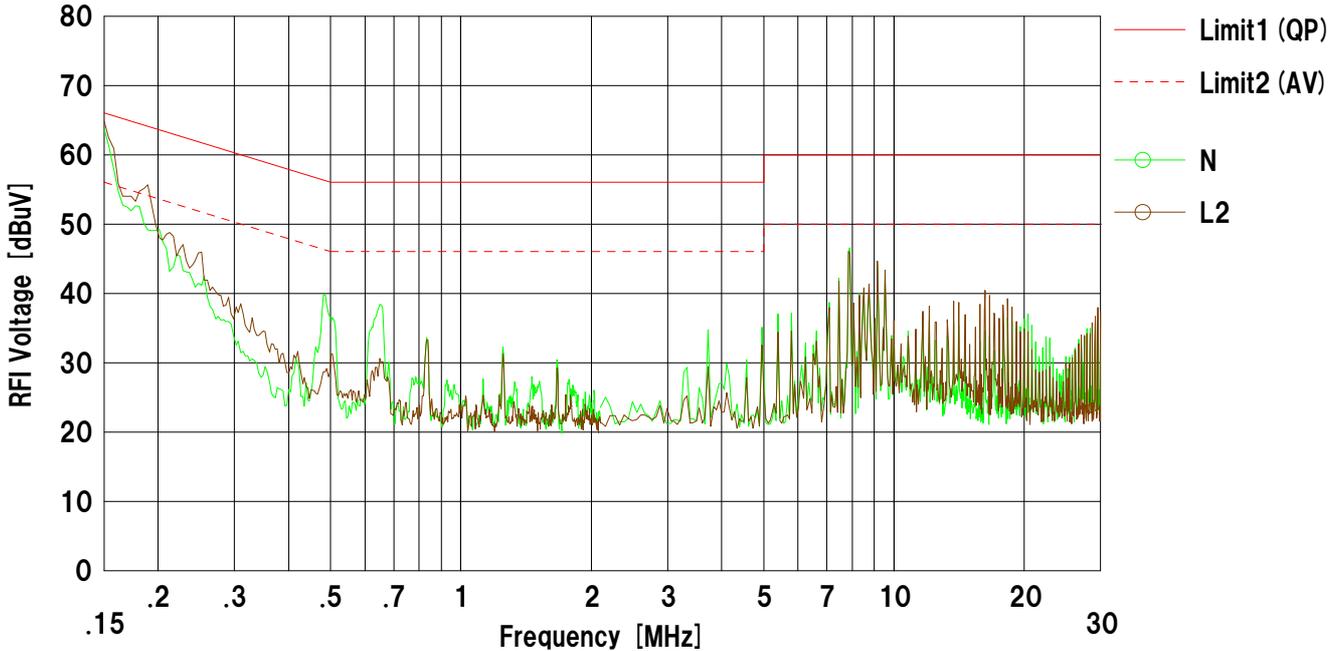
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : IJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11b 2437MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

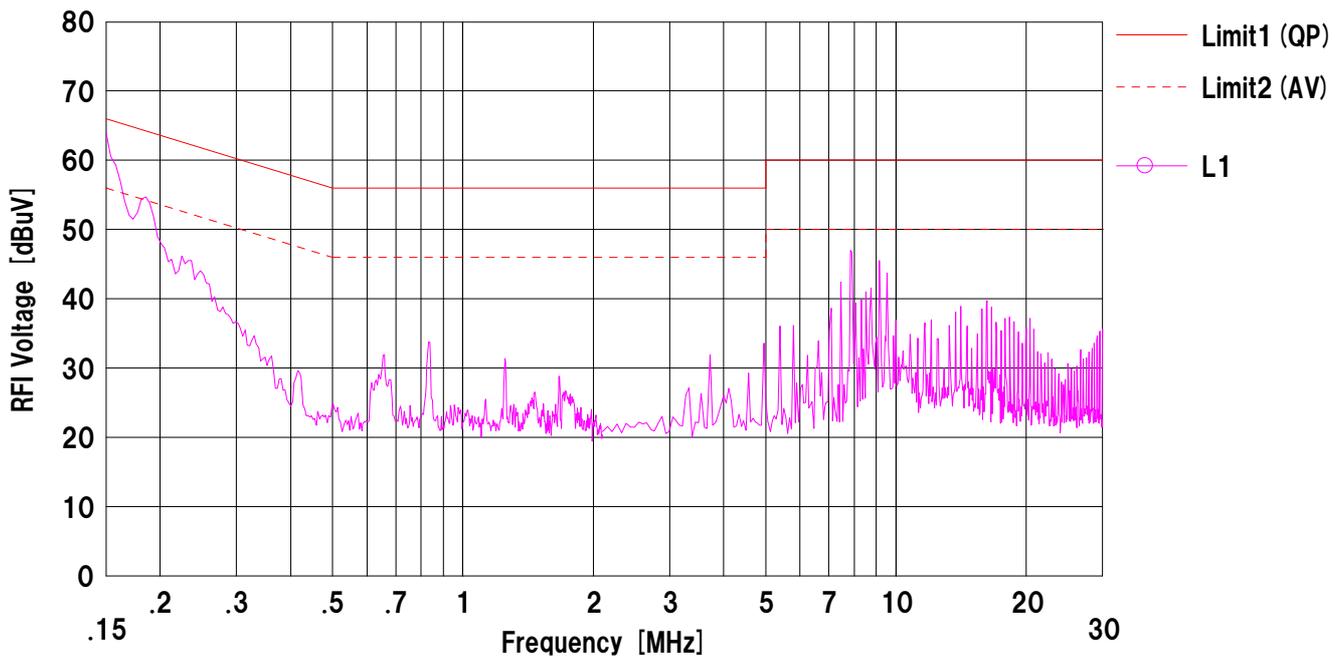
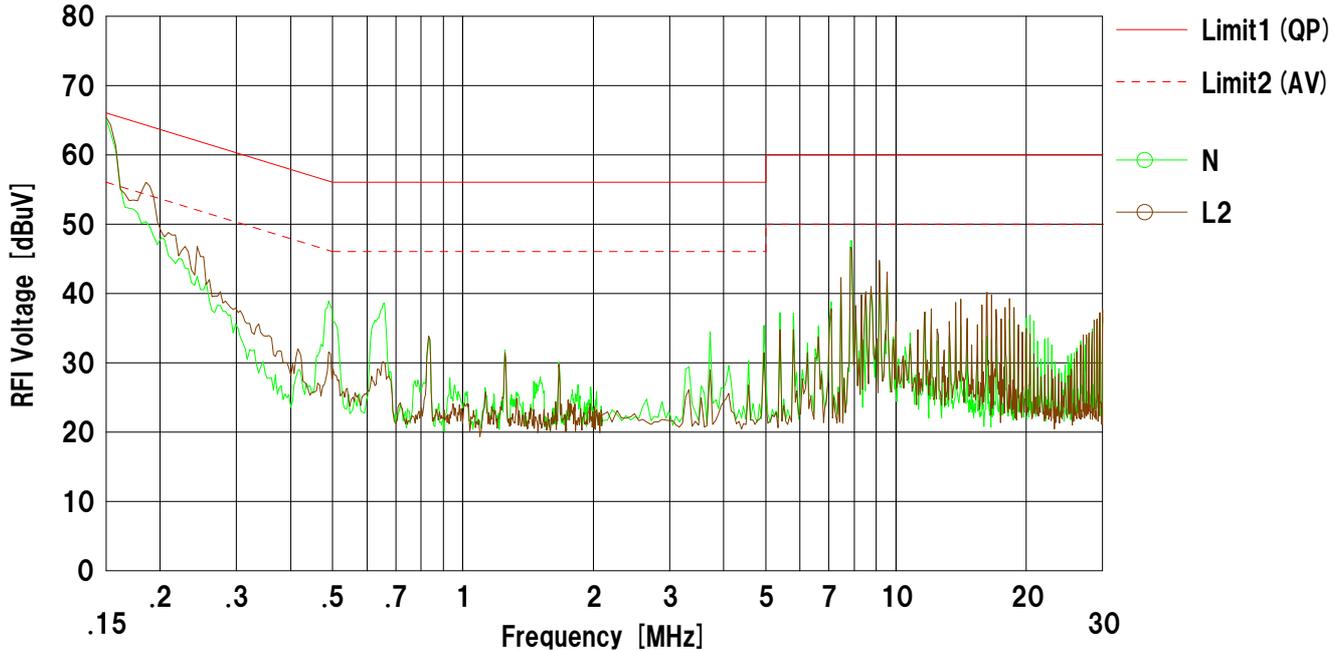
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Mode : Tx 11b 2462MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

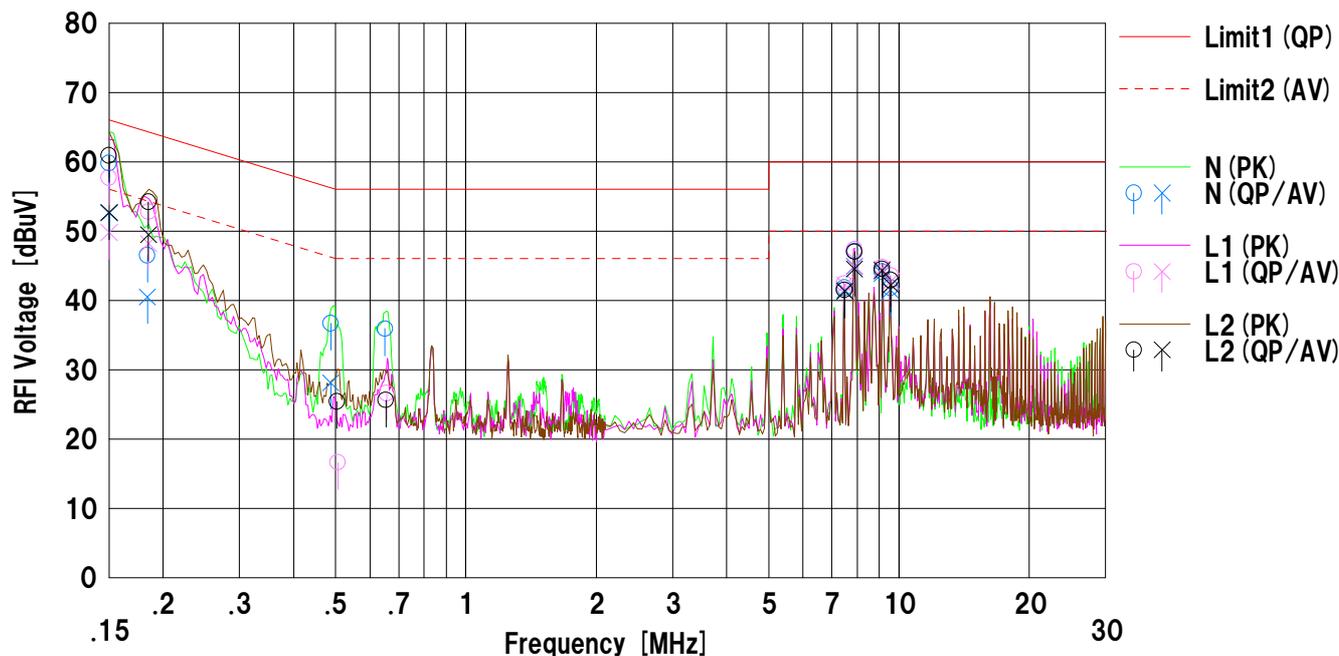
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : LJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11g 2412MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	46.2	39.0	13.6	59.8	52.6	66.0	56.0	6.2	3.4	N	
2	0.18385	32.9	26.9	13.6	46.5	40.5	64.3	54.3	17.8	13.8	N	
3	0.48788	23.3	14.7	13.4	36.7	28.1	56.2	46.2	19.5	18.1	N	
4	0.65069	22.5	---	13.4	35.9	---	56.0	46.0	20.1	---	N	
5	7.48534	28.2	27.9	13.6	41.8	41.5	60.0	50.0	18.2	8.5	N	
6	7.90050	33.5	31.3	13.6	47.1	44.9	60.0	50.0	12.9	5.1	N	
7	9.14771	30.4	30.2	13.7	44.1	43.9	60.0	50.0	15.9	6.1	N	
8	9.56315	28.1	27.8	13.7	41.8	41.5	60.0	50.0	18.2	8.5	N	
9	0.15000	44.1	36.2	13.6	57.7	49.8	66.0	56.0	8.3	6.2	L1	
10	0.18502	39.2	34.6	13.6	52.8	48.2	64.2	54.2	11.4	6.0	L1	
11	0.50632	3.2	---	13.4	16.6	---	56.0	46.0	39.4	---	L1	
12	0.65670	13.2	---	13.4	26.6	---	56.0	46.0	29.4	---	L1	
13	7.48473	28.8	28.6	13.6	42.4	42.2	60.0	50.0	17.6	7.8	L1	
14	7.90090	33.8	31.4	13.6	47.4	45.0	60.0	50.0	12.6	5.0	L1	
15	9.14931	31.1	30.8	13.7	44.8	44.5	60.0	50.0	15.2	5.5	L1	
16	9.56496	29.9	29.1	13.7	43.6	42.8	60.0	50.0	16.4	7.2	L1	
17	0.15000	47.3	39.1	13.6	60.9	52.7	66.0	56.0	5.1	3.3	L2	
18	0.18495	40.6	35.9	13.6	54.2	49.5	64.2	54.2	10.0	4.7	L2	
19	0.50351	12.0	---	13.4	25.4	---	56.0	46.0	30.6	---	L2	
20	0.65390	12.2	---	13.4	25.6	---	56.0	46.0	30.4	---	L2	
21	7.48554	27.9	27.7	13.6	41.5	41.3	60.0	50.0	18.5	8.7	L2	
22	7.90070	33.4	30.9	13.6	47.0	44.5	60.0	50.0	13.0	5.5	L2	
23	9.14911	30.8	30.6	13.7	44.5	44.3	60.0	50.0	15.5	5.7	L2	
24	9.56496	29.2	28.5	13.7	42.9	42.2	60.0	50.0	17.1	7.8	L2	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

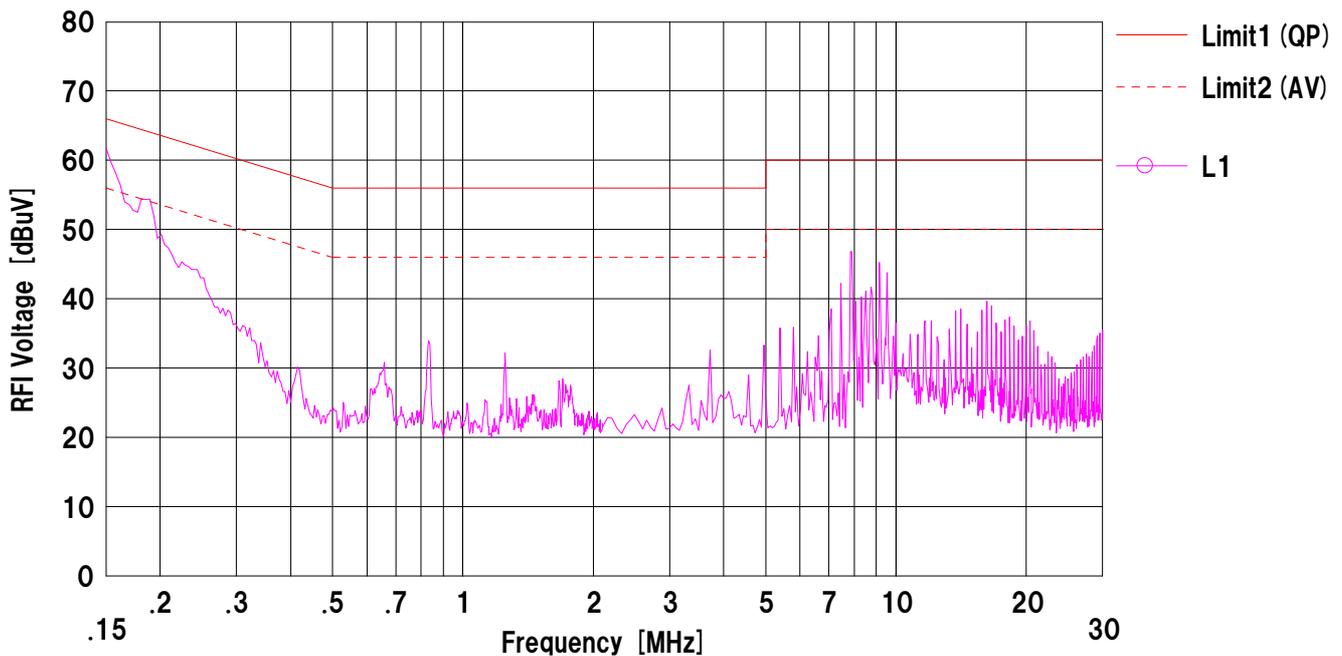
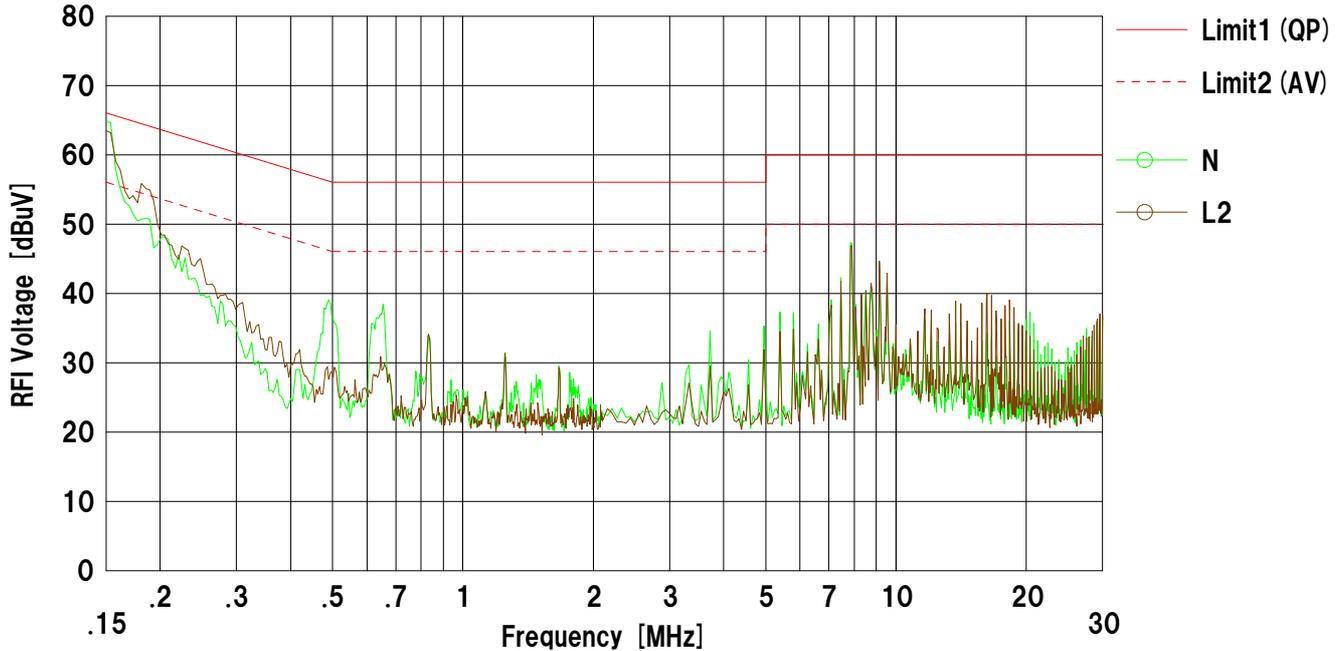
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : IJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11g 2437MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

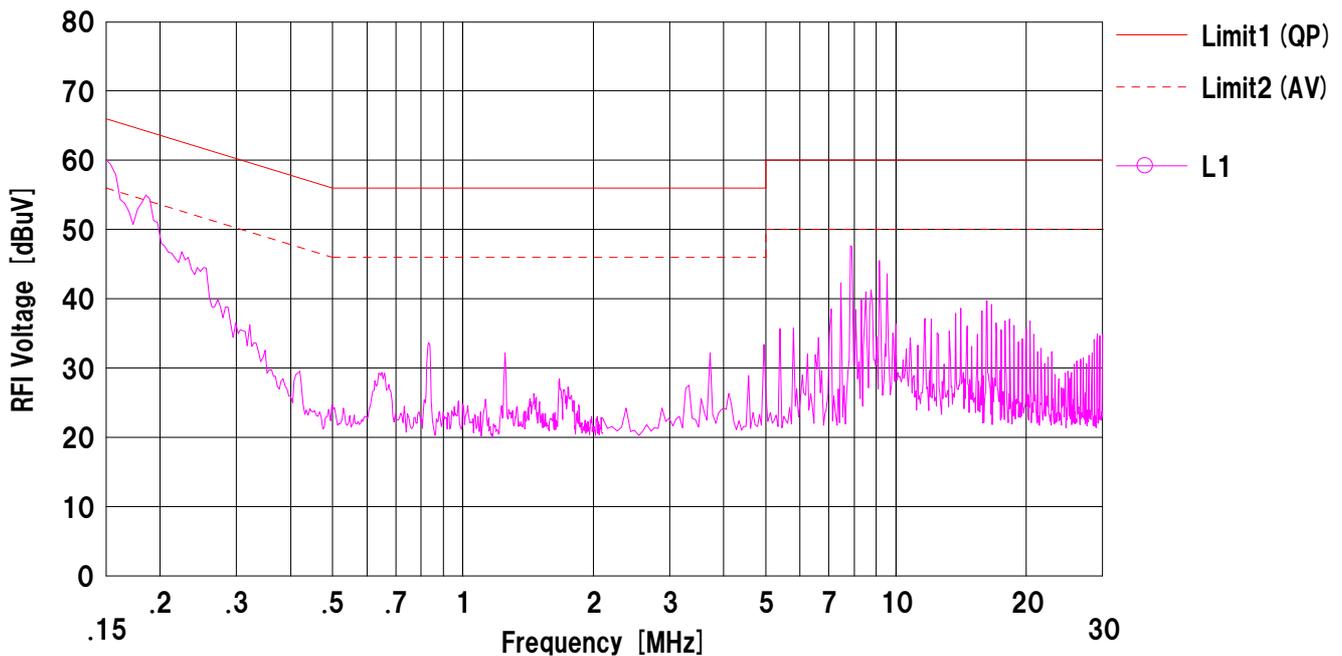
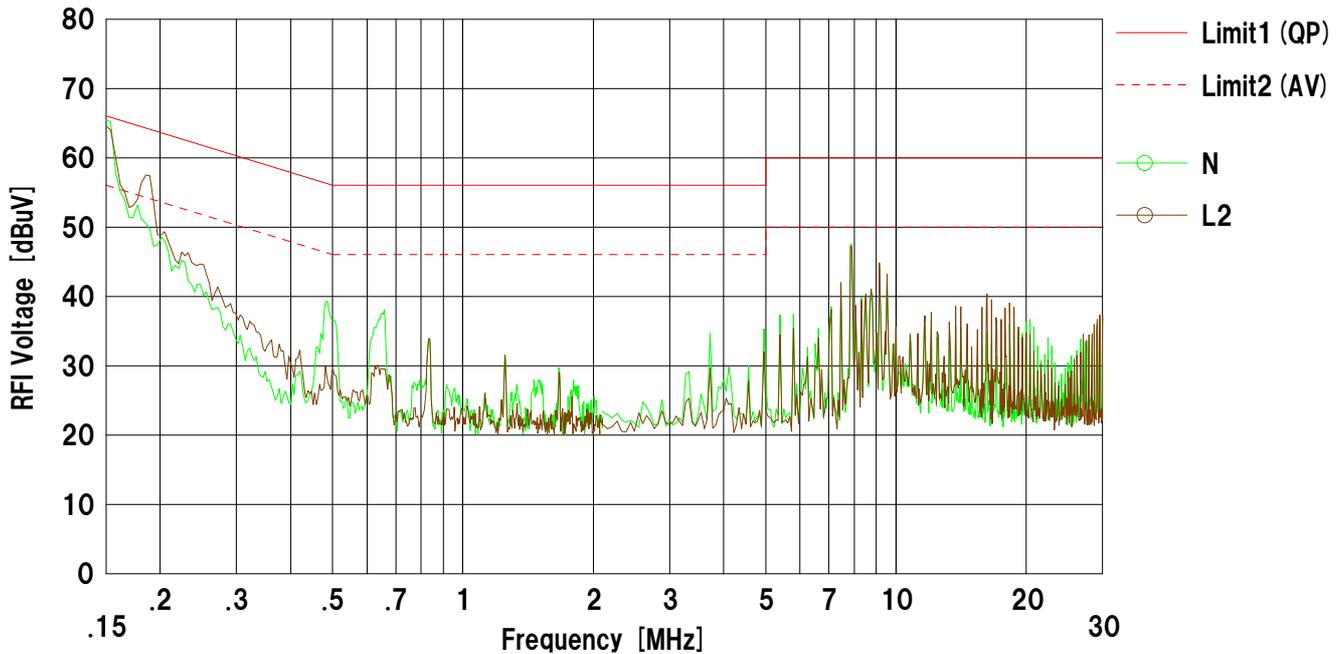
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : IJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11g 2462MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

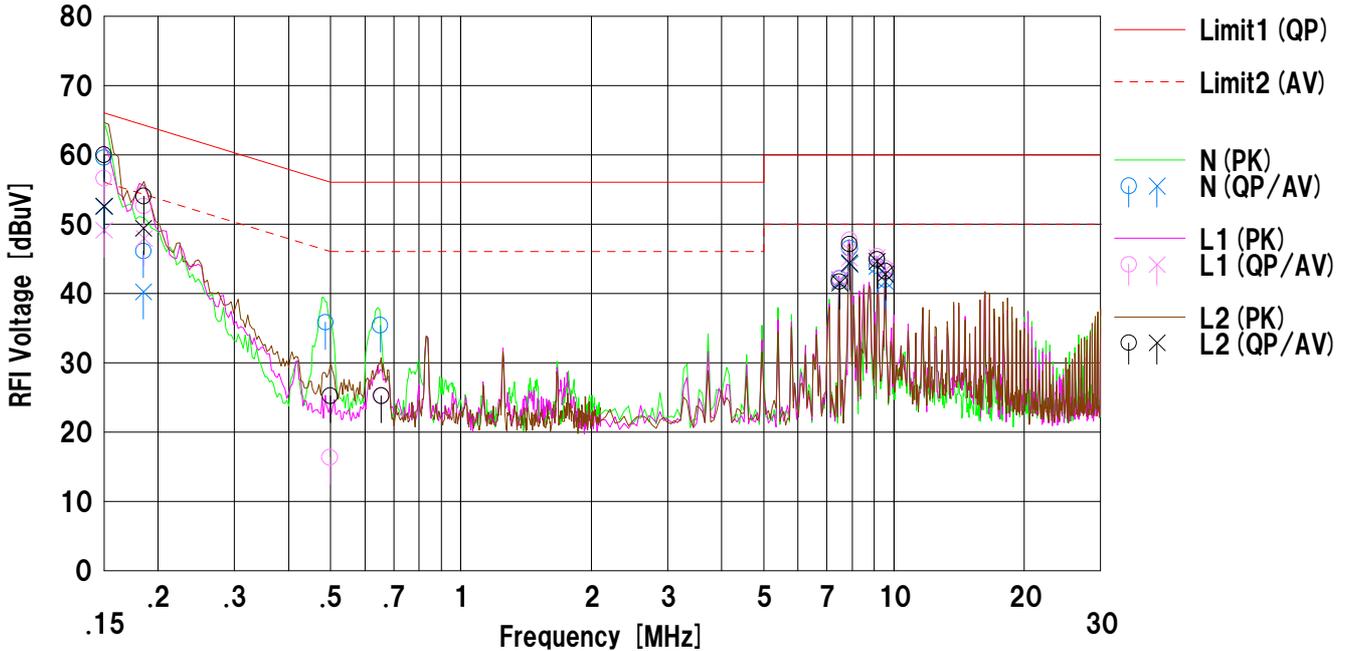
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : LJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11n-20HT 2412MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	46.0	38.9	13.6	59.6	52.5	66.0	56.0	6.4	3.5	N	
2	0.18500	32.5	26.6	13.6	46.1	40.2	64.2	54.2	18.1	14.0	N	
3	0.48652	22.4	---	13.4	35.8	---	56.2	46.2	20.4	---	N	
4	0.65091	22.0	---	13.4	35.4	---	56.0	46.0	20.6	---	N	
5	7.48493	28.5	28.2	13.6	42.1	41.8	60.0	50.0	17.9	8.2	N	
6	7.90132	32.9	30.6	13.6	46.5	44.2	60.0	50.0	13.5	5.8	N	
7	9.14811	30.3	30.2	13.7	44.0	43.9	60.0	50.0	16.0	6.1	N	
8	9.56376	28.3	28.0	13.7	42.0	41.7	60.0	50.0	18.0	8.3	N	
9	0.15000	43.0	35.5	13.6	56.6	49.1	66.0	56.0	9.4	6.9	L1	
10	0.18540	39.0	34.3	13.6	52.6	47.9	64.2	54.2	11.6	6.3	L1	
11	0.49834	2.9	---	13.4	16.3	---	56.0	46.0	39.7	---	L1	
12	0.65412	11.8	---	13.4	25.2	---	56.0	46.0	30.8	---	L1	
13	7.48493	28.6	28.4	13.6	42.2	42.0	60.0	50.0	17.8	8.0	L1	
14	7.89992	34.1	31.5	13.6	47.7	45.1	60.0	50.0	12.3	4.9	L1	
15	9.14751	31.6	31.4	13.7	45.3	45.1	60.0	50.0	14.7	4.9	L1	
16	9.56396	29.9	29.6	13.7	43.6	43.3	60.0	50.0	16.4	6.7	L1	
17	0.15000	46.4	39.0	13.6	60.0	52.6	66.0	56.0	6.0	3.4	L2	
18	0.18513	40.4	35.8	13.6	54.0	49.4	64.2	54.2	10.2	4.8	L2	
19	0.49954	11.8	---	13.4	25.2	---	56.0	46.0	30.8	---	L2	
20	0.65512	11.8	---	13.4	25.2	---	56.0	46.0	30.8	---	L2	
21	7.48433	28.1	27.9	13.6	41.7	41.5	60.0	50.0	18.3	8.5	L2	
22	7.90032	33.5	30.8	13.6	47.1	44.4	60.0	50.0	12.9	5.6	L2	
23	9.14731	31.2	30.9	13.7	44.9	44.6	60.0	50.0	15.1	5.4	L2	
24	9.56356	29.5	29.1	13.7	43.2	42.8	60.0	50.0	16.8	7.2	L2	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

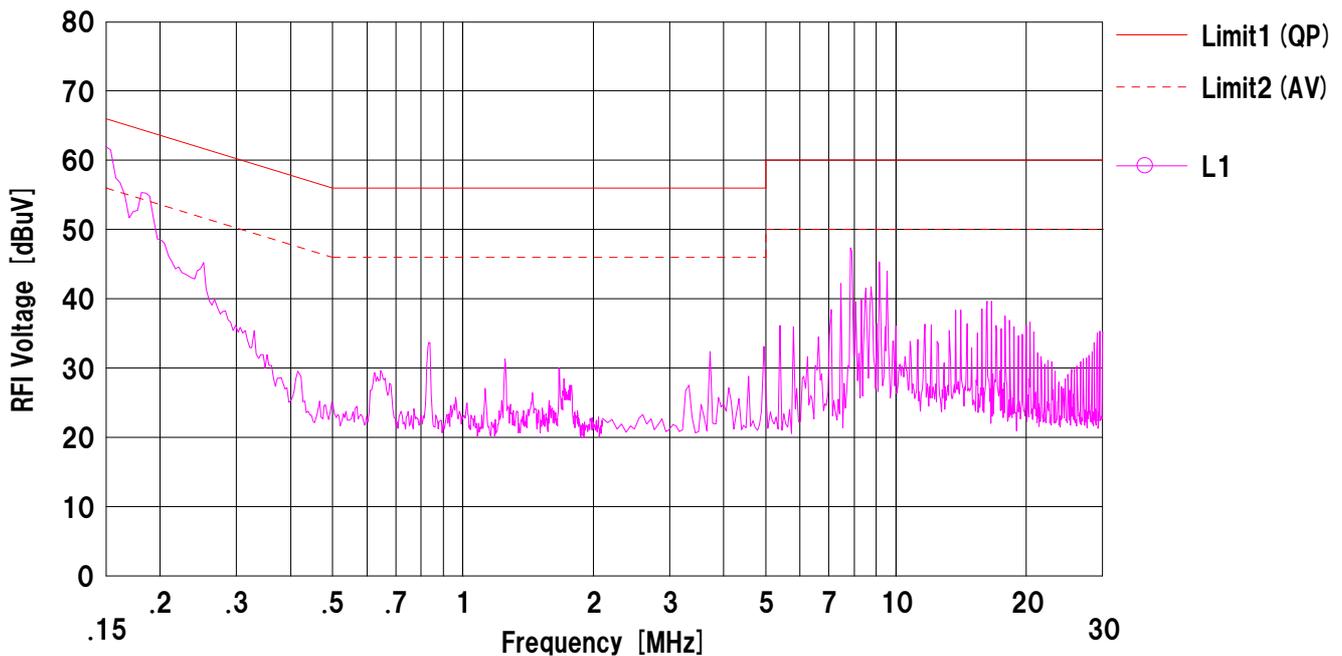
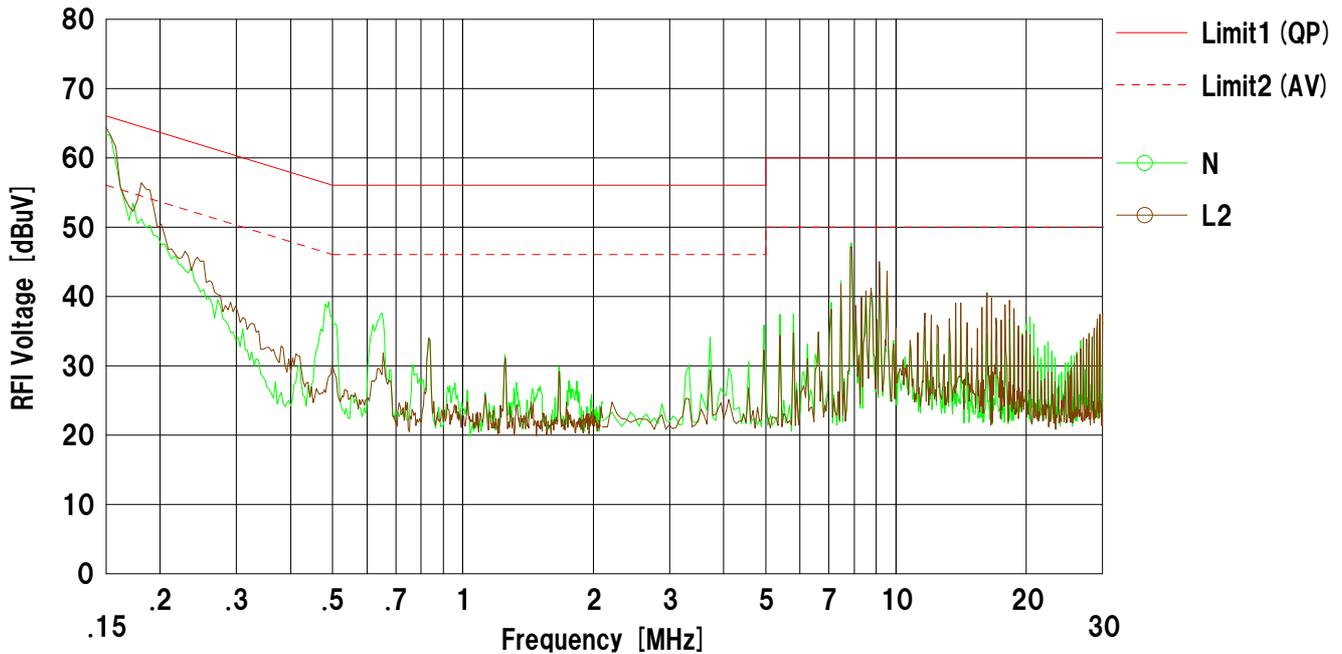
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : IJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11n-20HT 2437MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

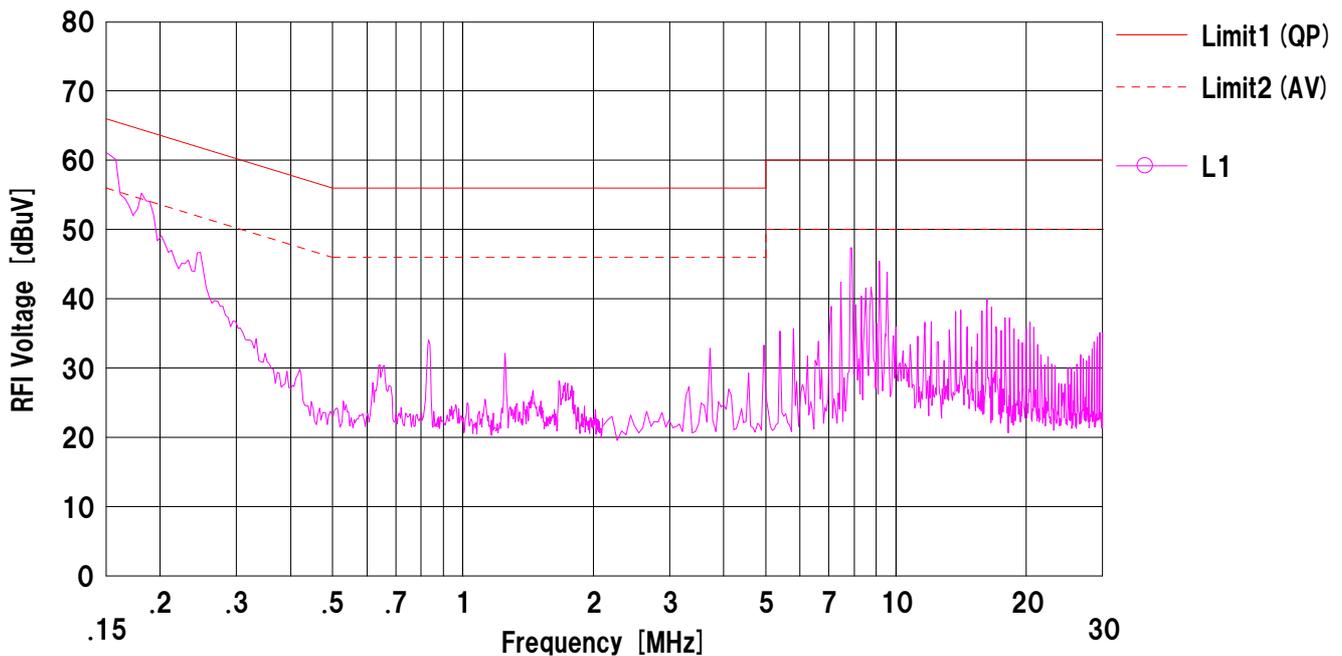
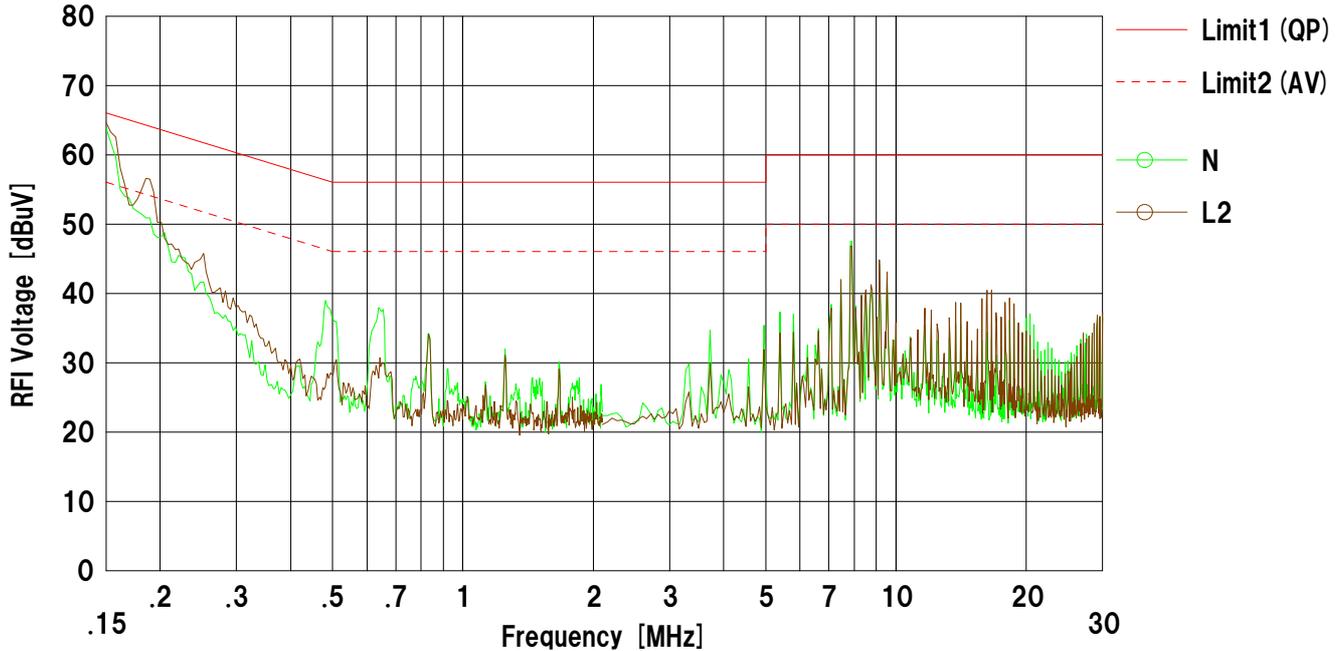
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : IJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11n-20HT 2462MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/14

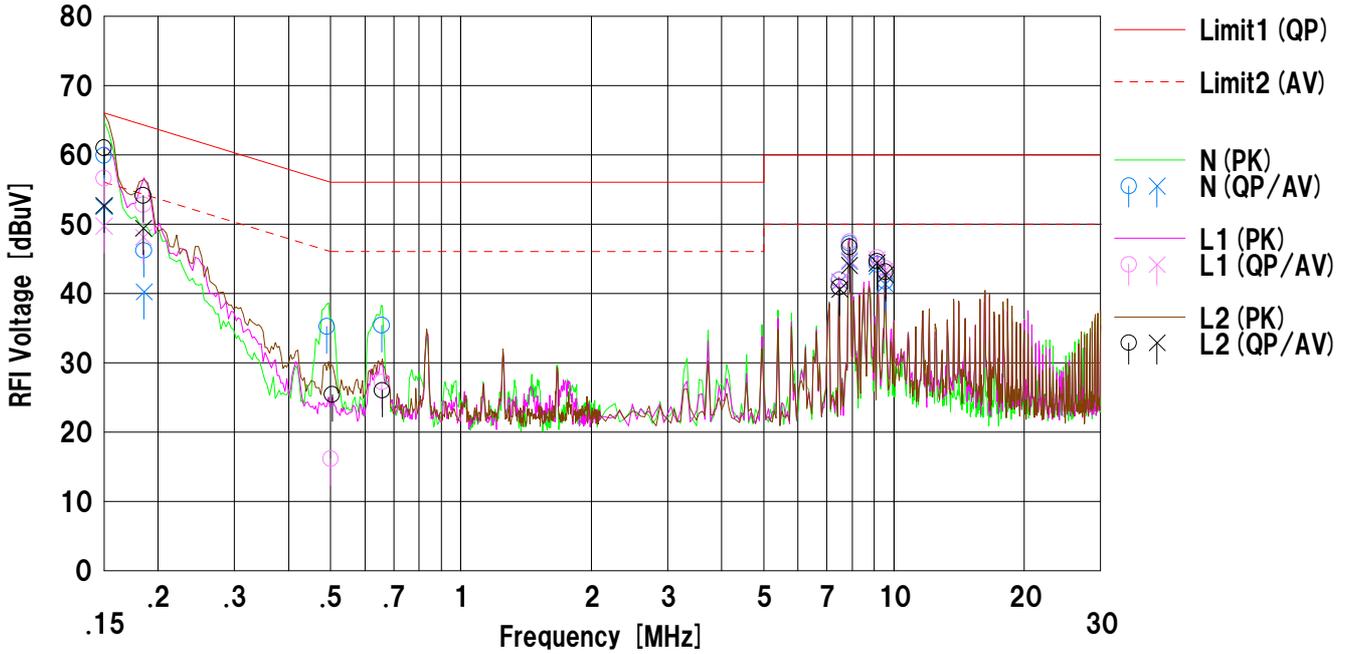
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : LJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11n-40HT 2422MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	46.3	38.9	13.6	59.9	52.5	66.0	56.0	6.1	3.5	N	
2	0.18542	32.6	26.6	13.6	46.2	40.2	64.2	54.2	18.0	14.0	N	
3	0.49050	21.8	---	13.4	35.2	---	56.1	46.1	20.9	---	N	
4	0.65670	22.0	---	13.4	35.4	---	56.0	46.0	20.6	---	N	
5	7.48433	28.3	28.1	13.6	41.9	41.7	60.0	50.0	18.1	8.3	N	
6	7.89950	33.6	31.0	13.6	47.2	44.6	60.0	50.0	12.8	5.4	N	
7	9.14670	30.5	30.2	13.7	44.2	43.9	60.0	50.0	15.8	6.1	N	
8	9.56375	28.0	27.6	13.7	41.7	41.3	60.0	50.0	18.3	8.7	N	
9	0.15000	43.0	36.1	13.6	56.6	49.7	66.0	56.0	9.4	6.3	L1	
10	0.18472	39.2	34.5	13.6	52.8	48.1	64.2	54.2	11.4	6.1	L1	
11	0.50011	2.7	---	13.4	16.1	---	56.0	46.0	39.9	---	L1	
12	0.65751	13.8	---	13.4	27.2	---	56.0	46.0	28.8	---	L1	
13	7.48493	28.3	28.0	13.6	41.9	41.6	60.0	50.0	18.1	8.4	L1	
14	7.89970	33.9	31.2	13.6	47.5	44.8	60.0	50.0	12.5	5.2	L1	
15	9.14751	31.5	31.2	13.7	45.2	44.9	60.0	50.0	14.8	5.1	L1	
16	9.56335	29.9	29.6	13.7	43.6	43.3	60.0	50.0	16.4	6.7	L1	
17	0.15000	47.4	39.1	13.6	61.0	52.7	66.0	56.0	5.0	3.3	L2	
18	0.18485	40.5	35.8	13.6	54.1	49.4	64.2	54.2	10.1	4.8	L2	
19	0.50472	12.0	---	13.4	25.4	---	56.0	46.0	30.6	---	L2	
20	0.65831	12.6	---	13.4	26.0	---	56.0	46.0	30.0	---	L2	
21	7.48553	27.3	27.0	13.6	40.9	40.6	60.0	50.0	19.1	9.4	L2	
22	7.90070	33.1	30.4	13.6	46.7	44.0	60.0	50.0	13.3	6.0	L2	
23	9.14811	30.9	30.7	13.7	44.6	44.4	60.0	50.0	15.4	5.6	L2	
24	9.56355	29.4	29.0	13.7	43.1	42.7	60.0	50.0	16.9	7.3	L2	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/15

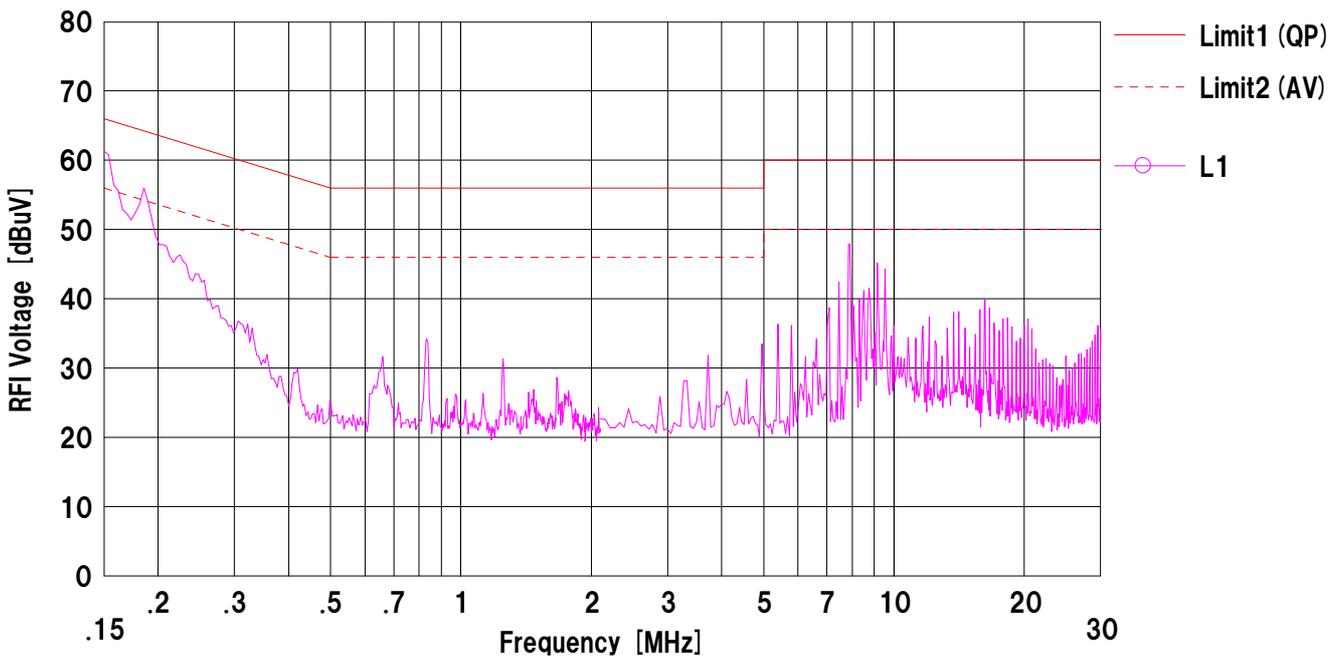
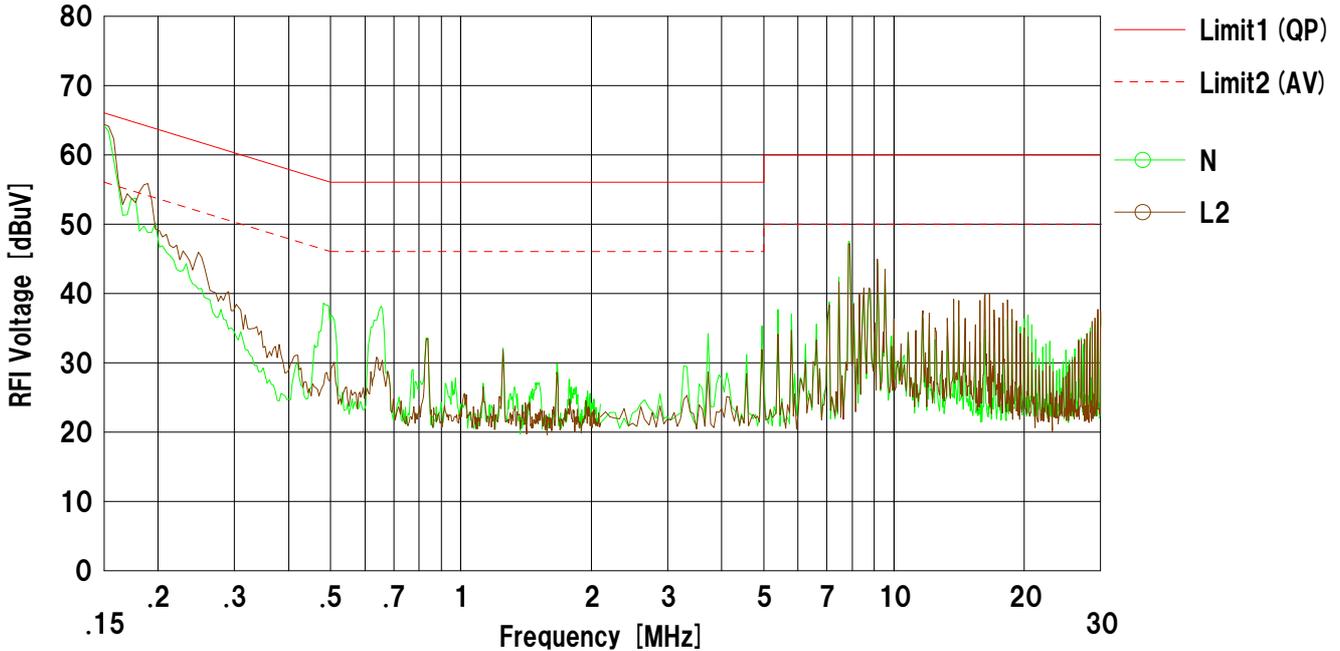
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : IJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11n-40HT 2437MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano



Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/03/15

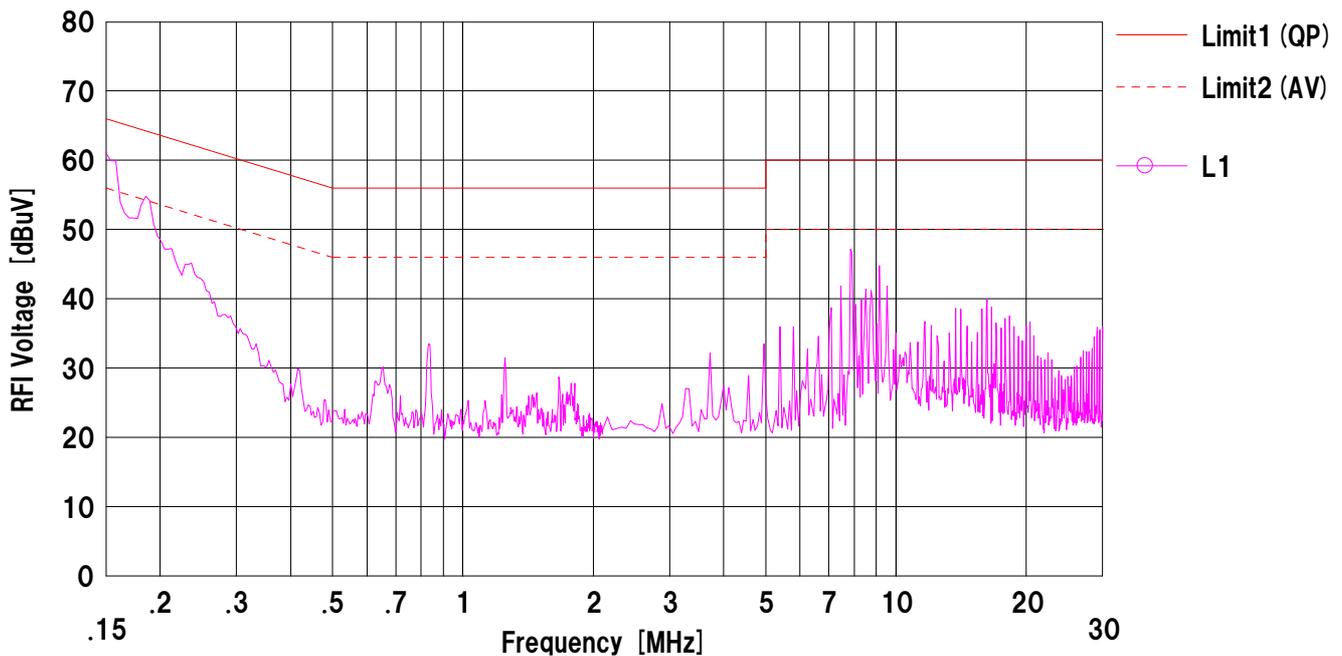
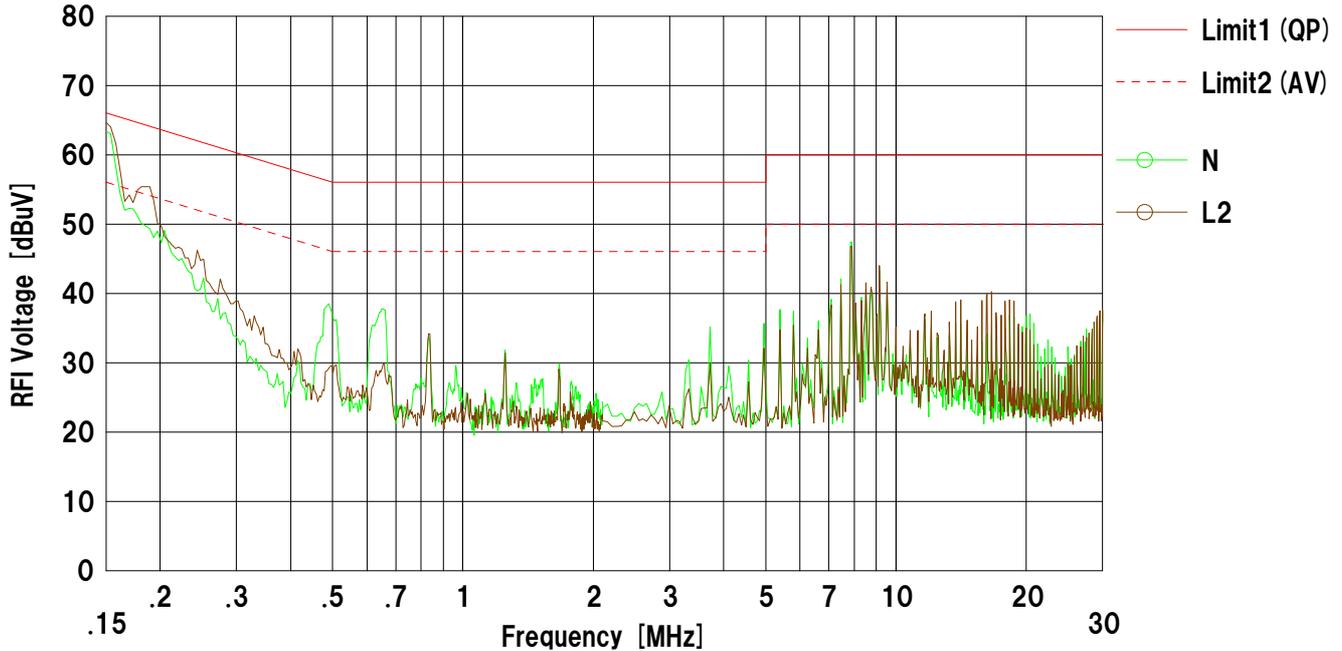
Company : Sony Energy Devices Corporation
Kind of EUT : Energy Storage System
Model No. : IJ1001SNBT
Serial No. : 0800461001B5F415

Mode : Tx 11n-40HT 2452MHz
Report No. : 32DE0237-SH-01-A
Power : AC 240V / 60Hz
Temp./Humi. : 23deg.C. / 23%RH

Remarks : -

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

Engineer : Shinichi Takano

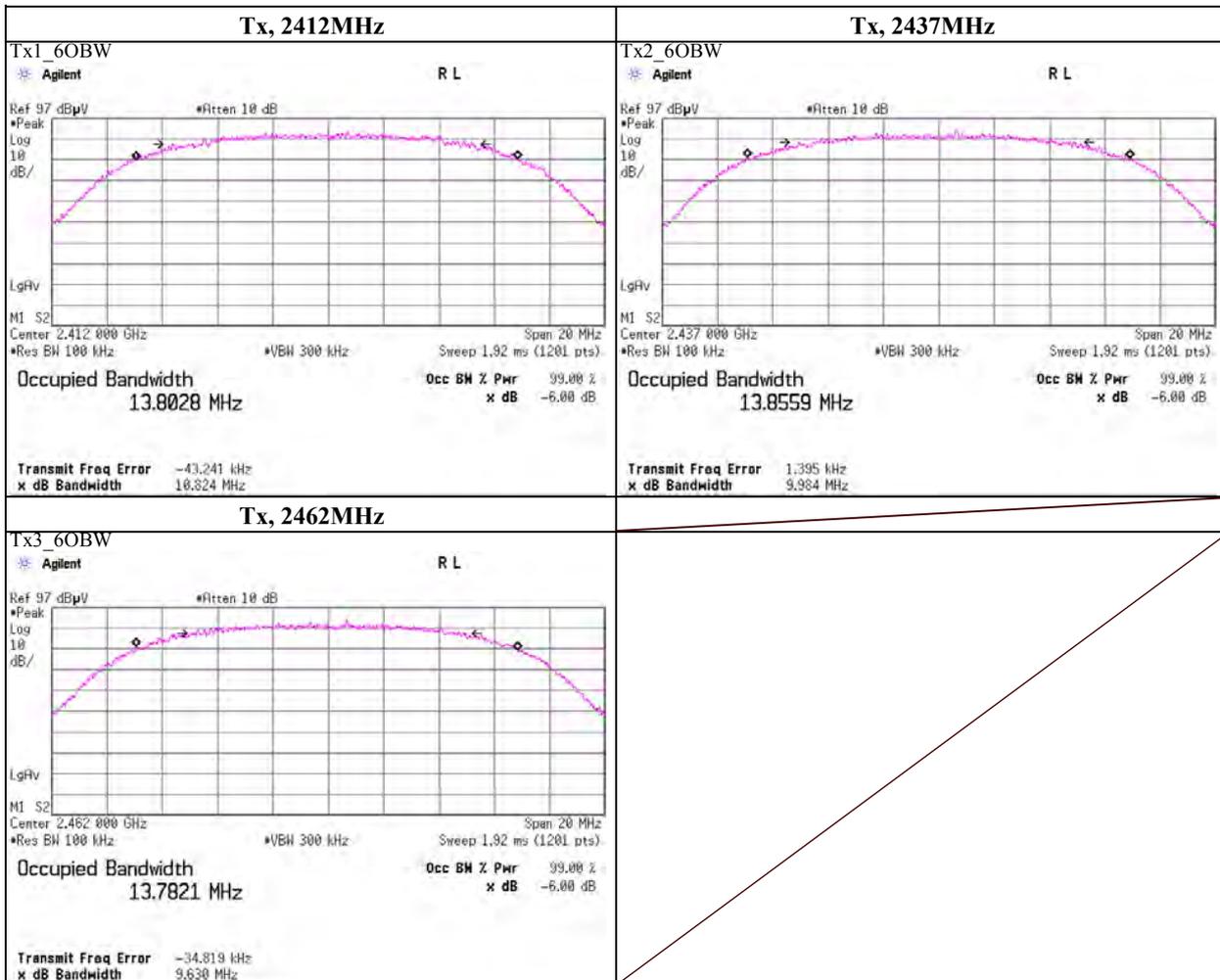


Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-09

-6dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 9, 2012	
Temperature / Humidity	24deg.C , 25%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11b, PN9, worst data mode 11Mbps	

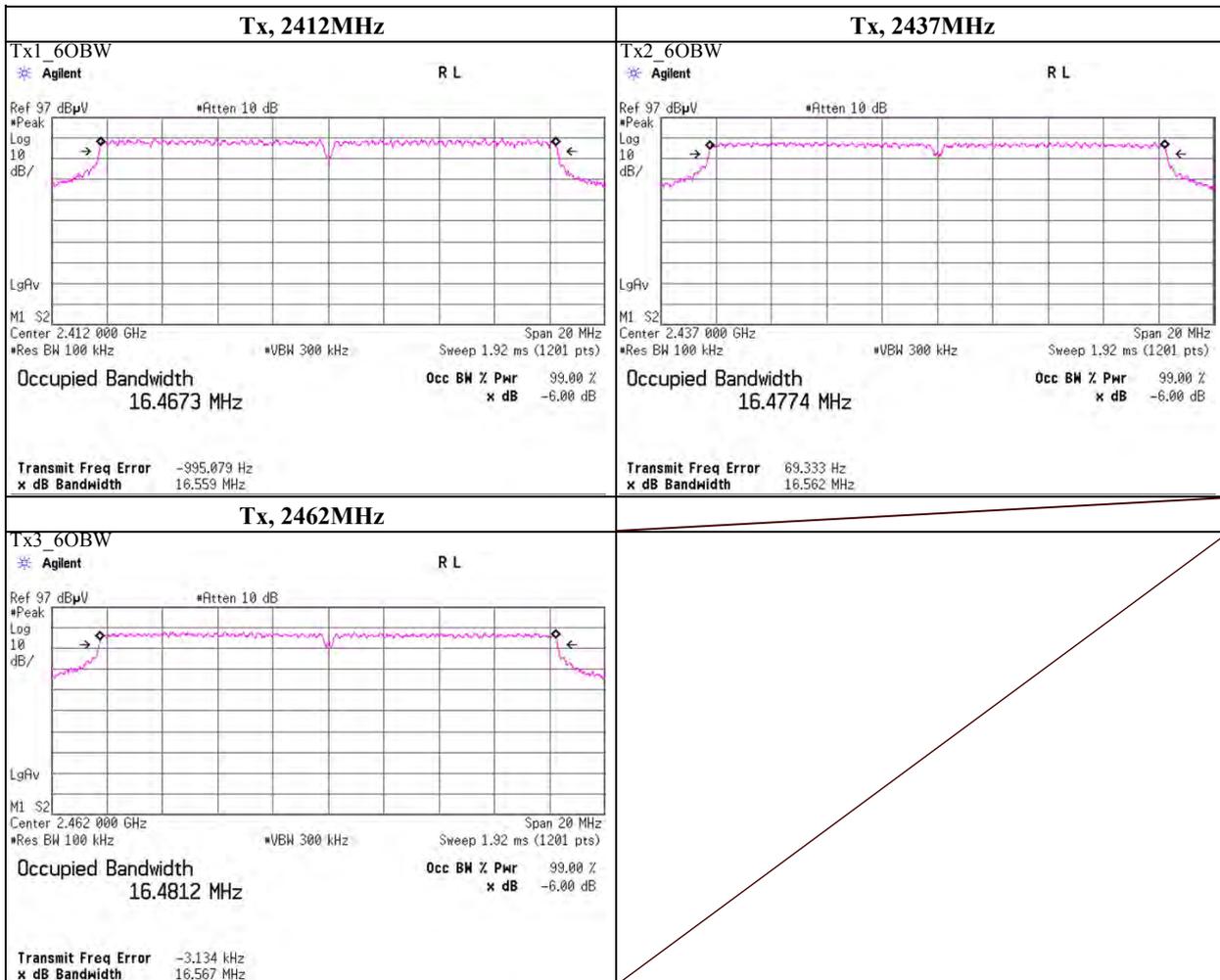
Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	10.824	> 0.500
2437.0000	9.984	> 0.500
2462.0000	9.630	> 0.500



-6dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 9, 2012	
Temperature / Humidity	24deg.C , 25%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11g, PN9, worst data mode 18Mbps	

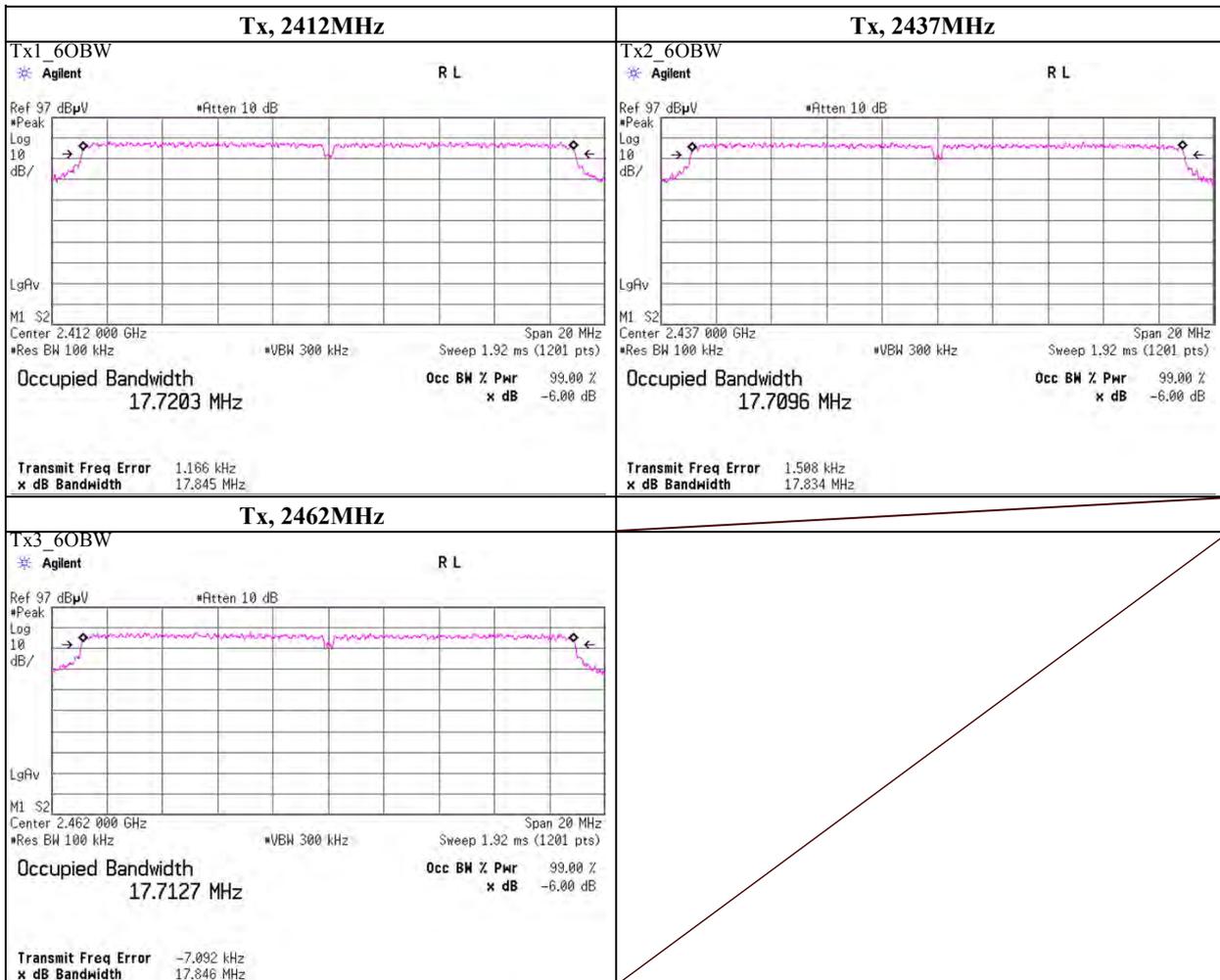
Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	16.559	> 0.500
2437.0000	16.562	> 0.500
2462.0000	16.567	> 0.500



-6dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 9, 2012	
Temperature / Humidity	24deg.C , 25%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n-20HT, PN9, worst data mode 0(MCS)	

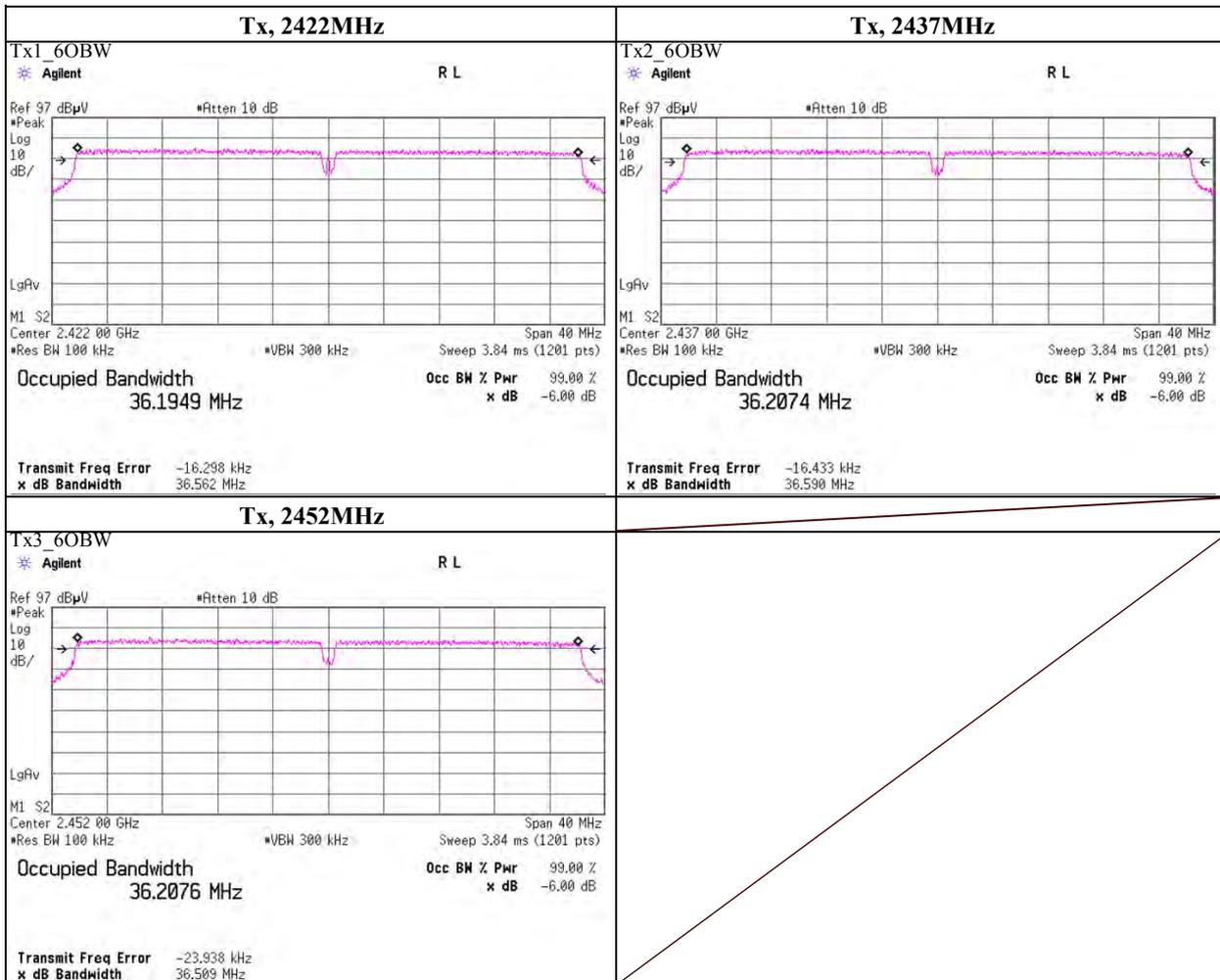
Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	17.845	> 0.500
2437.0000	17.834	> 0.500
2462.0000	17.846	> 0.500



-6dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 9, 2012	
Temperature / Humidity	24deg.C , 25%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n-40HT, PN9, worst data mode 0(MCS)	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2422.0000	36.562	> 0.500
2437.0000	36.590	> 0.500
2452.0000	36.509	> 0.500



Peak Output Power (Conducted)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date February 9, 2012
 Temperature / Humidity 24deg.C , 25%RH
 Engineer Shinichi Takano
 Mode Tx, IEEE802.11b, PN9, worst data mode : 11 Mbps

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

Ch	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	-4.20	1.99	20.01	17.80	60.26	30.00	1000	12.20
Mid	2437.0	-4.59	1.99	20.01	17.41	55.08	30.00	1000	12.59
High	2462.0	-4.88	2.00	20.01	17.13	51.64	30.00	1000	12.87

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss

[Pre check]

	Data rate [Mbps]	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
						[dBm]	[mW]	[dBm]	[mW]	
	1	2437.0	-4.73	1.99	20.01	17.27	53.33	30.00	1000	12.73
	2	2437.0	-4.65	1.99	20.01	17.35	54.33	30.00	1000	12.65
	5.5	2437.0	-4.98	1.99	20.01	17.02	50.35	30.00	1000	12.98
	11	2437.0	-4.59	1.99	20.01	17.41	55.08	30.00	1000	12.59

Worst

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss

UL Japan, Inc.
Shonan EMC Lab.

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

Peak Output Power (Conducted)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date February 9, 2012
 Temperature / Humidity 24deg.C , 25%RH
 Engineer Shinichi Takano
 Mode Tx, IEEE802.11n-20HT, PN9, 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		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	0.36	1.99	20.01	22.36	172.19	30.00	1000	7.64
Mid	2437.0	-0.02	1.99	20.01	21.98	157.76	30.00	1000	8.02
High	2462.0	-0.35	2.00	20.01	21.66	146.55	30.00	1000	8.34

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss

[Pre check]

Mode (MCS)	Freq. [MHz]	P/M (Peak) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
0	2437.0	-0.02	1.99	20.01	21.98	157.76	30.00	1000	8.02
1	2437.0	-0.16	1.99	20.01	21.84	152.76	30.00	1000	8.16
2	2437.0	-0.14	1.99	20.01	21.86	153.46	30.00	1000	8.14
3	2437.0	-0.11	1.99	20.01	21.89	154.53	30.00	1000	8.11
4	2437.0	-0.27	1.99	20.01	21.73	148.94	30.00	1000	8.27
5	2437.0	-1.14	1.99	20.01	20.86	121.90	30.00	1000	9.14
6	2437.0	-2.05	1.99	20.01	19.95	98.86	30.00	1000	10.05
7	2437.0	-3.70	1.99	20.01	18.30	67.61	30.00	1000	11.70

Worst

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss

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

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date February 21, 2012 February 22, 2012 February 22, 2012 February 25, 2012
 Temperature / Humidity 22deg.C , 33%RH 22deg.C , 23%RH 22deg.C , 27%RH 24deg.C , 32%RH
 Engineer Akio Hayashi Shinichi Takano Akio Hayashi Shinichi Takano
 Mode Tx, 2412 MHz
 Tx, IEEE802.11b, PN9, worst data mode 11Mbps

(* 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.	30.321	QP	41.6	17.9	6.4	32.1	33.8	40.0	6.2	379	182	PK:VBW 3MHz
Hori.	70.196	QP	55.1	6.6	6.8	32.1	36.4	40.0	3.6	248	173	AV:VBW 10Hz
Hori.	77.672	QP	52.4	6.3	7.3	32.1	33.9	40.0	6.1	217	180	
Hori.	186.498	QP	41.8	15.9	7.8	32.0	33.5	43.5	10.0	179	216	
Hori.	412.093	QP	35.2	16.5	9.2	31.9	29.0	46.0	17.0	100	241	
Hori.	2330.000	PK	46.6	27.1	24.0	41.1	56.6	73.9	17.3	100	0	
Hori.	2390.000	PK	21.6	27.2	3.6	0.0	52.4	73.9	21.5	195	60	
Hori.	3217.000	PK	46.3	29.0	5.4	41.5	39.2	73.9	34.7	100	0	
Hori.	4824.000	PK	48.8	31.1	5.9	41.0	44.8	73.9	29.1	225	271	
Hori.	7236.000	PK	47.7	36.6	7.4	41.3	50.4	73.9	23.5	100	0	
Hori.	9648.000	PK	45.9	38.2	8.6	38.8	53.9	73.9	20.0	100	0	
Hori.	12060.000	PK	47.0	39.3	10.2	39.2	57.3	73.9	16.6	100	0	
Hori.	2330.000	AV	35.2	27.1	24.0	41.1	45.2	53.9	8.7	100	0	
Hori.	2390.000	AV	10.7	27.2	3.6	0.0	41.5	53.9	12.4	195	60	
Hori.	3217.000	AV	35.5	29.0	5.4	41.5	28.4	53.9	25.5	100	0	
Hori.	4824.000	AV	37.6	31.1	5.9	41.0	33.6	53.9	20.3	225	271	
Hori.	7236.000	AV	37.2	36.6	7.4	41.3	39.9	53.9	14.0	100	0	
Hori.	9648.000	AV	34.5	38.2	8.6	38.8	42.5	53.9	11.4	100	0	
Hori.	12060.000	AV	35.9	39.3	10.2	39.2	46.2	53.9	7.7	100	0	
Vert.	31.563	QP	42.7	17.4	6.5	32.1	34.5	40.0	5.5	104	227	
Vert.	34.472	QP	41.8	16.1	6.5	32.1	32.3	40.0	7.7	100	272	
Vert.	70.191	QP	50.4	6.6	6.8	32.1	31.7	40.0	8.3	100	162	
Vert.	77.250	QP	54.4	6.3	7.3	32.1	35.9	40.0	4.1	100	334	
Vert.	82.654	QP	51.5	6.5	7.5	32.1	33.4	40.0	6.6	100	144	
Vert.	132.907	QP	48.5	13.8	7.4	32.1	37.6	43.5	5.9	226	272	
Vert.	2330.000	PK	46.8	27.1	24.0	41.1	56.8	73.9	17.1	100	0	
Vert.	2390.000	PK	22.7	27.2	3.6	0.0	53.5	73.9	20.4	185	256	
Vert.	3217.000	PK	47.2	29.0	5.4	41.5	40.1	73.9	33.8	100	0	
Vert.	4824.000	PK	49.2	31.1	5.9	41.0	45.2	73.9	28.7	100	322	
Vert.	7236.000	PK	48.7	36.6	7.4	41.3	51.4	73.9	22.5	100	0	
Vert.	9648.000	PK	46.4	38.2	8.6	38.8	54.4	73.9	19.5	100	0	
Vert.	12060.000	PK	47.6	39.3	10.2	39.2	57.9	73.9	16.0	100	0	
Vert.	2330.000	AV	35.3	27.1	24.0	41.1	45.3	53.9	8.6	100	0	
Vert.	2390.000	AV	10.7	27.2	3.6	0.0	41.5	53.9	12.4	185	256	
Vert.	3217.000	AV	35.3	29.0	5.4	41.5	28.2	53.9	25.7	100	0	
Vert.	4824.000	AV	37.0	31.1	5.9	41.0	33.0	53.9	20.9	100	322	
Vert.	7236.000	AV	37.2	36.6	7.4	41.3	39.9	53.9	14.0	100	0	
Vert.	9648.000	AV	35.1	38.2	8.6	38.8	43.1	53.9	10.8	100	0	
Vert.	12060.000	AV	36.7	39.3	10.2	39.2	47.0	53.9	6.9	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	54.2	27.3	3.6	0.0	85.1	-	-	Carrier
Hori.	2398.763	PK	13.8	27.3	3.6	0.0	44.7	65.1	20.4	
Hori.	2400.000	PK	13.0	27.3	3.6	0.0	43.9	65.1	21.2	
Vert.	2412.000	PK	62.0	27.3	3.6	0.0	92.9	-	-	Carrier
Vert.	2398.649	PK	20.7	27.3	3.6	0.0	51.6	72.9	21.3	
Vert.	2400.000	PK	19.5	27.3	3.6	0.0	50.4	72.9	22.5	

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

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date February 22, 2012 February 22, 2012 February 25, 2012
 Temperature / Humidity 22deg.C , 23%RH 22deg.C , 27%RH 24deg.C , 32%RH
 Engineer Shinichi Takano Akio Hayashi Shinichi Takano
 Mode Tx, 2437 MHz
 Tx, IEEE802.11b, PN9, worst data mode 11Mbps

(* 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.	2360.000	PK	46.3	27.2	24.0	41.1	56.4	73.9	17.5	100	0	PK:VBW 3MHz
Hori.	3249.310	PK	47.1	29.0	5.4	41.6	39.9	73.9	34.0	214	169	AV:VBW 10Hz
Hori.	4874.000	PK	46.6	31.2	5.9	41.0	42.7	73.9	31.2	108	312	
Hori.	4999.962	PK	48.3	31.5	5.9	40.8	44.9	73.9	29.0	107	55	
Hori.	7311.000	PK	46.2	36.7	7.5	41.4	49.0	73.9	24.9	100	0	
Hori.	9748.000	PK	43.4	38.5	8.6	38.8	51.7	73.9	22.2	100	0	
Hori.	12185.000	PK	44.0	39.3	10.2	39.2	54.3	73.9	19.6	100	0	
Hori.	2360.000	AV	35.6	27.2	24.0	41.1	45.7	53.9	8.2	100	0	
Hori.	3249.310	AV	36.9	29.0	5.4	41.6	29.7	53.9	24.2	214	169	
Hori.	4874.000	AV	36.0	31.2	5.9	41.0	32.1	53.9	21.8	108	312	
Hori.	4999.962	AV	40.0	31.5	5.9	40.8	36.6	53.9	17.3	107	55	
Hori.	7311.000	AV	36.1	36.7	7.5	41.4	38.9	53.9	15.0	100	0	
Hori.	9748.000	AV	33.8	38.5	8.6	38.8	42.1	53.9	11.8	100	0	
Hori.	12185.000	AV	34.5	39.3	10.2	39.2	44.8	53.9	9.1	100	0	
Vert.	2360.000	PK	46.4	27.2	24.0	41.1	56.5	73.9	17.4	100	0	
Vert.	3249.335	PK	48.2	29.0	5.4	41.6	41.0	73.9	32.9	184	284	
Vert.	4874.000	PK	46.0	31.2	5.9	41.0	42.1	73.9	31.8	116	227	
Vert.	4999.973	PK	49.0	31.5	5.9	40.8	45.6	73.9	28.3	100	301	
Vert.	7311.000	PK	47.3	36.7	7.5	41.4	50.1	73.9	23.8	100	0	
Vert.	9748.000	PK	44.6	38.5	8.6	38.8	52.9	73.9	21.0	100	0	
Vert.	12185.000	PK	44.8	39.3	10.2	39.2	55.1	73.9	18.8	100	0	
Vert.	2360.000	AV	35.7	27.2	24.0	41.1	45.8	53.9	8.1	100	0	
Vert.	3249.335	AV	40.0	29.0	5.4	41.6	32.8	53.9	21.1	184	284	
Vert.	4874.000	AV	35.9	31.2	5.9	41.0	32.0	53.9	21.9	116	227	
Vert.	4999.973	AV	42.1	31.5	5.9	40.8	38.7	53.9	15.2	100	301	
Vert.	7311.000	AV	35.8	36.7	7.5	41.4	38.6	53.9	15.3	100	0	
Vert.	9748.000	AV	34.0	38.5	8.6	38.8	42.3	53.9	11.6	100	0	
Vert.	12185.000	AV	34.8	39.3	10.2	39.2	45.1	53.9	8.8	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date February 22, 2012 February 22, 2012 February 25, 2012
 Temperature / Humidity 22deg.C , 23%RH 22deg.C , 27%RH 24deg.C , 32%RH
 Engineer Shinichi Takano Akio Hayashi Shinichi Takano
 Mode Tx, 2462 MHz
 Tx, IEEE802.11b, PN9, worst data mode 11Mbps

(* 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.	2383.000	PK	46.4	27.2	24.1	41.1	56.6	73.9	17.3	100	0	PK:VBW 3MHz
Hori.	2483.500	PK	21.7	27.5	3.6	0.0	52.8	73.9	21.1	204	60	AV:VBW 10Hz
Hori.	3282.693	PK	46.2	29.1	5.4	41.6	39.1	73.9	34.8	226	168	
Hori.	4924.000	PK	48.1	31.3	5.9	40.9	44.4	73.9	29.5	100	318	
Hori.	4999.959	PK	48.7	31.5	5.9	40.8	45.3	73.9	28.6	103	57	
Hori.	7386.000	PK	47.4	36.9	7.5	41.4	50.4	73.9	23.5	100	0	
Hori.	9848.000	PK	44.5	38.7	8.6	38.8	53.0	73.9	20.9	100	0	
Hori.	12310.000	PK	44.5	39.4	10.2	39.2	54.9	73.9	19.0	100	0	
Hori.	2383.000	AV	35.7	27.2	24.1	41.1	45.9	53.9	8.0	100	0	
Hori.	2483.500	AV	10.3	27.5	3.6	0.0	41.4	53.9	12.5	204	60	
Hori.	3282.693	AV	37.1	29.1	5.4	41.6	30.0	53.9	23.9	226	168	
Hori.	4924.000	AV	36.0	31.3	5.9	40.9	32.3	53.9	21.6	100	318	
Hori.	4999.959	AV	40.2	31.5	5.9	40.8	36.8	53.9	17.1	103	57	
Hori.	7386.000	AV	36.3	36.9	7.5	41.4	39.3	53.9	14.6	100	0	
Hori.	9848.000	AV	33.9	38.7	8.6	38.8	42.4	53.9	11.5	100	0	
Hori.	12310.000	AV	34.1	39.4	10.2	39.2	44.5	53.9	9.4	100	0	
Vert.	2383.000	PK	45.9	27.2	24.1	41.1	56.1	73.9	17.8	100	0	
Vert.	2483.500	PK	21.5	27.5	3.6	0.0	52.6	73.9	21.3	211	253	
Vert.	3282.690	PK	48.7	29.1	5.4	41.6	41.6	73.9	32.3	129	284	
Vert.	4924.000	PK	47.5	31.3	5.9	40.9	43.8	73.9	30.1	100	234	
Vert.	4999.969	PK	49.4	31.5	5.9	40.8	46.0	73.9	27.9	100	296	
Vert.	7386.000	PK	47.2	36.9	7.5	41.4	50.2	73.9	23.7	100	0	
Vert.	9848.000	PK	44.0	38.7	8.6	38.8	52.5	73.9	21.4	100	0	
Vert.	12310.000	PK	44.4	39.4	10.2	39.2	54.8	73.9	19.1	100	0	
Vert.	2383.000	AV	35.7	27.2	24.1	41.1	45.9	53.9	8.0	100	0	
Vert.	2483.500	AV	10.6	27.5	3.6	0.0	41.7	53.9	12.2	211	253	
Vert.	3282.690	AV	39.8	29.1	5.4	41.6	32.7	53.9	21.2	129	284	
Vert.	4924.000	AV	36.0	31.3	5.9	40.9	32.3	53.9	21.6	100	234	
Vert.	4999.969	AV	42.2	31.5	5.9	40.8	38.8	53.9	15.1	100	296	
Vert.	7386.000	AV	36.1	36.9	7.5	41.4	39.1	53.9	14.8	100	0	
Vert.	9848.000	AV	33.8	38.7	8.6	38.8	42.3	53.9	11.6	100	0	
Vert.	12310.000	AV	34.0	39.4	10.2	39.2	44.4	53.9	9.5	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date February 21, 2012 February 22, 2012 February 22, 2012 February 25, 2012
Temperature / Humidity 22deg.C , 33%RH 22deg.C , 23%RH 22deg.C , 27%RH 24deg.C , 32%RH
Engineer Akio Hayashi Shinichi Takano Akio Hayashi Shinichi Takano
Mode Tx, 2412 MHz
 Tx, IEEE802.11g, PN9, worst data mode 18Mbps

(* 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.	30.340	QP	41.9	17.9	6.4	32.1	34.1	40.0	5.9	375	189	PK:VBW 3MHz AV:VBW 10Hz
Hori.	70.245	QP	54.8	6.6	6.8	32.1	36.1	40.0	3.9	257	359	
Hori.	77.725	QP	53.3	6.3	7.3	32.1	34.8	40.0	5.2	226	164	
Hori.	186.618	QP	42.9	15.9	7.8	32.0	34.6	43.5	8.9	175	223	
Hori.	412.225	QP	34.2	16.5	9.2	31.9	28.0	46.0	18.0	100	240	
Hori.	2390.000	PK	22.9	27.2	3.6	0.0	53.7	73.9	20.2	195	60	
Hori.	3216.001	PK	47.4	29.0	5.4	41.5	40.3	73.9	33.6	192	291	
Hori.	4824.000	PK	47.3	31.1	5.9	41.0	43.3	73.9	30.6	100	0	
Hori.	7236.000	PK	47.1	36.6	7.4	41.3	49.8	73.9	24.1	212	278	
Hori.	9648.000	PK	43.6	38.2	8.6	38.8	51.6	73.9	22.3	100	0	
Hori.	12060.000	PK	44.7	39.3	10.2	39.2	55.0	73.9	18.9	100	0	
Hori.	2390.000	AV	11.2	27.2	3.6	0.0	42.0	53.9	11.9	195	60	
Hori.	3216.001	AV	37.5	29.0	5.4	41.5	30.4	53.9	23.5	192	291	
Hori.	4824.000	AV	36.2	31.1	5.9	41.0	32.2	53.9	21.7	100	0	
Hori.	7236.000	AV	35.6	36.6	7.4	41.3	38.3	53.9	15.6	212	278	
Hori.	9648.000	AV	33.0	38.2	8.6	38.8	41.0	53.9	12.9	100	0	
Hori.	12060.000	AV	34.3	39.3	10.2	39.2	44.6	53.9	9.3	100	0	
Vert.	31.580	QP	41.9	17.3	6.5	32.1	33.6	40.0	6.4	100	208	
Vert.	34.483	QP	41.5	16.1	6.5	32.1	32.0	40.0	8.0	100	113	
Vert.	70.230	QP	49.6	6.6	6.8	32.1	30.9	40.0	9.1	100	154	
Vert.	77.296	QP	54.8	6.3	7.3	32.1	36.3	40.0	3.7	129	321	
Vert.	81.041	QP	50.5	6.3	7.4	32.1	32.1	40.0	7.9	151	359	
Vert.	133.170	QP	48.5	13.8	7.4	32.1	37.6	43.5	5.9	222	273	
Vert.	2390.000	PK	31.1	27.2	3.6	0.0	61.9	73.9	12.0	185	256	
Vert.	3216.001	PK	49.1	29.0	5.4	41.5	42.0	73.9	31.9	196	255	
Vert.	4824.000	PK	46.5	31.1	5.9	41.0	42.5	73.9	31.4	100	311	
Vert.	7236.000	PK	47.1	36.6	7.4	41.3	49.8	73.9	24.1	100	0	
Vert.	9648.000	PK	43.4	38.2	8.6	38.8	51.4	73.9	22.5	100	0	
Vert.	12060.000	PK	45.7	39.3	10.2	39.2	56.0	73.9	17.9	100	0	
Vert.	2390.000	AV	16.1	27.2	3.6	0.0	46.9	53.9	7.0	185	256	
Vert.	3216.001	AV	40.5	29.0	5.4	41.5	33.4	53.9	20.5	196	255	
Vert.	4824.000	AV	36.1	31.1	5.9	41.0	32.1	53.9	21.8	100	311	
Vert.	7236.000	AV	35.4	36.6	7.4	41.3	38.1	53.9	15.8	100	0	
Vert.	9648.000	AV	32.9	38.2	8.6	38.8	40.9	53.9	13.0	100	0	
Vert.	12060.000	AV	35.4	39.3	10.2	39.2	45.7	53.9	8.2	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	50.1	27.3	3.6	0.0	81.0	-	-	-Carrier
Hori.	2400.000	PK	24.1	27.3	3.6	0.0	55.0	61.0	6.0	
Vert.	2412.000	PK	58.8	27.3	3.6	0.0	89.7	-	-	-Carrier
Vert.	2400.000	PK	33.0	27.3	3.6	0.0	63.9	69.7	5.8	

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

UL Japan, Inc.**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date February 22, 2012 February 22, 2012 February 25, 2012
 Temperature / Humidity 22deg.C , 23%RH 22deg.C , 27%RH 24deg.C , 32%RH
 Engineer Shinichi Takano Akio Hayashi Shinichi Takano
 Mode Tx, 2437 MHz
 Tx, IEEE802.11g, PN9, worst data mode 18Mbps

(* 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.	3249.325	PK	46.9	29.0	5.4	41.6	39.7	73.9	34.2	212	170	PK:VBW 3MHz AV:VBW 10Hz
Hori.	4874.000	PK	46.4	31.2	5.9	41.0	42.5	73.9	31.4	100	313	
Hori.	4999.974	PK	48.3	31.5	5.9	40.8	44.9	73.9	29.0	110	55	
Hori.	7311.000	PK	46.5	36.7	7.5	41.4	49.3	73.9	24.6	100	0	
Hori.	9748.000	PK	44.6	38.5	8.6	38.8	52.9	73.9	21.0	100	0	
Hori.	12185.000	PK	45.0	39.3	10.2	39.2	55.3	73.9	18.6	100	0	
Hori.	3249.325	AV	37.4	29.0	5.4	41.6	30.2	53.9	23.7	212	170	
Hori.	4874.000	AV	36.0	31.2	5.9	41.0	32.1	53.9	21.8	100	313	
Hori.	4999.974	AV	39.8	31.5	5.9	40.8	36.4	53.9	17.5	110	55	
Hori.	7311.000	AV	36.1	36.7	7.5	41.4	38.9	53.9	15.0	100	0	
Hori.	9748.000	AV	34.1	38.5	8.6	38.8	42.4	53.9	11.5	100	0	
Hori.	12185.000	AV	34.8	39.3	10.2	39.2	45.1	53.9	8.8	100	0	
Vert.	3249.338	PK	48.7	29.0	5.4	41.6	41.5	73.9	32.4	181	285	
Vert.	4874.000	PK	45.8	31.2	5.9	41.0	41.9	73.9	32.0	100	237	
Vert.	4999.966	PK	49.1	31.5	5.9	40.8	45.7	73.9	28.2	100	304	
Vert.	7311.000	PK	46.7	36.7	7.5	41.4	49.5	73.9	24.4	100	0	
Vert.	9748.000	PK	43.9	38.5	8.6	38.8	52.2	73.9	21.7	100	0	
Vert.	12185.000	PK	44.7	39.3	10.2	39.2	55.0	73.9	18.9	100	0	
Vert.	3249.338	AV	41.7	29.0	5.4	41.6	34.5	53.9	19.4	181	285	
Vert.	4874.000	AV	35.9	31.2	5.9	41.0	32.0	53.9	21.9	100	237	
Vert.	4999.966	AV	41.6	31.5	5.9	40.8	38.2	53.9	15.7	100	304	
Vert.	7311.000	AV	36.1	36.7	7.5	41.4	38.9	53.9	15.0	100	0	
Vert.	9748.000	AV	33.9	38.5	8.6	38.8	42.2	53.9	11.7	100	0	
Vert.	12185.000	AV	34.8	39.3	10.2	39.2	45.1	53.9	8.8	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date February 21, 2012 February 22, 2012 February 22, 2012 February 25, 2012
 Temperature / Humidity 22deg.C , 33%RH 22deg.C , 23%RH 22deg.C , 27%RH 24deg.C , 32%RH
 Engineer Akio Hayashi Shinichi Takano Akio Hayashi Shinichi Takano
 Mode Tx, 2462 MHz
 Tx, IEEE802.11g, PN9, worst data mode 18Mbps

(* 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	23.5	27.5	3.6	0.0	54.6	73.9	19.3	201	62	PK:VBW 3MHz AV:VBW 10Hz
Hori.	3282.692	PK	47.6	29.1	5.4	41.6	40.5	73.9	33.4	212	174	
Hori.	4924.000	PK	46.2	31.3	5.9	40.9	42.5	73.9	31.4	100	317	
Hori.	7386.000	PK	45.5	36.9	7.5	41.4	48.5	73.9	25.4	100	0	
Hori.	9848.000	PK	46.6	38.7	8.6	38.8	55.1	73.9	18.8	100	0	
Hori.	12310.000	PK	43.8	39.4	10.2	39.2	54.2	73.9	19.7	100	0	
Hori.	2483.500	AV	11.2	27.5	3.6	0.0	42.3	53.9	11.6	201	62	
Hori.	3282.692	AV	37.5	29.1	5.4	41.6	30.4	53.9	23.5	212	174	
Hori.	4924.000	AV	35.5	31.3	5.9	40.9	31.8	53.9	22.1	100	317	
Hori.	7386.000	AV	35.2	36.9	7.5	41.4	38.2	53.9	15.7	100	0	
Hori.	9848.000	AV	32.5	38.7	8.6	38.8	41.0	53.9	12.9	100	0	
Hori.	12310.000	AV	32.7	39.4	10.2	39.2	43.1	53.9	10.8	100	0	
Vert.	2483.500	PK	32.3	27.5	3.6	0.0	63.4	73.9	10.5	207	258	
Vert.	3282.692	PK	49.6	29.1	5.4	41.6	42.5	73.9	31.4	211	282	
Vert.	4924.000	PK	46.8	31.3	5.9	40.9	43.1	73.9	30.8	100	266	
Vert.	7386.000	PK	45.6	36.9	7.5	41.4	48.6	73.9	25.3	100	0	
Vert.	9848.000	PK	42.9	38.7	8.6	38.8	51.4	73.9	22.5	100	0	
Vert.	12310.000	PK	43.3	39.4	10.2	39.2	53.7	73.9	20.2	100	0	
Vert.	2483.500	AV	16.8	27.5	3.6	0.0	47.9	53.9	6.0	207	258	
Vert.	3282.692	AV	40.9	29.1	5.4	41.6	33.8	53.9	20.1	211	282	
Vert.	4924.000	AV	35.8	31.3	5.9	40.9	32.1	53.9	21.8	100	266	
Vert.	7386.000	AV	35.1	36.9	7.5	41.4	38.1	53.9	15.8	100	0	
Vert.	9848.000	AV	32.4	38.7	8.6	38.8	40.9	53.9	13.0	100	0	
Vert.	12310.000	AV	32.5	39.4	10.2	39.2	42.9	53.9	11.0	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date February 21, 2012 February 22, 2012 February 22, 2012 February 25, 2012
Temperature / Humidity 22deg.C , 33%RH 22deg.C , 23%RH 22deg.C , 27%RH 24deg.C , 32%RH
Engineer Akio Hayashi Shinichi Takano Akio Hayashi Shinichi Takano
Mode Tx, 2412 MHz
 Tx, IEEE802.11n-20HT, 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.	30.307	QP	41.4	17.9	6.4	32.1	33.6	40.0	6.4	377	184	PK:VBW 3MHz AV:VBW 10Hz
Hori.	70.177	QP	54.8	6.6	6.8	32.1	36.1	40.0	3.9	249	174	
Hori.	77.649	QP	52.1	6.3	7.3	32.1	33.6	40.0	6.4	215	181	
Hori.	186.451	QP	42.5	15.9	7.8	32.0	34.2	43.5	9.3	172	221	
Hori.	410.817	QP	36.5	16.5	9.2	31.9	30.3	46.0	15.7	100	243	
Hori.	2390.000	PK	26.5	27.2	3.6	0.0	57.3	73.9	16.6	194	60	
Hori.	3215.997	PK	47.0	29.0	5.4	41.5	39.9	73.9	34.0	213	248	
Hori.	4824.000	PK	46.8	31.1	5.9	41.0	42.8	73.9	31.1	192	276	
Hori.	7236.000	PK	46.6	36.6	7.4	41.3	49.3	73.9	24.6	100	0	
Hori.	9648.000	PK	45.1	38.2	8.6	38.8	53.1	73.9	20.8	100	0	
Hori.	12060.000	PK	45.5	39.3	10.2	39.2	55.8	73.9	18.1	100	0	
Hori.	2390.000	AV	12.0	27.2	3.6	0.0	42.8	53.9	11.1	194	60	
Hori.	3215.997	AV	32.3	29.0	5.4	41.5	25.2	53.9	28.7	213	248	
Hori.	4824.000	AV	36.1	31.1	5.9	41.0	32.1	53.9	21.8	192	276	
Hori.	7236.000	AV	35.5	36.6	7.4	41.3	38.2	53.9	15.7	100	0	
Hori.	9648.000	AV	34.6	38.2	8.6	38.8	42.6	53.9	11.3	100	0	
Hori.	12060.000	AV	34.6	39.3	10.2	39.2	44.9	53.9	9.0	100	0	
Vert.	31.554	QP	42.7	17.4	6.5	32.1	34.5	40.0	5.5	100	219	
Vert.	34.460	QP	41.3	16.1	6.5	32.1	31.8	40.0	8.2	100	279	
Vert.	70.172	QP	50.4	6.6	6.8	32.1	31.7	40.0	8.3	100	164	
Vert.	77.232	QP	54.3	6.3	7.3	32.1	35.8	40.0	4.2	100	338	
Vert.	82.214	QP	50.8	6.5	7.5	32.1	32.7	40.0	7.3	100	136	
Vert.	133.291	QP	48.3	13.8	7.4	32.1	37.4	43.5	6.1	218	271	
Vert.	2390.000	PK	36.4	27.2	3.6	0.0	67.2	73.9	6.7	205	249	
Vert.	3215.997	PK	49.4	29.0	5.4	41.5	42.3	73.9	31.6	202	249	
Vert.	4824.000	PK	46.6	31.1	5.9	41.0	42.6	73.9	31.3	116	285	
Vert.	7236.000	PK	46.6	36.6	7.4	41.3	49.3	73.9	24.6	100	0	
Vert.	9648.000	PK	44.6	38.2	8.6	38.8	52.6	73.9	21.3	100	0	
Vert.	12060.000	PK	45.8	39.3	10.2	39.2	56.1	73.9	17.8	100	0	
Vert.	2390.000	AV	17.9	27.2	3.6	0.0	48.7	53.9	5.2	205	249	
Vert.	3215.997	AV	41.0	29.0	5.4	41.5	33.9	53.9	20.0	202	249	
Vert.	4824.000	AV	35.9	31.1	5.9	41.0	31.9	53.9	22.0	116	285	
Vert.	7236.000	AV	35.5	36.6	7.4	41.3	38.2	53.9	15.7	100	0	
Vert.	9648.000	AV	33.0	38.2	8.6	38.8	41.0	53.9	12.9	100	0	
Vert.	12060.000	AV	34.7	39.3	10.2	39.2	45.0	53.9	8.9	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	49.2	27.3	3.6	0.0	80.1	-	-	-Carrier
Hori.	2400.000	PK	25.8	27.3	3.6	0.0	56.7	60.1	3.4	
Vert.	2412.000	PK	57.4	27.3	3.6	0.0	88.3	-	-	-Carrier
Vert.	2400.000	PK	33.8	27.3	3.6	0.0	64.7	68.3	3.6	

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

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1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date February 22, 2012 February 22, 2012 February 25, 2012
 Temperature / Humidity 22deg.C , 23%RH 22deg.C , 27%RH 24deg.C , 32%RH
 Engineer Shinichi Takano Akio Hayashi Shinichi Takano
 Mode Tx, 2437 MHz
 Tx, IEEE802.11n-20HT, 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.	3249.373	PK	48.0	29.0	5.4	41.6	40.8	73.9	33.1	215	168	PK:VBW 3MHz AV:VBW 10Hz
Hori.	4874.000	PK	45.7	31.2	5.9	41.0	41.8	73.9	32.1	100	311	
Hori.	4999.944	PK	48.9	31.5	5.9	40.8	45.5	73.9	28.4	103	57	
Hori.	7311.000	PK	46.6	36.7	7.5	41.4	49.4	73.9	24.5	100	0	
Hori.	9748.000	PK	44.7	38.5	8.6	38.8	53.0	73.9	20.9	100	0	
Hori.	12185.000	PK	45.3	39.3	10.2	39.2	55.6	73.9	18.3	100	0	
Hori.	3249.373	AV	37.3	29.0	5.4	41.6	30.1	53.9	23.8	215	168	
Hori.	4874.000	AV	36.0	31.2	5.9	41.0	32.1	53.9	21.8	100	311	
Hori.	4999.944	AV	40.6	31.5	5.9	40.8	37.2	53.9	16.7	103	57	
Hori.	7311.000	AV	36.1	36.7	7.5	41.4	38.9	53.9	15.0	100	0	
Hori.	9748.000	AV	33.9	38.5	8.6	38.8	42.2	53.9	11.7	100	0	
Hori.	12185.000	AV	34.8	39.3	10.2	39.2	45.1	53.9	8.8	100	0	
Vert.	3249.338	PK	49.0	29.0	5.4	41.6	41.8	73.9	32.1	183	284	
Vert.	4874.000	PK	46.2	31.2	5.9	41.0	42.3	73.9	31.6	100	229	
Vert.	4999.981	PK	49.2	31.5	5.9	40.8	45.8	73.9	28.1	100	303	
Vert.	7311.000	PK	46.9	36.7	7.5	41.4	49.7	73.9	24.2	100	0	
Vert.	9748.000	PK	44.9	38.5	8.6	38.8	53.2	73.9	20.7	100	0	
Vert.	12185.000	PK	45.4	39.3	10.2	39.2	55.7	73.9	18.2	100	0	
Vert.	3249.338	AV	41.7	29.0	5.4	41.6	34.5	53.9	19.4	183	284	
Vert.	4874.000	AV	35.9	31.2	5.9	41.0	32.0	53.9	21.9	100	229	
Vert.	4999.981	AV	42.0	31.5	5.9	40.8	38.6	53.9	15.3	100	303	
Vert.	7311.000	AV	36.1	36.7	7.5	41.4	38.9	53.9	15.0	100	0	
Vert.	9748.000	AV	34.0	38.5	8.6	38.8	42.3	53.9	11.6	100	0	
Vert.	12185.000	AV	34.8	39.3	10.2	39.2	45.1	53.9	8.8	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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 Engineer Akio Hayashi Shinichi Takano Akio Hayashi Shinichi Takano
 Mode Tx, 2462 MHz
 Tx, IEEE802.11n-20HT, 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	27.2	27.5	3.6	0.0	58.3	73.9	15.6	204	60	PK:VBW 3MHz
Hori.	3282.670	PK	47.5	29.1	5.4	41.6	40.4	73.9	33.5	202	299	AV:VBW 10Hz
Hori.	4924.000	PK	46.3	31.3	5.9	40.9	42.6	73.9	31.3	100	221	
Hori.	4999.958	PK	49.8	31.5	5.9	40.8	46.4	73.9	27.5	107	75	
Hori.	7386.000	PK	46.5	36.9	7.5	41.4	49.5	73.9	24.4	100	0	
Hori.	9848.000	PK	43.5	38.7	8.6	38.8	52.0	73.9	21.9	100	0	
Hori.	12310.000	PK	44.3	39.4	10.2	39.2	54.7	73.9	19.2	100	0	
Hori.	2483.500	AV	11.9	27.5	3.6	0.0	43.0	53.9	10.9	204	60	
Hori.	3282.670	AV	37.4	29.1	5.4	41.6	30.3	53.9	23.6	202	299	
Hori.	4924.000	AV	35.6	31.3	5.9	40.9	31.9	53.9	22.0	100	221	
Hori.	4999.958	AV	41.9	31.5	5.9	40.8	38.5	53.9	15.4	107	75	
Hori.	7386.000	AV	35.1	36.9	7.5	41.4	38.1	53.9	15.8	100	0	
Hori.	9848.000	AV	32.3	38.7	8.6	38.8	40.8	53.9	13.1	100	0	
Hori.	12310.000	AV	32.7	39.4	10.2	39.2	43.1	53.9	10.8	100	0	
Vert.	2483.500	PK	38.6	27.5	3.6	0.0	69.7	73.9	4.2	208	258	
Vert.	3282.670	PK	49.0	29.1	5.4	41.6	41.9	73.9	32.0	178	282	
Vert.	4924.000	PK	46.9	31.3	5.9	40.9	43.2	73.9	30.7	112	272	
Vert.	4999.958	PK	48.9	31.5	5.9	40.8	45.5	73.9	28.4	105	218	
Vert.	7386.000	PK	45.8	36.9	7.5	41.4	48.8	73.9	25.1	100	0	
Vert.	9848.000	PK	44.2	38.7	8.6	38.8	52.7	73.9	21.2	100	0	
Vert.	12310.000	PK	43.9	39.4	10.2	39.2	54.3	73.9	19.6	100	0	
Vert.	2483.500	AV	19.1	27.5	3.6	0.0	50.2	53.9	3.7	208	258	
Vert.	3282.670	AV	41.0	29.1	5.4	41.6	33.9	53.9	20.0	178	282	
Vert.	4924.000	AV	35.8	31.3	5.9	40.9	32.1	53.9	21.8	112	272	
Vert.	4999.958	AV	41.1	31.5	5.9	40.8	37.7	53.9	16.2	105	218	
Vert.	7386.000	AV	35.2	36.9	7.5	41.4	38.2	53.9	15.7	100	0	
Vert.	9848.000	AV	32.5	38.7	8.6	38.8	41.0	53.9	12.9	100	0	
Vert.	12310.000	AV	32.8	39.4	10.2	39.2	43.2	53.9	10.7	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date February 17, 2012 February 22, 2012 February 22, 2012 February 25, 2012
Temperature / Humidity 26deg.C , 30%RH 22deg.C , 23%RH 22deg.C , 27%RH 24deg.C , 32%RH
Engineer Kenichi Adachi Shinichi Takano Akio Hayashi Shinichi Takano
Mode Tx, 2422 MHz
 Tx, IEEE802.11n-40HT, 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.	30.310	QP	40.9	17.9	6.4	32.1	33.1	40.0	6.9	336	186	PK:VBW 3MHz
Hori.	70.169	QP	54.7	6.6	6.8	32.1	36.0	40.0	4.0	245	176	AV:VBW 10Hz
Hori.	77.643	QP	52.0	6.3	7.3	32.1	33.5	40.0	6.5	224	183	
Hori.	186.018	QP	42.5	15.9	7.8	32.0	34.2	43.5	9.3	171	222	
Hori.	410.676	QP	36.6	16.5	9.2	31.9	30.4	46.0	15.6	100	237	
Hori.	2390.000	PK	28.3	27.2	3.6	0.0	59.1	73.9	14.8	198	116	
Hori.	3229.347	PK	46.9	29.0	5.4	41.5	39.8	73.9	34.1	207	165	
Hori.	4844.000	PK	46.1	31.1	5.9	41.0	42.1	73.9	31.8	100	315	
Hori.	4999.941	PK	48.3	31.5	5.9	40.8	44.9	73.9	29.0	102	57	
Hori.	7266.000	PK	47.2	36.6	7.4	41.3	49.9	73.9	24.0	100	0	
Hori.	9688.000	PK	44.9	38.3	8.6	38.8	53.0	73.9	20.9	100	0	
Hori.	12110.000	PK	45.4	39.3	10.1	39.2	55.6	73.9	18.3	100	0	
Hori.	2390.000	AV	14.3	27.2	3.6	0.0	45.1	53.9	8.8	198	116	
Hori.	3229.347	AV	37.5	29.0	5.4	41.5	30.4	53.9	23.5	207	165	
Hori.	4844.000	AV	36.2	31.1	5.9	41.0	32.2	53.9	21.7	100	315	
Hori.	4999.941	AV	40.8	31.5	5.9	40.8	37.4	53.9	16.5	102	57	
Hori.	7266.000	AV	36.7	36.6	7.4	41.3	39.4	53.9	14.5	100	0	
Hori.	9688.000	AV	34.2	38.3	8.6	38.8	42.3	53.9	11.6	100	0	
Hori.	12110.000	AV	35.0	39.3	10.1	39.2	45.2	53.9	8.7	100	0	
Vert.	31.552	QP	41.9	17.4	6.5	32.1	33.7	40.0	6.3	100	201	
Vert.	34.459	QP	41.7	16.1	6.5	32.1	32.2	40.0	7.8	100	269	
Vert.	70.168	QP	50.2	6.6	6.8	32.1	31.5	40.0	8.5	100	165	
Vert.	77.225	QP	54.2	6.3	7.3	32.1	35.7	40.0	4.3	100	316	
Vert.	82.209	QP	50.7	6.5	7.5	32.1	32.6	40.0	7.4	100	148	
Vert.	133.283	QP	48.2	13.8	7.4	32.1	37.3	43.5	6.2	222	275	
Vert.	2390.000	PK	36.1	27.2	3.6	0.0	66.9	73.9	7.0	197	267	
Vert.	3229.368	PK	48.9	29.0	5.4	41.5	41.8	73.9	32.1	182	290	
Vert.	4844.000	PK	46.8	31.1	5.9	41.0	42.8	73.9	31.1	100	242	
Vert.	4999.957	PK	48.9	31.5	5.9	40.8	45.5	73.9	28.4	100	303	
Vert.	7266.000	PK	47.3	36.6	7.4	41.3	50.0	73.9	23.9	100	0	
Vert.	9688.000	PK	44.5	38.3	8.6	38.8	52.6	73.9	21.3	100	0	
Vert.	12110.000	PK	45.1	39.3	10.1	39.2	55.3	73.9	18.6	100	0	
Vert.	2390.000	AV	19.2	27.2	3.6	0.0	50.0	53.9	3.9	197	267	
Vert.	3229.368	AV	41.0	29.0	5.4	41.5	33.9	53.9	20.0	182	290	
Vert.	4844.000	AV	36.2	31.1	5.9	41.0	32.2	53.9	21.7	100	242	
Vert.	4999.957	AV	41.5	31.5	5.9	40.8	38.1	53.9	15.8	100	303	
Vert.	7266.000	AV	36.5	36.6	7.4	41.3	39.2	53.9	14.7	100	0	
Vert.	9688.000	AV	34.0	38.3	8.6	38.8	42.1	53.9	11.8	100	0	
Vert.	12110.000	AV	35.0	39.3	10.1	39.2	45.2	53.9	8.7	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2422.000	PK	48.0	27.3	3.6	0.0	78.9	-	-	Carrier
Hori.	2400.000	PK	24.9	27.3	3.6	0.0	55.8	58.9	3.1	
Vert.	2422.000	PK	55.3	27.3	3.6	0.0	86.2	-	-	Carrier
Vert.	2400.000	PK	30.8	27.3	3.6	0.0	61.7	66.2	4.5	

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

UL Japan, Inc.**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date February 22, 2012 February 25, 2012
 Temperature / Humidity 22deg.C , 27%RH 24deg.C , 32%RH
 Engineer Akio Hayashi Shinichi Takano
 Mode Tx, 2437 MHz
 Tx, IEEE802.11n-40HT, 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.	3249.344	PK	47.6	29.0	5.4	41.6	40.4	73.9	33.5	181	315	PK:VBW 3MHz AV:VBW 10Hz
Hori.	4874.000	PK	45.8	31.2	5.9	41.0	41.9	73.9	32.0	100	260	
Hori.	7311.000	PK	46.0	36.7	7.5	41.4	48.8	73.9	25.1	100	0	
Hori.	9748.000	PK	44.0	38.5	8.6	38.8	52.3	73.9	21.6	100	0	
Hori.	12185.000	PK	45.4	39.3	10.2	39.2	55.7	73.9	18.2	100	0	
Hori.	3249.344	AV	36.6	29.0	5.4	41.6	29.4	53.9	24.5	181	315	
Hori.	4874.000	AV	35.1	31.2	5.9	41.0	31.2	53.9	22.7	100	260	
Hori.	7311.000	AV	34.6	36.7	7.5	41.4	37.4	53.9	16.5	100	0	
Hori.	9748.000	AV	32.6	38.5	8.6	38.8	40.9	53.9	13.0	100	0	
Hori.	12185.000	AV	33.5	39.3	10.2	39.2	43.8	53.9	10.1	100	0	
Vert.	3249.344	PK	48.4	29.0	5.4	41.6	41.2	73.9	32.7	181	285	
Vert.	4874.000	PK	46.3	31.2	5.9	41.0	42.4	73.9	31.5	100	332	
Vert.	7311.000	PK	44.2	36.7	7.5	41.4	47.0	73.9	26.9	100	0	
Vert.	9748.000	PK	44.4	38.5	8.6	38.8	52.7	73.9	21.2	100	0	
Vert.	12185.000	PK	44.9	39.3	10.2	39.2	55.2	73.9	18.7	100	0	
Vert.	3249.344	AV	41.3	29.0	5.4	41.6	34.1	53.9	19.8	181	285	
Vert.	4874.000	AV	35.1	31.2	5.9	41.0	31.2	53.9	22.7	100	332	
Vert.	7311.000	AV	34.7	36.7	7.5	41.4	37.5	53.9	16.4	100	0	
Vert.	9748.000	AV	32.8	38.5	8.6	38.8	41.1	53.9	12.8	100	0	
Vert.	12185.000	AV	33.6	39.3	10.2	39.2	43.9	53.9	10.0	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date February 17, 2012 February 22, 2012 February 25, 2012
 Temperature / Humidity 26deg.C , 30%RH 22deg.C , 27%RH 24deg.C , 32%RH
 Engineer Kenichi Adachi Akio Hayashi Shinichi Takano
 Mode Tx, 2452 MHz
 Tx, IEEE802.11n-40HT, 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	25.7	27.5	3.6	0.0	56.8	73.9	17.1	197	114	PK:VBW 3MHz
Hori.	3269.225	PK	47.3	29.0	5.4	41.6	40.1	73.9	33.8	180	285	AV:VBW 10Hz
Hori.	4904.000	PK	46.9	31.3	5.9	40.9	43.2	73.9	30.7	100	351	
Hori.	7356.000	PK	47.0	36.8	7.5	41.4	49.9	73.9	24.0	100	0	
Hori.	9808.000	PK	44.6	38.6	8.7	38.8	53.1	73.9	20.8	100	0	
Hori.	12260.000	PK	42.8	39.3	10.2	39.2	53.1	73.9	20.8	100	0	
Hori.	2483.500	AV	13.4	27.5	3.6	0.0	44.5	53.9	9.4	197	114	
Hori.	3269.225	AV	36.9	29.0	5.4	41.6	29.7	53.9	24.2	180	285	
Hori.	4904.000	AV	35.6	31.3	5.9	40.9	31.9	53.9	22.0	100	351	
Hori.	7356.000	AV	35.7	36.8	7.5	41.4	38.6	53.9	15.3	100	0	
Hori.	9808.000	AV	33.0	38.6	8.7	38.8	41.5	53.9	12.4	100	0	
Hori.	12260.000	AV	32.5	39.3	10.2	39.2	42.8	53.9	11.1	100	0	
Vert.	2483.500	PK	35.0	27.5	3.6	0.0	66.1	73.9	7.8	196	271	
Vert.	3269.225	PK	49.1	29.0	5.4	41.6	41.9	73.9	32.0	180	272	
Vert.	4904.000	PK	46.8	31.3	5.9	40.9	43.1	73.9	30.8	100	268	
Vert.	7356.000	PK	45.4	36.8	7.5	41.4	48.3	73.9	25.6	100	0	
Vert.	9808.000	PK	43.3	38.6	8.7	38.8	51.8	73.9	22.1	100	0	
Vert.	12260.000	PK	43.4	39.3	10.2	39.2	53.7	73.9	20.2	100	0	
Vert.	2483.500	AV	19.5	27.5	3.6	0.0	50.6	53.9	3.3	196	271	
Vert.	3269.225	AV	41.0	29.0	5.4	41.6	33.8	53.9	20.1	180	272	
Vert.	4904.000	AV	35.6	31.3	5.9	40.9	31.9	53.9	22.0	100	268	
Vert.	7356.000	AV	35.8	36.8	7.5	41.4	38.7	53.9	15.2	100	0	
Vert.	9808.000	AV	33.0	38.6	8.7	38.8	41.5	53.9	12.4	100	0	
Vert.	12260.000	AV	32.4	39.3	10.2	39.2	42.7	53.9	11.2	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

UL Japan, Inc.

Shonan EMC Lab.

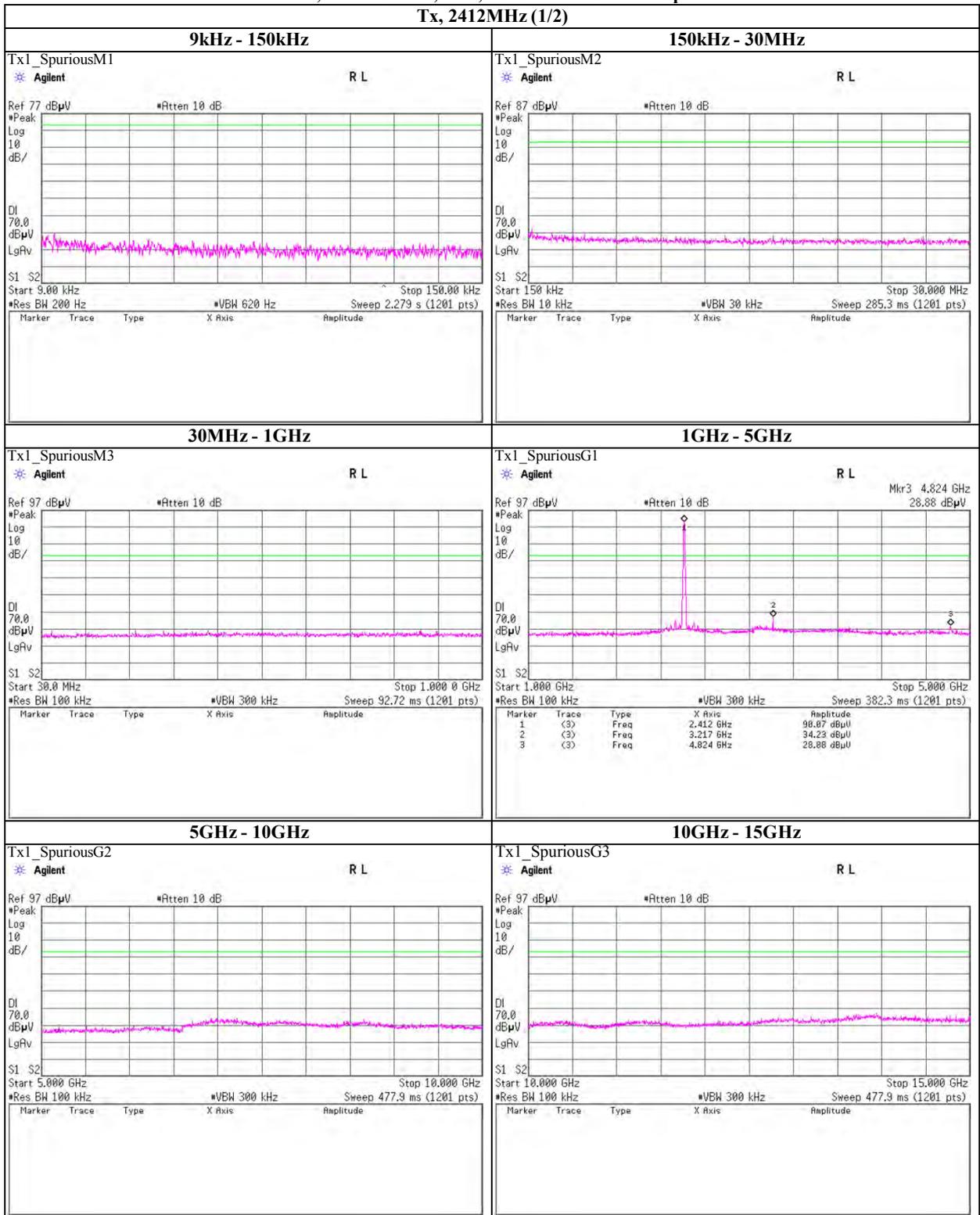
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Spurious emission (Conducted)

Tx, IEEE802.11b, PN9, worst data mode 11Mbps



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

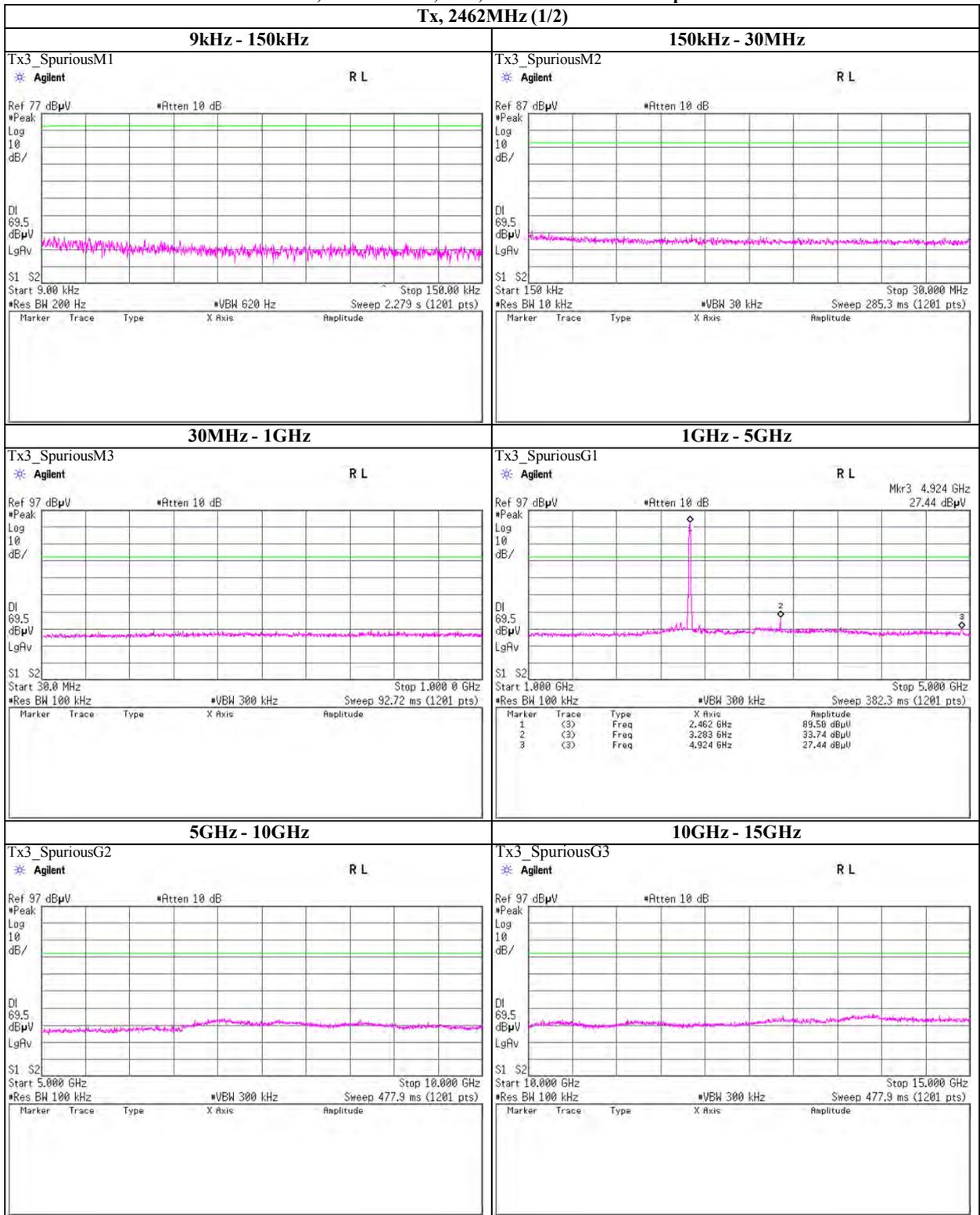
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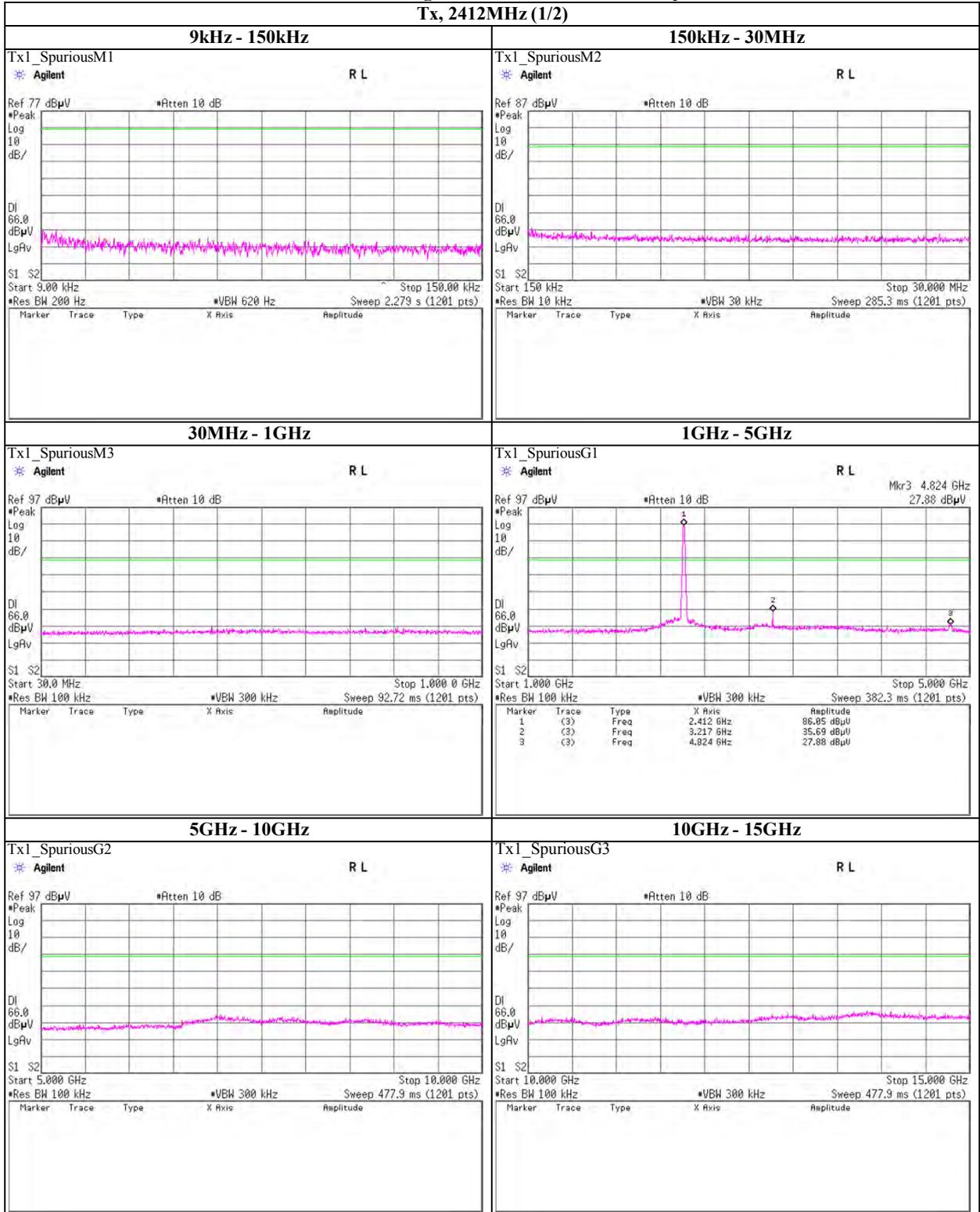
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Spurious emission (Conducted)
Tx, IEEE802.11b, PN9, worst data mode 11Mbps



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

Spurious emission (Conducted)
Tx, IEEE802.11g, PN9, worst data mode 18Mbps
Tx, 2412MHz (1/2)



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

Spurious emission (Conducted)
Tx, IEEE802.11g, PN9, worst data mode 18Mbps
Tx, 2412MHz (2/2)



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

Spurious emission (Conducted)
Tx, IEEE802.11g, PN9, worst data mode 18Mbps
Tx, 2437MHz (1/2)



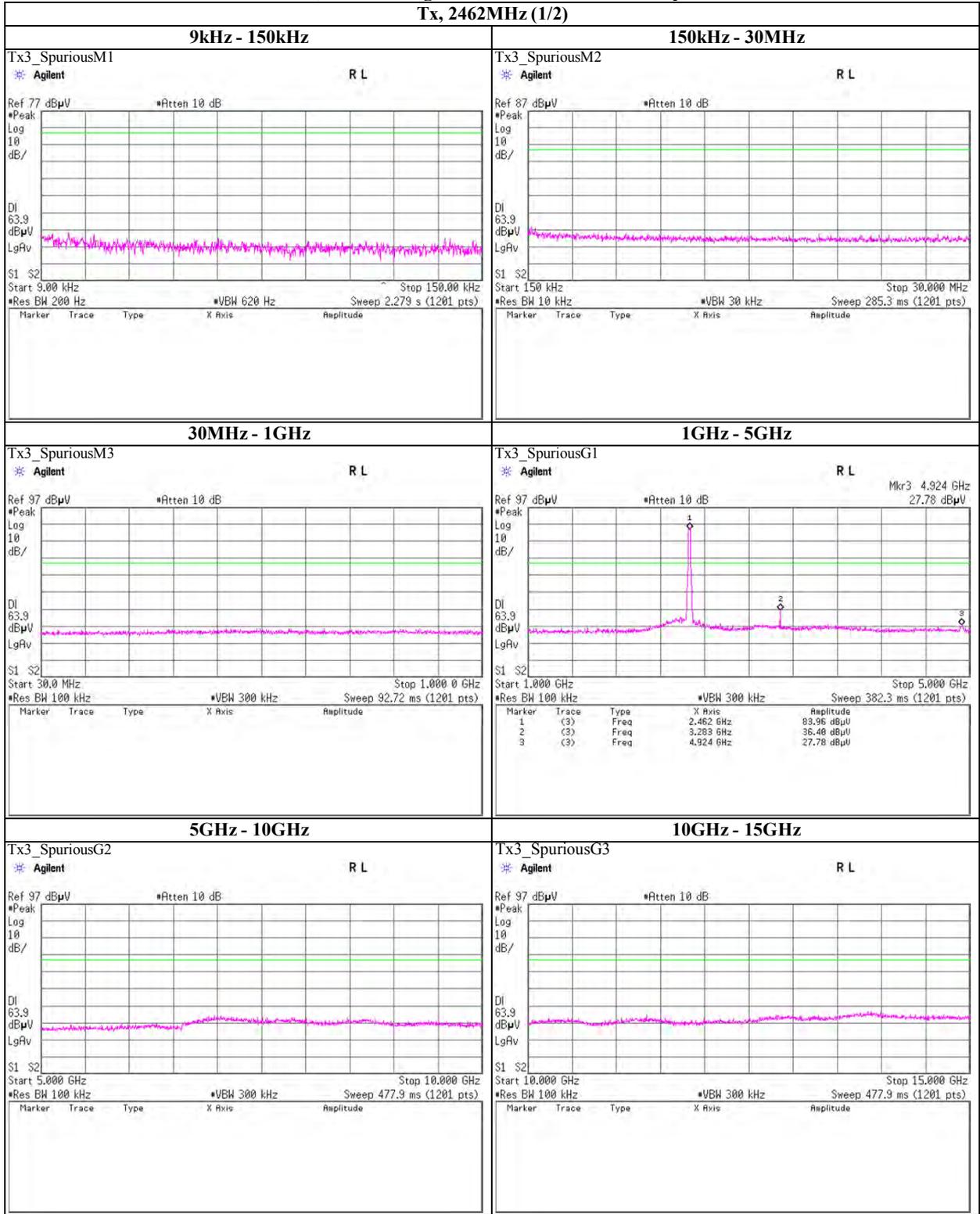
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Shonan EMC Lab.
 1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
 Telephone : +81 463 50 6400
 Facsimile : +81 463 50 6401

Spurious emission (Conducted)
Tx, IEEE802.11g, PN9, worst data mode 18Mbps
Tx, 2437MHz (2/2)



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

Spurious emission (Conducted)
Tx, IEEE802.11g, PN9, worst data mode 18Mbps



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

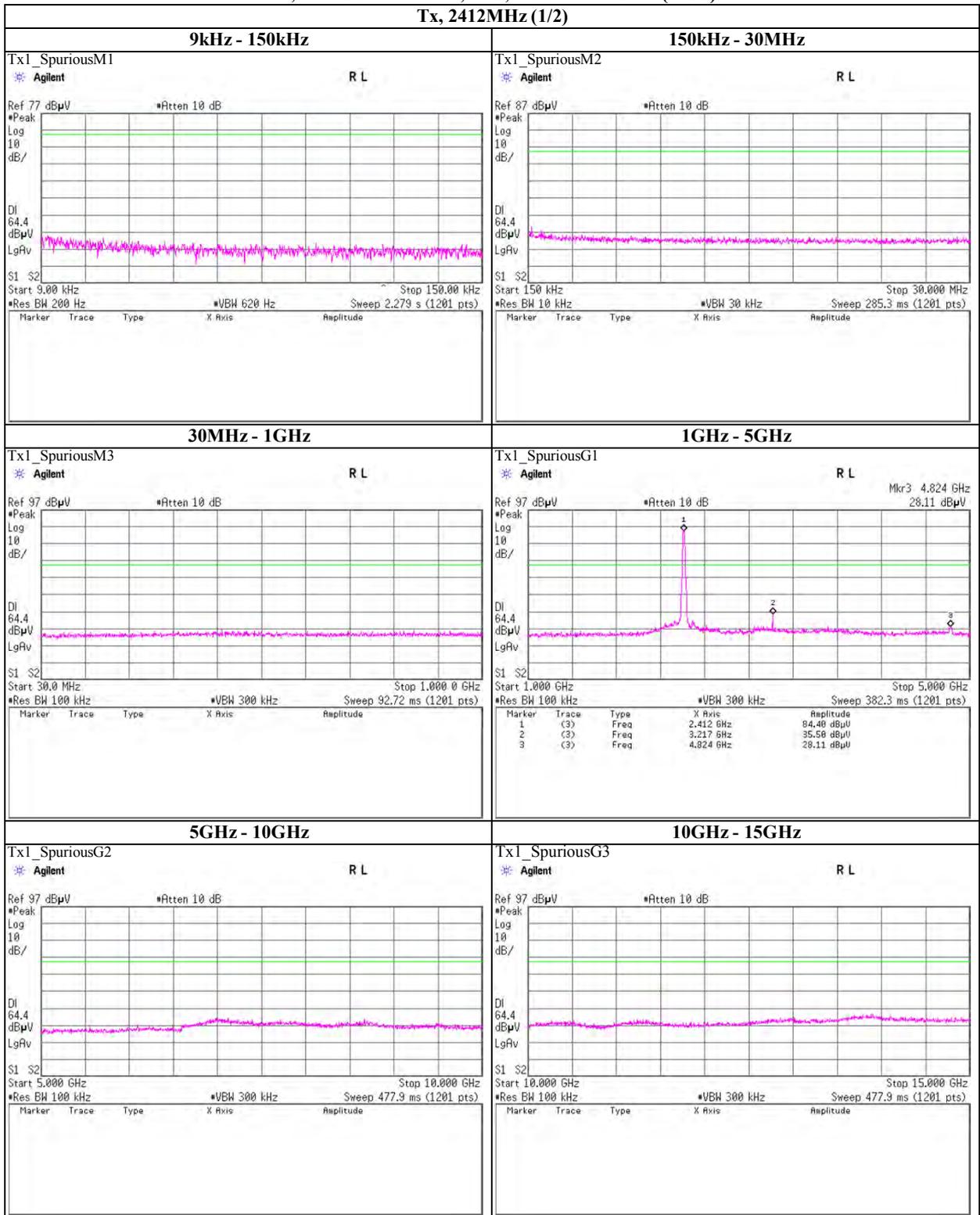
Spurious emission (Conducted)
Tx, IEEE802.11g, PN9, worst data mode 18Mbps
Tx, 2462MHz (2/2)



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

Spurious emission (Conducted)

Tx, IEEE802.11n-20HT, PN9, worst data mode 0(MCS)



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

Spurious emission (Conducted)
Tx, IEEE802.11n-20HT, PN9, worst data mode 0(MCS)



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

Spurious emission (Conducted)

Tx, IEEE802.11n-20HT, PN9, worst data mode 0(MCS)



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

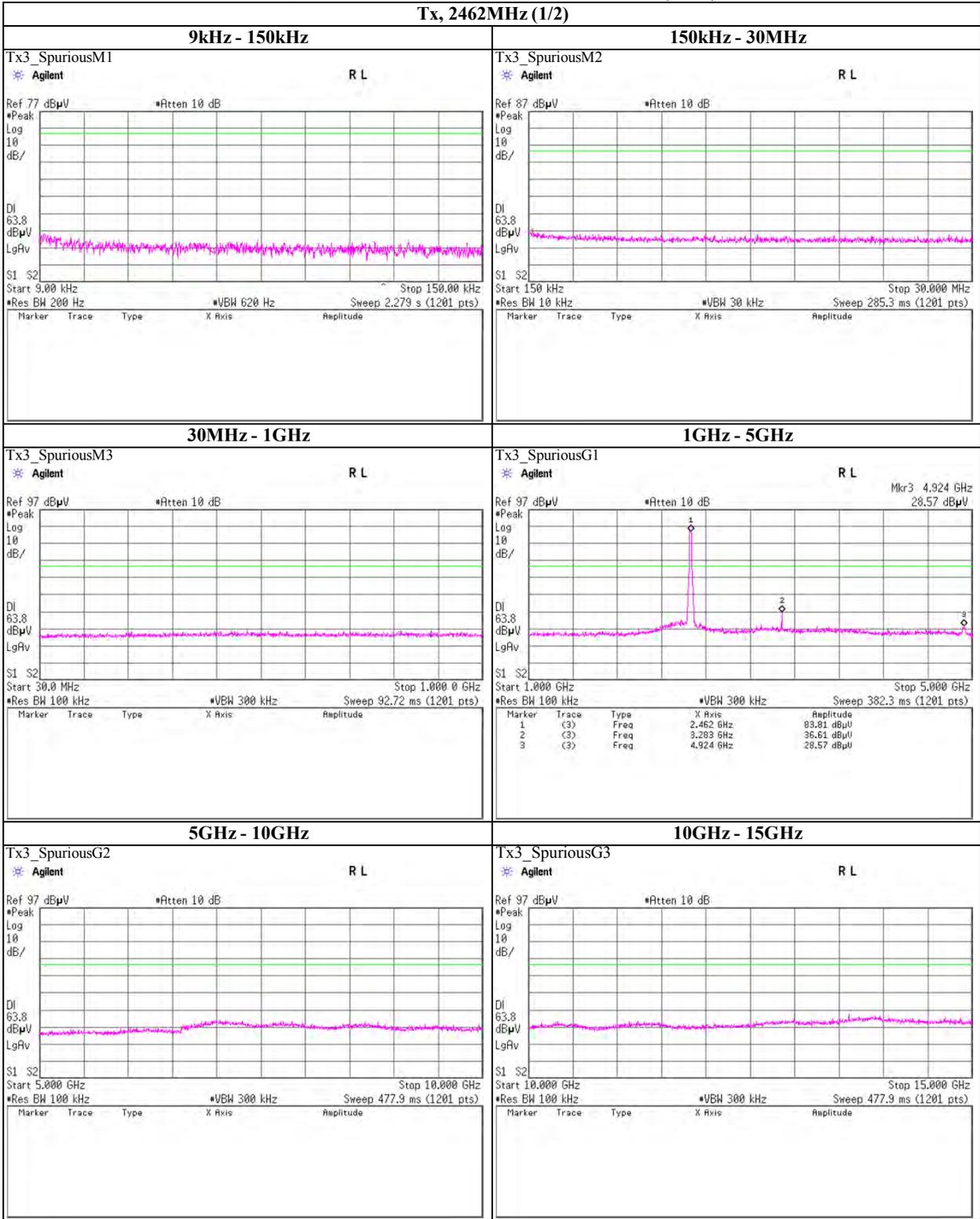
Spurious emission (Conducted)
Tx, IEEE802.11n-20HT, PN9, worst data mode 0(MCS)



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Shonan EMC Lab.
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 Facsimile : +81 463 50 6401

Spurious emission (Conducted)
Tx, IEEE802.11n-20HT, PN9, worst data mode 0(MCS)

Tx, 2462MHz (1/2)



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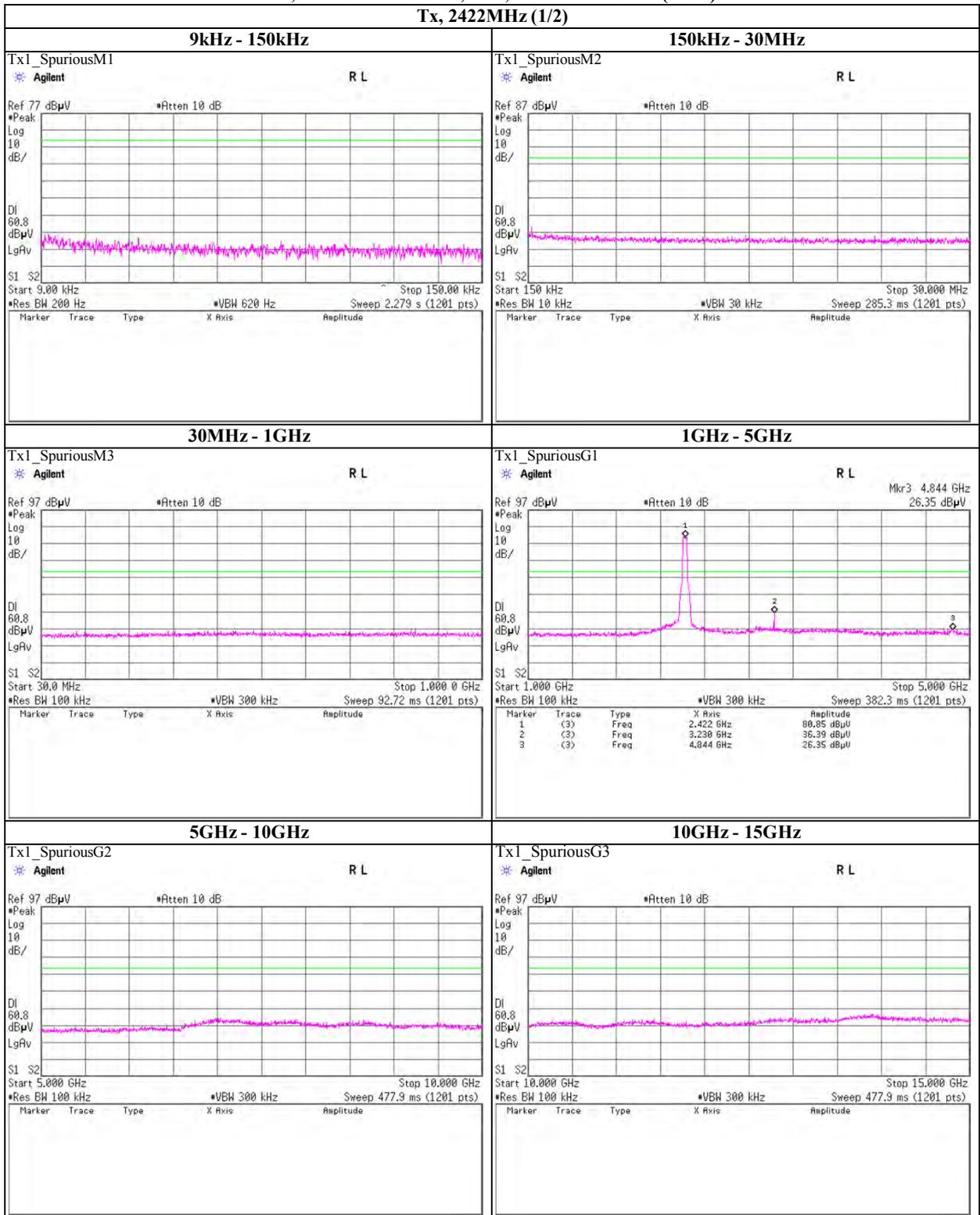
Spurious emission (Conducted)
Tx, IEEE802.11n-20HT, PN9, worst data mode 0(MCS)



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Spurious emission (Conducted)

Tx, IEEE802.11n-40HT, PN9, worst data mode 0(MCS)

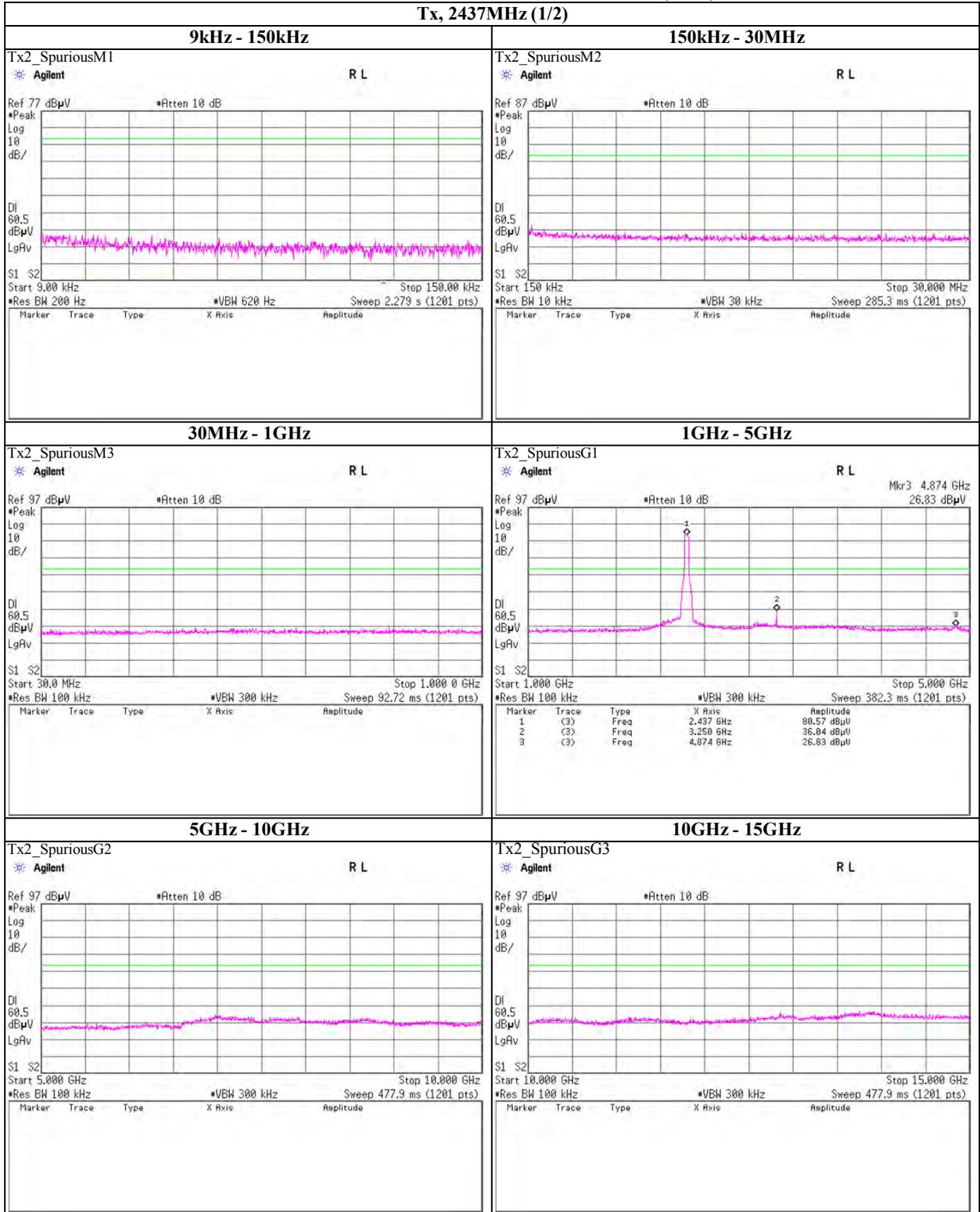


Spurious emission (Conducted)
Tx, IEEE802.11n-40HT, PN9, worst data mode 0(MCS)



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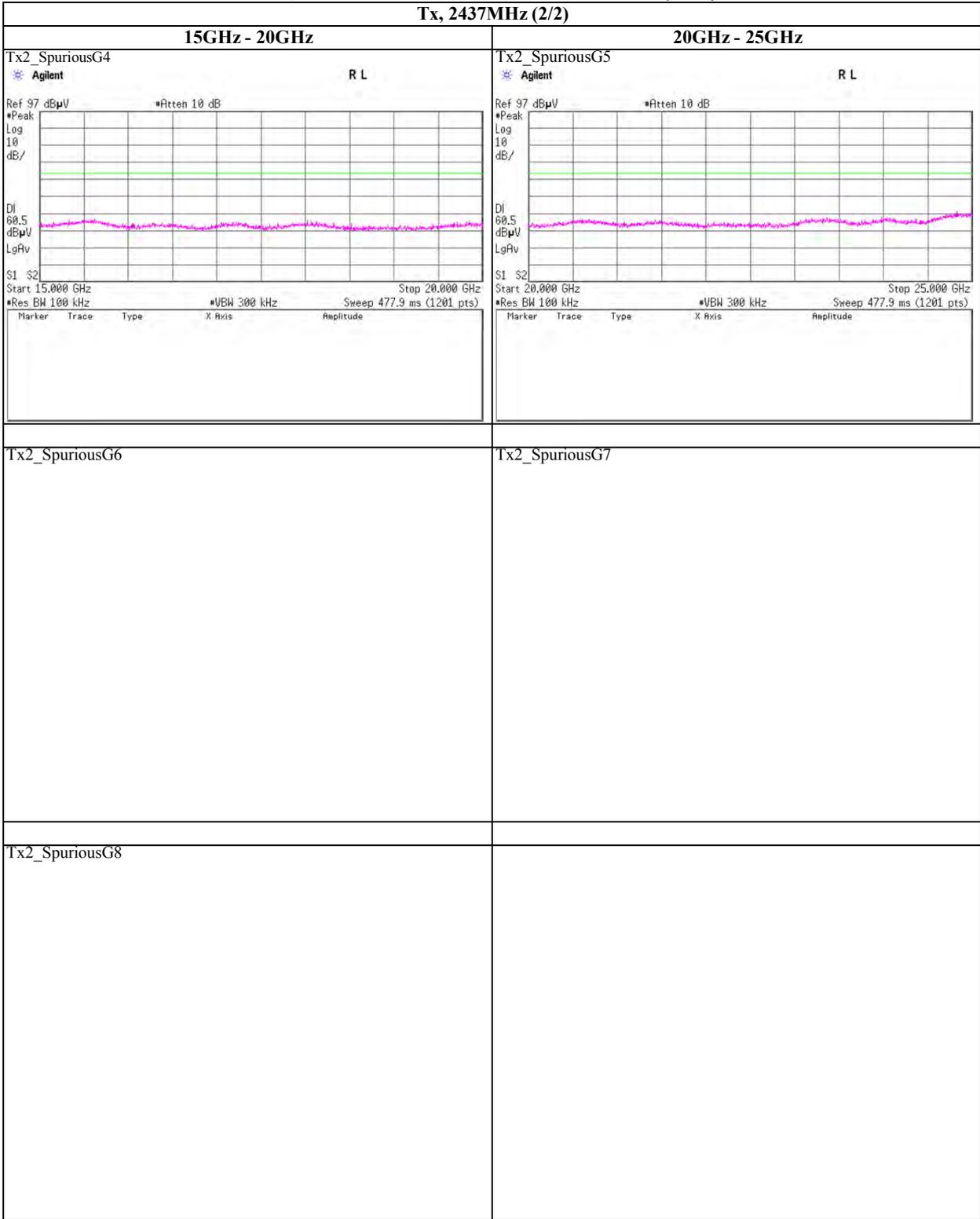
Spurious emission (Conducted)
Tx, IEEE802.11n-40HT, PN9, worst data mode 0(MCS)



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Spurious emission (Conducted)
Tx, IEEE802.11n-40HT, PN9, worst data mode 0(MCS)

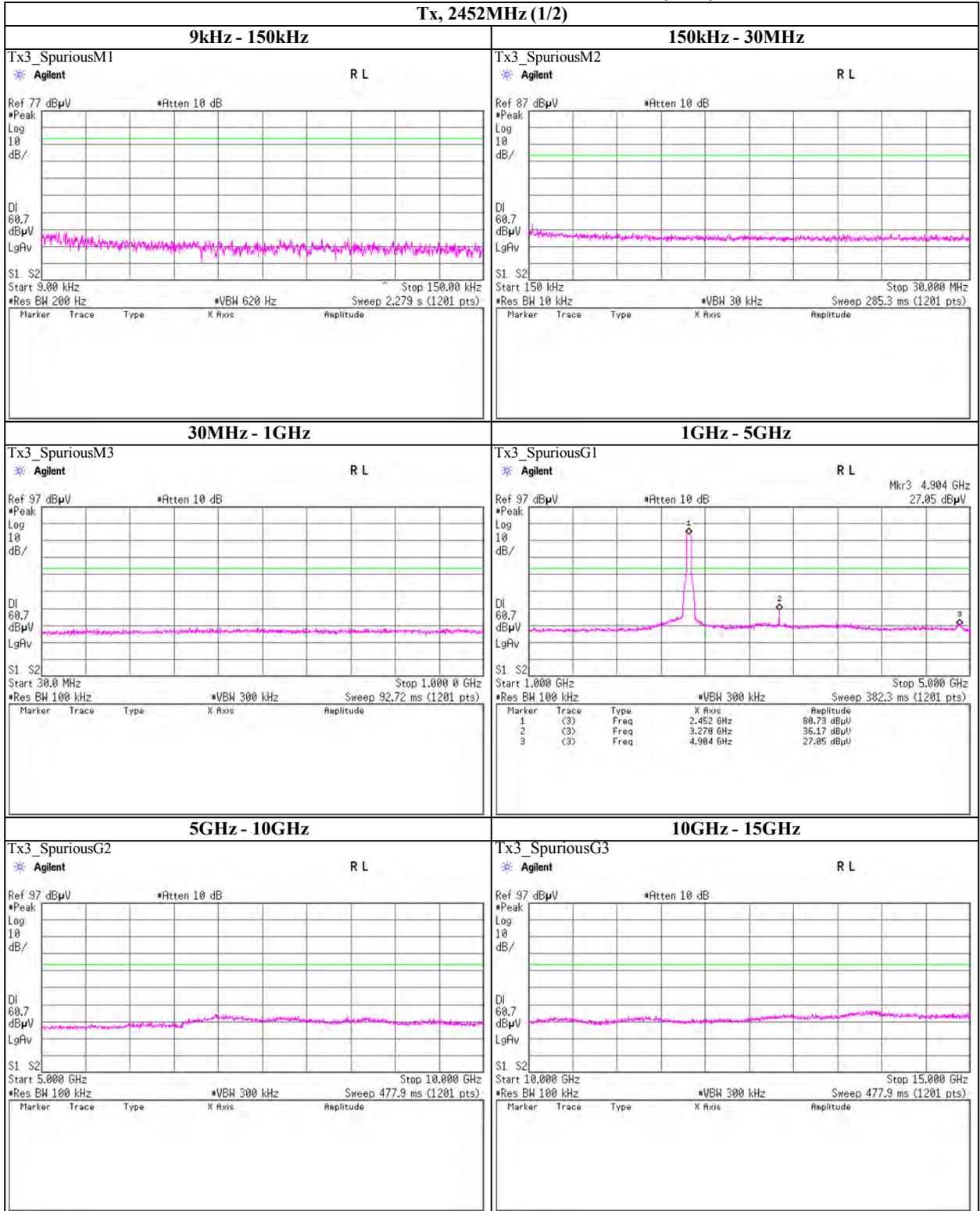
Tx, 2437MHz (2/2)



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 Facsimile : +81 463 50 6401

Spurious emission (Conducted)

Tx, IEEE802.11n-40HT, PN9, worst data mode 0(MCS)



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Shonan EMC Lab.
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 Facsimile : +81 463 50 6401

Spurious emission (Conducted)
Tx, IEEE802.11n-40HT, PN9, worst data mode 0(MCS)

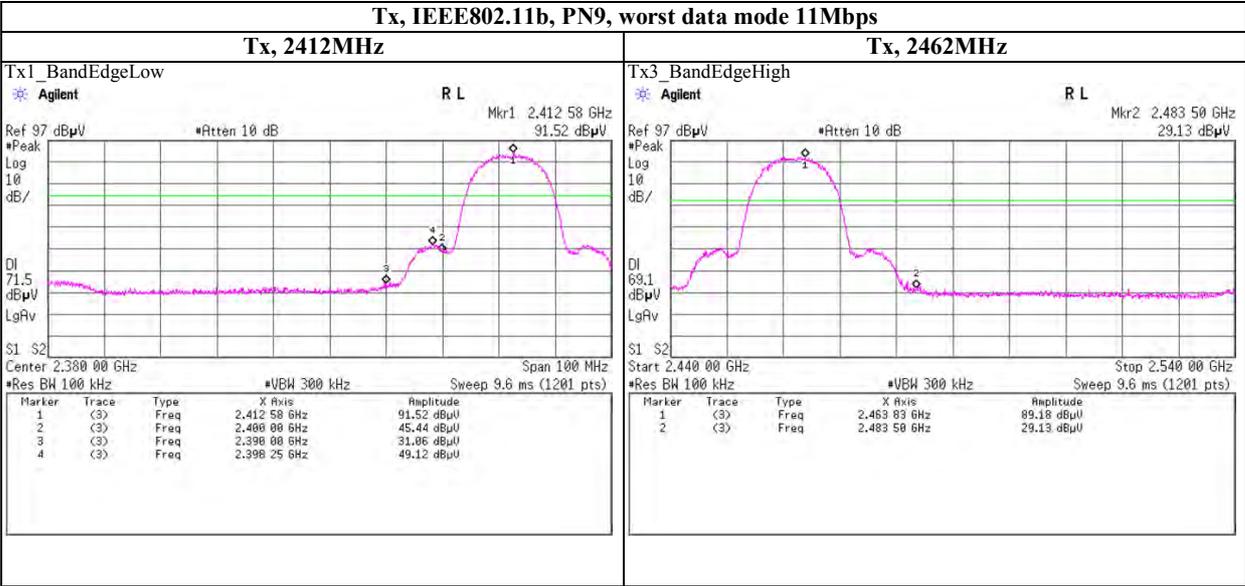
Tx, 2452MHz (2/2)



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Spurious emission (Conducted)

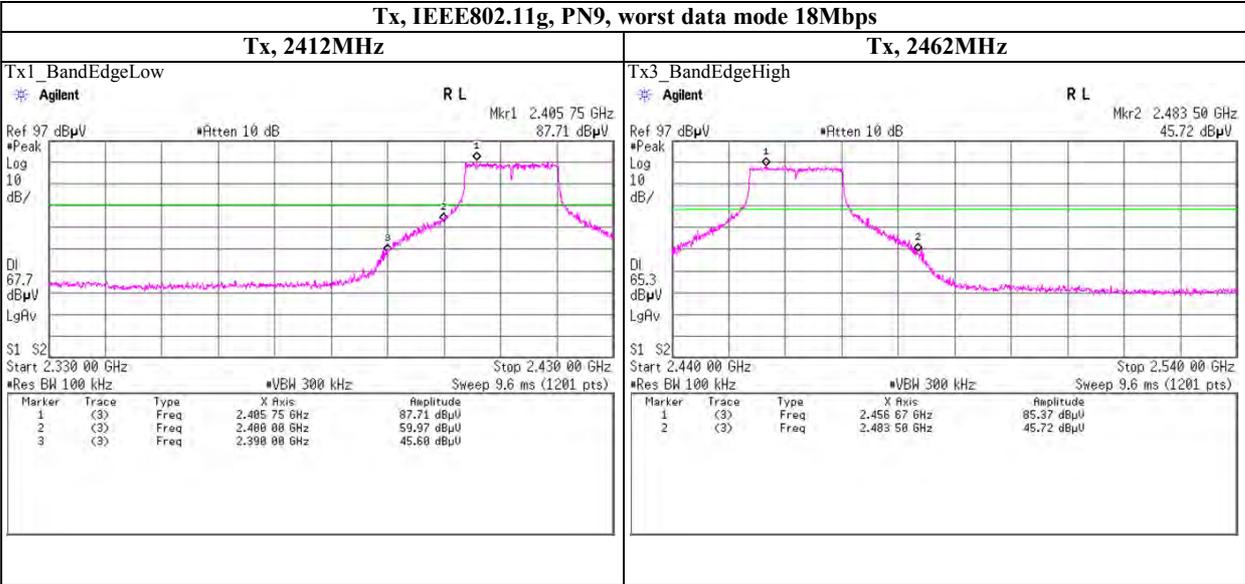
Band Edge compliance



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

Spurious emission (Conducted)

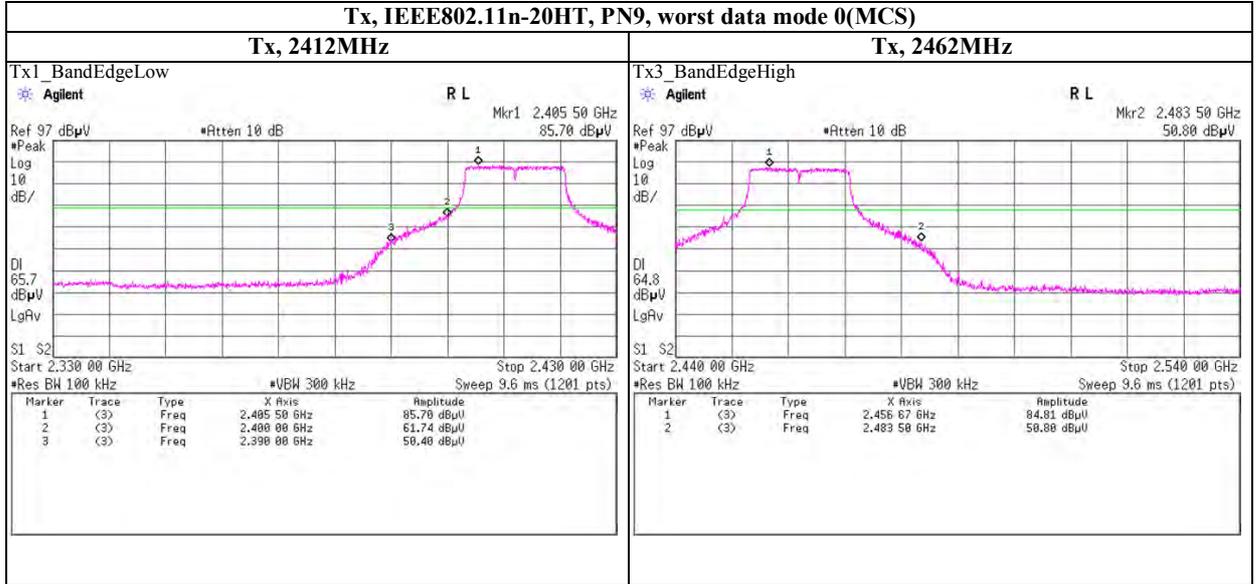
Band Edge compliance



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

Band Edge compliance



UL Japan, Inc.

Shonan EMC Lab.

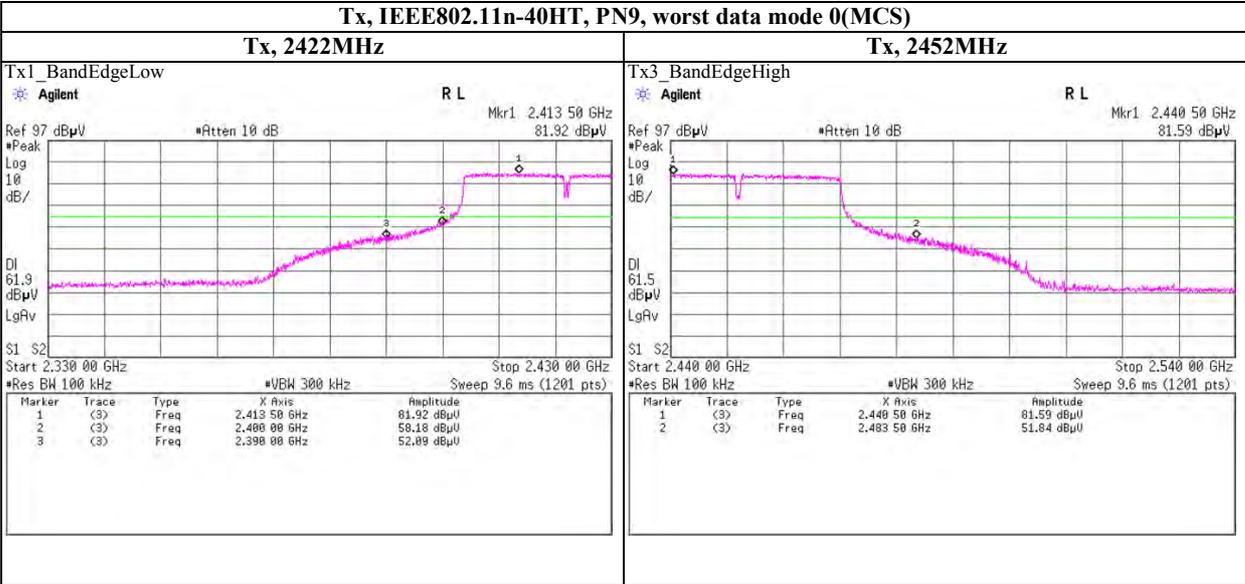
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Spurious emission (Conducted)

Band Edge compliance



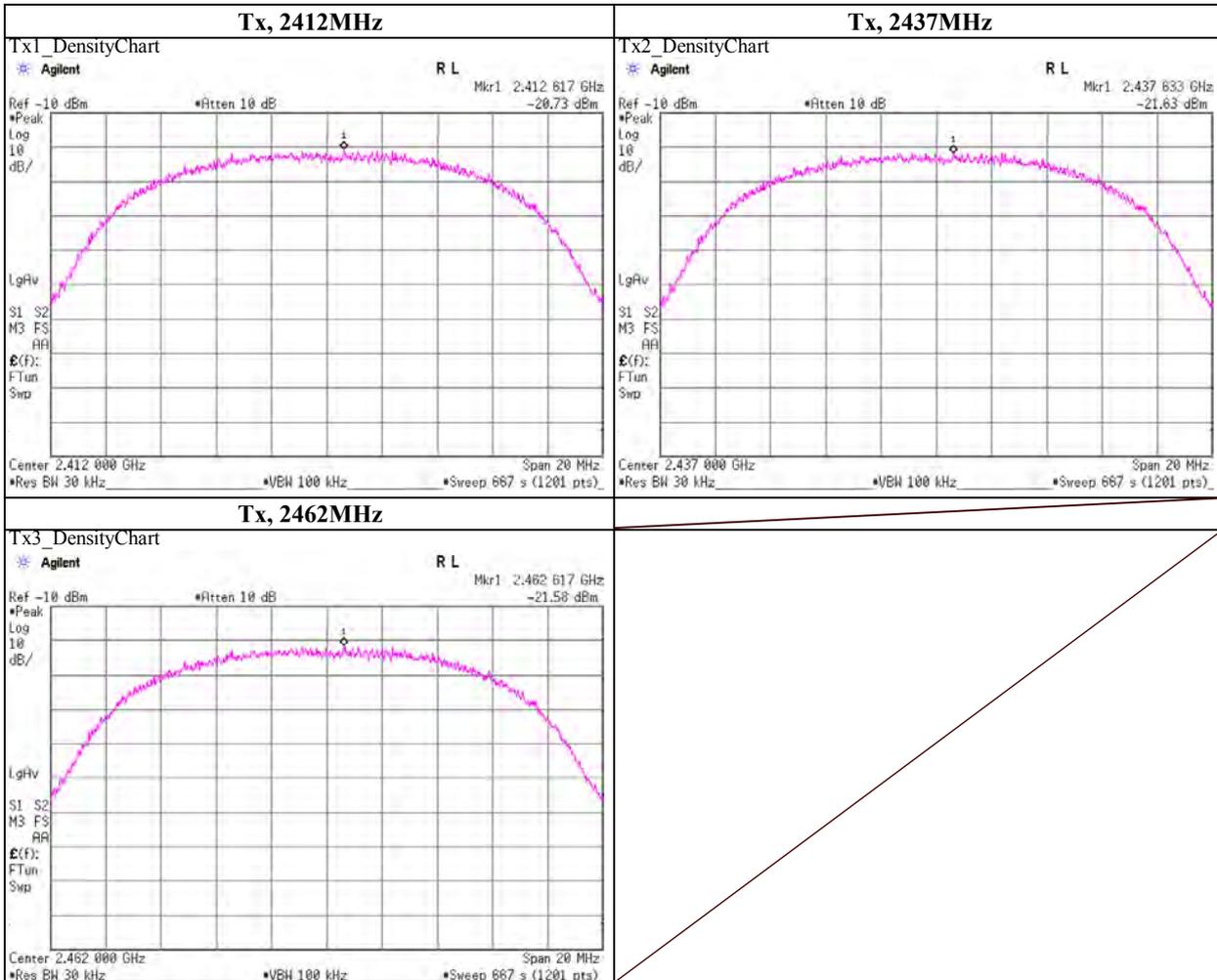
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Power Density

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 9, 2012	
Temperature / Humidity	24deg.C , 25%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11b, PN9, worst data mode 11Mbps	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2412.62	-20.73	1.99	20.01	1.27	8.00	6.73
2437.0000	2437.63	-21.63	1.99	20.01	0.37	8.00	7.63
2462.0000	2462.62	-21.58	2.00	20.01	0.43	8.00	7.57

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



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 Telephone : +81 463 50 6400
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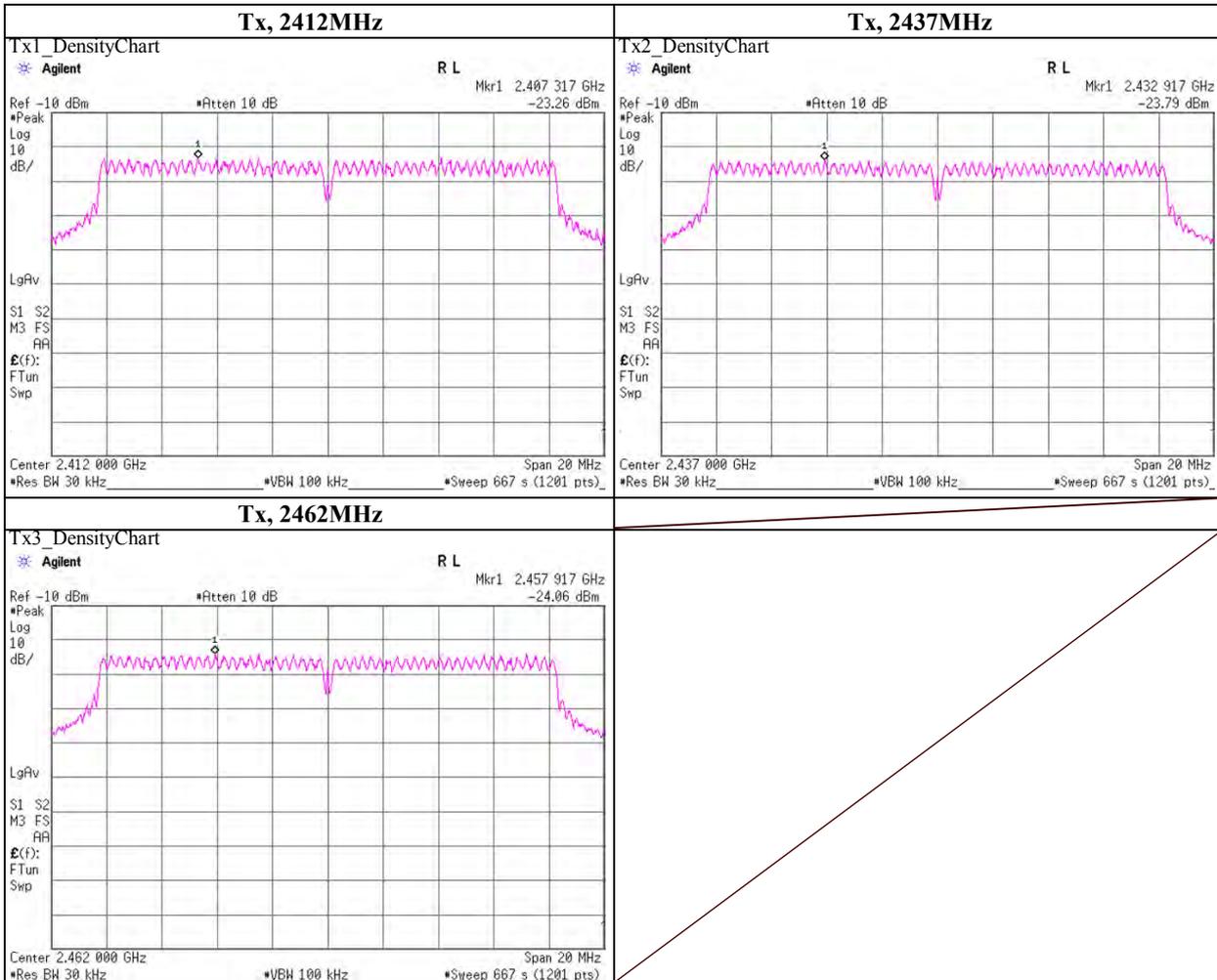
Power Density

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 9, 2012	
Temperature / Humidity	24deg.C , 25%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11g, PN9, worst data mode 18Mbps	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2407.32	-23.26	1.99	20.01	-1.26	8.00	9.26
2437.0000	2432.92	-23.79	1.99	20.01	-1.79	8.00	9.79
2462.0000	2457.92	-24.06	2.00	20.01	-2.05	8.00	10.05

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss



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 Telephone : +81 463 50 6400
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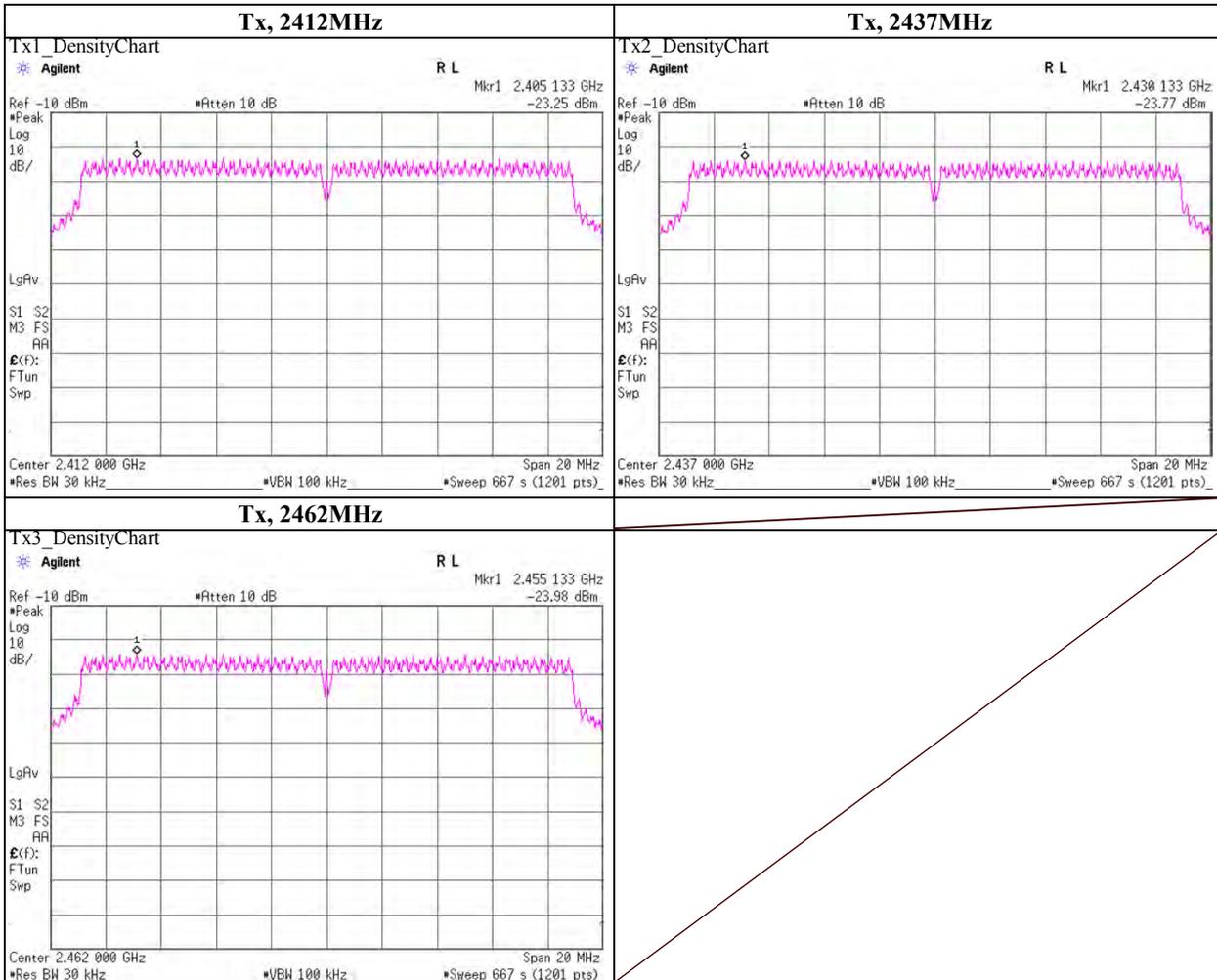
Power Density

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 9, 2012	
Temperature / Humidity	24deg.C , 25%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n-20HT, PN9, worst data mode 0(MCS)	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.0000	2405.13	-23.25	1.99	20.01	-1.25	8.00	9.25
2437.0000	2430.13	-23.77	1.99	20.01	-1.77	8.00	9.77
2462.0000	2455.13	-23.98	2.00	20.01	-1.97	8.00	9.97

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss



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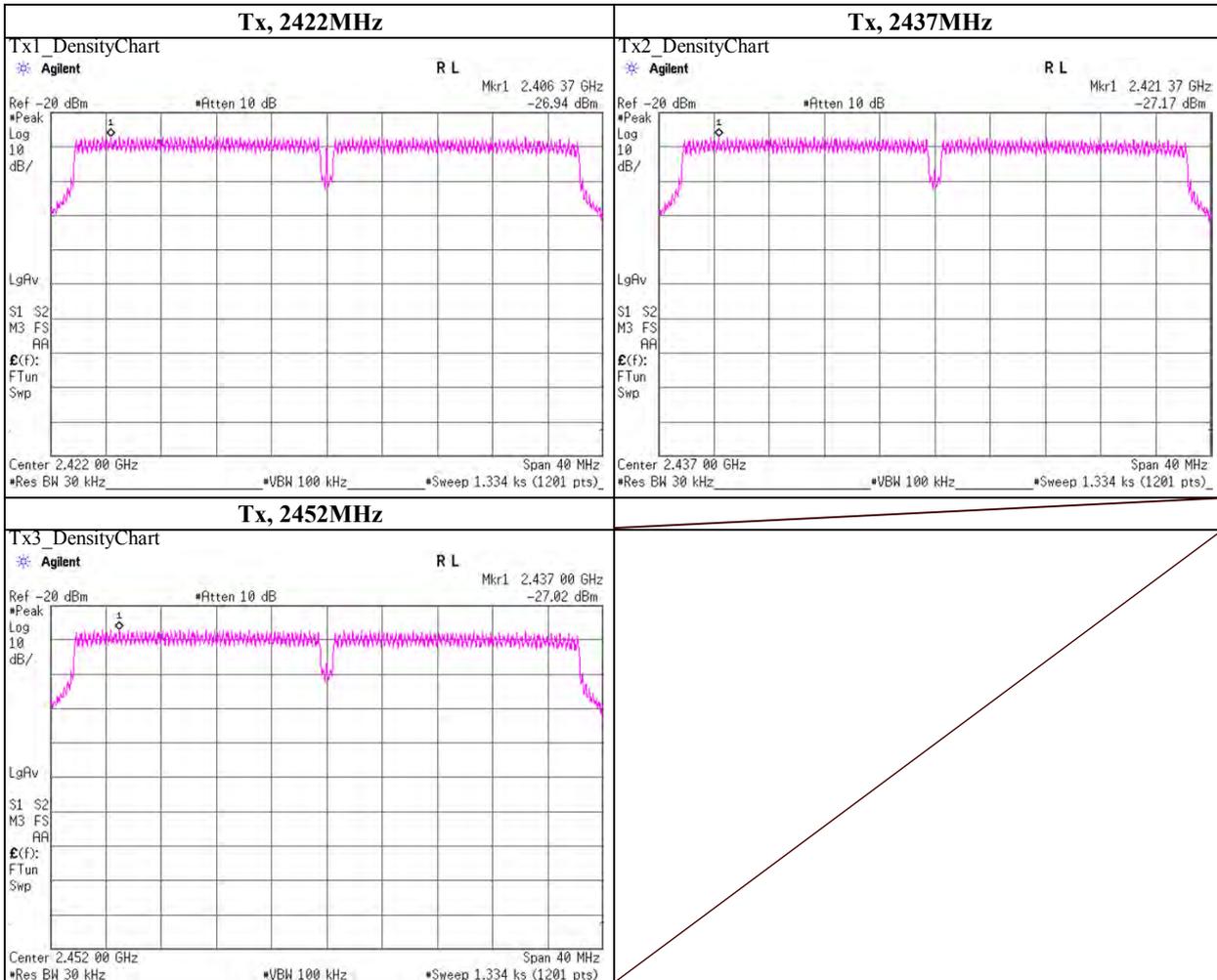
Power Density

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	February 9, 2012	
Temperature / Humidity	24deg.C , 25%RH	
Engineer	Shinichi Takano	
Mode	Tx, IEEE802.11n-40HT, PN9, worst data mode 0(MCS)	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2422.0000	2406.37	-26.94	1.99	20.01	-4.94	8.00	12.94
2437.0000	2421.37	-27.17	1.99	20.01	-5.17	8.00	13.17
2452.0000	2437.00	-27.02	1.99	20.01	-5.02	8.00	13.02

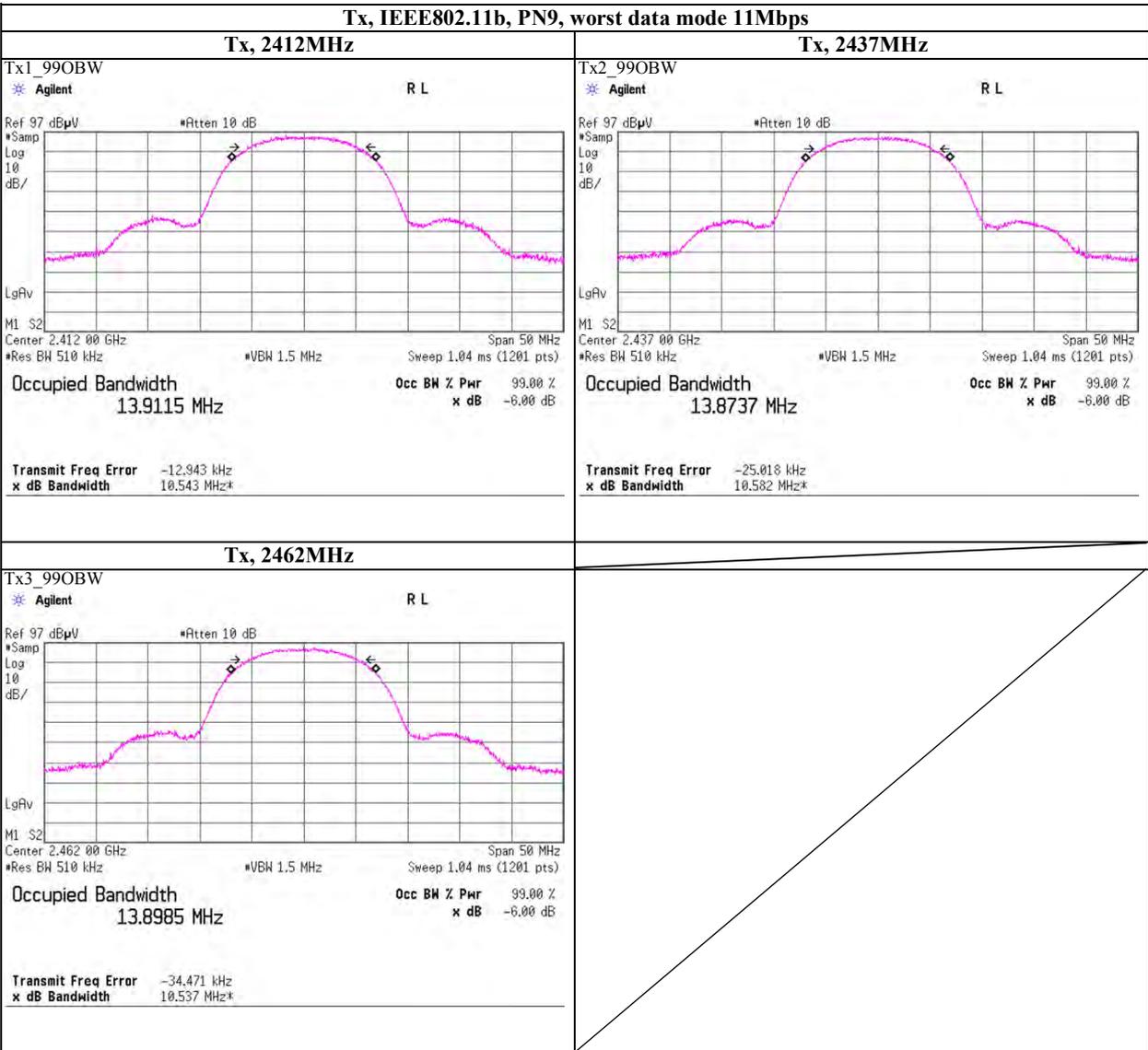
Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss



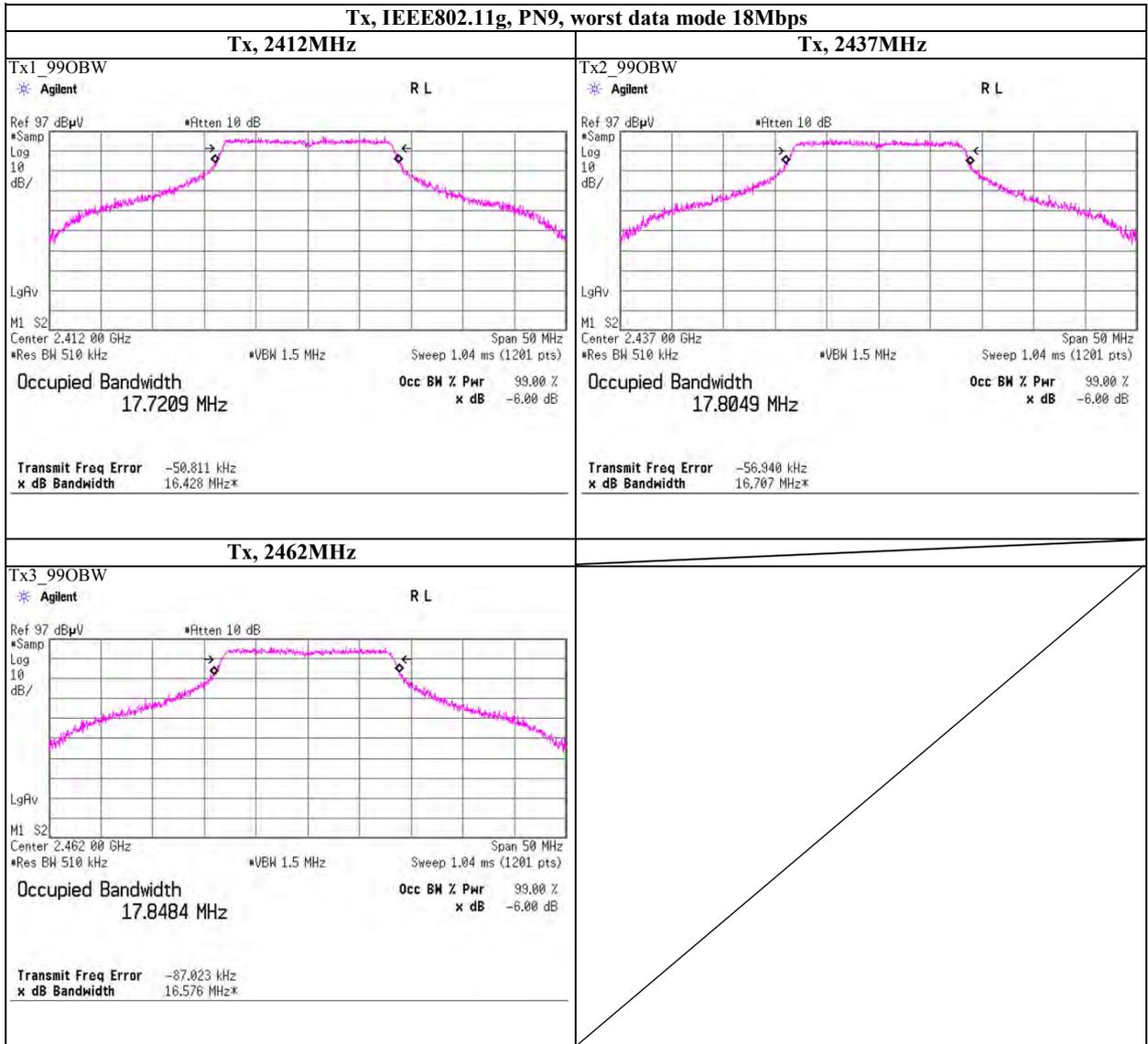
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99% Occupied Bandwidth



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99% Occupied Bandwidth



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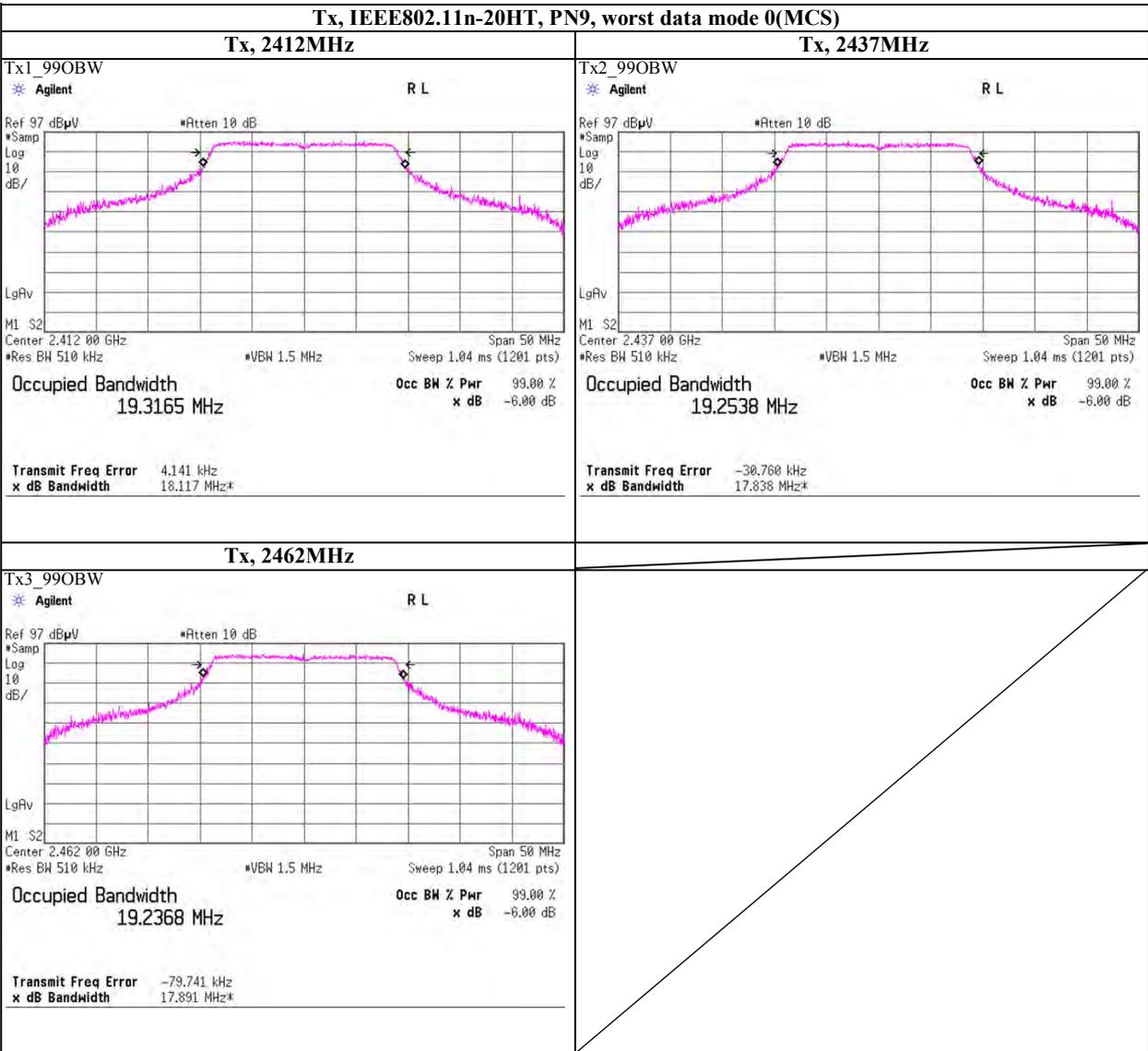
Shonan EMC Lab.

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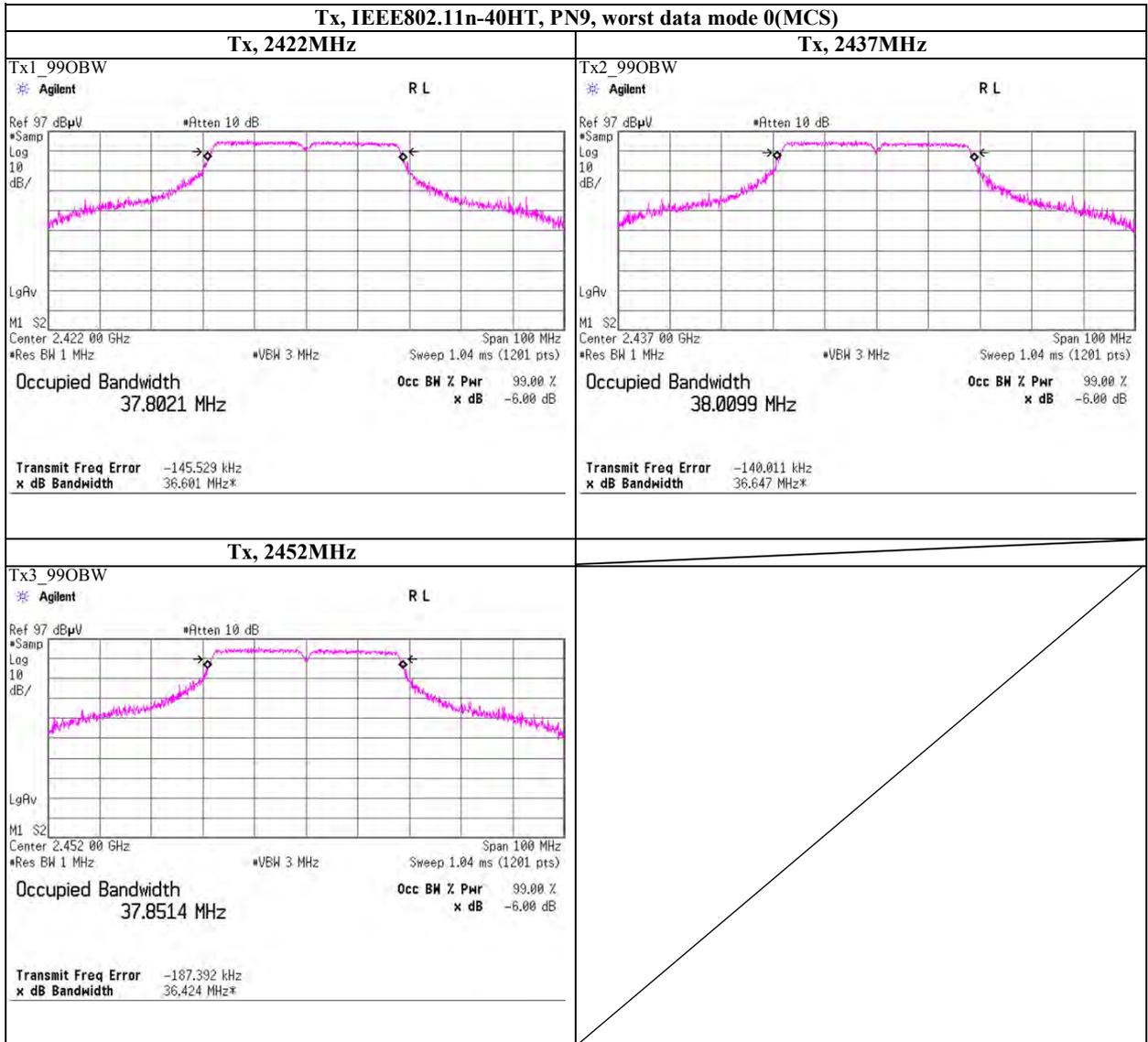
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99% Occupied Bandwidth



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99% Occupied Bandwidth



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APPENDIX 2
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2011/03/02 * 12
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2011/04/12 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2011/04/12 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	AT	2011/12/05 * 12
SAT20-02	Attenuator	Agilent	8493C-020	74890	AT	2011/03/23 * 12
SCC-G13	Coaxial Cable	Suhner	SUCOFLEX 102	31599/2	AT	2011/03/23 * 12
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2011/07/19 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2011/04/28 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2011/05/27 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2011/08/28 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2012/02/06 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE	2011/03/07 * 12
SJM-10	Measure	PROMART	SEN1935	-	RE,CE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE, RFI,MF)	-	RE,CE	-
SAT20-01	Attenuator(above 1GHz)	Agilent	8493C-020	74889	RE	2011/12/27 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2011/12/27 * 12
SHA-04	Horn Antenna	ETS LINDGREN	3160-09	LM3640	RE	2011/03/15 * 12
SAF-08	Pre Amplifier	TOYO Corporation	HAP18-26W	00000019	RE	2011/03/16 * 12
SCC-G17	Coaxial Cable	Suhner	SUCOFLEX 104A	46291/4A	RE	2011/03/16 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2012/02/10 * 12
SAT6-03	Attenuator	JFW	50HF-006N	-	RE	2012/02/10 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2011/10/23 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271 (RF Selector)	RE	2011/04/28 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2011/10/23 * 12
STR-03	Test Receiver	Rohde & Schwarz	ES140	100054/040	RE,CE	2011/07/28 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2011/09/23 * 12
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271 (RF Selector)	CE	2011/04/28 * 12
SLS-09	LISN	Rohde & Schwarz	ENV4200	100050	CE	2011/04/05 * 12
SAT3-06	Attenuator	JFW	50HF-003N	-	CE	2012/02/17 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2011/03/02 * 12

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

All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards .

Test Item :

- CE: Conducted emission ,
- RE: Radiated emission ,
- AT: Antenna terminal conducted tests