



RADIO TEST REPORT

Test Report No. : 11285933S-A-R2

Applicant : FUJIFILM Corporation
Type of Equipment : Flat Panel Sensor
Model No. : RIC 24C
FCC ID : W2Z-01000007
Test regulation : FCC Part 15 Subpart C: 2017
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 above regulation.
4. The test results in this report are traceable to the national or international standards.
5. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 11285933S-A-R1.

Date of test: February 1 to May 30, 2016

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- ☐ 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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13-EM-F0429

REVISION HISTORY

Original Test Report No.: 11285933S-A

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SECTION 1: Customer information

Company Name	:	FUJIFILM Corporation
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SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Flat Panel Sensor
Model No.	:	RIC 24C
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC 8 V
Receipt Date of Sample	:	February 1, 2016
Country of Mass-production	:	Taiwan
Condition of EUT	:	Engineering prototype (Not for sale. This sample is equivalent to mass-production items.)
Modification of EUT	:	No Modification by the test lab.

2.2 Product Description

Model: RIC 24C (referred to as the EUT in this report) is a Flat Panel Sensor.

During the antenna terminal conducted test, the built-in radio module: SX-PCEAN(FF-E) was connected with the test system for the evaluation.

General Specification

Clock frequency(ies) in the system : 40 MHz

Radio Specification (Wireless LAN module, antenna)

Equipment type	Transceiver						
Model	SX-PCEAN(FF-E)						
Frequency band	2.4GHz band		5GHz band				
			-	U-NII-1 (W52)	U-NII-2A (W53)	U-NII-2C (W56)	U-NII-3 (W58)
Frequency of operation (MHz) (*ch.: channel)	11b.g.n-20	2412-2462 (*ch.1-11)	11a.n-20	5180-5240 (*ch.36-48)	5260-5320 (*ch.52-64)	5500-5580/5650-5700 (*ch.100-116/132-140)	5745-5825 (*ch.149-165)
	11n-40	2422-2452 (*ch.3-9)	11n-40	5190-5230 (*ch.38-46)	5270-5310 (*ch.54-62)	5510,5550,5670 (*ch.102,110,134)	5755, 5795 (*ch.151,159)
Channel spacing (MHz)	5 (11b.g.n-20,n-40)		20 (11b.g.n-20) / 40 (11n-40)				
Bandwidth (MHz)	20 (11b.g.n-20) / 40 (11n-40)		20 (11b.g.n-20) / 40 (11n-40)				
Type of modulation	DSSS: DBPSK, DQPSK, CCK (11b), OFDM: BPSK, QPSK, 16QAM, 64QAM (11g.a.n-20,n-40)						
Transmit power (typical, maximum channel and data rate) and tolerance (as manufacture variation) (dBm) (*ch.: channel)	11b	13.5±2.5 (*ch.1-11, 1-11Mbps)	11a	12.5±2.5 (*ch.36-48, 6-54Mbps)	12.5±2.5 (*ch.52-64, 6-54Mbps)	15.0±2.5 (*ch.100-116/132-140, 6-48Mbps)	15.0±2.5 (*ch.149-165, 6-48Mbps)
	11g	17.0±2.5 (*ch.2, 6-36Mbps)					
	11n-20	14.5±2.5 (*ch.2, MCS0-4/8-12))	11n-20	11.0±2.5 (*ch.36-48, MCS0-6/8-14)	11.0±2.5 (*ch.52-64, MCS0-6/8-14)	13.5±2.5 (*ch.100-116/132-140, MCS0-4/8-12)	13.5±2.5 (*ch.149-165, MCS0-4/8-12)
	11n-40	13.5±2.5 (*ch.4, MCS0-4/8-12)	11n-40	11.0±2.5 (*ch.46, MCS0-7/8-15)	11.0±2.5 (*ch.54, MCS0-7/8-15)	11.0±2.5 (*ch.102,110,134, MCS0-5/8-13)	11.0±2.5 (*ch.151,159, MCS0-5/8-13)
		* The value in a table shows the maximum power conditions of typical on each antenna. *: 3dBm is added to MIMO power. * Refer to clause 2.3 for more detail. Refer to clause 2.4 for the maximum output power which may possible. * The measured Tx output power (conducted) refers to section 6 in this report.					
Power supply	DC 3.3V (*. DC3.3V is supplied from the main unit via constant voltage circuit.)						
Antenna	antenna #0 (Bottom, short-side-ant#0)				antenna #1 (Side, long-side-ant#1)		
Antenna quantity	2 pcs. (*. Separation distance between the antenna #0 and the antenna #1: approx.315 mm) 11b.g.a: One selected Tx antenna operation. 11n-20,n-40: One selected Tx antenna operation (MCS0~7) / Two Tx antenna operation (MCS8~13)						
Antenna model	113Y120216 (cable length: 300 mm)				113Y120216 (cable length: 300 mm)		
Antenna type / connector type	Monopole antenna / Connector; PCB side: U.FL, Antenna side: soldered						
Antenna gain (max.peak) (* including cable loss)	-7.3 dBi (2.4GHz), -2.3 dBi (5GHz) (*.installed into the platform)				-6.5 dBi (2.4GHz), -0.3 dBi (5GHz) (*.installed into the platform)		

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C
FCC Part 15 final revised on June 14, 2017 and effective July 14, 2017

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

* All the revisions made after testing date (May 30, 2016) do not affect the test specification applied to the EUT.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.10-2013 6. Standard test methods IC: RSS-Gen 8.8	FCC: Section 15.207 IC: RSS-Gen 8.8	5.3 dB, 0.15490 MHz, N, AV, Tx, 11n-20 (MIMO), 2417 MHz, with Cradle	Complied	-
6dB Bandwidth	FCC: KDB 558074 D01 DTS Meas Guidance v04 IC: -	FCC: Section 15.247(a)(2) IC: RSS-247 5.2(1)	See data.	Complied	Conducted
Maximum Peak Output Power	FCC: KDB 558074 D01 DTS Meas Guidance v04 IC: RSS-Gen 6.12	FCC: Section 15.247(b)(3) IC: RSS-247 5.4(4)		Complied	Conducted
Power Density	FCC: KDB 558074 D01 DTS Meas Guidance v04 IC: -	FCC: Section 15.247(e) IC: RSS-247 5.2(2)		Complied	Conducted
Spurious Emission Restricted Band Edges	FCC: KDB 558074 D01 DTS Meas Guidance v04 IC: RSS-Gen 6.13	FCC: Section 15.247(d) IC: RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10	2.7 dB 2397.231 MHz, AV, Horizontal & Vertical Tx, 11b, 2412 MHz	Complied	Conducted (below 30 MHz)/ Radiated (above 30 MHz) *1)
Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422. *1) Radiated test was selected over 30 MHz based on section 15.247(d) and KDB 558074 D01 DTS Meas Guidance v04 12.2.7.					

* In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred.

FCC Part 15.31 (e)

The RF transmitter is constantly supplied voltage through the regulator regardless of input voltage. Therefore, the EUT complies with the requirement.

FCC Part 15.203

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the product. Therefore, the EUT complies with the requirement.

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Bandwidth	IC: RSS-Gen 6.6	IC: -	N/A	-	Conducted

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 $k = 2$.
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Item	Frequency range	Uncertainty (+/-)			
		No. 1 SAC / SR	No. 2 SAC / SR	No. 3 SAC / SR	No. 4 SAC / SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.1 dB	2.1 dB	2.6 dB	2.2 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	2.7 dB	2.7 dB	3.1 dB	-
	30 MHz-300 MHz	4.4 dB	4.4 dB	4.6 dB	-
	300 MHz-1 GHz	5.6 dB	5.5 dB	5.3 dB	-
	1 GHz-13 GHz	5.2 dB	5.2 dB	5.2 dB	-
Radiated emission (Measurement distance: 1 m)	13 GHz-18 GHz	4.9 dB	4.9 dB	4.9 dB	-
	18 GHz-40 GHz	4.9 dB	4.9 dB	4.9 dB	-

SAC=Semi-Anechoic Chamber

SR= Shielded Room is applied besides radiated emission

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)_SPM-06	0.76 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-06	0.79 dB
Power Measurement above 1 GHz (Average Detector)_SPM-07	0.74 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-07	1.08 dB
Spurious emission (Conducted) below 1GHz	1.5 dB
Spurious emission (Conducted) 1 GHz-3 GHz	1.7 dB
Spurious emission (Conducted) 3 GHz-18 GHz	2.4 dB
Spurious emission (Conducted) 18 GHz-26.5 GHz	2.5 dB
Spurious emission (Conducted) 26.5 GHz-40 GHz	2.5 dB
Bandwidth Measurement	0.66 %
Duty cycle and Time Measurement	0.012 %

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.

3.5 Test Location

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JAB Accreditation No. RTL02610

Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
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.8 shielded room	-	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

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

4.1 Operating Mode(s)

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.

Power settings	IEEE 802.11b (1 Mbps) : 13.5 dBm, IEEE 802.11g (6 Mbps) : 13.5 dBm (2412 MHz), 17.0 dBm (2417 MHz), 16.0 dBm (2437 MHz), 15.0 dBm (2462 MHz) IEEE 802.11n-20 (MIMO),(MCS8): 10.5 dBm (2412 MHz), 14.5 dBm (2417 MHz), 12.5 dBm (2437 MHz), 10.5 dBm (2462 MHz) IEEE 802.11n-40 (MIMO),(MCS8): 6.0 dBm (2422 MHz), 13.5 dBm (2427 MHz), 10.5 dBm (2437 MHz), 7.0 dBm (2452 MHz)
Software	Atheros Radio Test (ART) - Revision 0.9 BUILD #34 ART_11n - Customer Version (ANWI BUILD)

*The details of Operating mode(s)

Test item	Mode	Tested frequency	Worst data rate *1)	Antenna *1)
Conducted emission, Radiated emission (below 1 GHz), Out of band emissions (Conducted) *2)	Transmitting (Tx) IEEE 802.11n (HT20) (11n-20), MIMO	2417 MHz	MCS8, PN9	Antenna 0 & Antenna 1
6dB bandwidth, Occupied Bandwidth (99%)	Transmitting (Tx) IEEE 802.11b (11b)	2412 MHz, 2437 MHz, 2462 MHz	1 Mbps, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11g (11g)	2412 MHz, 2437 MHz, 2462 MHz	6 Mbps, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11n (HT20) (11n-20), SISO	2412 MHz, 2437 MHz, 2462 MHz	MCS0, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11n (HT20) (11n-20), MIMO	2412 MHz, 2437 MHz, 2462 MHz	MCS8, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11n (HT40) (11n-40), SISO	2422 MHz, 2437 MHz, 2452 MHz	MCS0, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11n (HT40) (11n-40), MIMO	2422 MHz, 2437 MHz, 2452 MHz	MCS8, PN9	Antenna 0
Maximum output power, Power density	Transmitting (Tx) IEEE 802.11b (11b)	2412 MHz, 2437 MHz, 2462 MHz	1 Mbps, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11g (11g)	2412 MHz, 2417 MHz*3), 2437 MHz, 2462 MHz	6 Mbps, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11n (HT20) (11n-20), SISO	2412 MHz, 2417 MHz*3), 2437 MHz, 2462 MHz	MCS0, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11n (HT20) (11n-20), MIMO	2412 MHz, 2417 MHz*3), 2437 MHz, 2462 MHz	MCS8, PN9	Antenna 0 & Antenna 1
	Transmitting (Tx) IEEE 802.11n (HT40) (11n-40), SISO	2422 MHz, 2427 MHz*3), 2437 MHz, 2452 MHz	MCS0, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11n (HT40) (11n-40), MIMO	2422 MHz, 2427 MHz*3), 2437 MHz, 2452 MHz	MCS8, PN9	Antenna 0 & Antenna 1
Radiated emission (above 1 GHz) *4)	Transmitting (Tx) IEEE 802.11b (11b)	2412 MHz, 2437 MHz, 2462 MHz	1 Mbps, PN9	Antenna 0
	Transmitting (Tx) IEEE 802.11n (HT20) (11n-20), MIMO	2412 MHz, 2417 MHz*3), 2437 MHz, 2462 MHz	MCS8, PN9	Antenna 0 & Antenna 1
	Transmitting (Tx) IEEE 802.11n (HT40) (11n-40), MIMO	2422 MHz, 2427 MHz*3), 2437 MHz, 2452 MHz	MCS8, PN9	Antenna 0 & Antenna 1

*1) The worst condition was determined based on the test result of Maximum Peak Output Power.

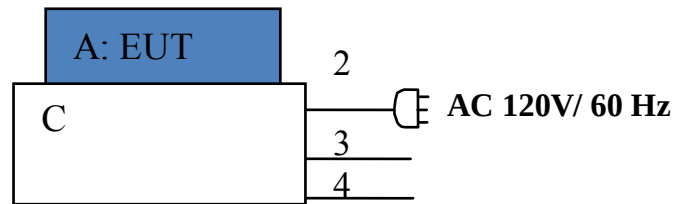
*2) Test operating mode was determined as follows according to “Section 1 of 6 802.11 a/b/g/n testing- Managing Complex Regulatory Approvals - ”of TCB Council Workshop October 2009.

*3) Measurement was performed additionally since the channel has the highest power setting.

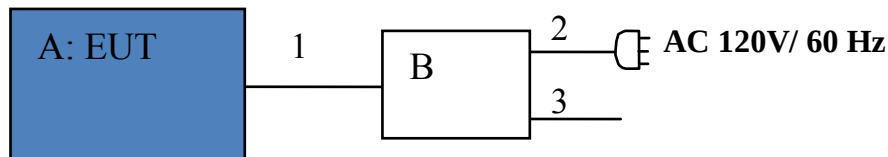
*4) Since 11g and 11n-20 have the same modulation method and no differences in transmitting specification, test was performed on the representative mode that had the highest peak output power.

4.2 Configuration and peripherals

Conducted emission test



Conducted emission test and Radiated emission test



* The radiated emission test was pre-checked by 3 ways, with a cradle, with power supply and a standalone of EUT, and it was tested with the composition which became the worst result.

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

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Flat Panel Sensor	RIC 24C	#001	FUJIFILM	EUT
B	Power supply unit	DR-ID 1200PB	-	FUJIFILM	-
C	Cradle	DR-ID 1200DU	46970002	FUJIFILM	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal Cable	10	Shielded	Shielded	-
2	AC	3.0	Unshielded	Unshielded	-
3	LAN	1.5	Unshielded	Unshielded	-
4	LAN	1.5	Unshielded	Unshielded	-

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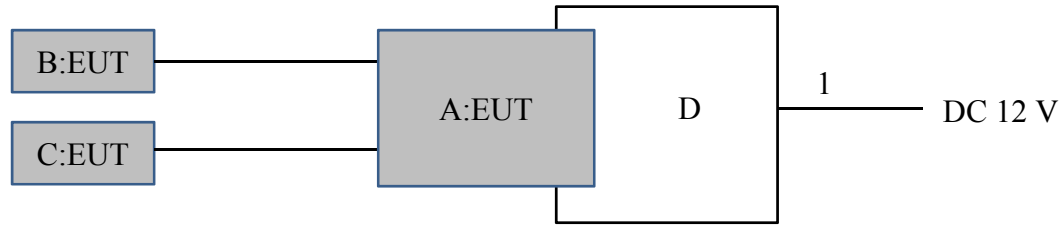
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Antenna terminal conducted tests



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

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Wireless LAN Module	SX-PCEAN (FF-E)	008092609256	Silex technology, Inc.	EUT *1)
B	Antenna	ANTDC-084A0	-	-	EUT
C	Antenna	ANTDC-083A0	-	-	EUT
D	Jig	113Y120019	57024134	Silex technology, Inc.	-

*1) Built-in radio module of the Flat Panel Sensor RIC 24C is SX-PCEAN(FF-E).

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	1.0	Unshielded	Unshielded	-

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SECTION 5: Conducted Emission

Test Procedure and conditions

EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m 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 40 cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80 cm from any other grounded conducting surface. EUT was located 80 cm from a Line Impedance Stabilization Network (LISN) / Artificial mains Network (AMN) and excess AC cable was bundled in center.

I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane. Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN / (AMN) to the input power source.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT via ancillary equipment, in a shielded room.

The EUT via ancillary equipment was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

The test results and limit are rounded off to one decimal place, so some differences might be observed.

Detector	: QP and CISPR AV
Measurement range	: 0.15 MHz – 30 MHz
Test data	: APPENDIX
Test result	: Pass

SECTION 6: Radiated Spurious Emission

Test Procedure

It was measured based on "11.0 Emissions in non-restricted frequency bands" of "558074 D01 DTS Meas Guidance v04".

[For below 1 GHz]

EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.

The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

[For above 1 GHz]

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane.

The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane.

The height of the measuring antenna varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

The test was made with the detector (RBW/VBW) in the following table.

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Test Antennas are used as below;

Frequency	30 MHz to 300 MHz	300 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

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

20 dBc was applied to the frequency over the limit of FCC 15.209 / Table 4 of RSS-Gen 8.9(IC) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (IC).

Frequency	Below 1 GHz	Above 1 GHz		20 dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV	PK
IF Bandwidth	BW 120 kHz	RBW: 1 MHz VBW: 3 MHz	Average Power Method: RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (RMS) Trace: 100 traces If duty cycle was less than 98%, a duty factor was added to the results.	RBW: 100 kHz VBW: 300kHz
Test Distance	3 m	3 m *1) (1 GHz – 13 GHz), 1 m *2) (13 GHz – 26.5 GHz)		3 m *1) (1 GHz – 13 GHz), 1 m *2) (13 GHz – 26.5 GHz)

*1) Distance Factor: Refer to the data.

*2) Distance Factor: $20 \times \log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

*3) Average Power Measurement was performed based on 6.0 & 12.2.5 of "KDB 558074 D01 DTS Meas Guidance v04"

The carrier levels and noise levels were confirmed with cradle or power supply or standalone / at each position of X, Y and Z axes to see the position of maximum noise, and the test was made under the condition that has the maximum noise.

Frequency Test Antenna	Carrier	Spurious			
		30 MHz-1 GHz	1-13 GHz	13-18 GHz	18-26.5 GHz
Horizontal	Z	Y	Z	X	X
Vertical	Y	Y	Y	X	X

Worst setup: with power supply

The test results and limit are rounded off to one decimal place, so some differences might be observed.

Measurement range : 30 M - 26.5 GHz

Test data : APPENDIX

Test result : Pass

SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

The tests were made with below setting connected to the antenna port.

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
6dB Bandwidth	50 / 100 MHz	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth *1)	Enough width to display emission skirts	1 to 5 % of OBW	Three times of RBW	Auto	Sample	Max Hold	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak/ Average *2)	-	Power Meter (Sensor: 50 MHz BW)
Peak Power Density	1.5 times the 6dB Bandwidth	3 kHz	9.1 kHz	Auto	Peak	Max Hold	Spectrum Analyzer *3)
Conducted Spurious Emission *4)	9kHz to 150kHz	200 Hz	620 Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150kHz to 30MHz	10 kHz	30 kHz				
*1) Peak hold was applied as Worst-case measurement.							
*2) Reference data							
*3) Section 10.2 Method PKPSD (peak PSD) of "KDB 558074 D01 DTS Meas Guidance v04".							
*4) 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.							
(9 kHz - 150 kHz: RBW = 200 Hz, 150 kHz - 30 MHz: RBW = 10 kHz)							

The test results and limit are rounded off to two decimals place, so some differences might be observed.

Test data : **APPENDIX**

Test result : **Pass**

APPENDIX 1: Test data

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

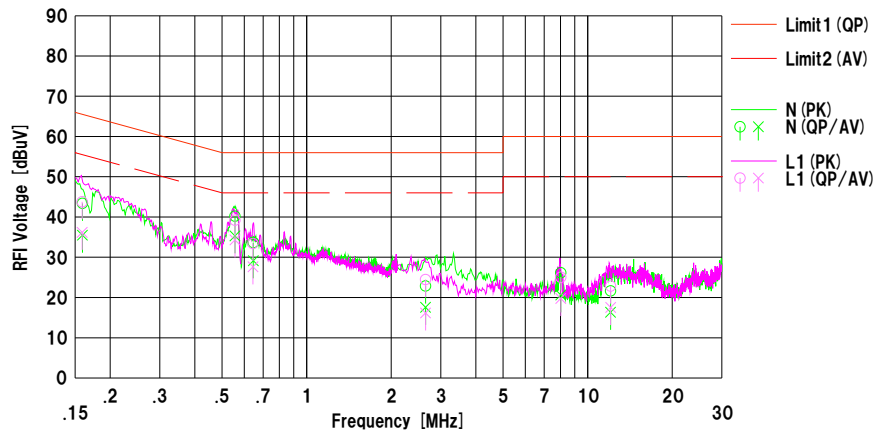
UL Japan, Inc. Shonan EMC Lab. No.6 Shielded Room
Date : 2016/05/30

Mode : Tx, 11n-20 (MIMO), 2417 MHz
Order No. : 11285933S
Temp./Humi. : 22 deg.C / 46 %RH

Remarks : Power supply

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

Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<OP> [dBuV]	<AV> [dBuV]		<OP> [dBuV]	<AV> [dBuV]	<OP> [dBuV]	<AV> [dBuV]	<OP> [dB]	<AV> [dB]		
1	0.15928	31.00	23.10	12.38	43.38	35.48	65.50	55.50	22.1	20.0	N	
2	0.55556	27.80	22.90	12.41	40.21	35.31	56.00	46.00	15.7	10.6	N	
3	0.84579	21.20	16.70	12.43	33.63	29.13	56.00	46.00	22.3	16.8	N	
4	2.64818	10.30	5.00	12.57	22.87	17.57	56.00	46.00	33.1	28.4	N	
5	8.02290	13.30	7.80	12.85	26.15	20.65	60.00	50.00	33.8	29.3	N	
6	12.06654	8.60	3.30	13.04	21.64	16.34	60.00	50.00	38.3	33.6	N	
7	0.15901	31.40	23.80	12.38	43.78	36.18	65.52	55.52	21.7	19.3	L1	
8	0.55576	26.80	21.90	12.41	39.21	34.31	56.00	46.00	16.7	11.6	L1	
9	0.84416	21.00	15.20	12.43	33.43	27.63	56.00	46.00	22.5	18.3	L1	
10	2.64864	11.90	3.60	12.57	24.47	16.17	56.00	46.00	31.5	29.8	L1	
11	8.02580	12.20	6.90	12.85	25.05	19.75	60.00	50.00	34.9	30.2	L1	
12	12.06840	9.80	4.50	13.04	22.84	17.54	60.00	50.00	37.1	32.4	L1	

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

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Conducted Emission

DATA OF CONDUCTED EMISSION TEST

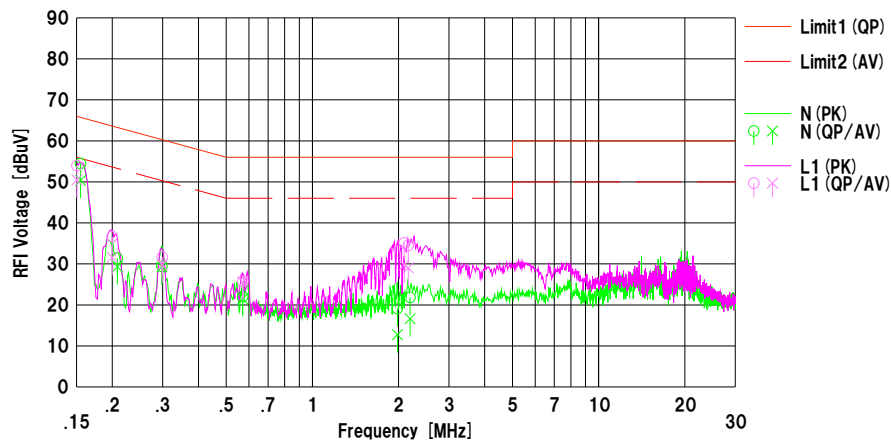
UL Japan, Inc. Shonan EMC Lab. No.6 Shielded Room
Date : 2016/05/30

Mode : Tx, 11n-20 (MIMO), 2417 MHz
Order No. : 11285933S
Temp./Humi. : 22 deg.C / 46 %RH

Remarks : Cradle

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

Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15490	42.10	38.00	12.37	54.47	50.37	65.73	55.73	11.2	5.3	N	
2	0.20828	19.00	16.90	12.38	31.38	29.28	63.27	53.27	31.8	23.9	N	
3	0.29805	17.00	16.90	12.38	29.38	29.28	60.30	50.30	30.9	21.0	N	
4	0.57106	9.60	9.10	12.41	22.01	21.51	56.00	46.00	33.9	24.4	N	
5	1.98190	6.60	0.20	12.52	19.12	12.72	56.00	46.00	36.8	33.2	N	
6	2.19420	9.30	4.10	12.54	21.84	16.64	56.00	46.00	34.1	29.3	N	
7	0.15044	41.60	38.10	12.37	53.97	50.47	65.98	55.98	12.0	5.5	L1	
8	0.19984	24.30	19.20	12.37	36.67	31.57	63.62	53.62	26.9	22.0	L1	
9	0.29878	19.30	17.40	12.38	31.68	29.78	60.28	50.28	28.6	20.5	L1	
10	0.57140	13.40	13.20	12.41	25.81	25.61	56.00	46.00	30.1	20.3	L1	
11	2.09170	22.60	17.20	12.52	35.12	29.72	56.00	46.00	20.8	16.2	L1	
12	2.16274	22.00	16.50	12.54	34.54	29.04	56.00	46.00	21.4	16.9	L1	

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

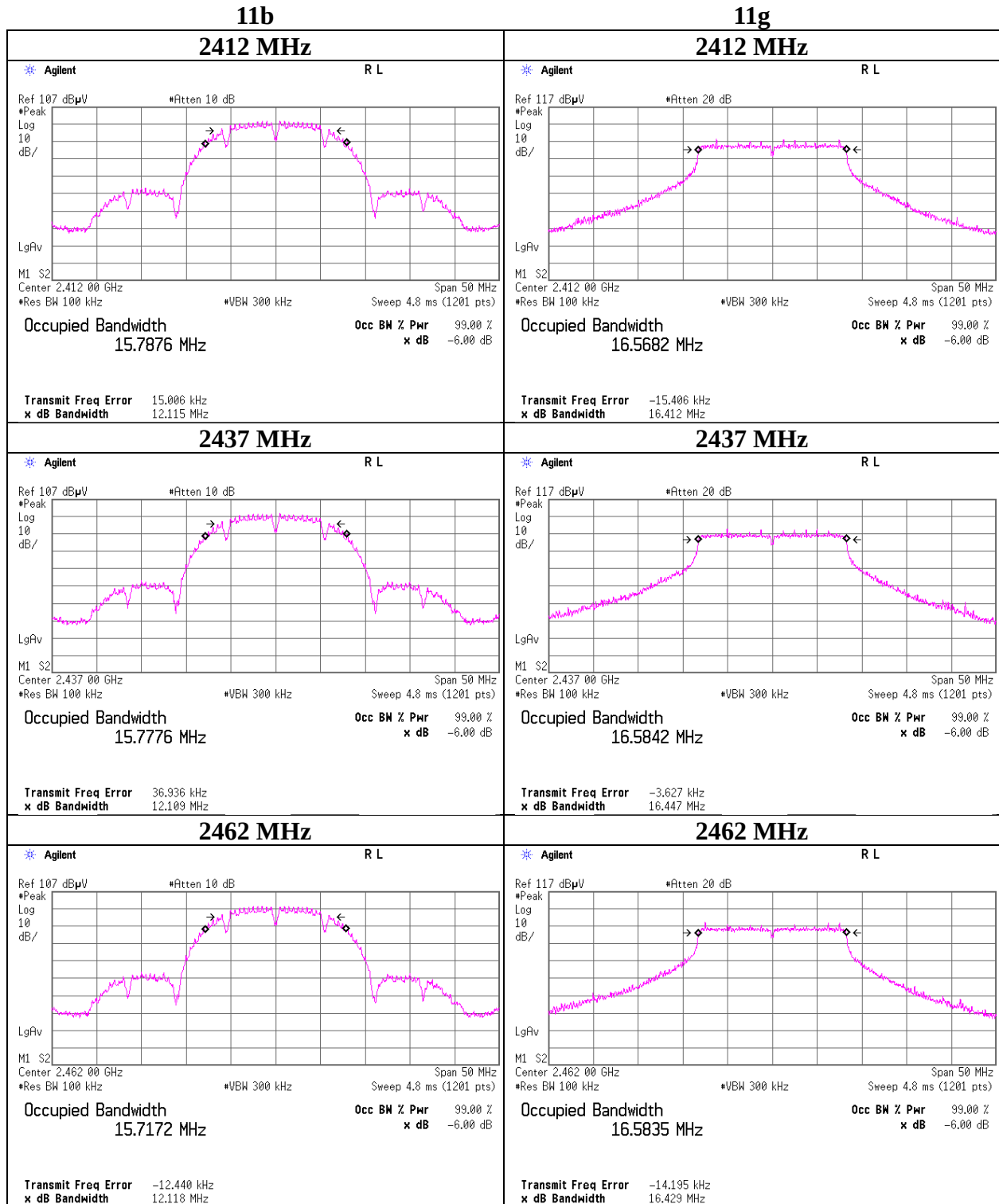
6 dB Bandwidth

Test place Shonan EMC Lab. No.1 Measurement Room
Report No. 11285933S-A-R2
Date February 5, 2016
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Hiroyuki Morikawa
Mode Tx

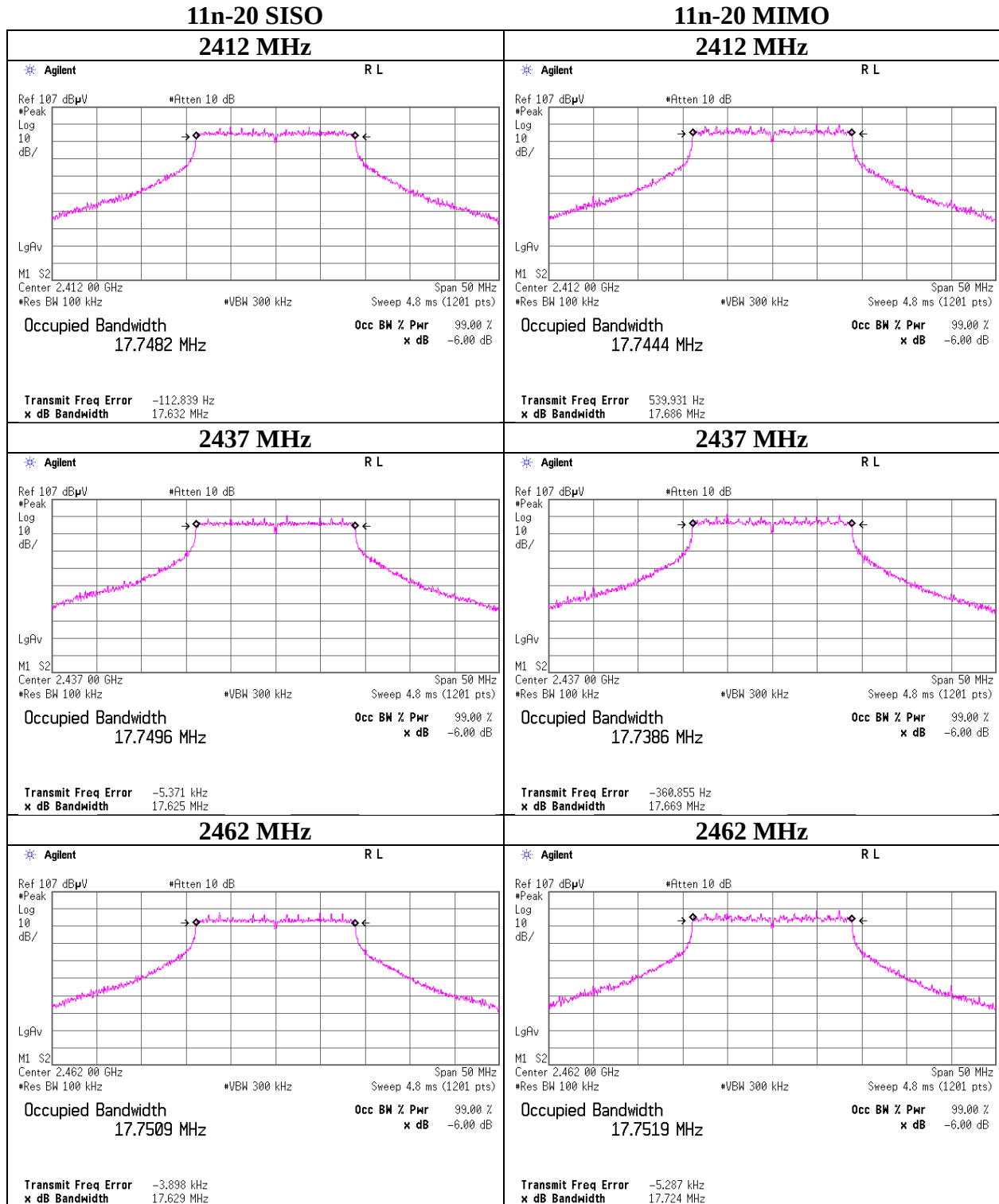
Antenna 0

Mode	Frequency [MHz]	dB Bandwidth [MHz]	Limit [kHz]
11b	2412	12.115	> 500
	2437	12.109	> 500
	2462	12.118	> 500
11g	2412	16.412	> 500
	2437	16.447	> 500
	2462	16.429	> 500
11n HT-20 SISO	2412	17.632	> 500
	2437	17.625	> 500
	2462	17.629	> 500
11n HT-20 MIMO	2422	17.686	> 500
	2437	17.669	> 500
	2452	17.724	> 500
11n HT-40 SISO	2412	36.377	> 500
	2437	36.389	> 500
	2462	36.396	> 500
11n HT-40 MIMO	2422	36.444	> 500
	2437	36.310	> 500
	2452	36.377	> 500

6 dB Bandwidth



6 dB Bandwidth



UL Japan, Inc.

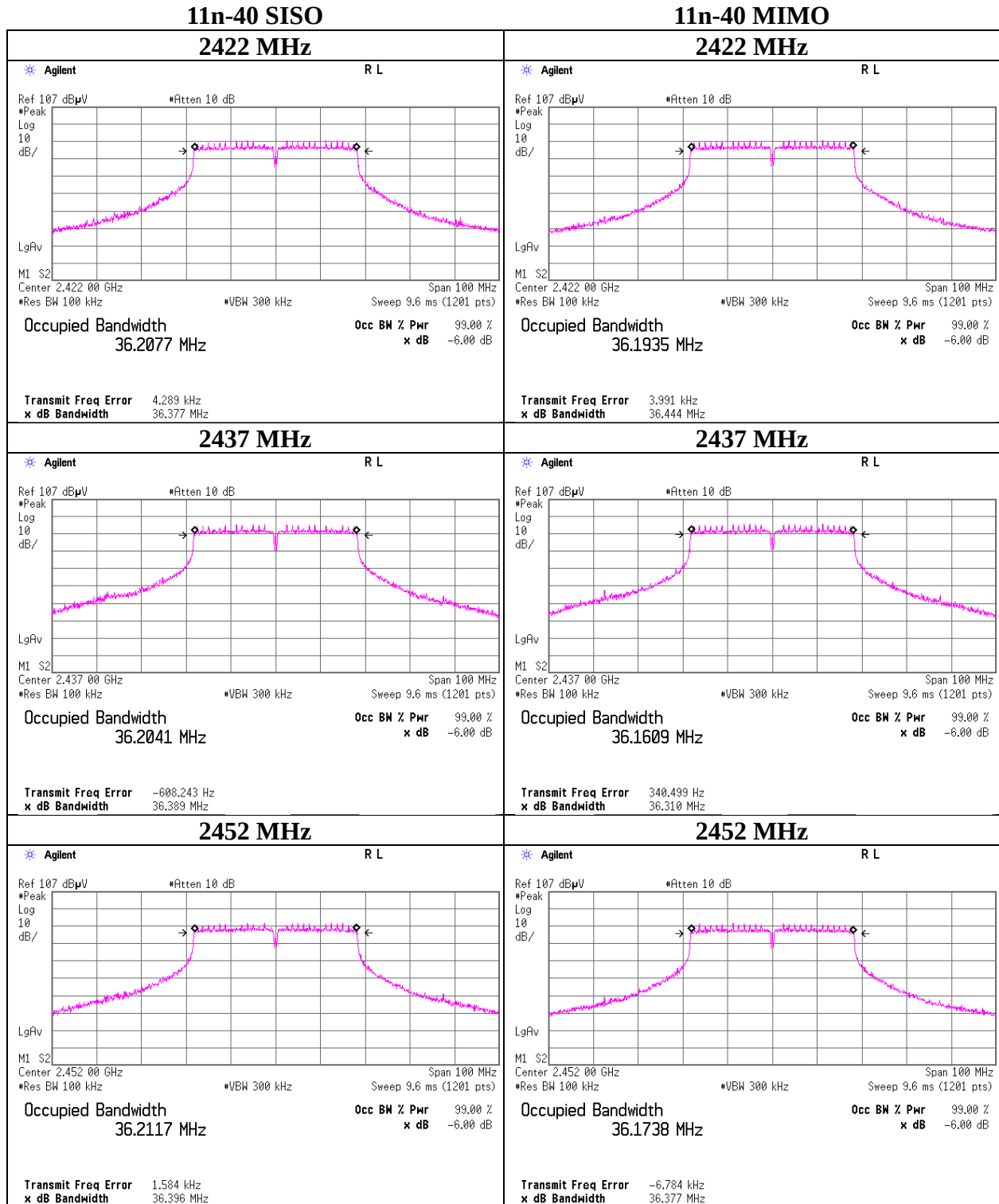
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6 dB Bandwidth



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Facsimile : +81 463 50 6401

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 1, 2016
Temperature / Humidity	26 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11b

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	4.74	1.84	9.93	16.51	44.77	30.00	1000	13.49
2437	4.06	1.85	9.93	15.84	38.37	30.00	1000	14.16
2462	4.13	1.86	9.93	15.92	39.08	30.00	1000	14.08

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

Antenna 0, 2412MHz

Rate	Reading	Remark
[Mbps]	[dBm]	
1	4.74	*
2	4.55	
5.5	4.17	
11	4.28	

Antenna 1, 2412MHz

Rate	Reading	Remark
[Mbps]	[dBm]	
1	4.68	
2	4.37	
5.5	4.46	
11	4.60	

*: Worst Rate

All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 1, 2016
Temperature / Humidity	26 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11g

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	12.19	1.84	9.93	23.96	248.89	30.00	1000	6.04
2417 *1	13.69	1.84	9.93	25.46	351.56	30.00	1000	4.54
2437	13.08	1.85	9.93	24.86	306.20	30.00	1000	5.14
2462	12.76	1.86	9.93	24.55	285.10	30.00	1000	5.45

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

*1 Measurement was performed additionally since the channel has the highest power setting.

Antenna 0, 2417 MHz

Rate [Mbps]	Reading [dBm]	Remark
6	13.69	*
9	13.66	
12	13.48	
18	13.58	
24	13.43	
36	13.40	
48	12.58	
54	12.95	

Antenna 1, 2417 MHz

Rate [Mbps]	Reading [dBm]	Remark
6	13.67	
9	13.58	
12	13.61	
18	13.61	
24	13.65	
36	13.65	
48	13.26	
54	13.05	

*: Worst Rate

All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 1, 2016
Temperature / Humidity	26 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-20 SISO

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	10.72	1.84	9.93	22.49	177.42	30.00	1000	7.51
2417 *1	12.95	1.84	9.93	24.72	296.48	30.00	1000	5.28
2437	12.13	1.85	9.93	23.91	246.04	30.00	1000	6.09
2462	10.30	1.86	9.93	22.09	161.81	30.00	1000	7.91

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

*1 Measurement was performed additionally since the channel has the highest power setting.

Antenna 0, 2417 MHz

MCS Number	Reading [dBm]	Remark
0	12.95	*
1	12.17	
2	12.69	
3	12.31	
4	12.57	
5	12.41	
6	11.46	
7	11.48	

Antenna 1, 2417 MHz

MCS Number	Reading [dBm]	Remark
0	12.89	
1	12.64	
2	12.63	
3	12.67	
4	12.85	
5	12.60	
6	11.81	
7	11.65	

*: Worst Rate

All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 2, 2016
Temperature / Humidity	24 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-20 MIMO

Antenna 0 + 1

Freq. [MHz]	Antenna 0 Result [mW]	Antenna 1 Result [mW]	Result		Limit		Margin [dB]
			[dBm]	[mW]	[dBm]	[mW]	
2412	194.09	190.11	25.85	384.20	30.00	1000	4.15
2417 *1	285.10	284.45	27.56	569.55	30.00	1000	2.44
2437	232.81	251.19	26.85	484.00	30.00	1000	3.15
2462	134.59	157.40	24.65	291.98	30.00	1000	5.35

Sample Calculation:

Result = Antenna 0 + 1

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	11.11	1.84	9.93	22.88	194.09	30.00	1000	7.12
2417 *1	12.78	1.84	9.93	24.55	285.10	30.00	1000	5.45
2437	11.89	1.85	9.93	23.67	232.81	30.00	1000	6.33
2462	9.50	1.86	9.93	21.29	134.59	30.00	1000	8.71

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	11.02	1.84	9.93	22.79	190.11	30.00	1000	7.21
2417 *1	12.77	1.84	9.93	24.54	284.45	30.00	1000	5.46
2437	12.22	1.85	9.93	24.00	251.19	30.00	1000	6.00
2462	10.18	1.86	9.93	21.97	157.40	30.00	1000	8.03

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

*1 Measurement was performed additionally since the channel has the highest power setting.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.1 Measurement Room
Report No. 11285933S-A-R2
Date February 2, 2016
Temperature / Humidity 24 deg. C / 47 % RH
Engineer Hiroyuki Morikawa
Mode Tx 11n-20 MIMO

2417MHz

Mode (MCS)	Reading Antenna 0		Reading Antenna 1		Reading Antenna 0 + 1		Remark
	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
8	12.78	18.97	12.77	18.92	15.79	37.89	*
9	12.29	16.94	12.4	17.38	15.36	34.32	
10	12.47	17.66	12.57	18.07	15.53	35.73	
11	12.42	17.46	12.56	18.03	15.50	35.49	
12	12.23	16.71	12.75	18.84	15.51	35.55	
13	12.33	17.1	12.06	16.07	15.21	33.17	
14	11.95	15.67	11.87	15.38	14.92	31.05	
15	11.49	14.09	11.7	14.79	14.61	28.88	

*: Worst Rate

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 1, 2016
Temperature / Humidity	24 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 SISO

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2422	6.71	1.85	9.93	18.49	70.63	30.00	1000	11.51
2427 *1	13.15	1.85	9.93	24.93	311.17	30.00	1000	5.07
2437	11.22	1.85	9.93	23.00	199.53	30.00	1000	7.00
2452	7.86	1.85	9.93	19.64	92.04	30.00	1000	10.36

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

*1 Measurement was performed additionally since the channel has the highest power setting.

Antenna 0, 2427 MHz

MCS Number	Reading [dBm]	Remark
0	13.15	*
1	11.94	
2	12.29	
3	12.26	
4	12.21	
5	12.08	
6	11.49	
7	11.37	

Antenna 1, 2427 MHz

MCS Number	Reading [dBm]	Remark
0	13.11	
1	12.37	
2	12.36	
3	12.40	
4	12.28	
5	12.09	
6	11.51	
7	11.55	

*: Worst Rate

All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place : Shonan EMC Lab. No.1 Measurement Room
Report No. : 11285933S-A-R2
Date : February 2, 2016
Temperature / Humidity : 24 deg. C / 47 % RH
Engineer : Hiroyuki Morikawa
Mode : Tx 11n-40 MIMO

Antenna 0 + 1

Freq. [MHz]	Antenna 0 Result [mW]	Antenna 1 Result [mW]	Result		Limit		Margin [dB]
			[dBm]	[mW]	[dBm]	[mW]	
2422	74.64	73.79	21.72	148.44	30.00	1000	8.28
2427 *1	273.53	241.55	27.12	515.07	30.00	1000	2.88
2437	199.53	198.61	26.00	398.14	30.00	1000	4.00
2452	92.47	88.31	22.57	180.78	30.00	1000	7.43

Sample Calculation:

Result = Antenna 0 + 1

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2422	6.95	1.85	9.93	18.73	74.64	30.00	1000	11.27
2427 *1	12.59	1.85	9.93	24.37	273.53	30.00	1000	5.63
2437	11.22	1.85	9.93	23.00	199.53	30.00	1000	7.00
2452	7.88	1.85	9.93	19.66	92.47	30.00	1000	10.34

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2422	6.90	1.85	9.93	18.68	73.79	30.00	1000	11.32
2427 *1	12.55	1.35	9.93	23.83	241.55	30.00	1000	6.17
2437	11.20	1.85	9.93	22.98	198.61	30.00	1000	7.02
2452	7.68	1.85	9.93	19.46	88.31	30.00	1000	10.54

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

*1 Measurement was performed additionally since the channel has the highest power setting.

Maximum Peak Output Power

Test place Shonan EMC Lab. No.1 Measurement Room
Report No. 11285933S-A-R2
Date February 2, 2016
Temperature / Humidity 24 deg. C / 47 % RH
Engineer Hiroyuki Morikawa
Mode Tx 11n-40 MIMO

2427MHz

Mode (MCS)	Reading Antenna 0		Reading Antenna 1		Reading Antenna 0 + 1		Remark
	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
8	12.59	18.16	12.55	17.99	15.58	36.15	*
9	12.34	17.14	12.03	15.96	15.20	33.1	
10	12.19	16.56	12.42	17.46	15.32	34.02	
11	12.16	16.44	12.27	16.87	15.23	33.31	
12	12.46	17.62	12.53	17.91	15.51	35.53	
13	11.99	15.81	12.2	16.6	15.11	32.41	
14	11.31	13.52	11.7	14.79	14.52	28.31	
15	11.97	15.74	11.49	14.09	14.75	29.83	

*: Worst Rate

Average Output Power **(Reference data for SAR testing)**

Test place : Shonan EMC Lab. No.1 Measurement Room
Report No. : 11285933S-A-R2
Date : February 1, 2016
Temperature / Humidity : 24 deg. C / 47 % RH
Engineer : Hiroyuki Morikawa
Mode : Tx

11b 1 Mbps

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Frame power)		Duty factor [dB]	Result (Burst power)	
				[dBm]	[mW]		[dBm]	[mW]
2412	1.56	1.84	9.93	13.33	21.53	0.00	13.33	21.53
2437	1.57	1.85	9.93	13.35	21.63	0.00	13.35	21.63
2462	1.25	1.86	9.93	13.04	20.14	0.00	13.04	20.14

11g 6 Mbps

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Frame power)		Duty factor [dB]	Result (Burst power)	
				[dBm]	[mW]		[dBm]	[mW]
2412	2.19	1.84	9.93	13.96	24.89	0.01	13.97	24.95
2437	4.83	1.85	9.93	16.61	45.81	0.01	16.62	45.92
2462	3.70	1.86	9.93	15.49	35.40	0.01	15.50	35.48

11n-20 SISO MCS 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Frame power)		Duty factor [dB]	Result (Burst power)	
				[dBm]	[mW]		[dBm]	[mW]
2412	-0.49	1.84	9.93	11.28	13.43	0.02	11.30	13.49
2437	1.21	1.85	9.93	12.99	19.91	0.02	13.01	20.00
2462	-1.05	1.86	9.93	10.74	11.86	0.02	10.76	11.91

Sample Calculation:

Result (Frame power) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

Result (Burst power) = Frame power + Duty factor

Average Output Power (Reference data for SAR testing)

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 2, 2016
Temperature / Humidity	24 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-20 MIMO

Antenna 0 + Antenna 1 MCS 8

Freq.	Ant 0 Result	Ant 1 Result			Result	
[MHz]	[mW]	[mW]			[dBm]	[mW]
2412.0	14.89	15.10			14.77	29.99
2437.0	20.51	22.59			16.35	43.11
2462.0	12.30	13.15			14.06	25.45

Antenna 0

Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
2412.0	-0.07	1.84	9.93	0.03	11.73	14.89
2437.0	1.31	1.85	9.93	0.03	13.12	20.51
2462.0	-0.92	1.86	9.93	0.03	10.90	12.30

Antenna 1

Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Duty Factor	Result	
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]	[mW]
2412.0	-0.01	1.84	9.93	0.03	11.79	15.10
2437.0	1.73	1.85	9.93	0.03	13.54	22.59
2462.0	-0.63	1.86	9.93	0.03	11.19	13.15

Average Output Power
(Reference data for SAR testing)

Test place : Shonan EMC Lab. No.1 Measurement Room
Report No. : 11285933S-A-R2
Date : February 1, 2016
Temperature / Humidity : 24 deg. C / 47 % RH
Engineer : Hiroyuki Morikawa
Mode : Tx 11n-40 SISO

MCS 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Frame power)		Duty factor [dB]	Result (Burst power)	
				[dBm]	[mW]		[dBm]	[mW]
2412	-4.41	1.85	9.93	7.37	5.46	0.03	7.40	5.50
2437	-0.35	1.85	9.93	11.43	13.90	0.03	11.46	14.00
2462	-3.80	1.85	9.93	7.98	6.28	0.03	8.01	6.32

Sample Calculation:

Result (Frame power) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

Result (Burst power) = Frame power + Duty factor

Average Output Power (Reference data for SAR testing)

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 2, 2016
Temperature / Humidity	24 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 MIMO

Antenna 0 + Antenna 1 MCS 8

Freq. [MHz]	Ant 0 Result [mW]	Ant 1 Result [mW]	Result			
					[dBm]	[mW]
2412.0	4.59	6.21			10.33	10.80
2437.0	13.80	15.60			14.68	29.40
2462.0	6.00	6.53			10.98	12.53

Antenna 0

Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result	
					[dBm]	[mW]
2412.0	-5.22	1.85	9.93	0.06	6.62	4.59
2437.0	-0.44	1.85	9.93	0.06	11.40	13.80
2462.0	-4.06	1.85	9.93	0.06	7.78	6.00

Antenna 1

Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Result	
					[dBm]	[mW]
2412.0	-3.91	1.85	9.93	0.06	7.93	6.21
2437.0	0.09	1.85	9.93	0.06	11.93	15.60
2462.0	-3.69	1.85	9.93	0.06	8.15	6.53

Average Output Power
(Reference data for SAR testing)

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 1, 2016
Temperature / Humidity	24 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11b

Antenna 0, 2412 MHz

Rate Mbps	Reading [dBm]	Duty factor [dB]	Burst power [dBm]	Remarks
1	1.46	0.00	1.46	
2	1.30	0.00	1.30	
5.5	1.43	0.01	1.44	
11	1.41	0.02	1.43	

Antenna 1, 24127 MHz

Rate Mbps	Reading [dBm]	Duty factor [dB]	Burst power [dBm]	Remarks
1	1.56	0.00	1.56	*
2	1.53	0.00	1.53	
5.5	1.54	0.01	1.55	
11	1.50	0.02	1.52	

* Worst rate

Sample Calculation:

Burst power = Reading (timed average) + Duty factor

All comparison were carried out on same frequency and measurement factors.

Average Output Power
(Reference data for SAR testing)

Test place : Shonan EMC Lab. No.1 Measurement Room
Report No. : 11285933S-A-R2
Date : February 1, 2016
Temperature / Humidity : 24 deg. C / 47 % RH
Engineer : Hiroyuki Morikawa
Mode : Tx 11g

Antenna 0, 2417 MHz

Rate MCS	Reading [dBm]	Duty factor [dB]	Burst power [dBm]	Remarks
6	5.28	0.01	5.29	
9	5.16	0.02	5.18	
12	5.15	0.03	5.18	
18	5.12	0.04	5.16	
24	5.11	0.05	5.16	
36	5.06	0.09	5.15	
48	3.41	0.11	3.52	
54	2.69	0.11	2.80	

Antenna 1, 2417 MHz

Rate MCS	Reading [dBm]	Duty factor [dB]	Burst power [dBm]	Remarks
6	5.83	0.01	5.84	*
9	5.76	0.02	5.78	
12	5.73	0.03	5.76	
18	5.75	0.04	5.79	
24	5.71	0.05	5.76	
36	5.65	0.09	5.74	
48	4.61	0.11	4.72	
54	3.58	0.11	3.69	

* Worst rate

Sample Calculation:

$$\text{Burst power} = \text{Reading (timed average)} + \text{Duty factor}$$

All comparison were carried out on same frequency and measurement factors.

Average Output Power
(Reference data for SAR testing)

Test place Shonan EMC Lab. No.1 Measurement Room
Report No. 11285933S-A-R2
Date February 1, 2016
Temperature / Humidity 24 deg. C / 47 % RH
Engineer Hiroyuki Morikawa
Mode Tx 11n-20 SISO

Antenna 0, 2417 MHz

Rate	Reading	Duty	Burst	Remarks
MCS	[dBm]	factor	power	
		[dB]	[dBm]	
0	2.30	0.02	2.32	
1	2.21	0.02	2.23	
2	2.22	0.04	2.26	
3	2.22	0.06	2.28	
4	2.19	0.09	2.28	
5	1.89	0.11	2.00	
6	1.35	0.13	1.48	
7	0.85	0.14	0.99	

Antenna 1, 2417 MHz

Rate	Reading	Duty	Burst	Remarks
MCS	[dBm]	factor	power	
		[dB]	[dBm]	
0	3.30	0.02	3.32	*
1	3.29	0.02	3.31	
2	2.95	0.04	2.99	
3	2.99	0.06	3.05	
4	3.10	0.09	3.19	
5	2.58	0.11	2.69	
6	1.50	0.13	1.63	
7	1.08	0.14	1.22	

* Worst rate

Sample Calculation:

Burst power = Reading (timed average) + Duty factor

All comparison were carried out on same frequency and measurement factors.

Average Output Power (Reference data for SAR testing)

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 2, 2016
Temperature / Humidity	24 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-20 MIMO

2417MHz

Mode (MCS)	Reading Antenna 0		Reading Antenna 1		Duty Factor [dB]	Reading Antenna 0 + 1		Remark
	[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	
8	2.85	2.88	3.27	3.30	0.03	7.91	6.18	*
9	2.64	2.70	2.97	3.03	0.06	7.58	5.73	
10	2.62	2.72	3.10	3.20	0.10	7.72	5.92	
11	2.58	2.71	3.20	3.33	0.13	7.81	6.04	
12	2.42	2.60	3.14	3.32	0.18	7.72	5.92	
13	2.13	2.36	2.35	2.58	0.23	6.94	4.94	
14	1.75	2.00	1.70	1.95	0.25	5.97	3.95	
15	1.01	1.28	1.30	1.57	0.27	4.55	2.85	

* Worst rate

Average Output Power
(Reference data for SAR testing)

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 2, 2016
Temperature / Humidity	24 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 SISO

Antenna 0, 2427 MHz

Rate	Reading	Duty factor	Burst power	Remarks
MCS	[dBm]	[dB]	[dBm]	
0	1.77	0.03	1.80	
1	1.48	0.07	1.55	
2	1.32	0.09	1.41	
3	1.30	0.13	1.43	
4	1.14	0.18	1.32	
5	1.00	0.23	1.23	
6	0.67	0.25	0.92	
7	0.08	0.27	0.35	

Antenna 1, 2427 MHz

Rate	Reading	Duty factor	Burst power	Remarks
MCS	[dBm]	[dB]	[dBm]	
0	2.66	0.03	2.69	*
1	2.53	0.07	2.60	
2	2.30	0.09	2.39	
3	2.17	0.13	2.30	
4	2.08	0.18	2.26	
5	1.12	0.23	1.35	
6	0.58	0.25	0.83	
7	0.41	0.27	0.68	

* Worst rate

Sample Calculation:

Burst power = Reading (timed average) + Duty factor

All comparison were carried out on same frequency and measurement factors.

Average Output Power
(Reference data for SAR testing)

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 2, 2016
Temperature / Humidity	24 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 MIMO

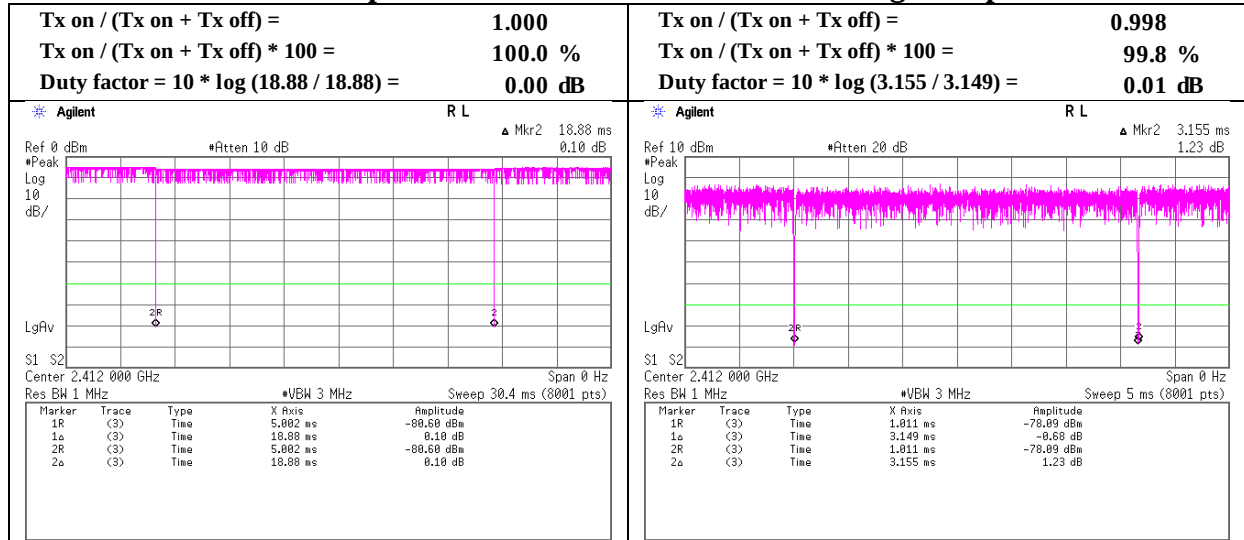
2417MHz

Mode (MCS)	Reading Antenna 0		Reading Antenna 1		Duty Factor [dB]	Reading Antenna 0 + 1		Remark
	[dBm]	[mW]	[dBm]	[mW]		[dBm]	[mW]	
8	2.03	2.09	2.62	2.68	0.06	6.79	4.77	*
9	1.89	2.02	2.47	2.6	0.13	6.65	4.62	
10	1.73	1.92	2.39	2.58	0.19	6.53	4.5	
11	1.7	1.93	2.35	2.58	0.23	6.54	4.51	
12	1.56	1.88	2.24	2.56	0.32	6.47	4.44	
13	1.19	1.55	1.62	1.98	0.36	5.48	3.53	
14	0.66	1.05	0.93	1.32	0.39	3.75	2.37	
15	0.26	0.67	0.57	0.98	0.41	2.17	1.65	

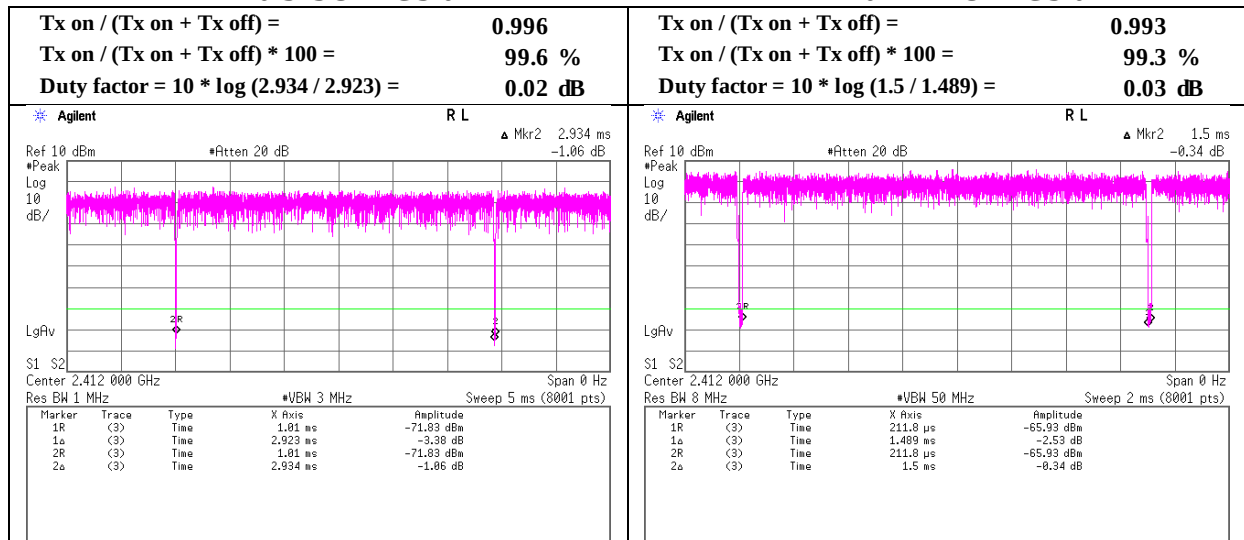
Burst rate confirmation

Test place : Shonan EMC Lab. No.1 Measurement Room
Report No. : 11285933S-A-R2
Date : February 1, 2016
Temperature / Humidity : 24 deg. C / 47 % RH
Engineer : Hiroyuki Morikawa
Mode : Tx

11b 1 Mbps



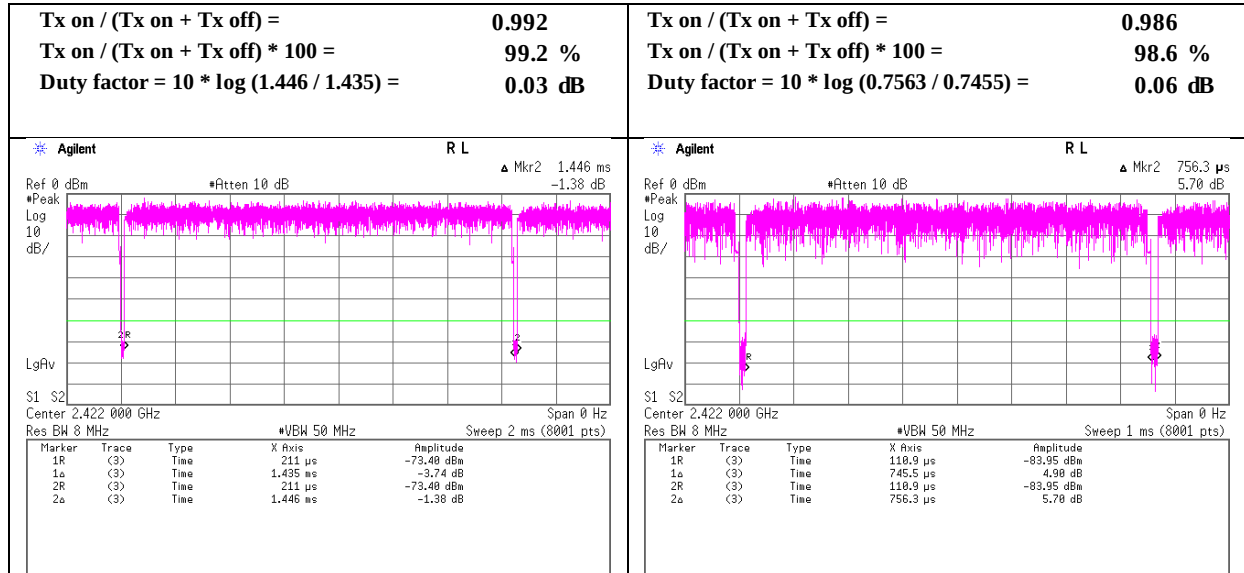
11n-20 SISO MCS 0



Burst rate confirmation

Test place : Shonan EMC Lab. No.1 Measurement Room
Report No. : 11285933S-A-R2
Date : February 1, 2016
Temperature / Humidity : 24 deg. C / 47 % RH
Engineer : Hiroyuki Morikawa
Mode : Tx

11n-40 SISO MCS 0



Radiated Spurious Emission

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11285933S-A-R2	
Date	May 17, 2016	May 18, 2016
Temperature / Humidity	25 deg.C, 55 %RH	23 deg.C, 54 %RH
Engineer	Kenichi Adachi	Takahiro Suzuki
	1 GHz-13 GHz	13 GHz- 26.5 GHz
Mode	Tx 11b 2412 MHz	

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	46.1	27.8	13.7	41.0	3.2	49.8	73.9	24.1	183	160	
Hori.	2397.231	PK	53.8	27.8	13.7	41.0	3.2	57.5	73.9	16.4	183	160	
Hori.	2400.000	PK	51.0	27.8	13.7	41.0	3.2	54.7	73.9	19.2	183	160	
Hori.	4824.000	PK	47.5	31.5	5.8	39.5	3.2	48.5	73.9	25.4	146	164	
Hori.	7236.000	PK	45.1	36.9	7.2	40.1	3.2	52.3	73.9	21.6	150	0	
Hori.	9648.000	PK	46.9	38.5	8.3	39.6	3.2	57.3	73.9	16.6	102	234	
Hori.	12060.000	PK	44.8	39.7	9.4	39.3	3.2	57.8	73.9	16.1	150	0	
Hori.	2390.000	AV	35.9	27.8	13.7	41.0	3.2	39.6	53.9	14.3	183	160	
Hori.	2397.231	AV	47.5	27.8	13.7	41.0	3.2	51.2	53.9	2.7	183	160	
Hori.	2400.000	AV	43.2	27.8	13.7	41.0	3.2	46.9	53.9	7.0	183	160	
Hori.	4824.000	AV	38.2	31.5	5.8	39.5	3.2	39.2	53.9	14.7	146	164	
Hori.	7236.000	AV	35.3	36.9	7.2	40.1	3.2	42.5	53.9	11.4	150	0	
Hori.	9648.000	AV	39.7	38.5	8.3	39.6	3.2	50.1	53.9	3.8	102	234	
Hori.	12060.000	AV	35.1	39.7	9.4	39.3	3.2	48.1	53.9	5.8	150	0	
Vert.	2390.000	PK	46.1	27.8	13.7	41.0	3.2	49.8	73.9	24.1	164	190	
Vert.	2397.231	PK	54.2	27.8	13.7	41.0	3.2	57.9	73.9	16.0	164	190	
Vert.	2400.000	PK	48.5	27.8	13.7	41.0	3.2	52.2	73.9	21.7	164	190	
Vert.	4824.000	PK	48.0	31.5	5.8	39.5	3.2	49.0	73.9	24.9	138	198	
Vert.	7236.000	PK	45.2	36.9	7.2	40.1	3.2	52.4	73.9	21.5	150	0	
Vert.	9648.000	PK	46.7	38.5	8.3	39.6	3.2	57.1	73.9	16.8	102	209	
Vert.	12060.000	PK	44.9	39.7	9.4	39.3	3.2	57.9	73.9	16.0	150	0	
Vert.	2390.000	AV	36.0	27.8	13.7	41.0	3.2	39.7	53.9	14.2	164	190	
Vert.	2397.231	AV	47.5	27.8	13.7	41.0	3.2	51.2	53.9	2.7	164	190	
Vert.	2400.000	AV	43.7	27.8	13.7	41.0	3.2	47.4	53.9	6.5	164	190	
Vert.	4824.000	AV	38.9	31.5	5.8	39.5	3.2	39.9	53.9	14.0	138	198	
Vert.	7236.000	AV	35.4	36.9	7.2	40.1	3.2	42.6	53.9	11.3	150	0	
Vert.	9648.000	AV	37.9	38.5	8.3	39.6	3.2	48.3	53.9	5.6	102	209	
Vert.	12060.000	AV	35.2	39.7	9.4	39.3	3.2	48.2	53.9	5.7	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(4.3\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	82.1	27.8	13.7	41.0	3.2	85.8	-	-	Carrier
Hori.	2397.231	PK	47.7	27.8	13.7	41.0	3.2	51.4	65.8	14.4	
Hori.	2400.000	PK	42.8	27.8	13.7	41.0	3.2	46.5	65.8	19.3	
Vert.	2412.000	PK	83.6	27.8	13.7	41.0	3.2	87.3	-	-	Carrier
Vert.	2397.231	PK	47.8	27.8	13.7	41.0	3.2	51.5	67.3	15.8	
Vert.	2400.000	PK	43.2	27.8	13.7	41.0	3.2	46.9	67.3	20.4	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(4.3\text{ m} / 3.0\text{ m}) = 3.2\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

UL Japan, Inc.

Shonan EMC Lab.

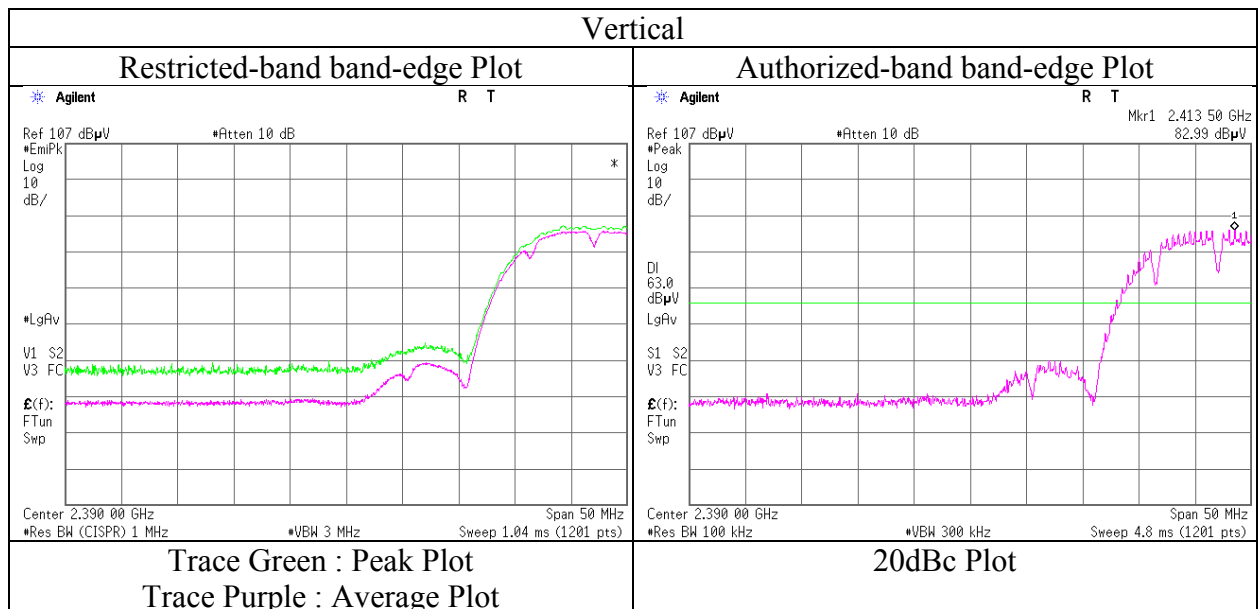
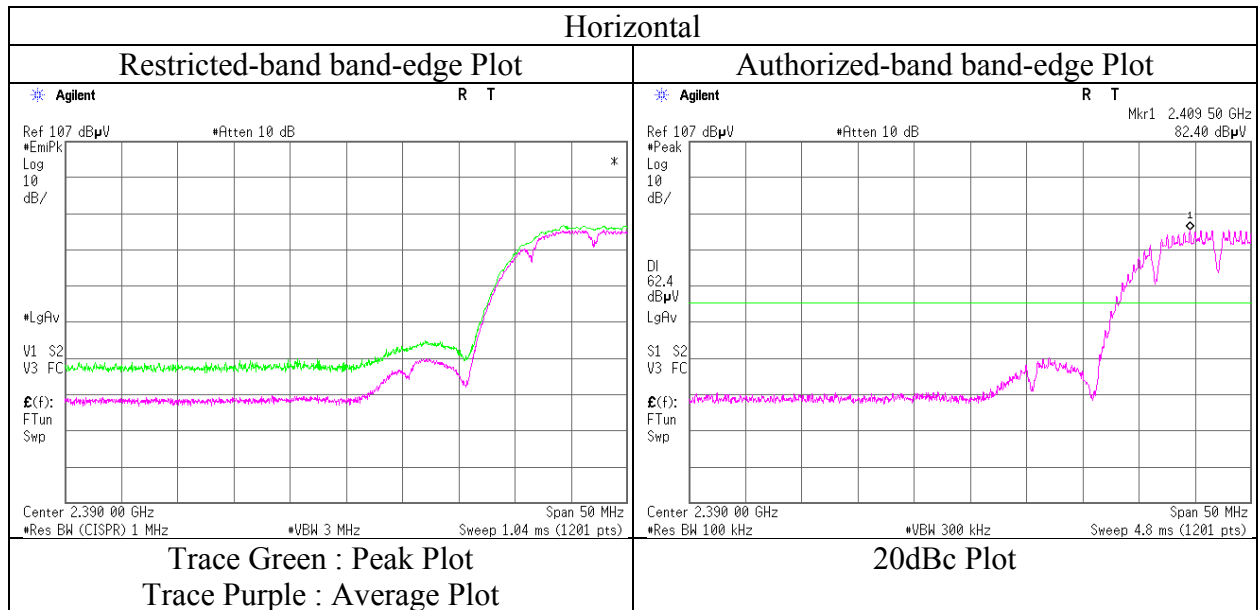
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11285933S-A-R2
Date	May 17, 2016
Temperature / Humidity	25 deg.C, 55 %RH
Engineer	Kenichi Adachi
	1 GHz-13 GHz
Mode	Tx 11b 2412 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place : Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11285933S-A-R2
Date : May 18, 2016
Temperature / Humidity : 22 deg.C, 57 %RH
Engineer : Yosuke Ishikawa
Mode : Tx 11b 2437 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	4874.000	PK	48.5	31.6	8.5	41.4	2.1	49.3	73.9	24.6	153	160	
Hori.	7311.000	PK	47.9	36.7	9.6	41.2	2.1	55.1	73.9	18.8	150	0	
Hori.	9748.000	PK	48.1	38.0	10.5	40.4	2.1	58.3	73.9	15.6	154	153	
Hori.	12185.000	PK	45.3	39.6	11.3	39.8	2.1	58.5	73.9	15.4	150	0	
Hori.	4874.000	AV	38.5	31.6	8.5	41.4	2.1	39.3	53.9	14.6	153	160	
Hori.	7311.000	AV	36.8	36.7	9.6	41.2	2.1	44.0	53.9	9.9	150	0	
Hori.	9748.000	AV	36.9	38.0	10.5	40.4	2.1	47.1	53.9	6.8	154	153	
Hori.	12185.000	AV	36.3	39.6	11.3	39.8	2.1	49.5	53.9	4.4	150	0	
Vert.	4874.000	PK	48.3	31.6	8.5	41.4	2.1	49.1	73.9	24.8	154	193	
Vert.	7311.000	PK	48.5	36.7	9.6	41.2	2.1	55.7	73.9	18.2	150	0	
Vert.	9748.000	PK	47.5	38.0	10.5	40.4	2.1	57.7	73.9	16.2	162	213	
Vert.	12185.000	PK	45.8	39.6	11.3	39.8	2.1	59.0	73.9	14.9	150	0	
Vert.	4874.000	AV	38.7	31.6	8.5	41.4	2.1	39.5	53.9	14.4	154	193	
Vert.	7311.000	AV	36.6	36.7	9.6	41.2	2.1	43.8	53.9	10.1	150	0	
Vert.	9748.000	AV	36.7	38.0	10.5	40.4	2.1	46.9	53.9	7.0	162	213	
Vert.	12185.000	AV	34.8	39.6	11.3	39.8	2.1	48.0	53.9	5.9	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

Radiated Spurious Emission

Test place : Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11285933S-A-R2
Date : May 18, 2016
Temperature / Humidity : 22 deg.C, 57 %RH
Engineer : Yosuke Ishikawa
Mode : 1 GHz-13 GHz
Tx 11b 2462 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	46.5	27.8	15.5	40.7	2.1	51.2	73.9	22.7	149	121	
Hori.	4924.000	PK	49.5	31.7	8.5	41.3	2.1	50.5	73.9	23.4	132	179	
Hori.	7386.000	PK	48.9	36.7	9.6	41.3	2.1	56.0	73.9	17.9	150	0	
Hori.	9848.000	PK	47.5	38.1	10.5	40.4	2.1	57.8	73.9	16.1	203	247	
Hori.	12310.000	PK	45.4	39.6	11.3	39.8	2.1	58.6	73.9	15.3	150	0	
Hori.	2483.500	AV	35.4	27.8	15.5	40.7	2.1	40.1	53.9	13.8	149	121	
Hori.	4924.000	AV	36.5	31.7	8.5	41.3	2.1	37.5	53.9	16.4	132	179	
Hori.	7386.000	AV	36.2	36.7	9.6	41.3	2.1	43.3	53.9	10.6	150	0	
Hori.	9848.000	AV	35.5	38.1	10.5	40.4	2.1	45.8	53.9	8.1	203	247	
Hori.	12310.000	AV	34.2	39.6	11.3	39.8	2.1	47.4	53.9	6.5	150	0	
Vert.	2483.500	PK	46.4	27.8	15.5	40.7	2.1	51.1	73.9	22.8	167	183	
Vert.	4924.000	PK	48.7	31.7	8.5	41.3	2.1	49.7	73.9	24.2	158	190	
Vert.	7386.000	PK	48.3	36.7	9.6	41.3	2.1	55.4	73.9	18.5	150	0	
Vert.	9848.000	PK	46.4	38.1	10.5	40.4	2.1	56.7	73.9	17.2	158	203	
Vert.	12310.000	PK	45.3	39.6	11.3	39.8	2.1	58.5	73.9	15.4	150	0	
Vert.	2483.500	AV	35.4	27.8	15.5	40.7	2.1	40.1	53.9	13.8	167	183	
Vert.	4924.000	AV	38.7	31.7	8.5	41.3	2.1	39.7	53.9	14.2	158	190	
Vert.	7386.000	AV	36.4	36.7	9.6	41.3	2.1	43.5	53.9	10.4	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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Shonan EMC Lab.

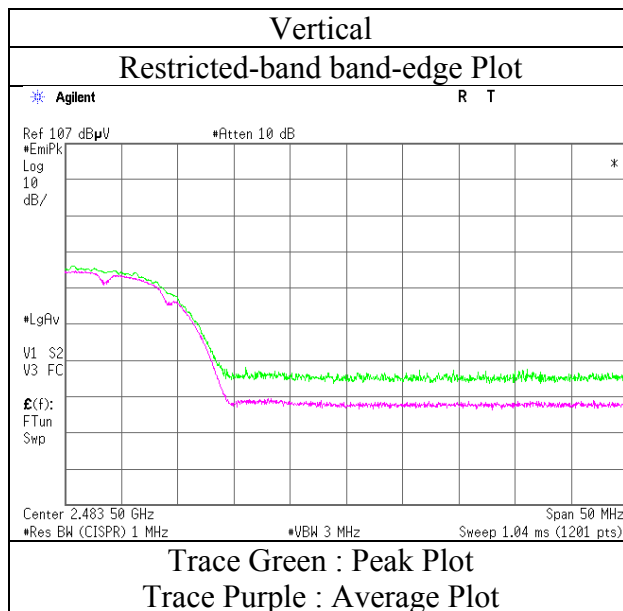
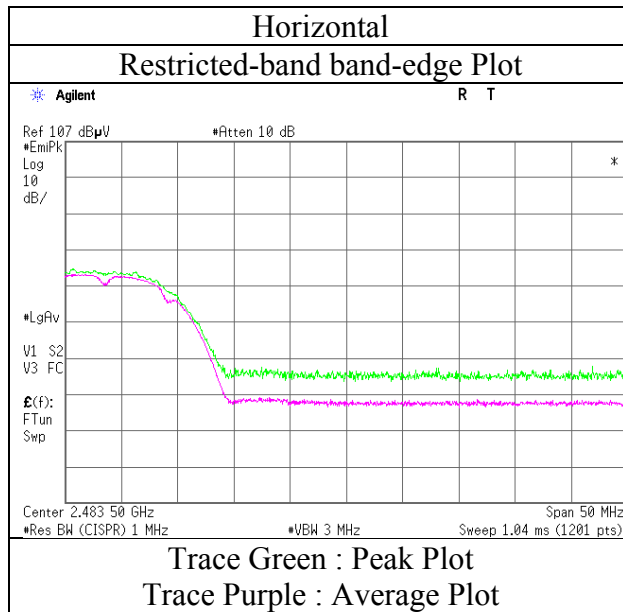
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Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11285933S-A-R2
Date	May 18, 2016
Temperature / Humidity	22 deg.C, 57 %RH
Engineer	Yosuke Ishikawa
	1 GHz-13 GHz
Mode	Tx 11b 2462 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place : Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11285933S-A-R2
Date : May 18, 2016
Temperature / Humidity : 22 deg.C, 57 %RH
Engineer : Yosuke Ishikawa
Mode : Tx 11n-20 (MIMO) 2412 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	47.1	27.7	15.4	40.7	2.1	51.6	73.9	22.3	149	223	
Hori.	2400.000	PK	63.1	27.7	15.4	40.7	2.1	67.6	73.9	6.3	149	223	
Hori.	4824.000	PK	47.4	31.4	8.5	41.5	2.1	47.9	73.9	26.0	150	0	
Hori.	7236.000	PK	47.3	36.6	9.6	41.2	2.1	54.4	73.9	19.5	150	0	
Hori.	9648.000	PK	46.3	38.0	10.5	40.5	2.1	56.4	73.9	17.5	150	0	
Hori.	12060.000	PK	46.6	39.6	11.4	39.9	2.1	59.8	73.9	14.1	150	0	
Hori.	2390.000	AV	35.9	27.7	15.4	40.7	2.1	40.4	53.9	13.5	149	223	
Hori.	2400.000	AV	44.5	27.7	15.4	40.7	2.1	49.0	53.9	4.9	149	223	
Hori.	4824.000	AV	36.1	31.4	8.5	41.5	2.1	36.6	53.9	17.3	150	0	
Hori.	7236.000	AV	35.7	36.6	9.6	41.2	2.1	42.8	53.9	11.1	150	0	
Hori.	9648.000	AV	33.8	38.0	10.5	40.5	2.1	43.9	53.9	10.0	150	0	
Hori.	12060.000	AV	35.9	39.6	11.4	39.9	2.1	49.1	53.9	4.8	150	0	
Vert.	2390.000	PK	49.8	27.7	15.4	40.7	2.1	54.3	73.9	19.6	158	171	
Vert.	2400.000	PK	65.8	27.7	15.4	40.7	2.1	70.3	73.9	3.6	158	171	
Vert.	4824.000	PK	47.2	31.4	8.5	41.5	2.1	47.7	73.9	26.2	150	0	
Vert.	7236.000	PK	47.2	36.6	9.6	41.2	2.1	54.3	73.9	19.6	150	0	
Vert.	9648.000	PK	46.8	38.0	10.5	40.5	2.1	56.9	73.9	17.0	150	0	
Vert.	12060.000	PK	45.4	39.6	11.4	39.9	2.1	58.6	73.9	15.3	150	0	
Vert.	2390.000	AV	35.9	27.7	15.4	40.7	2.1	40.4	53.9	13.5	158	171	
Vert.	2400.000	AV	46.2	27.7	15.4	40.7	2.1	50.7	53.9	3.2	158	171	
Vert.	4824.000	AV	36.0	31.4	8.5	41.5	2.1	36.5	53.9	17.4	150	0	
Vert.	7236.000	AV	35.8	36.6	9.6	41.2	2.1	42.9	53.9	11.0	150	0	
Vert.	9648.000	AV	34.9	38.0	10.5	40.5	2.1	45.0	53.9	8.9	150	0	
Vert.	12060.000	AV	33.8	39.6	11.4	39.9	2.1	47.0	53.9	6.9	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	73.6	27.7	15.4	40.7	2.1	78.1	-	-	Carrier
Hori.	2400.000	PK	45.9	27.7	15.4	40.7	2.1	50.4	58.1	7.7	
Vert.	2412.000	PK	76.7	27.7	15.4	40.7	2.1	81.2	-	-	Carrier
Vert.	2400.000	PK	47.8	27.7	15.4	40.7	2.1	52.3	61.2	8.9	

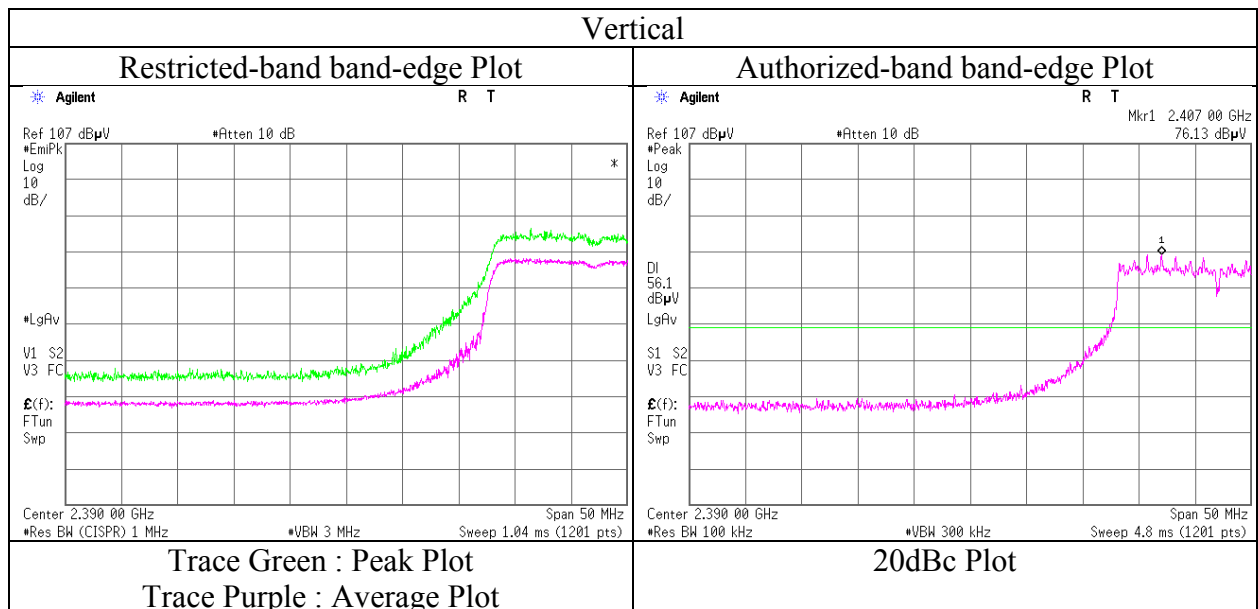
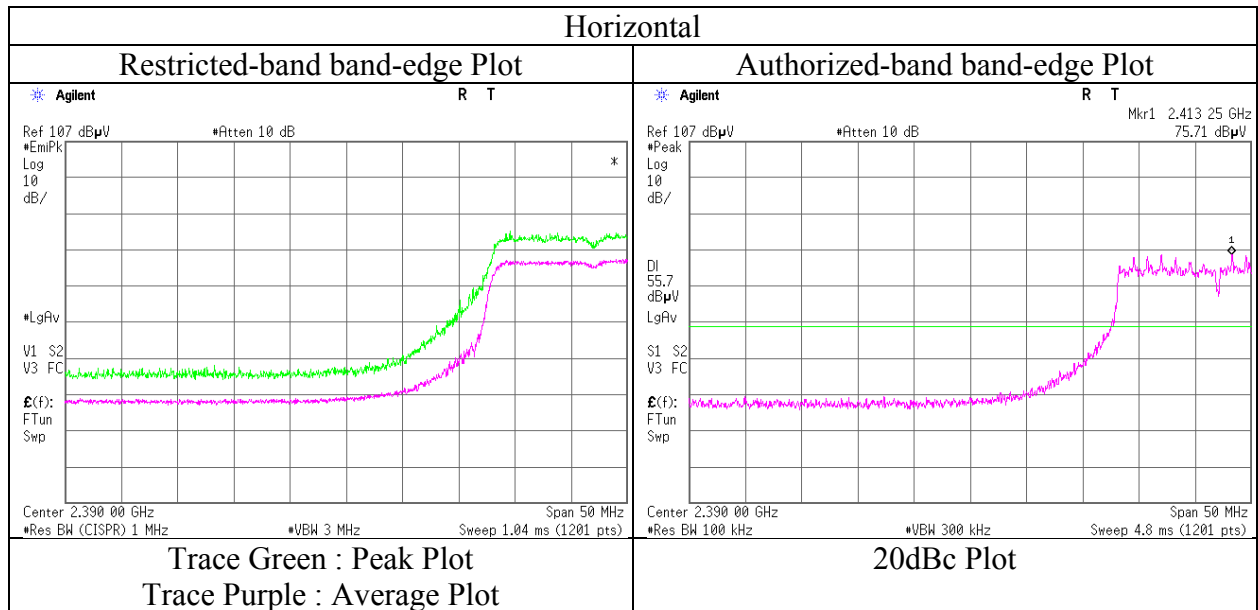
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11285933S-A-R2
Date	May 18, 2016
Temperature / Humidity	22 deg.C, 57 %RH
Engineer	Yosuke Ishikawa
	1 GHz-13 GHz
Mode	Tx 11n-20 (MIMO) 2412 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber		
Report No.	11285933S-A-R2		
Date	May 18, 2016	May 18, 2016	May 20, 2016
Temperature / Humidity	22 deg.C, 57 %RH	23 deg.C, 54 %RH	23 deg.C, 49 %RH
Engineer	Yosuke Ishikawa	Takahiro Suzuki	Takahiro Suzuki
	1 GHz-13 GHz	13 GHz- 26.5 GHz	30 MHz-1000 MHz
Mode	Tx 11n-20 (MIMO) 2417 MHz		

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	125.000	QP	35.1	13.0	8.2	31.8	0.0	24.5	43.5	19.0	242	179	
Hori.	159.635	QP	35.1	15.2	8.9	31.8	0.0	27.4	43.5	16.1	190	11	
Hori.	278.274	QP	28.7	18.4	9.8	31.8	0.0	25.1	46.0	20.9	128	112	
Hori.	2390.000	PK	48.1	27.7	15.4	40.7	2.1	52.6	73.9	21.3	226	249	
Hori.	2400.000	PK	56.8	27.7	15.4	40.7	2.1	61.3	73.9	12.6	226	249	
Hori.	4834.000	PK	47.3	31.4	8.5	41.5	2.1	47.8	73.9	26.1	150	0	
Hori.	7251.000	PK	46.9	36.6	9.6	41.2	2.1	54.0	73.9	19.9	150	0	
Hori.	9668.000	PK	46.3	38.0	10.5	40.5	2.1	56.4	73.9	17.5	150	0	
Hori.	12085.000	PK	45.0	39.6	11.4	39.8	2.1	58.3	73.9	15.6	150	0	
Hori.	2390.000	AV	35.8	27.7	15.4	40.7	2.1	40.3	53.9	13.6	226	249	
Hori.	2400.000	AV	41.0	27.7	15.4	40.7	2.1	45.5	53.9	8.4	226	249	
Hori.	4834.000	AV	36.1	31.4	8.5	41.5	2.1	36.6	53.9	17.3	150	0	
Hori.	7251.000	AV	35.9	36.6	9.6	41.2	2.1	43.0	53.9	10.9	150	0	
Hori.	9668.000	AV	34.8	38.0	10.5	40.5	2.1	44.9	53.9	9.0	150	0	
Hori.	12085.000	AV	33.5	39.6	11.4	39.8	2.1	46.8	53.9	7.1	150	0	
Vert.	36.118	QP	37.4	15.2	7.2	31.8	0.0	28.0	40.0	12.0	100	285	
Vert.	55.860	QP	44.4	8.6	7.4	31.8	0.0	28.6	40.0	11.4	100	323	
Vert.	83.474	QP	43.0	6.5	8.4	31.8	0.0	26.1	40.0	13.9	100	202	
Vert.	115.429	QP	34.8	12.0	8.1	31.8	0.0	23.1	43.5	20.4	100	105	
Vert.	124.998	QP	41.2	13.0	8.2	31.8	0.0	30.6	43.5	12.9	100	295	
Vert.	174.006	QP	34.7	15.9	8.9	31.8	0.0	27.7	43.5	15.8	100	219	
Vert.	274.380	QP	29.0	18.2	9.8	31.7	0.0	25.3	46.0	20.7	100	98	
Vert.	2390.000	PK	46.9	27.7	15.4	40.7	2.1	51.4	73.9	22.5	124	254	
Vert.	2400.000	PK	56.1	27.7	15.4	40.7	2.1	60.6	73.9	13.3	124	254	
Vert.	4834.000	PK	47.2	31.4	8.5	41.5	2.1	47.7	73.9	26.2	150	0	
Vert.	7251.000	PK	46.7	36.6	9.6	41.2	2.1	53.8	73.9	20.1	150	0	
Vert.	9668.000	PK	46.7	38.0	10.5	40.5	2.1	56.8	73.9	17.1	150	0	
Vert.	12085.000	PK	45.0	39.6	11.4	39.8	2.1	58.3	73.9	15.6	150	0	
Vert.	2390.000	AV	35.7	27.7	15.4	40.7	2.1	40.2	53.9	13.7	124	254	
Vert.	2400.000	AV	39.8	27.7	15.4	40.7	2.1	44.3	53.9	9.6	124	254	
Vert.	4834.000	AV	36.1	31.4	8.5	41.5	2.1	36.6	53.9	17.3	150	0	
Vert.	7251.000	AV	35.8	36.6	9.6	41.2	2.1	42.9	53.9	11.0	150	0	
Vert.	9668.000	AV	34.8	38.0	10.5	40.5	2.1	44.9	53.9	9.0	150	0	
Vert.	12085.000	AV	33.6	39.6	11.4	39.8	2.1	46.9	53.9	7.0	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2417.000	PK	79.1	27.7	15.4	40.7	2.1	83.6	-	-	Carrier
Hori.	2400.000	PK	41.2	27.7	15.4	40.7	2.1	45.7	63.7	18.0	
Vert.	2417.000	PK	78.9	27.7	15.4	40.7	2.1	83.4	-	-	Carrier
Vert.	2400.000	PK	40.9	27.7	15.4	40.7	2.1	45.4	63.4	18.0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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Shonan EMC Lab.

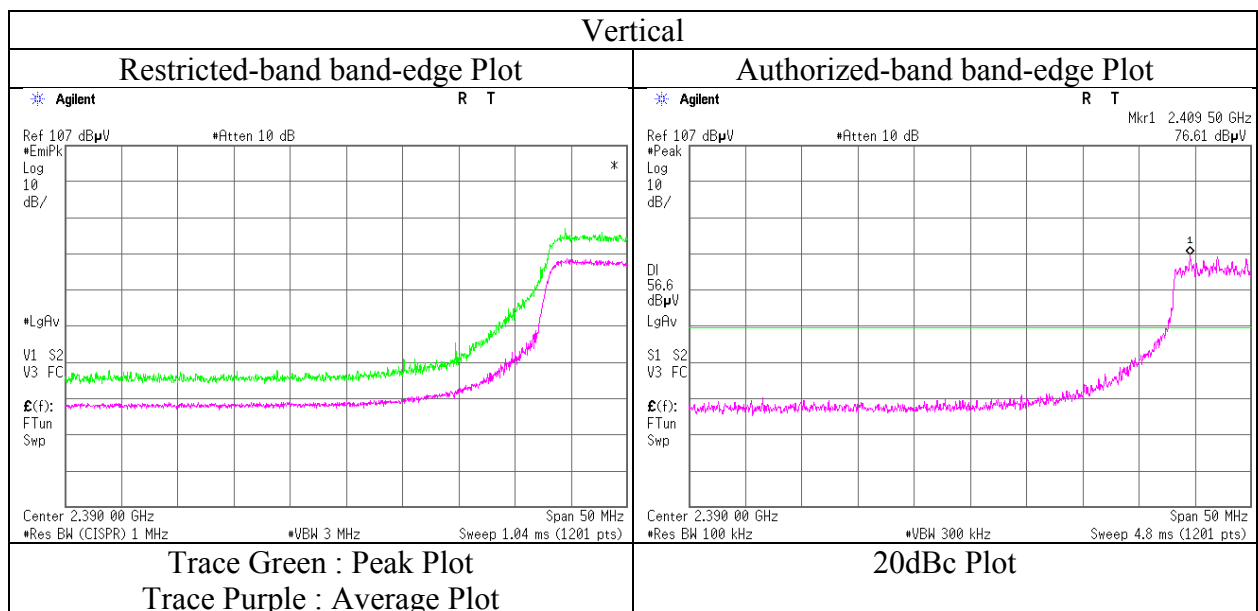
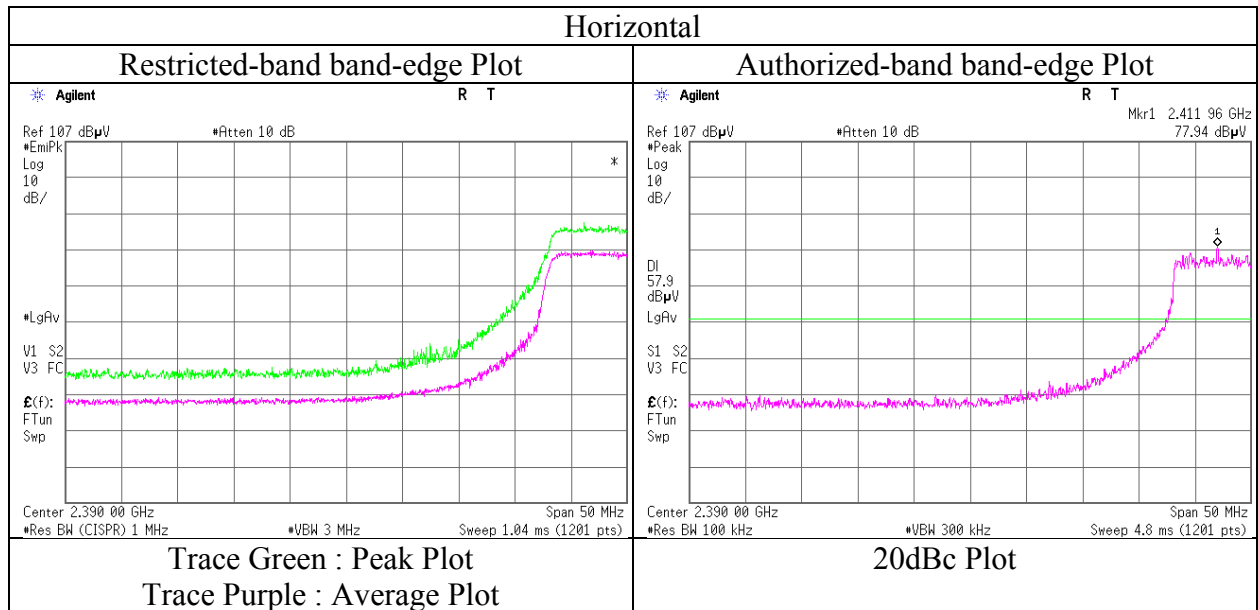
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11285933S-A-R2
Date	May 18, 2016
Temperature / Humidity	22 deg.C, 57 %RH
Engineer	Yosuke Ishikawa
	1 GHz-13 GHz
Mode	Tx 11n-20 (MIMO) 2417 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place : Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11285933S-A-R2
Date : May 18, 2016
Temperature / Humidity : 22 deg.C, 57 %RH
Engineer : Yosuke Ishikawa
Mode : Tx 11n-20 2437 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	4874.000	PK	47.5	31.6	8.5	41.4	2.1	48.3	73.9	25.6	150	0	
Hori.	7311.000	PK	47.3	36.7	9.6	41.2	2.1	54.5	73.9	19.4	150	0	
Hori.	9748.000	PK	45.9	38.0	10.5	40.4	2.1	56.1	73.9	17.8	150	0	
Hori.	12185.000	PK	45.5	39.6	11.3	39.8	2.1	58.7	73.9	15.2	150	0	
Hori.	4874.000	AV	36.2	31.6	8.5	41.4	2.1	37.0	53.9	16.9	150	0	
Hori.	7311.000	AV	35.8	36.7	9.6	41.2	2.1	43.0	53.9	10.9	150	0	
Hori.	9748.000	AV	34.6	38.0	10.5	40.4	2.1	44.8	53.9	9.1	150	0	
Hori.	12185.000	AV	34.2	39.6	11.3	39.8	2.1	47.4	53.9	6.5	150	0	
Vert.	4874.000	PK	47.2	31.6	8.5	41.4	2.1	48.0	73.9	25.9	150	0	
Vert.	7311.000	PK	47.6	36.7	9.6	41.2	2.1	54.8	73.9	19.1	150	0	
Vert.	9748.000	PK	46.4	38.0	10.5	40.4	2.1	56.6	73.9	17.3	150	0	
Vert.	12185.000	PK	45.7	39.6	11.3	39.8	2.1	58.9	73.9	15.0	150	0	
Vert.	4874.000	AV	36.2	31.6	8.5	41.4	2.1	37.0	53.9	16.9	150	0	
Vert.	7311.000	AV	36.2	36.7	9.6	41.2	2.1	43.4	53.9	10.5	150	0	
Vert.	9748.000	AV	34.8	38.0	10.5	40.4	2.1	45.0	53.9	8.9	150	0	
Vert.	12185.000	AV	34.2	39.6	11.3	39.8	2.1	47.4	53.9	6.5	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

Radiated Spurious Emission

Test place : Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11285933S-A-R2
Date : May 18, 2016
Temperature / Humidity : 22 deg.C, 57 %RH
Engineer : Yosuke Ishikawa
Mode : Tx 11n-20 2462 MHz
Date : May 18, 2016
Temperature / Humidity : 23 deg.C, 54 %RH
Engineer : Takahiro Suzuki
Mode : 13 GHz- 26.5 GHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	46.5	27.8	15.5	40.7	2.1	51.2	73.9	22.7	170	162	
Hori.	4924.000	PK	48.1	31.7	8.5	41.3	2.1	49.1	73.9	24.8	150	0	
Hori.	7386.000	PK	48.1	36.7	9.6	41.3	2.1	55.2	73.9	18.7	150	0	
Hori.	9848.000	PK	46.9	38.1	10.5	40.4	2.1	57.2	73.9	16.7	150	0	
Hori.	12310.000	PK	45.4	39.6	11.3	39.8	2.1	58.6	73.9	15.3	150	0	
Hori.	2483.500	AV	35.3	27.8	15.5	40.7	2.1	40.0	53.9	13.9	170	162	
Hori.	4924.000	AV	36.4	31.7	8.5	41.3	2.1	37.4	53.9	16.5	150	0	
Hori.	7386.000	AV	36.0	36.7	9.6	41.3	2.1	43.1	53.9	10.8	150	0	
Hori.	9848.000	AV	34.8	38.1	10.5	40.4	2.1	45.1	53.9	8.8	150	0	
Hori.	12310.000	AV	33.6	39.6	11.3	39.8	2.1	46.8	53.9	7.1	150	0	
Vert.	2483.500	PK	46.2	27.8	15.5	40.7	2.1	50.9	73.9	23.0	176	167	
Vert.	4924.000	PK	47.4	31.7	8.5	41.3	2.1	48.4	73.9	25.5	150	0	
Vert.	7386.000	PK	47.2	36.7	9.6	41.3	2.1	54.3	73.9	19.6	150	0	
Vert.	9848.000	PK	46.1	38.1	10.5	40.4	2.1	56.4	73.9	17.5	150	0	
Vert.	12310.000	PK	45.5	39.6	11.3	39.8	2.1	58.7	73.9	15.2	150	0	
Vert.	2483.500	AV	35.3	27.8	15.5	40.7	2.1	40.0	53.9	13.9	176	167	
Vert.	4924.000	AV	36.3	31.7	8.5	41.3	2.1	37.3	53.9	16.6	150	0	
Vert.	7386.000	AV	35.9	36.7	9.6	41.3	2.1	43.0	53.9	10.9	150	0	
Vert.	9848.000	AV	34.8	38.1	10.5	40.4	2.1	45.1	53.9	8.8	150	0	
Vert.	12310.000	AV	33.5	39.6	11.3	39.8	2.1	46.7	53.9	7.2	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

UL Japan, Inc.

Shonan EMC Lab.

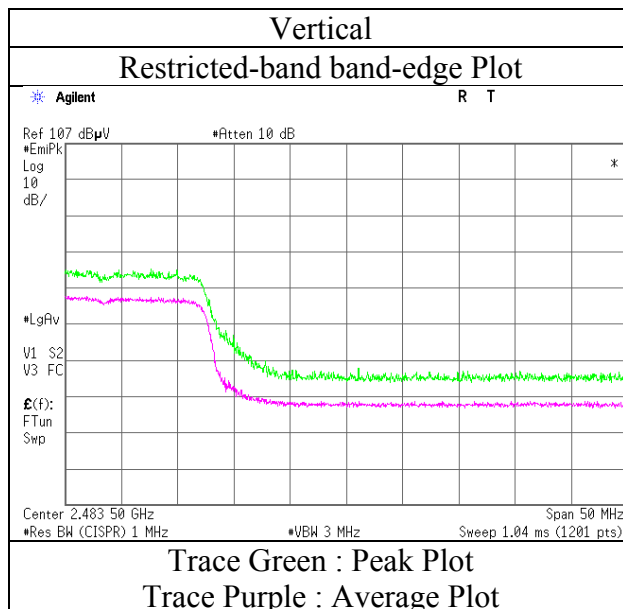
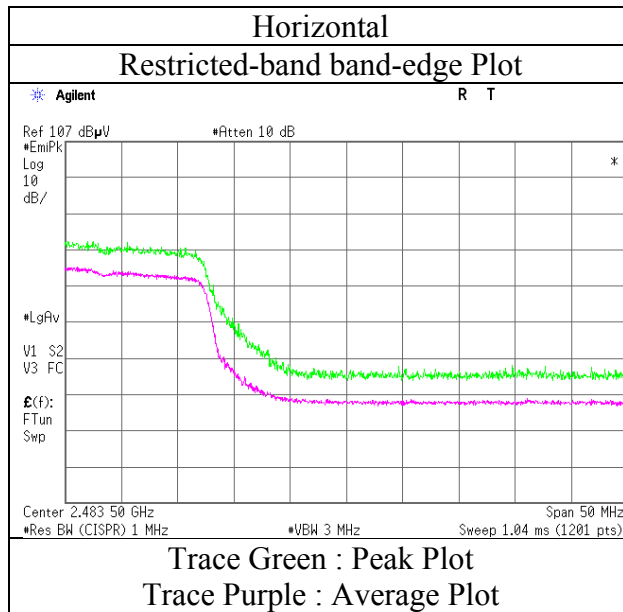
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11285933S-A-R2
Date	May 18, 2016
Temperature / Humidity	22 deg.C, 57 %RH
Engineer	Yosuke Ishikawa
	1 GHz-13 GHz
Mode	Tx 11n-20 2462 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place : Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11285933S-A-R2
Date : May 18, 2016
Temperature / Humidity : 22 deg.C, 57 %RH
Engineer : Yosuke Ishikawa
Mode : Tx 11n-40 (MIMO) 2422 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	47.2	27.7	15.4	40.7	2.1	51.7	73.9	22.2	227	130	
Hori.	2400.000	PK	56.3	27.7	15.4	40.7	2.1	60.8	73.9	13.1	227	130	
Hori.	4844.000	PK	47.6	31.5	8.5	41.5	2.1	48.2	73.9	25.7	150	0	
Hori.	7266.000	PK	47.9	36.6	9.6	41.2	2.1	55.0	73.9	18.9	150	0	
Hori.	9688.000	PK	46.0	38.0	10.5	40.5	2.1	56.1	73.9	17.8	150	0	
Hori.	12110.000	PK	45.3	39.6	11.4	39.8	2.1	58.6	73.9	15.3	150	0	
Hori.	2390.000	AV	35.6	27.7	15.4	40.7	2.1	40.1	53.9	13.8	227	130	
Hori.	2400.000	AV	39.7	27.7	15.4	40.7	2.1	44.2	53.9	9.7	227	130	
Hori.	4844.000	AV	36.1	31.5	8.5	41.5	2.1	36.7	53.9	17.2	150	0	
Hori.	7266.000	AV	35.9	36.6	9.6	41.2	2.1	43.0	53.9	10.9	150	0	
Hori.	9688.000	AV	34.5	38.0	10.5	40.5	2.1	44.6	53.9	9.3	150	0	
Hori.	12110.000	AV	33.8	39.6	11.4	39.8	2.1	47.1	53.9	6.8	150	0	
Vert.	2390.000	PK	47.7	27.7	15.4	40.7	2.1	52.2	73.9	21.7	147	166	
Vert.	2400.000	PK	58.3	27.7	15.4	40.7	2.1	62.8	73.9	11.1	147	166	
Vert.	4844.000	PK	47.7	31.5	8.5	41.5	2.1	48.3	73.9	25.6	150	0	
Vert.	7266.000	PK	47.4	36.6	9.6	41.2	2.1	54.5	73.9	19.4	150	0	
Vert.	9688.000	PK	46.3	38.0	10.5	40.5	2.1	56.4	73.9	17.5	150	0	
Vert.	12110.000	PK	45.4	39.6	11.4	39.8	2.1	58.7	73.9	15.2	150	0	
Vert.	2390.000	AV	35.9	27.7	15.4	40.7	2.1	40.4	53.9	13.5	147	166	
Vert.	2400.000	AV	41.3	27.7	15.4	40.7	2.1	45.8	53.9	8.1	147	166	
Vert.	4844.000	AV	36.1	31.5	8.5	41.5	2.1	36.7	53.9	17.2	150	0	
Vert.	7266.000	AV	35.9	36.6	9.6	41.2	2.1	43.0	53.9	10.9	150	0	
Vert.	9688.000	AV	34.6	38.0	10.5	40.5	2.1	44.7	53.9	9.2	150	0	
Vert.	12110.000	AV	33.7	39.6	11.4	39.8	2.1	47.0	53.9	6.9	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2422.000	PK	68.4	27.7	15.4	40.7	2.1	72.9	-	-	Carrier
Hori.	2400.000	PK	41.6	27.7	15.4	40.7	2.1	46.1	52.9	6.8	
Vert.	2422.000	PK	68.8	27.7	15.4	40.7	2.1	73.3	-	-	Carrier
Vert.	2400.000	PK	42.7	27.7	15.4	40.7	2.1	47.2	53.4	6.2	

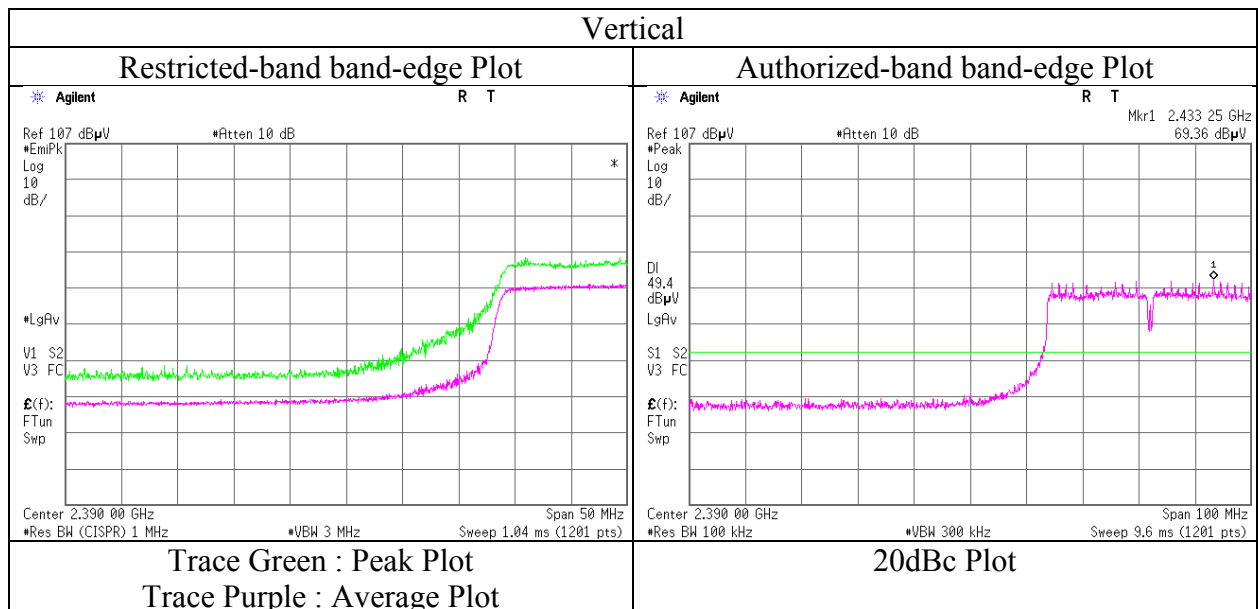
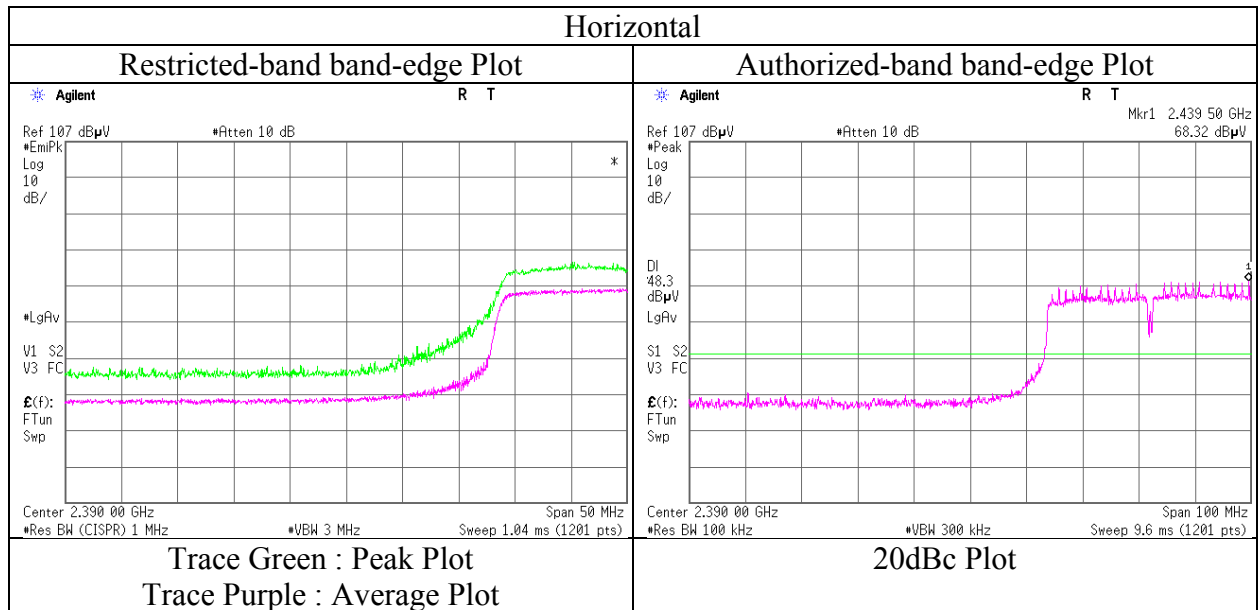
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11285933S-A-R2
Date	May 18, 2016
Temperature / Humidity	22 deg.C, 57 %RH
Engineer	Yosuke Ishikawa
	1 GHz-13 GHz
Mode	Tx 11n-40 (MIMO) 2422 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Shonan EMC Lab. No. 3	Shonan EMC Lab. No. 1
	Semi Anechoic Chamber	Semi Anechoic Chamber
Report No.	11285933S-A-R2	
Date	May 17, 2016	May 18, 2016
Temperature / Humidity	25 deg.C, 55 %RH	23 deg.C, 54 %RH
Engineer	Kenichi Adachi	Takahiro Suzuki
	1 GHz-13 GHz	13 GHz- 26.5 GHz
Mode	Tx 11n-40 (MIMO) 2427 MHz	

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	50.0	27.8	13.7	41.0	3.2	53.7	73.9	20.2	181	161	
Hori.	2400.000	PK	58.0	27.8	13.7	41.0	3.2	61.7	73.9	12.2	181	161	
Hori.	4854.000	PK	45.7	31.6	5.9	39.5	3.2	46.9	73.9	27.0	144	166	
Hori.	7281.000	PK	45.2	36.9	7.3	40.2	3.2	52.4	73.9	21.5	150	0	
Hori.	9708.000	PK	45.0	38.5	8.3	39.6	3.2	55.4	73.9	18.5	150	0	
Hori.	12135.000	PK	45.5	39.6	9.4	39.4	3.2	58.3	73.9	15.6	150	0	
Hori.	2390.000	AV	40.0	27.8	13.7	41.0	3.2	43.7	53.9	10.2	181	161	
Hori.	2400.000	AV	44.8	27.8	13.7	41.0	3.2	48.5	53.9	5.4	181	161	
Hori.	4854.000	AV	35.5	31.6	5.9	39.5	3.2	36.7	53.9	17.2	144	166	
Hori.	7281.000	AV	36.2	36.9	7.3	40.2	3.2	43.4	53.9	10.5	150	0	
Hori.	9708.000	AV	35.8	38.5	8.3	39.6	3.2	46.2	53.9	7.7	150	0	
Hori.	12135.000	AV	36.2	39.6	9.4	39.4	3.2	49.0	53.9	4.9	150	0	
Vert.	2390.000	PK	49.7	27.8	13.7	41.0	3.2	53.4	73.9	20.5	162	193	
Vert.	2400.000	PK	56.0	27.8	13.7	41.0	3.2	59.7	73.9	14.2	162	193	
Vert.	4854.000	PK	45.6	31.6	5.9	39.5	3.2	46.8	73.9	27.1	136	196	
Vert.	7281.000	PK	45.1	36.9	7.3	40.2	3.2	52.3	73.9	21.6	150	0	
Vert.	9708.000	PK	45.2	38.5	8.3	39.6	3.2	55.6	73.9	18.3	150	0	
Vert.	12135.000	PK	45.4	39.6	9.4	39.4	3.2	58.2	73.9	15.7	150	0	
Vert.	2390.000	AV	39.5	27.8	13.7	41.0	3.2	43.2	53.9	10.7	162	193	
Vert.	2400.000	AV	43.4	27.8	13.7	41.0	3.2	47.1	53.9	6.8	162	193	
Vert.	4854.000	AV	35.4	31.6	5.9	39.5	3.2	36.6	53.9	17.3	136	196	
Vert.	7281.000	AV	36.1	36.9	7.3	40.2	3.2	43.3	53.9	10.6	150	0	
Vert.	9708.000	AV	35.9	38.5	8.3	39.6	3.2	46.3	53.9	7.6	150	0	
Vert.	12135.000	AV	36.1	39.6	9.4	39.4	3.2	48.9	53.9	5.0	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(4.3 \text{ m} / 3.0 \text{ m}) = 3.2 \text{ dB}$

13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2427.000	PK	80.5	27.8	13.7	41.0	3.2	84.2	-	-	Carrier
Hori.	2400.000	PK	45.7	27.8	13.7	41.0	3.2	49.4	64.2	14.8	
Vert.	2427.000	PK	79.4	27.8	13.7	41.0	3.2	83.1	-	-	Carrier
Vert.	2400.000	PK	44.5	27.8	13.7	41.0	3.2	48.2	63.2	15.0	

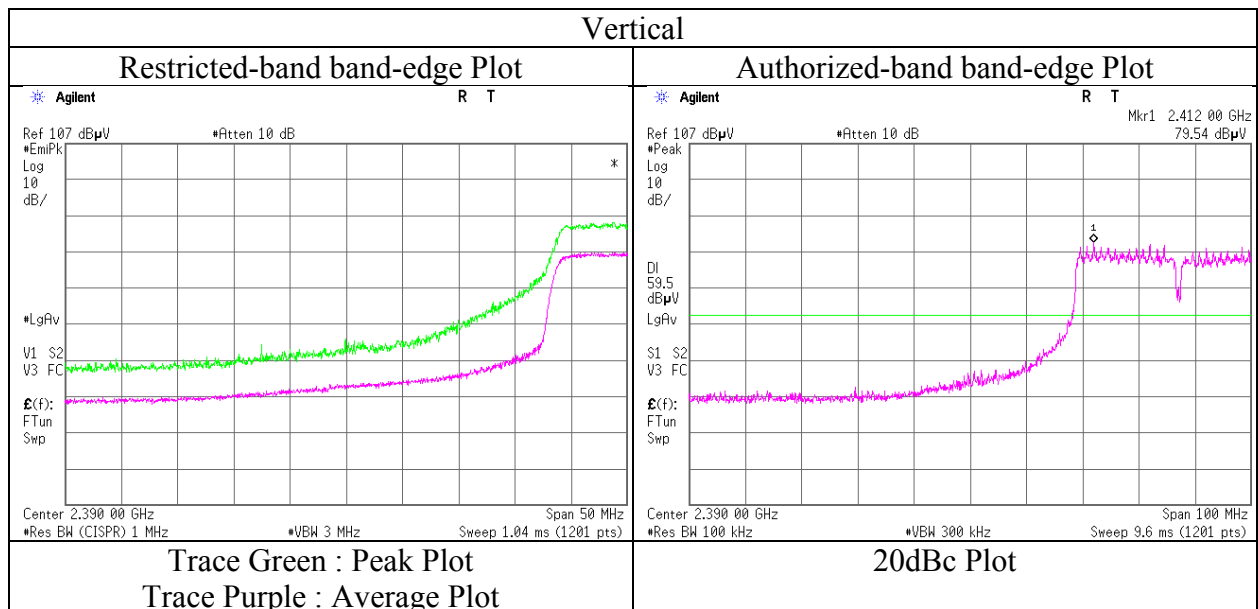
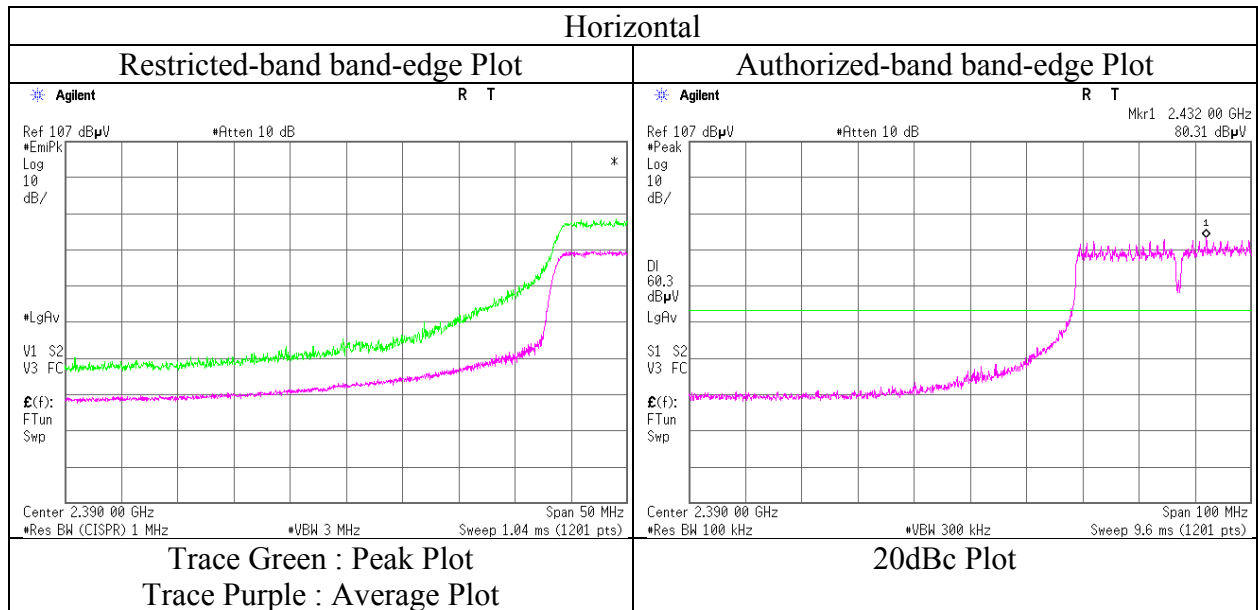
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(4.3 \text{ m} / 3.0 \text{ m}) = 3.2 \text{ dB}$

13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11285933S-A-R2
Date	May 17, 2016
Temperature / Humidity	25 deg.C, 55 %RH
Engineer	Kenichi Adachi
	1 GHz-13 GHz
Mode	Tx 11n-40 (MIMO) 2427 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place : Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11285933S-A-R2
Date : May 18, 2016
Temperature / Humidity : 22 deg.C, 57 %RH
Engineer : Yosuke Ishikawa
Mode : 1 GHz-13 GHz
Tx 11n-40 2437 MHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	4874.000	PK	47.6	31.6	8.5	41.4	2.1	48.4	73.9	25.5	150	0	
Hori.	7311.000	PK	48.4	36.7	9.6	41.2	2.1	55.6	73.9	18.3	150	0	
Hori.	9748.000	PK	47.1	38.0	10.5	40.4	2.1	57.3	73.9	16.6	150	0	
Hori.	12185.000	PK	45.8	39.6	11.3	39.8	2.1	59.0	73.9	14.9	150	0	
Hori.	4874.000	AV	36.3	31.6	8.5	41.4	2.1	37.1	53.9	16.8	150	0	
Hori.	7311.000	AV	36.1	36.7	9.6	41.2	2.1	43.3	53.9	10.6	150	0	
Hori.	9748.000	AV	34.8	38.0	10.5	40.4	2.1	45.0	53.9	8.9	150	0	
Hori.	12185.000	AV	34.1	39.6	11.3	39.8	2.1	47.3	53.9	6.6	150	0	
Vert.	4874.000	PK	47.9	31.6	8.5	41.4	2.1	48.7	73.9	25.2	150	0	
Vert.	7311.000	PK	47.9	36.7	9.6	41.2	2.1	55.1	73.9	18.8	150	0	
Vert.	9748.000	PK	46.3	38.0	10.5	40.4	2.1	56.5	73.9	17.4	150	0	
Vert.	12185.000	PK	46.4	39.6	11.3	39.8	2.1	59.6	73.9	14.3	150	0	
Vert.	4874.000	AV	36.4	31.6	8.5	41.4	2.1	37.2	53.9	16.7	150	0	
Vert.	7311.000	AV	36.2	36.7	9.6	41.2	2.1	43.4	53.9	10.5	150	0	
Vert.	9748.000	AV	34.8	38.0	10.5	40.4	2.1	45.0	53.9	8.9	150	0	
Vert.	12185.000	AV	34.0	39.6	11.3	39.8	2.1	47.2	53.9	6.7	150	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

Radiated Spurious Emission

Test place : Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11285933S-A-R2
Date : May 18, 2016
Temperature / Humidity : 22 deg.C, 57 %RH
Engineer : Yosuke Ishikawa
Mode : Tx 11n-40 2462 MHz
Date : May 18, 2016
Temperature / Humidity : 23 deg.C, 54 %RH
Engineer : Takahiro Suzuki
Mode : 13 GHz- 26.5 GHz

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	46.9	27.8	15.5	40.7	2.1	51.6	73.9	22.3	167	157	
Hori.	4904.000	PK	48.7	31.7	8.5	41.3	2.1	49.7	73.9	24.2	150	0	
Hori.	7356.000	PK	48.0	36.7	9.6	41.3	2.1	55.1	73.9	18.8	150	0	
Hori.	9808.000	PK	46.0	38.1	10.5	40.4	2.1	56.3	73.9	17.6	150	0	
Hori.	12260.000	PK	45.0	39.6	11.3	39.8	2.1	58.2	73.9	15.7	150	0	
Hori.	2483.500	AV	35.5	27.8	15.5	40.7	2.1	40.2	53.9	13.7	167	157	
Hori.	4904.000	AV	36.4	31.7	8.5	41.3	2.1	37.4	53.9	16.5	150	0	
Hori.	7356.000	AV	36.2	36.7	9.6	41.3	2.1	43.3	53.9	10.6	150	0	
Hori.	9808.000	AV	34.5	38.1	10.5	40.4	2.1	44.8	53.9	9.1	150	0	
Hori.	12260.000	AV	32.9	39.6	11.3	39.8	2.1	46.1	53.9	7.8	150	0	
Vert.	2483.500	PK	46.8	27.8	15.5	40.7	2.1	51.5	73.9	22.4	154	167	
Vert.	4904.000	PK	47.4	31.7	8.5	41.3	2.1	48.4	73.9	25.5	150	0	
Vert.	7356.000	PK	46.9	36.7	9.6	41.3	2.1	54.0	73.9	19.9	150	0	
Vert.	9808.000	PK	46.1	38.1	10.5	40.4	2.1	56.4	73.9	17.5	150	0	
Vert.	12260.000	PK	44.3	39.6	11.3	39.8	2.1	57.5	73.9	16.4	150	0	
Vert.	2483.500	AV	35.3	27.8	15.5	40.7	2.1	40.0	53.9	13.9	154	167	
Vert.	4904.000	AV	36.4	31.7	8.5	41.3	2.1	37.4	53.9	16.5	150	0	
Vert.	7356.000	AV	35.9	36.7	9.6	41.3	2.1	43.0	53.9	10.9	150	0	
Vert.	9808.000	AV	34.6	38.1	10.5	40.4	2.1	44.9	53.9	9.0	150	0	
Vert.	12260.000	AV	33.0	39.6	11.3	39.8	2.1	46.2	53.9	7.7	150	0	

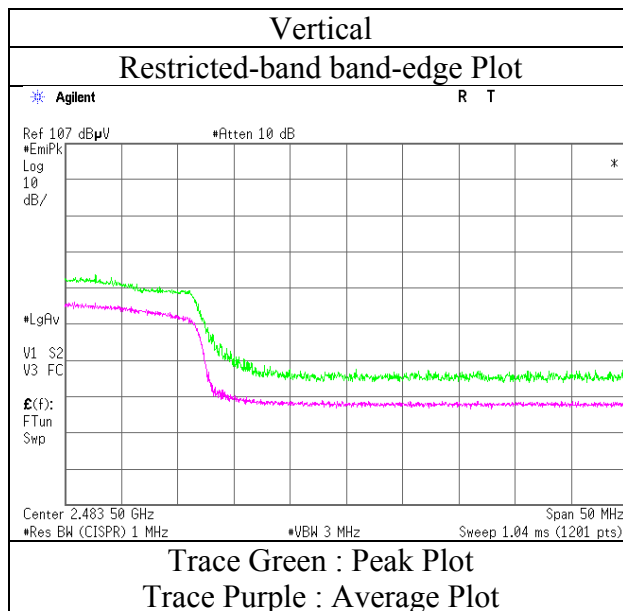
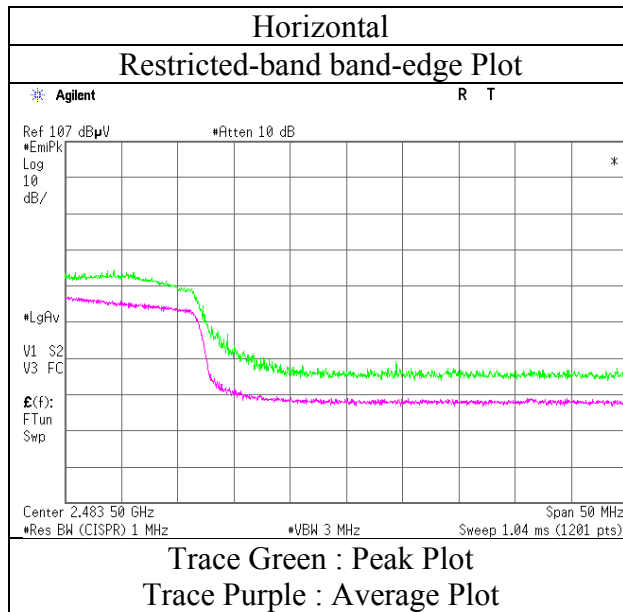
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.8\text{ m} / 3.0\text{ m}) = 2.1\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

Radiated Spurious Emission (Reference Plot for band-edge)

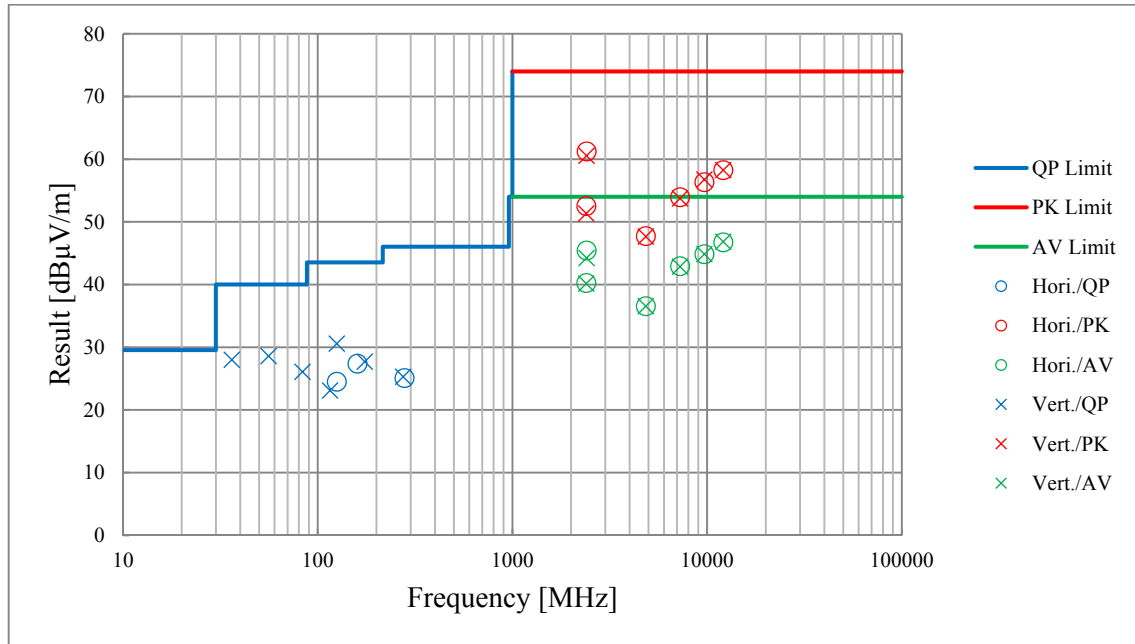
Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11285933S-A-R2
Date	22 deg.C, 57 %RH
Temperature / Humidity	Yosuke Ishikawa
Engineer	1 GHz-13 GHz
	22 deg.C, 57 %RH
Mode	Tx 11n-40 2462 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission (Plot data, Worst case)

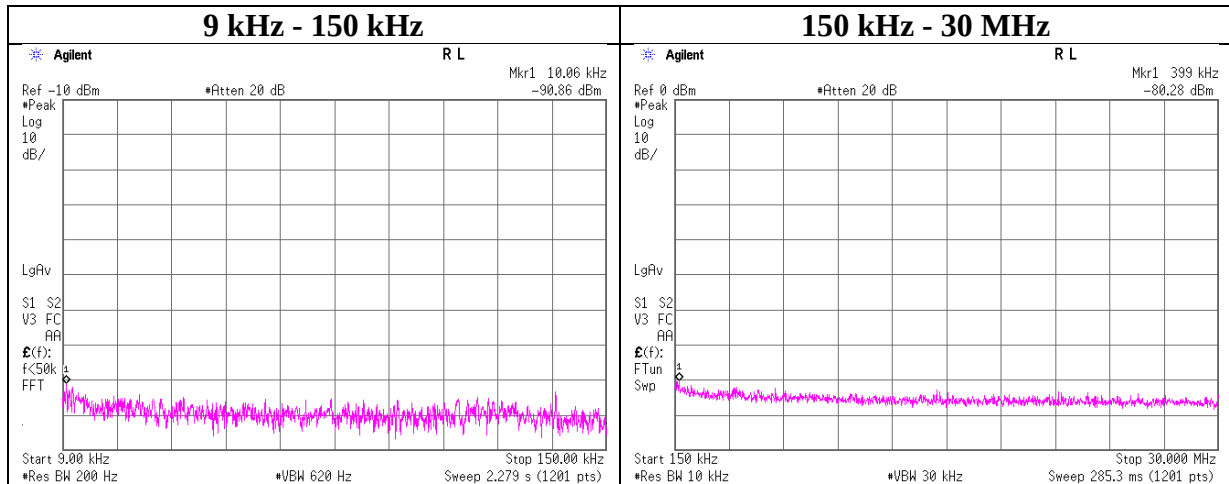
Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber		
Report No.	11285933S-A-R2		
Date	May 18, 2016	May 18, 2016	May 20, 2016
Temperature / Humidity	22 deg.C, 57 %RH	23 deg.C, 54 %RH	23 deg.C, 49 %RH
Engineer	Yosuke Ishikawa	Takahiro Suzuki	Takahiro Suzuki
	1 GHz-13 GHz	13 GHz- 26.5 GHz	30 MHz-1000 MHz
Mode	Tx 11n-20 (MIMO) 2417 MHz		



*These plots data contains sufficient number to show the trend of characteristic features for EUT.

Conducted Spurious Emission

Test place : Shonan EMC Lab. No.1 Measurement Room
Report No. : 11285933S-A-R2
Date : February 5, 2016
Temperature / Humidity : 26 deg. C / 47 % RH
Engineer : Hiroyuki Morikawa
Mode : Tx 11n-20 MIMO 2412 MHz Antenna 0



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
10.06	-91.8	0.04	9.8	2.0	2	-76.9	300	6.0	-15.6	47.5	63.1	
399.00	-80.3	0.05	9.8	2.0	2	-65.4	300	6.0	-4.1	15.5	19.6	

$E = \text{EIRP} - 20 \log(D) + \text{Ground bounce} + 104.8 \text{ [dBuV/m]}$

$\text{EIRP} = \text{Reading} + \text{Cable Loss} + \text{Attenuator Loss} + \text{Antenna Gain} + 10 * \log(N)$

*2.0 dBi was applied to the test result based on KDB 558074 since antenna gain was less than 2.0 dBi.

Power Density

Test place Shonan EMC Lab. No.1 Measurement Room
Report No. 11285933S-A-R2
Date February 5, 2016
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Hiroyuki Morikawa
Mode Tx

11b Antenna 0

Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412	-21.63	1.84	9.93	-9.86	8.00	17.86
2437	-22.39	1.85	9.93	-10.61	8.00	18.61
2462	-21.39	1.86	9.93	-9.60	8.00	17.60

11g Antenna 0

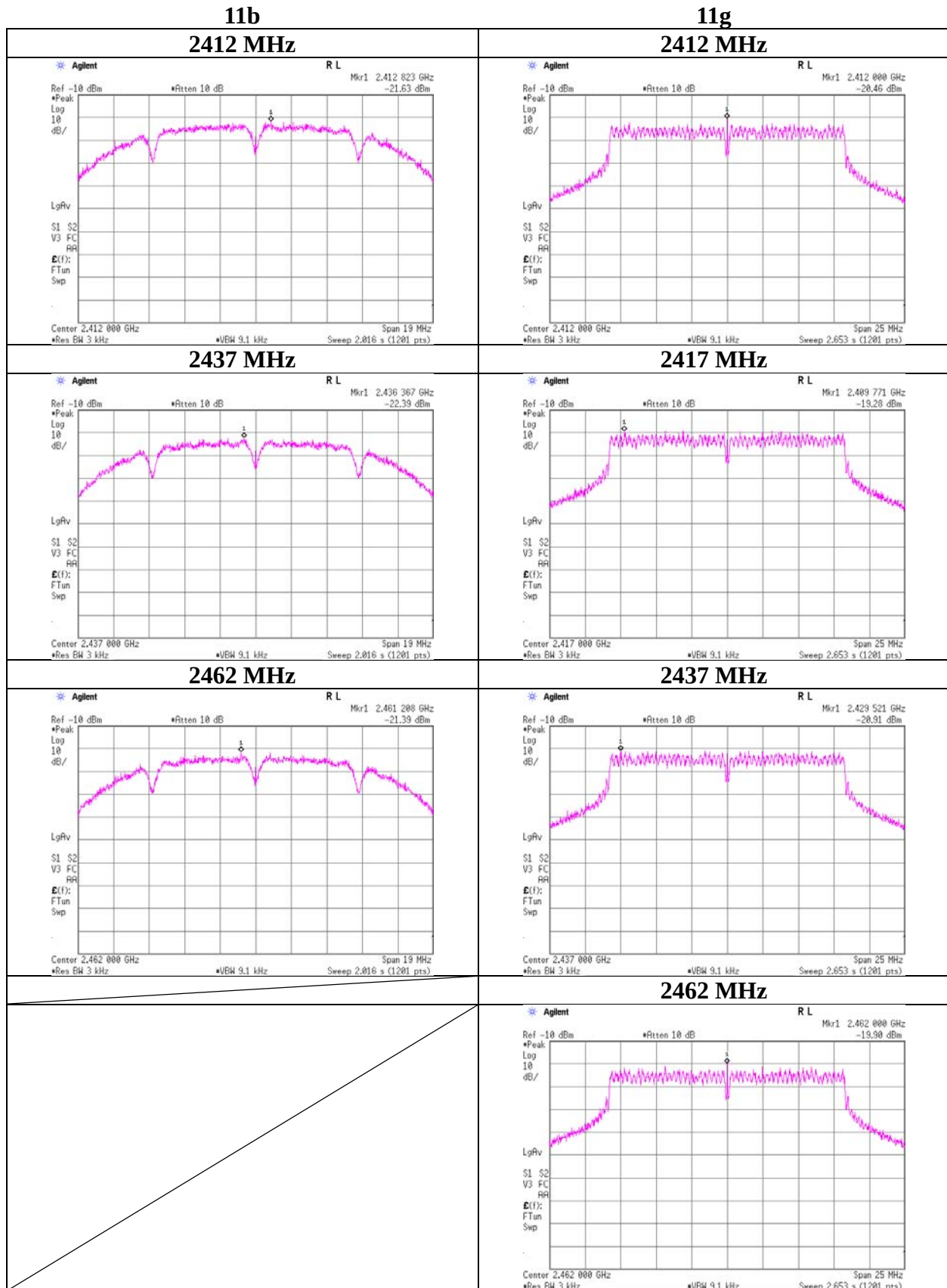
Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412	-20.46	1.84	9.93	-8.69	8.00	16.69
2427 *1	-19.28	1.84	9.93	-7.51	8.00	15.51
2437	-20.91	1.85	9.93	-9.13	8.00	17.13
2462	-19.90	1.86	9.93	-8.11	8.00	16.11

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

*1 Measurement was performed additionally since the channel has the highest power setting.

Power Density



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Power Density

Test place Shonan EMC Lab. No.1 Measurement Room
Report No. 11285933S-A-R2
Date February 5, 2016
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Hiroyuki Morikawa
Mode Tx

11n-20 SISO		Antenna 0				
Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412	-22.22	1.84	9.93	-10.45	8.00	18.45
2427 *1	-20.55	1.84	9.93	-8.78	8.00	16.78
2437	-21.94	1.85	9.93	-10.16	8.00	18.16
2462	-21.87	1.86	9.93	-10.08	8.00	18.08

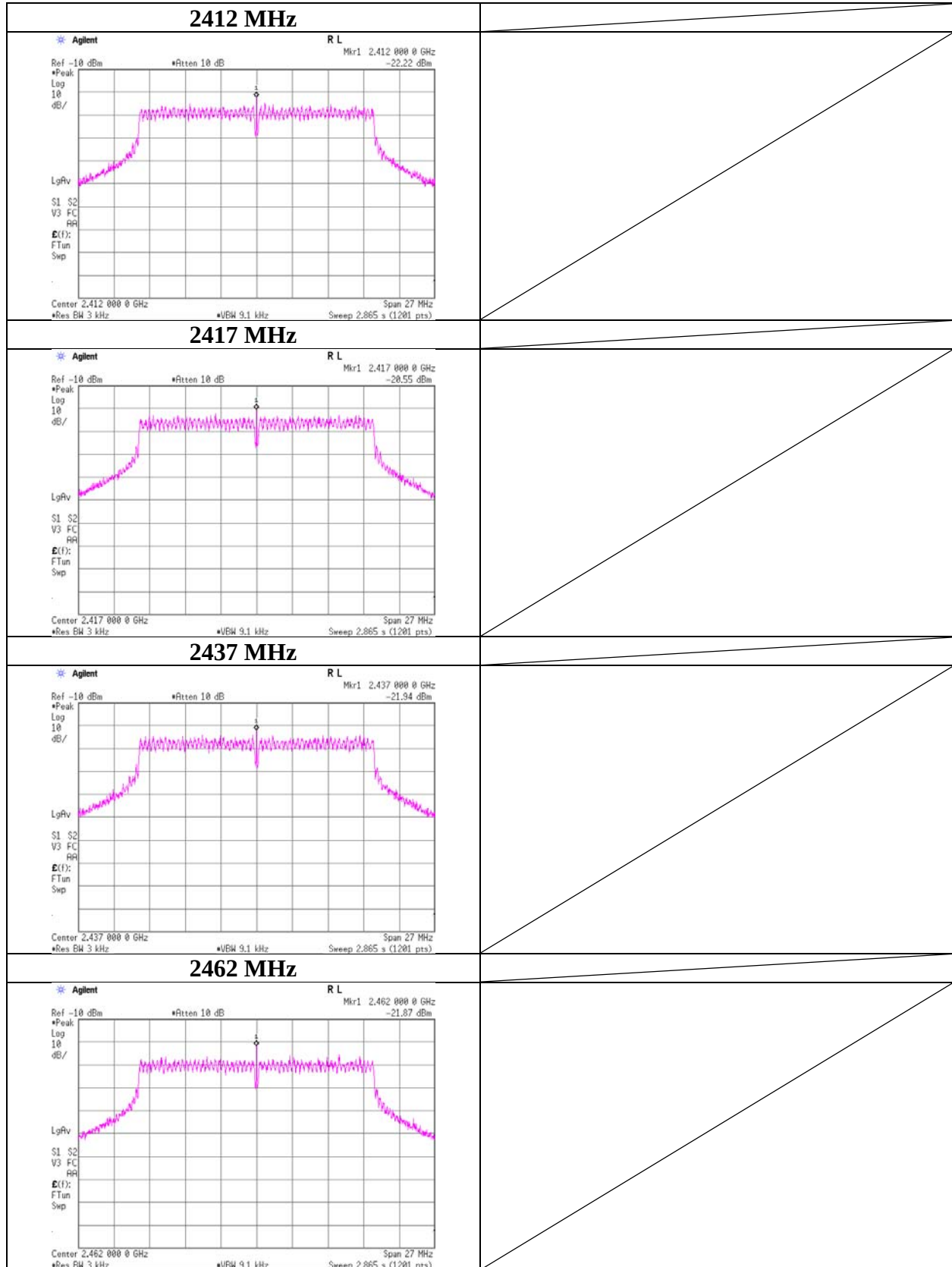
Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

*1 Measurement was performed additionally since the channel has the highest power setting.

Power Density

11n-20 SISO



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Power Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 5, 2016
Temperature / Humidity	26 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-20 MIMO

Antenna 0 + 1

Freq. [MHz]	Antenna 0 Result [mW]	Antenna 1 Result [mW]	Result		Limit	Margin
			[dBm]	[mW]	[dBm]	[dB]
2412.00	0.09	0.05	-8.40	0.14	8.00	16.40
2417 *1	0.13	0.08	-6.74	0.21	8.00	14.74
2437.00	0.06	0.07	-9.02	0.13	8.00	17.02
2462.00	0.07	0.04	-9.41	0.11	8.00	17.41

Sample Calculation:

Result = Antenna 0 + 1

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit	Margin
				[dBm]	[mW]	[dBm]	[dB]
2412	-22.11	1.84	9.93	-10.34	0.09	8.00	18.34
2417 *1	-20.61	1.84	9.93	-8.84	0.13	8.00	16.84
2437	-24.13	1.85	9.93	-12.35	0.06	8.00	20.35
2462	-23.17	1.86	9.93	-11.38	0.07	8.00	19.38

Antenna 1

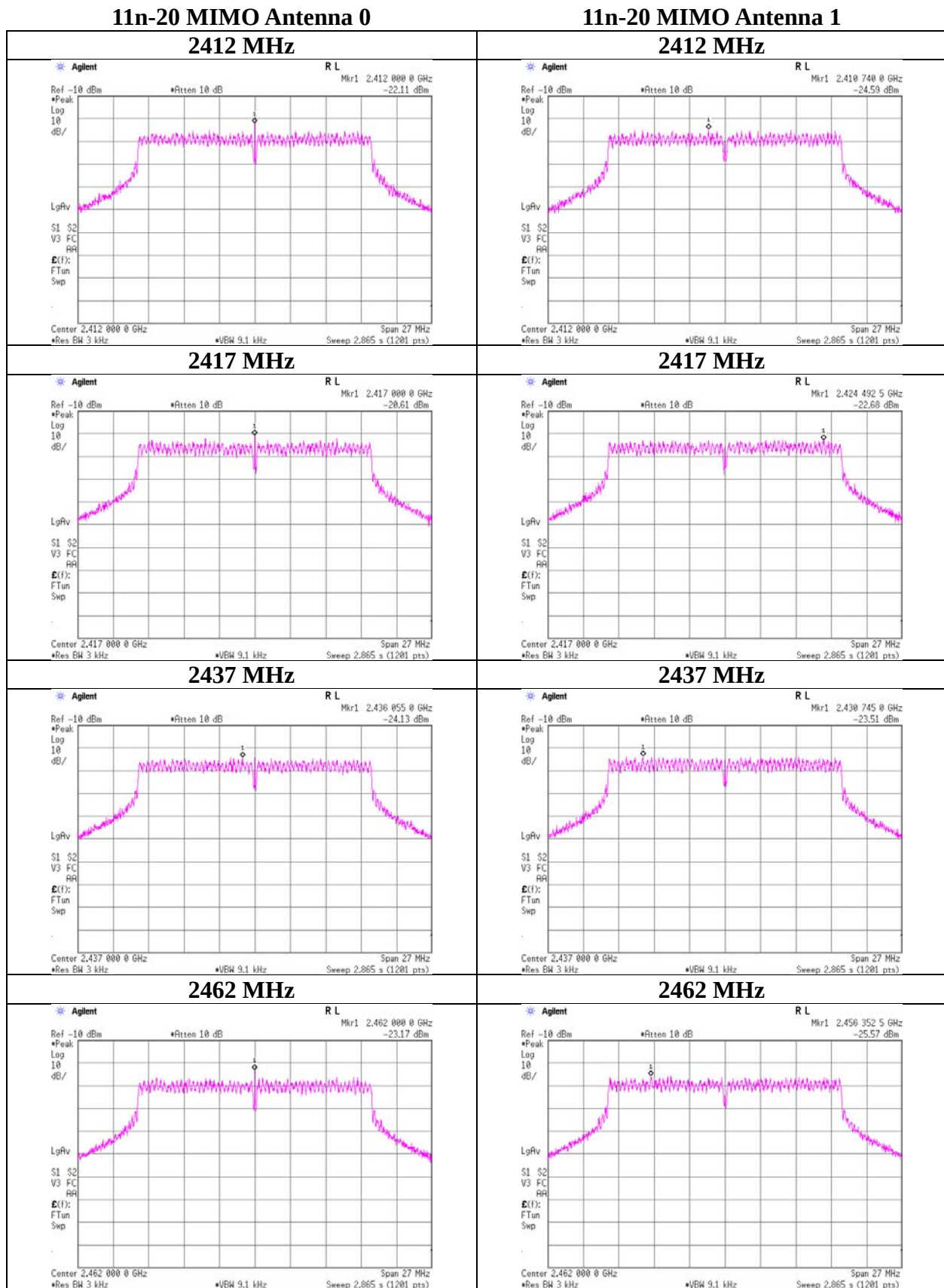
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit	Margin
				[dBm]	[mW]	[dBm]	[dB]
2412	-24.59	1.84	9.93	-12.82	0.05	8.00	20.82
2417 *1	-22.68	1.84	9.93	-10.91	0.08	8.00	18.91
2437	-23.51	1.85	9.93	-11.73	0.07	8.00	19.73
2462	-25.57	1.86	9.93	-13.78	0.04	8.00	21.78

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

*1 Measurement was performed additionally since the channel has the highest power setting.

Power Density



Power Density

Test place Shonan EMC Lab. No.1 Measurement Room
Report No. 11285933S-A-R2
Date February 5, 2016
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Hiroyuki Morikawa
Mode Tx

11n-40 SISO		Antenna 0				
Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2422	-32.55	1.85	9.93	-20.77	8.00	28.77
2427 *1	-24.08	1.85	9.93	-12.30	8.00	20.30
2437	-24.24	1.85	9.93	-12.46	8.00	20.46
2452	-31.03	1.85	9.93	-19.25	8.00	27.25

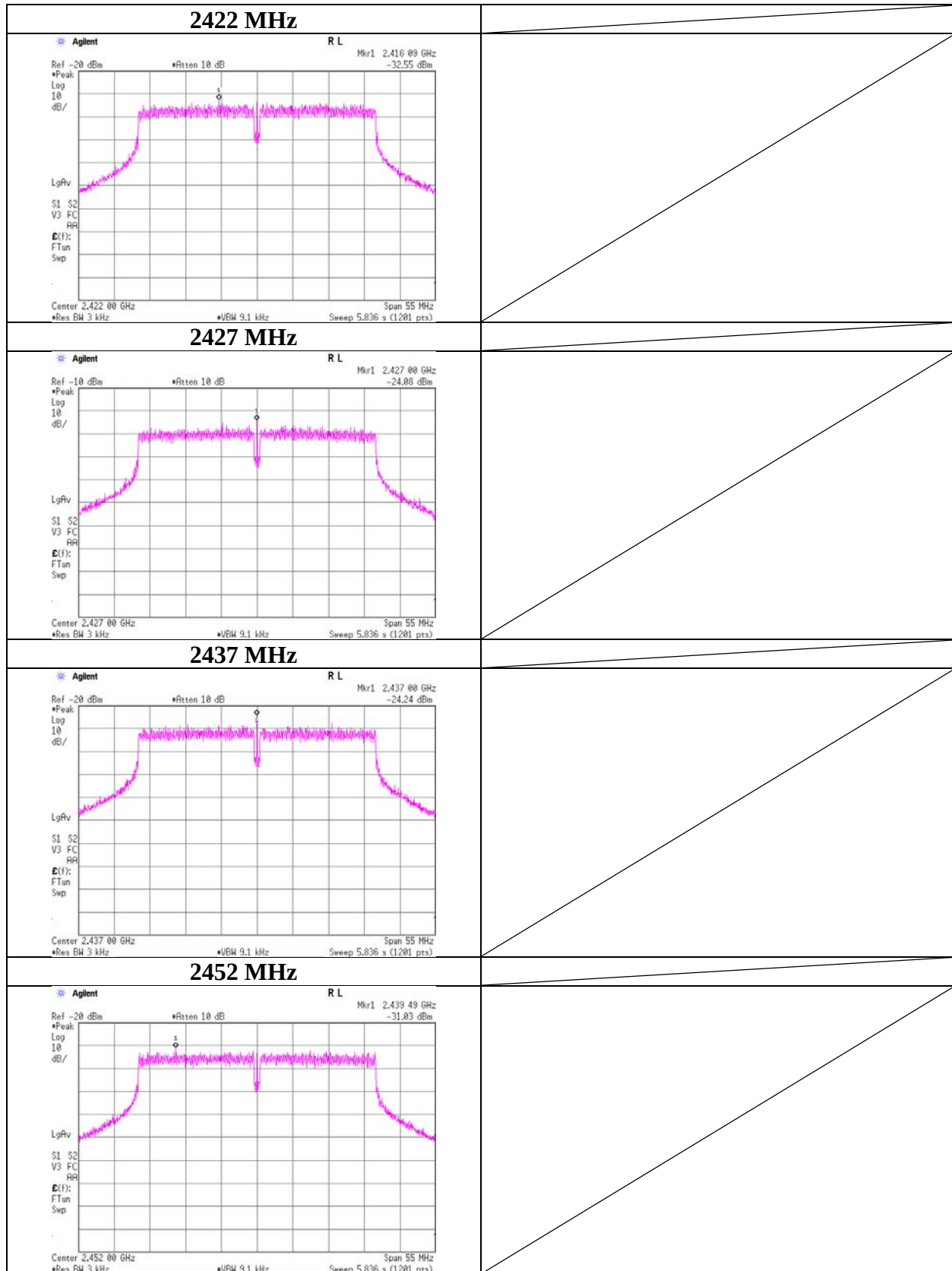
Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

*1 Measurement was performed additionally since the channel has the highest power setting.

Power Density

11n-40 SISO



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Power Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 5, 2016
Temperature / Humidity	26 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx 11n-40 MIMO

Antenna 0 + 1

Freq. [MHz]	Antenna 0 Result [mW]	Antenna 1 Result [mW]	Result		Limit	Margin
			[dBm]	[mW]	[dBm]	[dB]
2422	0.01	0.01	-17.04	0.02	8.00	25.04
2427 *1	0.06	0.05	-9.50	0.11	8.00	17.50
2437	0.04	0.03	-11.72	0.07	8.00	19.72
2452	0.03	0.02	-13.05	0.05	8.00	21.05

Sample Calculation:

Result = Antenna 0 + 1

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit	Margin
				[dBm]	[mW]	[dBm]	[dB]
2412	-32.61	1.85	9.93	-20.83	0.01	8.00	28.83
2417 *1	-23.81	1.85	9.93	-12.03	0.06	8.00	20.03
2437	-25.63	1.85	9.93	-13.85	0.04	8.00	21.85
2462	-26.58	1.85	9.93	-14.80	0.03	8.00	22.80

Antenna 1

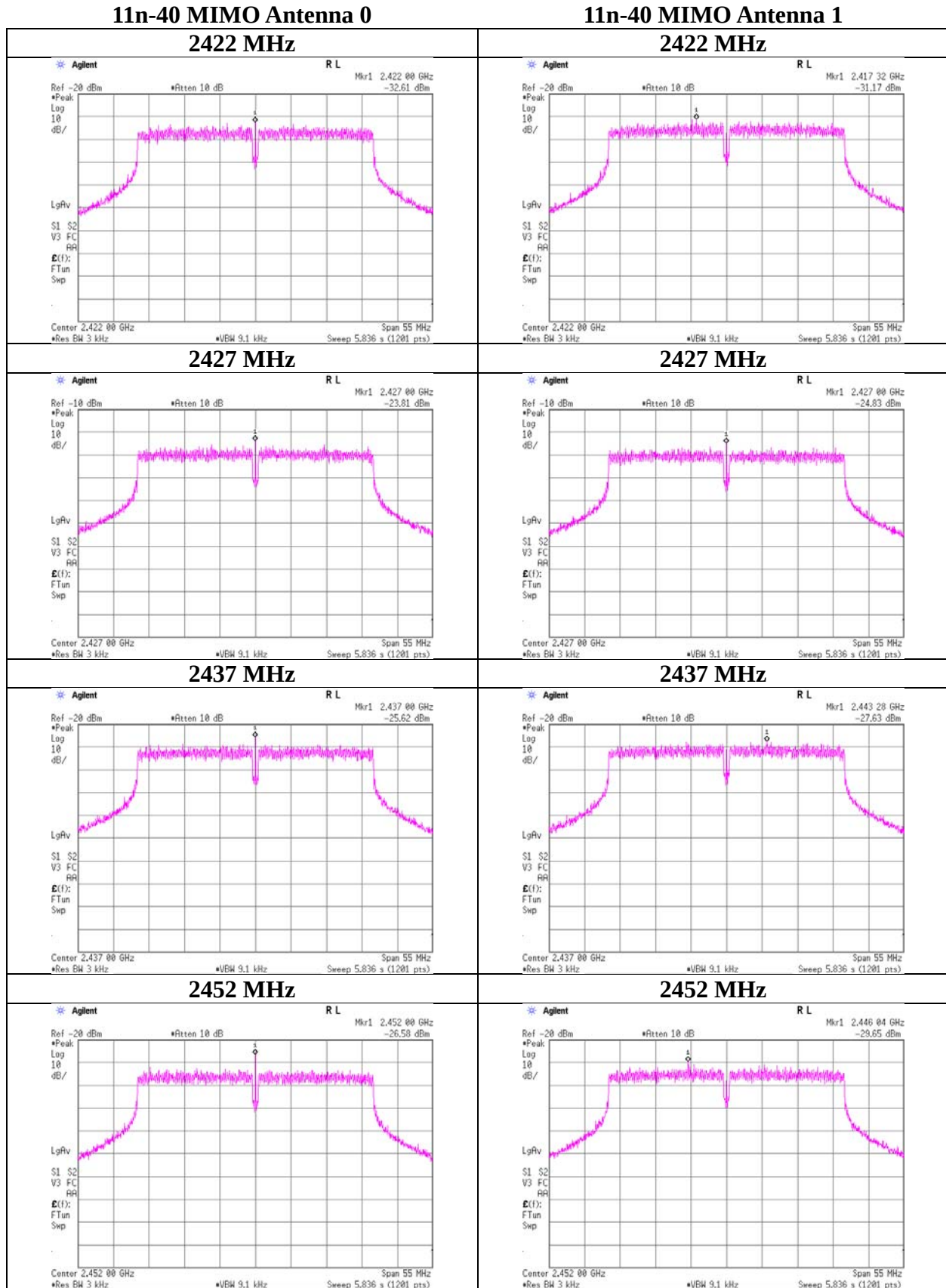
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit	Margin
				[dBm]	[mW]	[dBm]	[dB]
2412	-31.17	1.85	9.93	-19.39	0.01	8.00	27.39
2417 *1	-24.83	1.85	9.93	-13.05	0.05	8.00	21.05
2437	-27.63	1.85	9.93	-15.85	0.03	8.00	23.85
2462	-29.65	1.86	9.93	-17.86	0.02	8.00	25.86

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

*1 Measurement was performed additionally since the channel has the highest power setting.

Power Density



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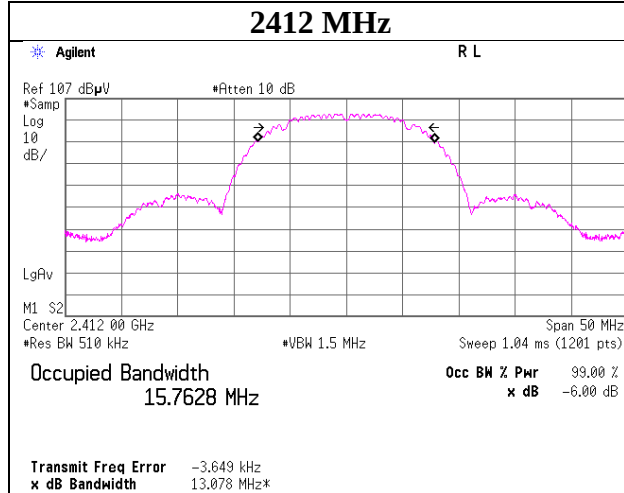
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

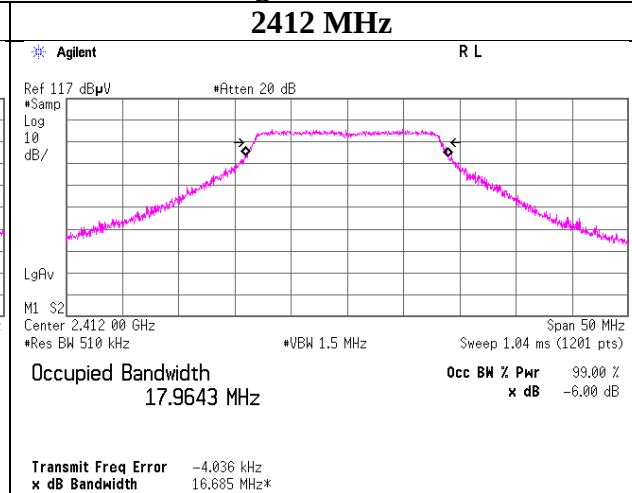
99 % Occupied Bandwidth

Test place	Shonan EMC Lab. No.1 Measurement Room
Report No.	11285933S-A-R2
Date	February 5, 2016
Temperature / Humidity	26 deg. C / 47 % RH
Engineer	Hiroyuki Morikawa
Mode	Tx

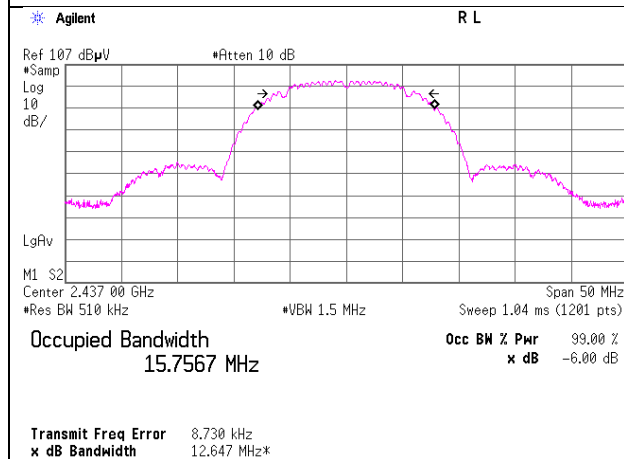
11b Antenna 0 2412 MHz



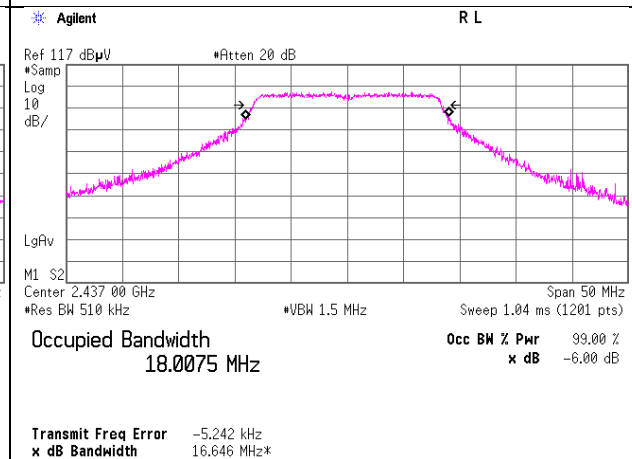
11g Antenna 0 2412 MHz



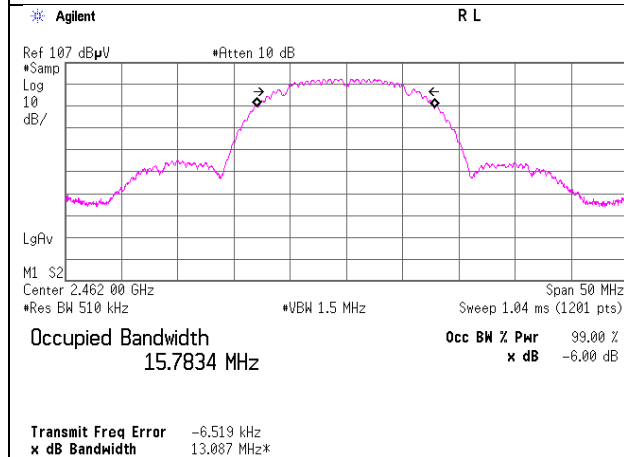
2437 MHz



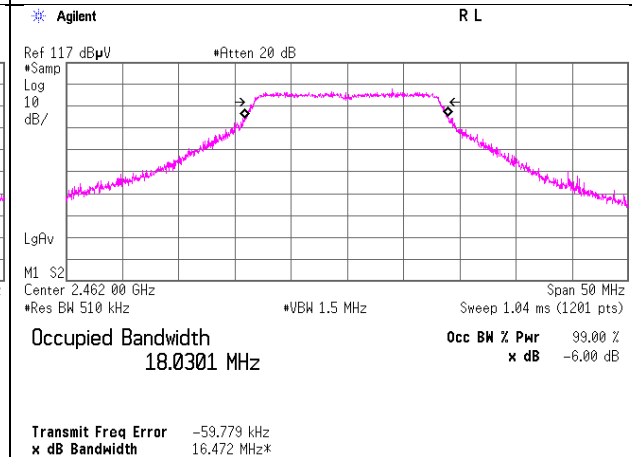
2437 MHz



2462 MHz



2462 MHz

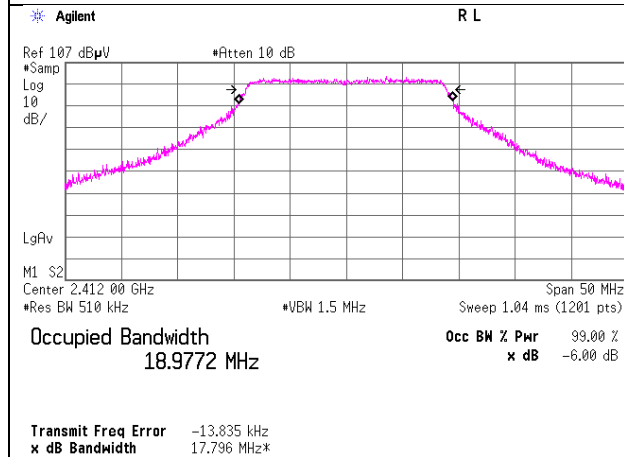


99 % Occupied Bandwidth

Test place : Shonan EMC Lab. No.1 Measurement Room
Report No. : 11285933S-A-R2
Date : February 5, 2016
Temperature / Humidity : 26 deg. C / 47 % RH
Engineer : Hiroyuki Morikawa
Mode : Tx

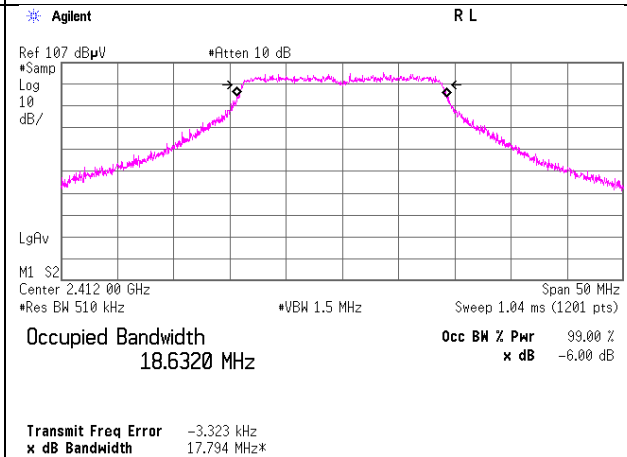
11n-20 SISO Antenna 0

2412 MHz

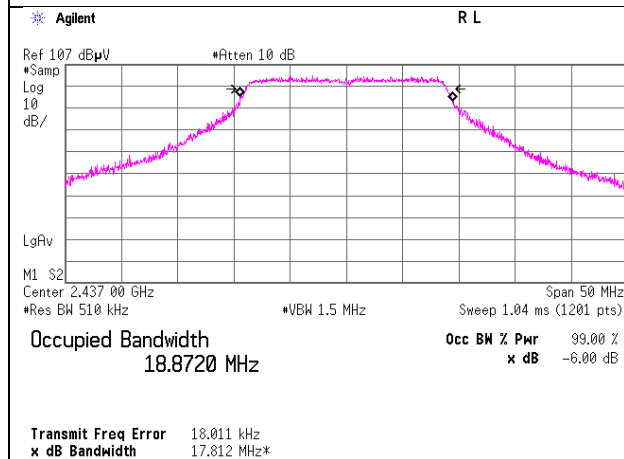


11n-20 MIMO Antenna 0

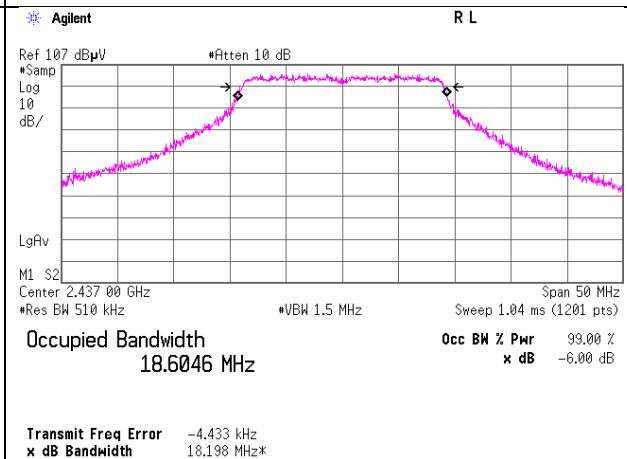
2412 MHz



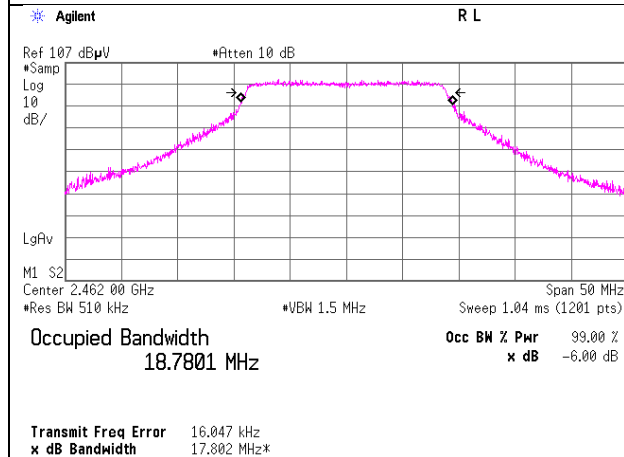
2437 MHz



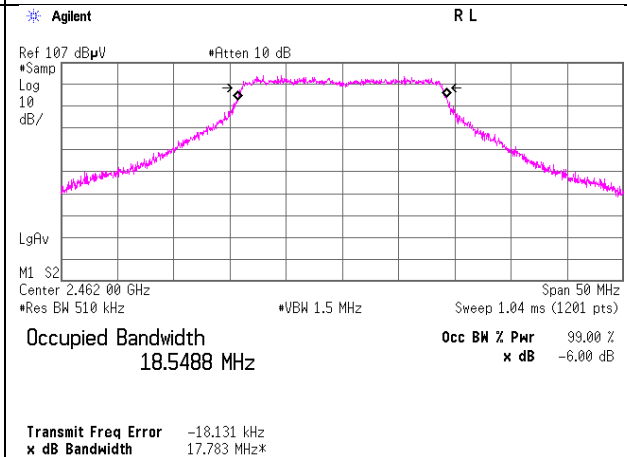
2437 MHz



2462 MHz



2462 MHz



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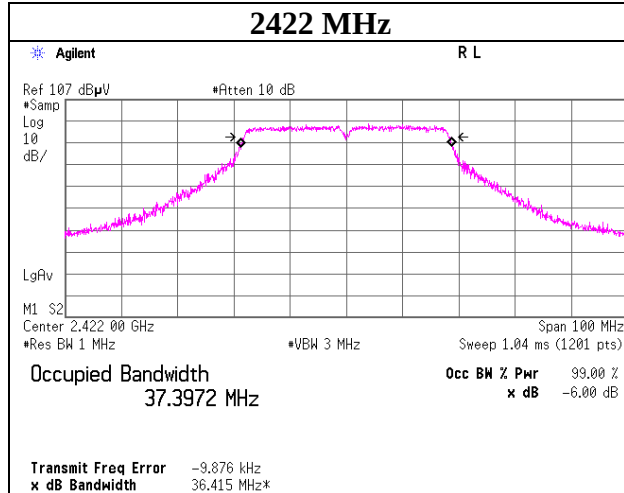
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

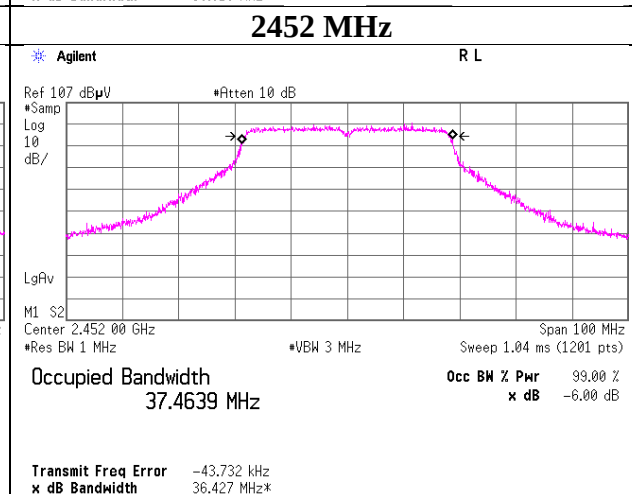
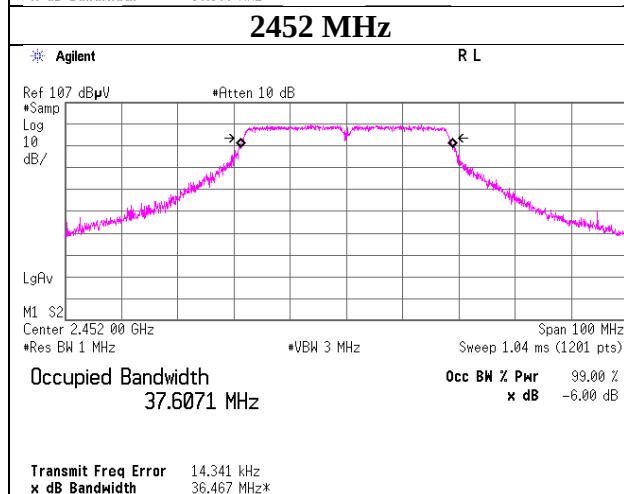
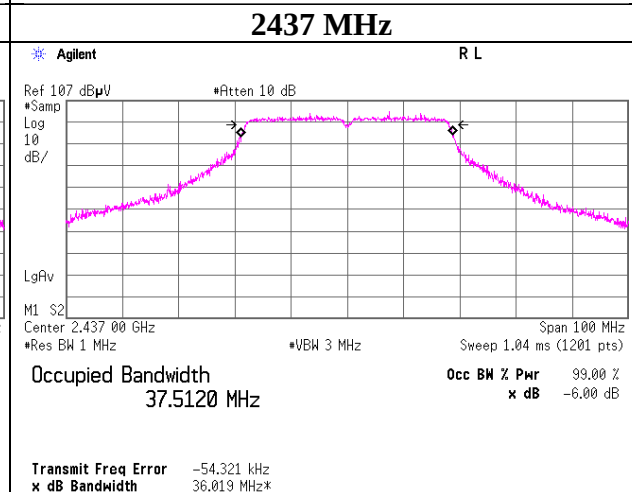
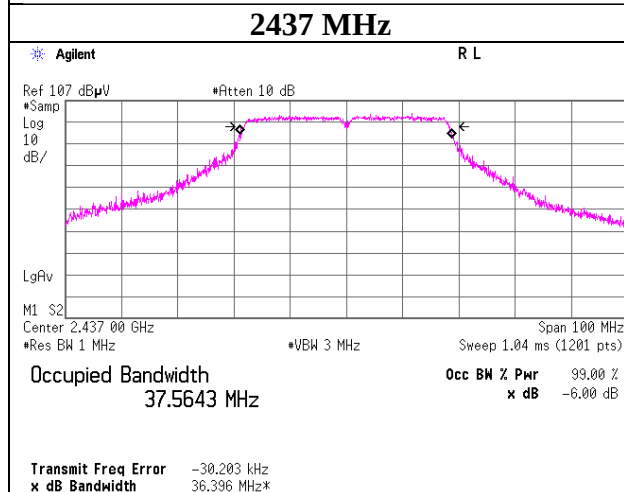
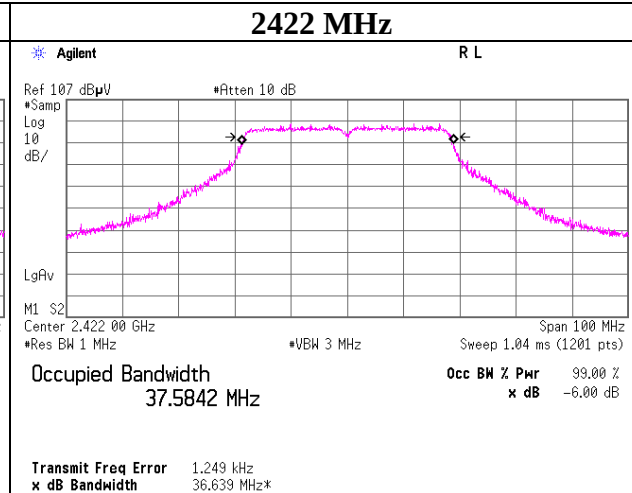
99 % Occupied Bandwidth

Test place Shonan EMC Lab. No.1 Measurement Room
Report No. 11285933S-A-R2
Date February 5, 2016
Temperature / Humidity 26 deg. C / 47 % RH
Engineer Hiroyuki Morikawa
Mode Tx

11n-40 SISO Antenna 0



11n-40 MIMO Antenna 0



APPENDIX 2: Test instruments

Test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAEC-03(SVSWR)	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	RE	2015/08/28 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2015/08/11 * 12
SCC-G04	Coaxial Cable	Junkosha	J12J102207-00	JUN-12-14-018	RE	2015/06/08 * 12
SAT10-05	Attenuator(above1GHz)	Agilent	8493C-010	74864	RE	2015/11/04 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2015/11/16 * 12
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2015/05/27 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2016/05/11 * 12
KSA-08	Spectrum Analyzer	Agilent	E4446A	MY46180525	RE	2016/03/28 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RF, MF)	-	RE,CE	-
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2015/10/22 * 12
SJM-02	Measure	KOMELON	KMC-36	-	RE	-
STS-03	Digital Hitester	Hioki	3805-50	080997823	RE	2015/11/18 * 12
SAF-04	Pre Amplifier	TOYO Corporation	TPA0118-36	1440489	RE	2016/03/22 * 12
SCC-G01	Coaxial Cable	Suhner	SUCOFLEX 104A	46497/4A	RE	2016/04/22 * 12
SCC-G21	Coaxial Cable	Suhner	SUCOFLEX 104	296169/4	RE	2016/05/11 * 12
SHA-01	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-725	RE	2015/08/10 * 12
SOS-01	Humidity Indicator	A&D	AD-5681	4062555	RE	2015/10/22 * 12
STR-01	Test Receiver	Rohde & Schwarz	ESU40	100093	RE	2015/11/06 * 12
SAEC-01(SVSWR)	Semi-Anechoic Chamber	TDK	SAEC-01(SVSWR)	1	RE	2015/07/08 * 12
STS-01	Digital Hitester	Hioki	3805-50	080997812	RE	2015/11/18 * 12
SFL-18	Highpass Filter	MICRO-TRONICS	HPM50111	119	RE	2016/04/18 * 12
KAT10-S2	Attenuator	Agilent	8490D 010	06036	RE	2015/11/04 * 12
SHA-04	Horn Antenna	ETS LINDGREN	3160-09	LM3640	RE	2016/03/15 * 12
SAF-08	Pre Amplifier	TOYO Corporation	HAP18-26W	00000019	RE	2016/03/23 * 12
SCC-G15	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	RE	2016/03/08 * 12
SCC-G33	Coaxial Cable	Junkosha	MWX241-01000KMSKMS	-	RE	2016/04/18 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE	2016/03/23 * 12
SAF-01	Pre Amplifier	SONOMA	310N	290211	RE	2016/02/19 * 12
KAT6-04	Attenuator	INMET	18N-6dB	-	RE	2015/12/18 * 12
SAT3-09	Attenuator	JFW	50HF-003N	-	RE	2015/08/31 * 12
SBA-01	Biconical Antenna	Schwarzbeck	BBA9106	91032664	RE	2015/10/11 * 12
SCC-A1/A3/A5/A7/A8/A13/SRS E-01	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/NS4906	-/0901-269(RF Selector)	RE	2016/04/22 * 12
SCC-A2/A4/A6/A7/A8/A13/SRS E-01	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/NS4906	-/0901-269(RF Selector)	RE	2016/04/22 * 12
SLA-01	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0888	RE	2015/10/11 * 12
SAEC-01(NSA)	Semi-Anechoic Chamber	TDK	SAEC-01(NSA)	1	RE	2015/07/13 * 12
STR-07	Test Receiver	Rohde & Schwarz	ESU26	100484	RE	2015/09/04 * 12
STR-02	Test Receiver	Rohde & Schwarz	ESCI	100575	CE	2015/09/11 * 12
SCC-05	Coaxial Cable	Fujikura	5D2W	-	CE	2016/04/22 * 12
SAT3-07	Attenuator	JFW	50HF-003N	-	CE	2015/09/18 * 12
SOS-10	Humidity Indicator	A&D	AD-5681	4064561	CE	2015/10/22 * 12
SJM-18	Measure	ASKUL	-	-	CE	-
SLS-05	LISN	Rohde & Schwarz	ENV216	100516	CE	2016/02/09 * 12
STS-06	Digital Hitester	Hioki	3805-50	080997830	CE	2016/03/22 * 12
SRENT-05	Spectrum Analyzer	KEYSIGHT	E4440A	MY46187752	AT	2015/10/05 * 12
SPM-07	Power Meter	Agilent	8990B	MY5100272	AT	2015/04/02 * 12
SPSS-04	Power sensor	Agilent	N1923A	MY5326009	AT	2015/04/02 * 12
SCC-G13	Coaxial Cable	Suhner	SUCOFLEX 102	31599/2	AT	2015/03/11 * 12
SAT10-10	Attenuator	Weinschel Corp.	54A-10	37584	AT	2015/04/09 * 12
STM-G4	Terminator	Weinschel	M1459A	U6592	AT	2015/07/14 * 12
KTS-08	Digital Tester	SANWA	PC500	7019224	AT	2015/05/20 * 12
SOS-13	Humidity Indicator	Custom	CTH-202	Q.C.17	AT	2015/12/07 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	AT	2015/03/26 * 12

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards. As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item: CE: Conducted Emission test, RE: Radiated Emission test, AT: Antenna Terminal Conducted test

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