



# RADIO TEST REPORT

**Test Report No. : 10240264H-A**

**Applicant** : Sony Computer Entertainment Inc.  
**Type of Equipment** : Computer Entertainment System  
**Model No.** : CECH-4301x  
**FCC ID** : AK8CBEH19Z1  
**Test regulation** : FCC Part 15 Subpart C: 2014 (WLAN Part)  
Class II Permissive Change  
\*Conducted emission and Radiated spurious emission tests only  
**Test Result** : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
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. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

**Date of test:** March 13 to 26, 2014

**Representative test engineer:**

*T. Shimada*

Takumi Shimada  
Engineer  
Consumer Technology Division

**Approved by:**

*M. Nishiyama*

Masanori Nishiyama  
Manager  
Consumer Technology Division

NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.  
\*As for the range of Accreditation in NVLAP, you may refer to the WEB address,  
<http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap>

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**Ise HQ EMC Lab.**

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13-EM-F0429



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## **SECTION 1: Customer information**

Company Name	Sony Computer Entertainment Inc.
Brand Name	SONY
Address	1-7-1 Konan, Minato-ku, Tokyo 108-0075, Japan
Telephone Number	+81-3-6748-6333
Facsimile Number	+81-3-6748-6383
Contact Person	Kiyoto Sasaki

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

### **2.1 Identification of E.U.T.**

Type of Equipment	Computer Entertainment System
Model No	CECH-4301x
Serial No	0260009 (Power Supply: SONY) 0260011 (Power Supply: DELTA) 0260013 (Power Supply: Chicony)
Rating	AC120V / 60Hz
Country of Manufacture	JAPAN/CHINA
Receipt Date of Sample	March 10, 2014
Condition of EUT	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	No modification by the test lab.

## 2.2 Product Description

Model: CECH-4301x, referred to as the EUT in this report, is a Computer Entertainment System. The EUT contains Bluetooth (Ver. 2.0+EDR) module and IEEE802.11b/g WLAN module. Those modules do not transmit simultaneously.

The clock frequencies used in the EUT: Max clock frequency is 3.2GHz.

### Bluetooth (Ver. 2.0+EDR)

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	FHSS (GFSK, $\pi/4$ -DQPSK, 8DPSK)
Bandwidth & Channel spacing	1MHz & 1MHz
Power Supply (inner)	DC3.3V/1.8V
Antenna Type	PIFA
Antenna Gain	4.5 dBi (max)
Antenna Connector Type	U.FL

### IEEE802.11b/g WLAN

Equipment Type	Transceiver	
Frequency of Operation	2412-2462MHz	
Type of Modulation	DSSS/OFDM	
Bandwidth & Channel spacing	20MHz & 5MHz	
Power Supply (inner)	DC3.3V/1.8V	
Antenna Type	Antenna 0: IFA	Antenna 1: IFA
Antenna Gain	Antenna 0: 1.5 dBi (max)	Antenna 1: 3.0 dBi (max)
Antenna Connector Type	Antenna 0: N/A	Antenna 1: N/A

List of Model No.:

Model No.	Product Name	Note
CECH-4301x*1	Computer Entertainment System	Tested model
DECH-4300AA	Debugging Station	*2

Note:

\*1: "x" will be replaced by an alphabet denoting the different hard disk specification.

\*2: The difference between DECH-4300AA and CECH-4301x is software only.

The differences among the above two models do not influence on radio specification.

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## **SECTION 3: Test specification, procedures & results**

### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart C: 2014, final revised on March 6, 2014 and effective April 7, 2014

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  
\*Conducted emission and Radiated spurious emission tests only

\*The revision on March 6, 2014 does not affect the test specification applied to the EUT.

\*The EUT complies with FCC Part 15 Subpart B: 2014, final revised on March 6, 2014 and effective April 7, 2014.

### **3.2 Procedures and results**

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.4:2003 7. AC powerline Conducted Emission measurements	FCC: Section 15.207	QP 6.9dB, 0.15001MHz, N AV	Complied	-
	IC: RSS-Gen 7.2.4	IC: RSS-Gen 7.2.4	7.7dB, 3.84246MHz, L		
Spurious Emission Restricted Band Edges	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247"	FCC: Section15.247(d)	4.4dB 607.516MHz, Vertical, QP	Complied	Radiated
	IC: RSS-Gen 4.9	IC: RSS-210 A8.5 RSS-Gen 7.2.3			

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.

\* In case any questions arise about test procedure, ANSI C63.4: 2003 is also referred.

#### **FCC 15.31 (e)**

This EUT provides stable voltage (DC3.3/1.8V) constantly to RF part regardless of input voltage. Therefore, this EUT complies with the requirement.

#### **FCC Part 15.203 Antenna requirement**

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

### **3.3 Addition to standard**

No addition, exclusion nor deviation has been made from the standard.

### 3.4 Uncertainty

#### EMI

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

Test room (semi-anechoic chamber)	Conducted emission (+dB)
	150kHz-30MHz
No.1	3.5dB
No.2	3.5dB
No.3	3.6dB
No.4	3.5dB

Test room (semi-anechoic chamber)	Radiated emission						
	(3m*)(+dB)				(1m*)(+dB)		(0.5m*)(+dB)
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz	1GHz -10GHz	10GHz -18GHz	18GHz -26.5GHz	26.5GHz -40GHz
No.1	4.0dB	5.1dB	5.0dB	5.1dB	6.0dB	4.9dB	4.3dB
No.2	3.9dB	5.2dB	5.0dB	4.9dB	5.9dB	4.7dB	4.2dB
No.3	4.3dB	5.1dB	5.2dB	5.2dB	6.0dB	4.8dB	4.2dB
No.4	4.6dB	5.2dB	5.0dB	5.2dB	6.0dB	5.7dB	4.2dB

\*3m/1m/0.5m = Measurement distance

#### Conducted Emission test

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

#### Radiated emission test(3m)

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

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### 3.5 Test Location

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	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	4.0 x 4.5 m	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	-	8.0 x 4.6 x 2.8m	2.4 x 2.4m	-
No.11 measurement room	-	-	6.2 x 4.7 x 3.0m	4.8 x 4.6m	-

\* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

### 3.6 Data of EMI, Test instruments, and Test set up

Refer to APPENDIX.

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

### **4.1 Operating Mode(s)**

<b>Mode</b>	<b>Remarks*</b>
IEEE 802.11b (11b)	2Mbps, PN9
IEEE 802.11g (11g)	24Mbps, PN9
*Transmitting duty was 100% on all tests. *The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel)	
*Power of the EUT was set by the software as follows; Power settings: 12 (dBm) Software/Version: LABTOOL_LV2DIAG_20111206 *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

<b>Test Item</b>	<b>Operating Mode</b>	<b>Tested antenna</b>	<b>Tested frequency</b>
Conducted Emission Spurious Emission(Radiated)	11b Tx 11g Tx	Antenna 1	2412MHz 2437MHz 2462MHz

\*Conducted Emission and Spurious Emission (Radiated) were performed only with Antenna 1 as it was only changed from the original one.

\*The transmitting data shall be scrambled with the following scramblers and it was transmitted continuously.

[11b]

2Mbps: IEEE Std 802.11b(1999) Section 18.2.4

[11g]

24Mbps: IEEE Std 802.11a(1999) Section 17.3.5.4

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## 4.2 Configuration and peripherals

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## **SECTION 5: Conducted Emission**

### **Test Procedure and conditions**

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

The rear of tabletop was located 40cm 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 80cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN)/ Artificial mains Network (AMN) and excess AC cable was bundled in center.

For the tests on EUT with other peripherals (as a whole system)

I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. All unused 50ohm connectors of the LISN(AMN) were resistivity terminated in 50ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber.

The EUT 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.

<b>Detector</b>	<b>: QP and AV</b>
<b>Measurement range</b>	<b>: 0.15-30MHz</b>
<b>Test data</b>	<b>: APPENDIX</b>
<b>Test result</b>	<b>: Pass</b>

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## **SECTION 6: Radiated Spurious Emission**

### **Test Procedure**

It was measured based on "2. Radiated emission test" of "Guidance on Measurement of Digital Transmission Systems Operating under Section 15.247".

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

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

The height of the measuring antenna varied between 1 and 4m 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	Below 30MHz	30MHz to 300MHz	300MHz to 1GHz	Above 1GHz
Antenna Type	Loop	Biconical	Logperiodic	Horn

In any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

### **20dBc was applied to the frequency over the limit of FCC 15.209 / Table 5 of RSS-Gen 7.2.5(IC) and outside the restricted band of FCC 15.205 / Table 3 of RSS-Gen 7.2.2 (IC).**

Frequency	Below 1GHz	Above 1GHz		20dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV *1)	PK
IF Bandwidth	BW 120kHz(T/R)	RBW: 1MHz VBW: 3MHz	Average Power Method: <u>WLAN: 12.2.5.1</u> RBW: 1MHz VBW: 3MHz Detector: Power Averaging (RMS) Trace: Free Run	RBW: 100kHz VBW: 300kHz (S/A)
Test Distance	3m	3m (below 10GHz), 1m *2) (above 10GHz)		3m (below 10GHz), 1m *2) (above 10GHz)

\*1) Average Power Measurement was performed based on 6.0 & 12.2.5 of "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 (Issued on April 9, 2013)"

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

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

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

**Measurement range** : 30M-26.5GHz  
**Test data** : APPENDIX  
**Test result** : Pass

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**APPENDIX 1: Data of EMI test**

**Conducted Emission**  
(Power Supply: SONY)

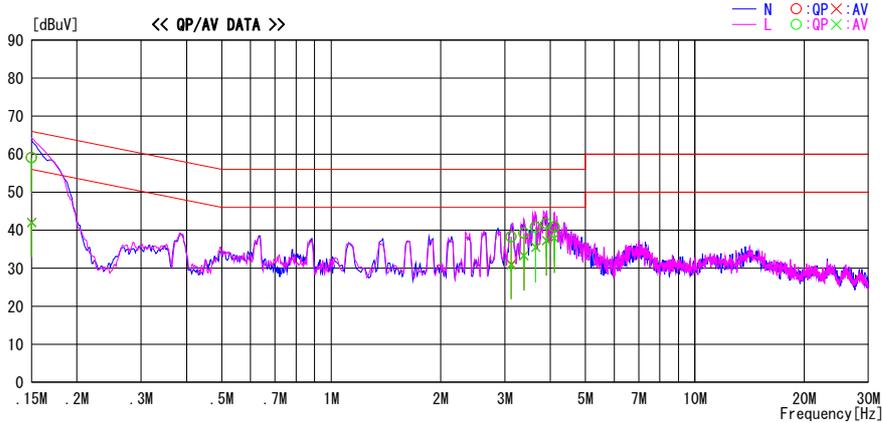
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber  
Date : 2014/03/25

Report No. : 10240264H  
Temp./Humi. : 23deg. C / 40% RH  
Engineer : Keisuke Kawamura

Mode / Remarks : WLAN Tx 11b 2Mbps 2412MHz

LIMIT : FCC15. 207 QP  
FCC15. 207 AV

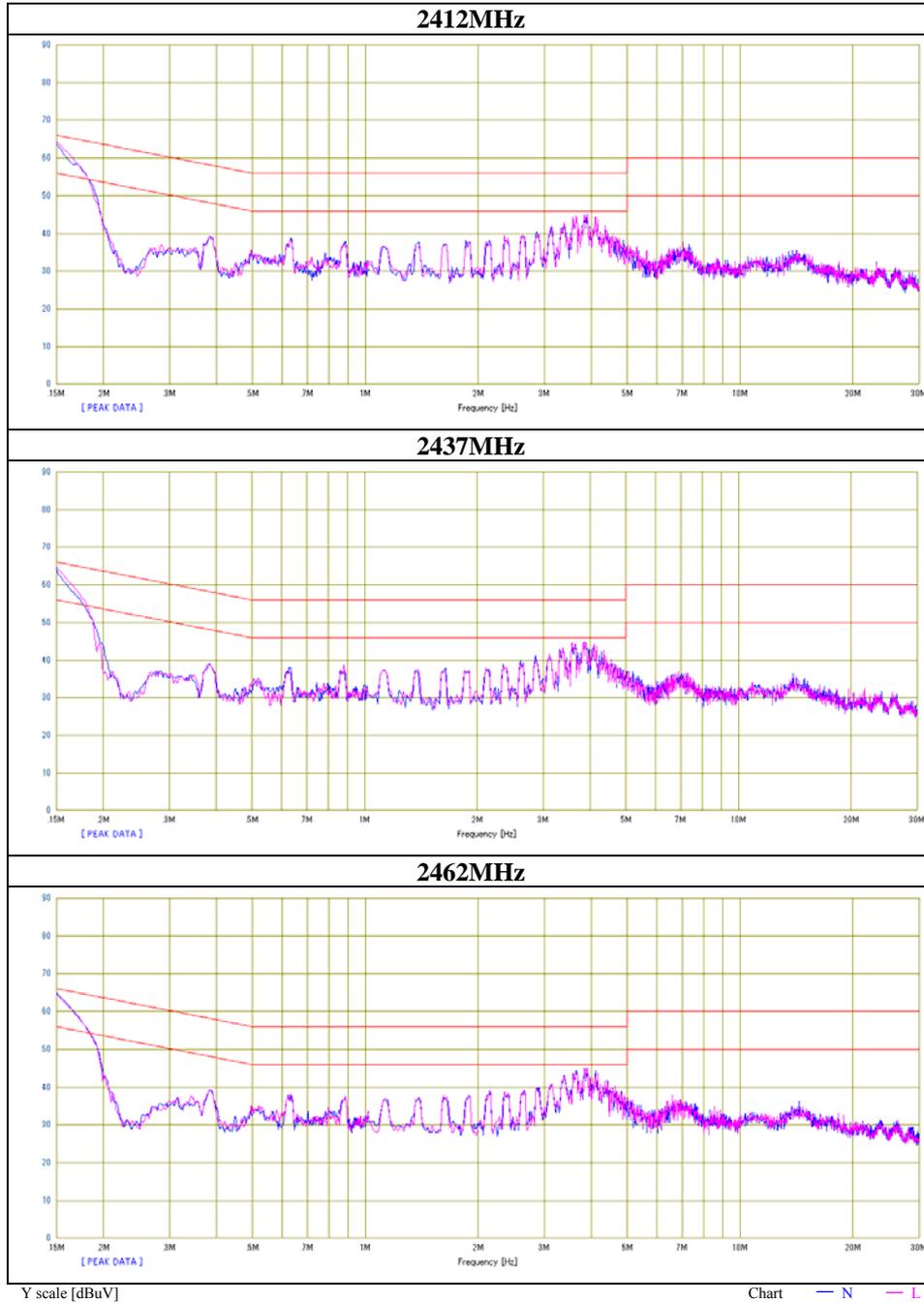


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15001	45.9	28.9	13.2	59.1	42.1	66.0	56.0	6.9	13.9	N	
3.12657	24.7	17.5	13.6	38.3	31.1	56.0	46.0	17.7	14.9	N	
3.38695	25.6	19.7	13.6	39.2	33.3	56.0	46.0	16.8	12.7	N	
3.64654	27.2	21.9	13.6	40.8	35.5	56.0	46.0	15.2	10.5	N	
3.90784	28.0	23.5	13.7	41.7	37.2	56.0	46.0	14.3	8.8	N	
4.10256	27.1	24.2	13.7	40.8	37.9	56.0	46.0	15.2	8.1	N	
0.15001	45.8	28.8	13.2	59.0	42.0	66.0	56.0	7.0	14.0	L	
3.12469	24.7	17.2	13.6	38.3	30.8	56.0	46.0	17.7	15.2	L	
3.38675	25.7	19.6	13.6	39.3	33.2	56.0	46.0	16.7	12.8	L	
3.64694	27.1	21.9	13.6	40.7	35.5	56.0	46.0	15.3	10.5	L	
3.90744	28.0	23.6	13.7	41.7	37.3	56.0	46.0	14.3	8.7	L	
4.10256	27.2	24.2	13.7	40.9	37.9	56.0	46.0	15.1	8.1	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT=READING+C.F (LISN LOSS + ATT LOSS + CABLE LOSS)  
Except for the above table : adequate margin data below the limits.

**Conducted Emission**  
(Power Supply: SONY)

Test place	Ise HQ EMC Lab. No.3 Semi Anechoic Chamber
Report No.	10240264H
Date	03/25/2014
Temperature/ Humidity	23 deg. C / 40% RH
Engineer	Keisuke Kawamura
Mode	11b Tx Antenna 1



## Conducted Emission (Power Supply: SONY)

### DATA OF CONDUCTED EMISSION TEST

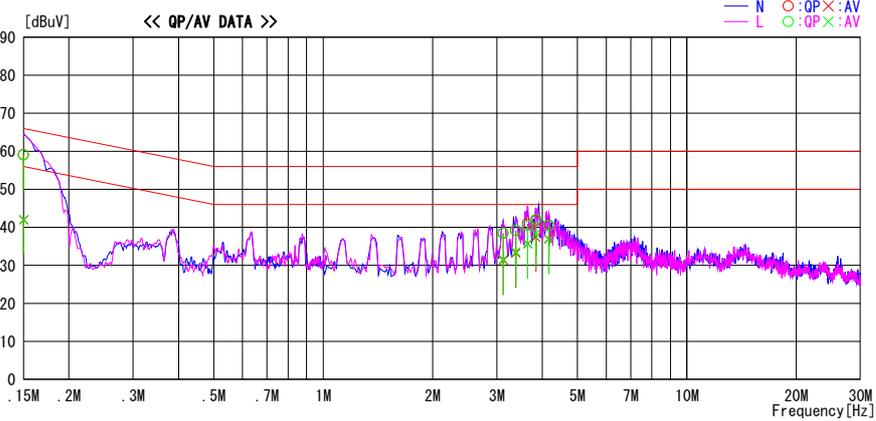
UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber  
Date : 2014/03/25

Report No. : 10240264H

Temp./Humi. : 23deg. C / 40% RH  
Engineer : Keisuke Kawamura

Mode / Remarks : WLAN Tx 11g 24Mbps 2412MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

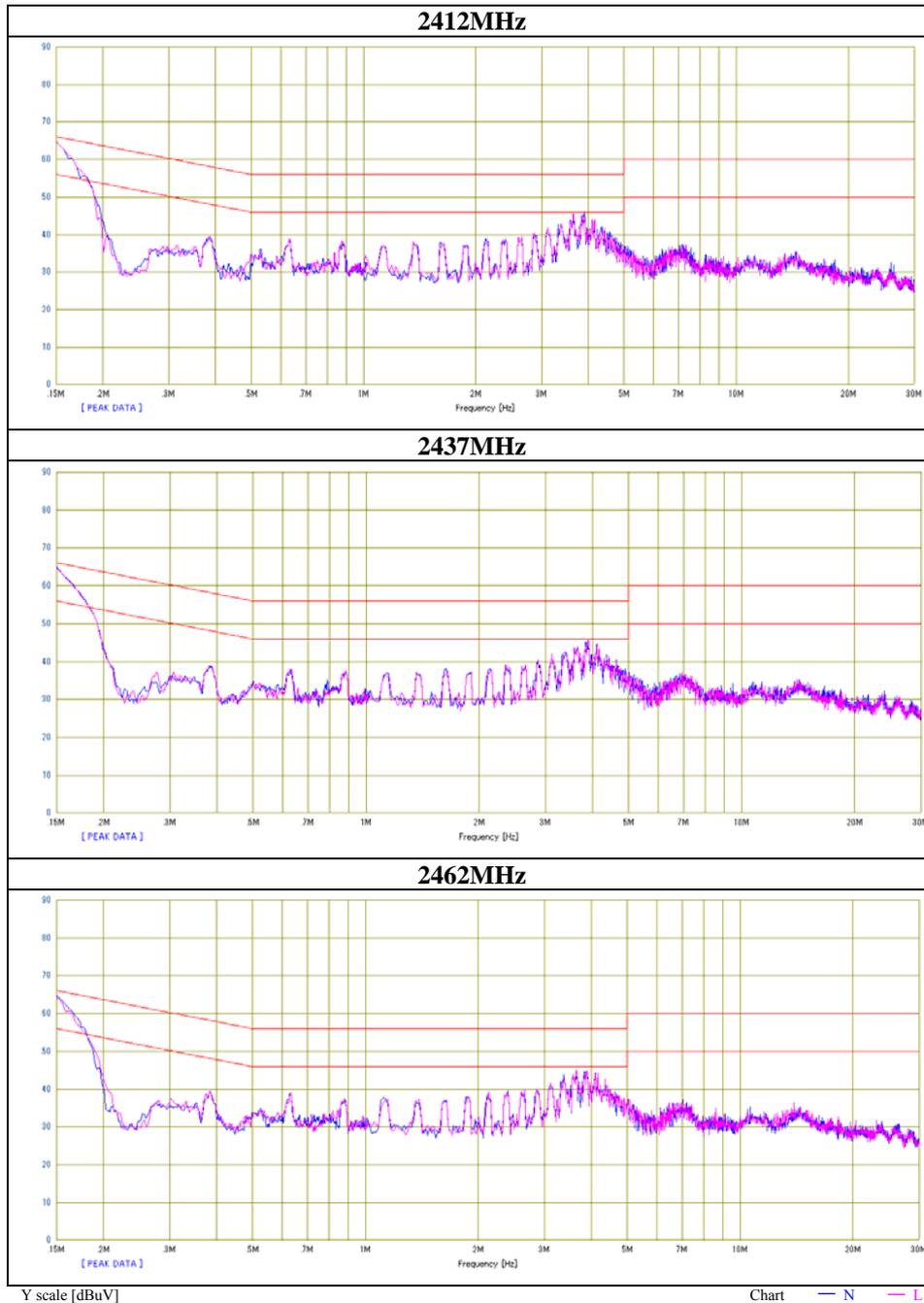


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15001	45.9	28.8	13.2	59.1	42.0	66.0	56.0	6.9	14.0	N	
3.12657	24.9	17.7	13.6	38.5	31.3	56.0	46.0	17.5	14.7	N	
3.38535	25.6	19.6	13.6	39.2	33.2	56.0	46.0	16.8	12.8	N	
3.64674	27.3	22.1	13.6	40.9	35.7	56.0	46.0	15.1	10.3	N	
3.84246	28.1	23.8	13.6	41.7	37.4	56.0	46.0	14.3	8.6	N	
4.16962	26.9	23.3	13.7	40.6	37.0	56.0	46.0	15.4	9.0	N	
0.15001	45.8	28.9	13.2	59.0	42.1	66.0	56.0	7.0	13.9	L	
3.12657	24.9	18.0	13.6	38.5	31.6	56.0	46.0	17.5	14.4	L	
3.38915	25.6	20.0	13.6	39.2	33.6	56.0	46.0	16.8	12.4	L	
3.64894	26.9	22.0	13.6	40.5	35.6	56.0	46.0	15.5	10.4	L	
3.84246	28.5	24.7	13.6	42.1	38.3	56.0	46.0	13.9	7.7	L	
4.16962	26.8	23.1	13.7	40.5	36.8	56.0	46.0	15.5	9.2	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT=READING+C.F.(LISN LOSS + ATT LOSS + CABLE LOSS)  
Except for the above table : adequate margin data below the limits.

## Conducted Emission (Power Supply: SONY)

Test place	Ise HQ EMC Lab. No.3 Semi Anechoic Chamber
Report No.	10240264H
Date	03/25/2014
Temperature/ Humidity	23 deg. C / 40% RH
Engineer	Keisuke Kawamura
Mode	11g Tx Antenna 1



**Conducted Emission**  
(Power Supply: DELTA)

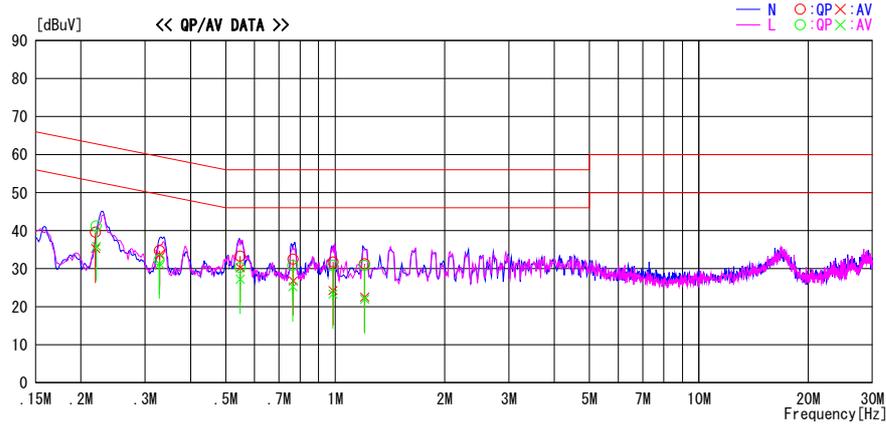
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2014/03/26

Report No. : 10240264H  
Temp./Humi. : 23deg. C / 40% RH  
Engineer : Keisuke Kawamura

Mode / Remarks : WLAN Tx 11b 2Mbps 2412MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

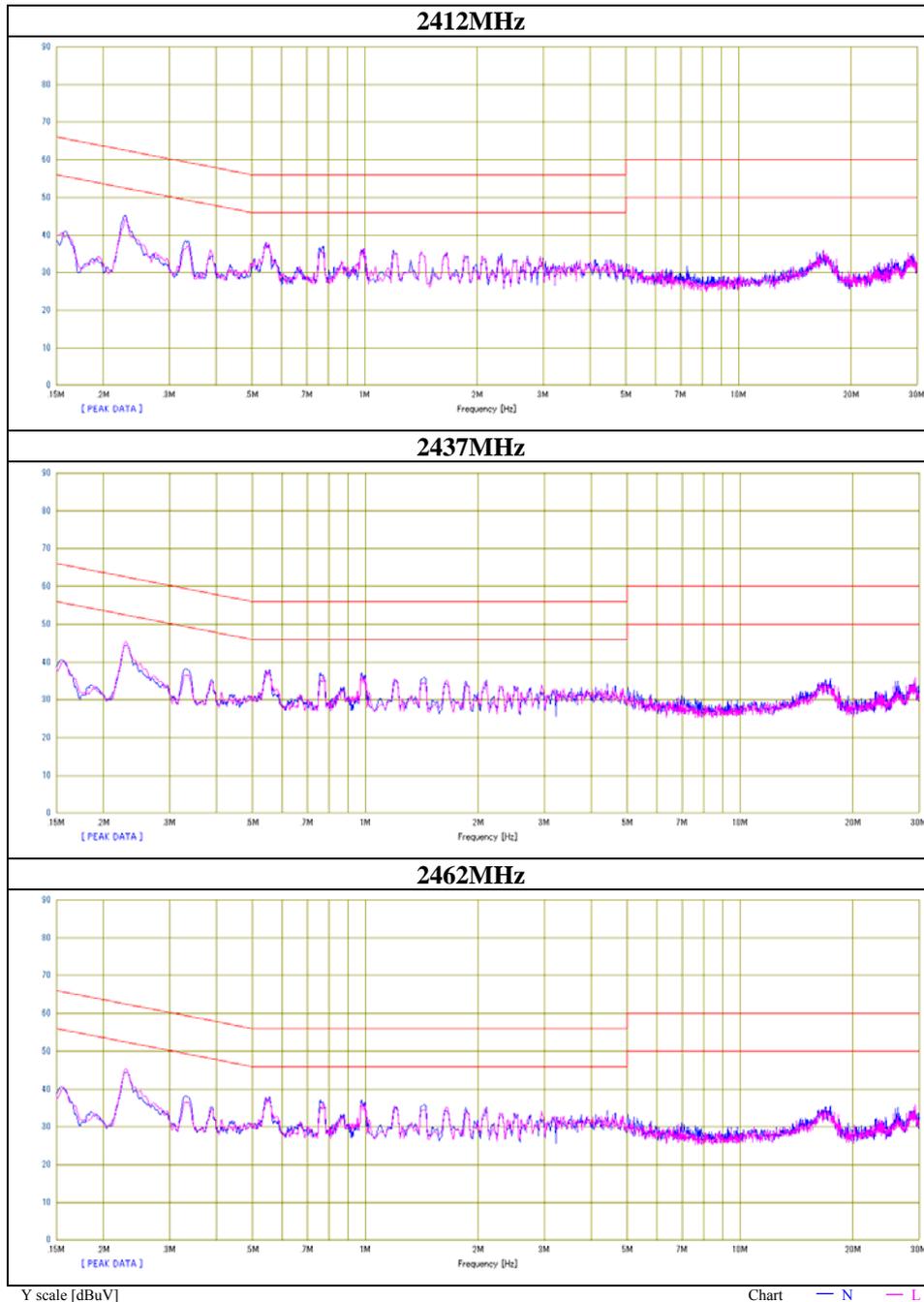


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.21931	26.3	22.0	13.3	39.6	35.3	62.8	52.8	23.2	17.5	N	
0.32925	21.4	20.4	13.3	34.7	33.7	59.5	49.5	24.8	15.8	N	
0.54785	20.0	16.9	13.3	33.3	30.2	56.0	46.0	22.7	15.8	N	
0.76611	19.2	13.5	13.3	32.5	26.8	56.0	46.0	23.5	19.2	N	
0.98721	18.4	10.9	13.3	31.7	24.2	56.0	46.0	24.3	21.8	N	
1.20443	17.9	9.1	13.4	31.3	22.5	56.0	46.0	24.7	23.5	N	
0.22035	27.9	22.6	13.3	41.2	35.9	62.8	52.8	21.6	16.9	L	
0.32845	19.0	17.9	13.3	32.3	31.2	59.5	49.5	27.2	18.3	L	
0.54815	17.0	13.9	13.3	30.3	27.2	56.0	46.0	25.7	18.8	L	
0.76481	17.5	11.9	13.3	30.8	25.2	56.0	46.0	25.2	20.8	L	
0.98581	17.5	10.0	13.3	30.8	23.3	56.0	46.0	25.2	22.7	L	
1.20443	17.4	8.6	13.4	30.8	22.0	56.0	46.0	25.2	24.0	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT=READING+C.F (LISN LOSS + ATT LOSS + CABLE LOSS)  
Except for the above table : adequate margin data below the limits.

**Conducted Emission**  
(Power Supply: DELTA)

Test place	Ise HQ EMC Lab. No.3 Semi Anechoic Chamber
Report No.	10240264H
Date	03/25/2014
Temperature/ Humidity	23 deg. C / 40% RH
Engineer	Keisuke Kawamura
Mode	11b Tx Antenna 1



**Conducted Emission**  
(Power Supply: DELTA)

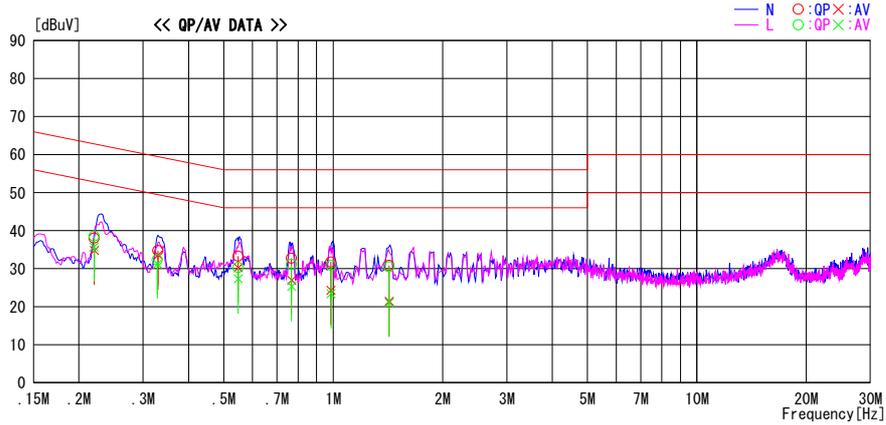
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2014/03/26

Report No. : 10240264H  
Temp./Humi. : 23deg. C / 40% RH  
Engineer : Keisuke Kawamura

Mode / Remarks : WLAN Tx 11g 24Mbps 2412MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

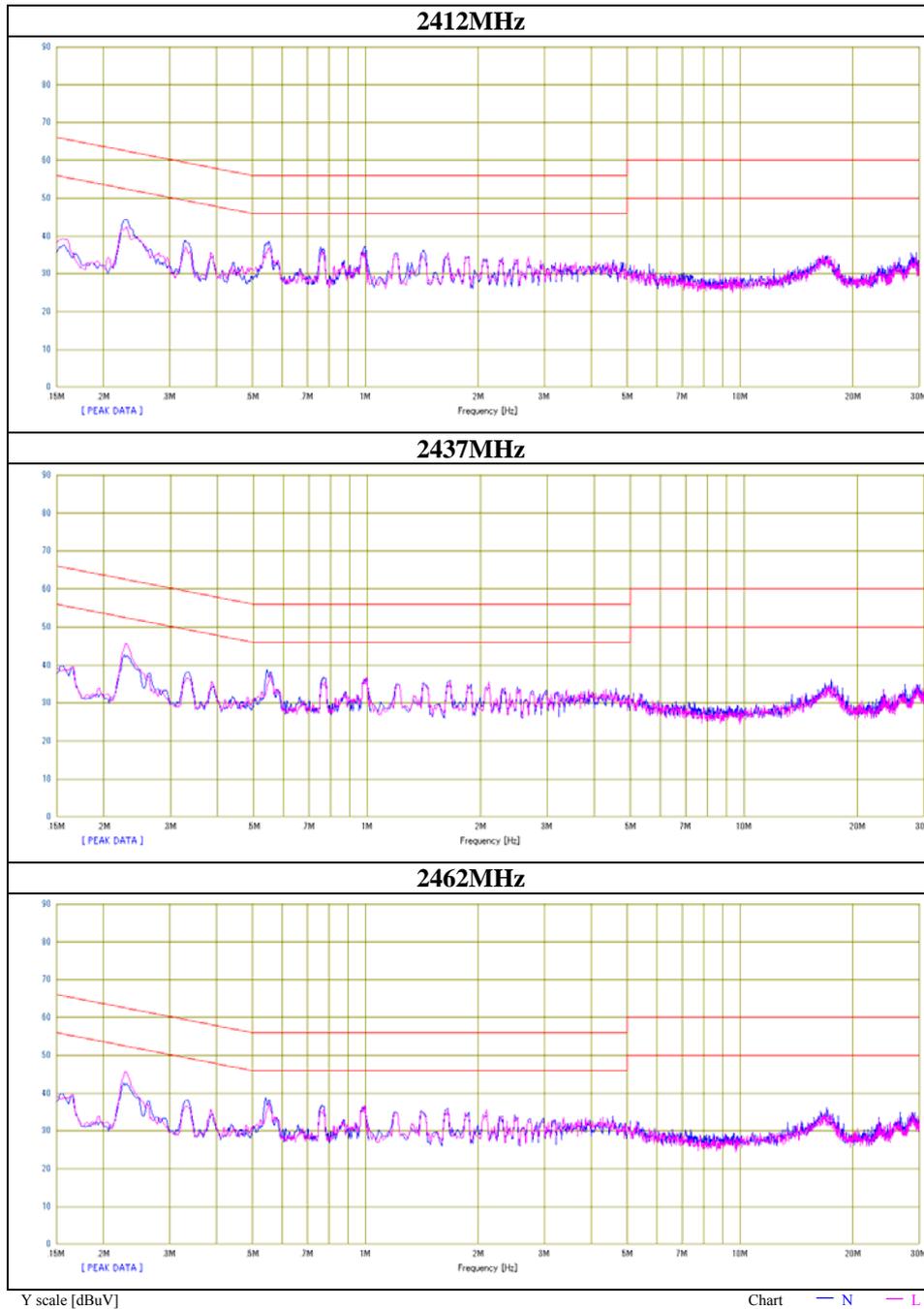


Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.22035	24.7	21.5	13.3	38.0	34.8	62.8	52.8	24.8	18.0	N	
0.32981	21.4	20.3	13.3	34.7	33.6	59.5	49.5	24.8	15.9	N	
0.54825	20.0	16.9	13.3	33.3	30.2	56.0	46.0	22.7	15.8	N	
0.76841	19.4	13.7	13.3	32.7	27.0	56.0	46.0	23.3	19.0	N	
0.98541	18.4	11.0	13.3	31.7	24.3	56.0	46.0	24.3	21.7	N	
1.42398	17.4	8.0	13.4	30.8	21.4	56.0	46.0	25.2	24.6	N	
0.22015	25.3	22.4	13.3	38.6	35.7	62.8	52.8	24.2	17.1	L	
0.32825	19.0	17.9	13.3	32.3	31.2	59.5	49.5	27.2	18.3	L	
0.54771	17.0	14.0	13.3	30.3	27.3	56.0	46.0	25.7	18.7	L	
0.76791	17.8	12.0	13.3	31.1	25.3	56.0	46.0	24.9	20.7	L	
0.98721	17.5	10.1	13.3	30.8	23.4	56.0	46.0	25.2	22.6	L	
1.42398	17.1	7.7	13.4	30.5	21.1	56.0	46.0	25.5	24.9	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT=READING+C.F(LISN LOSS + ATT LOSS + CABLE LOSS)  
Except for the above table : adequate margin data below the limits.

**Conducted Emission**  
(Power Supply: DELTA)

Test place	Ise HQ EMC Lab. No.3 Semi Anechoic Chamber
Report No.	10240264H
Date	03/25/2014
Temperature/ Humidity	23 deg. C / 40% RH
Engineer	Keisuke Kawamura
Mode	11g Tx Antenna 1



**Conducted Emission**  
 (Power Supply: Chicony)

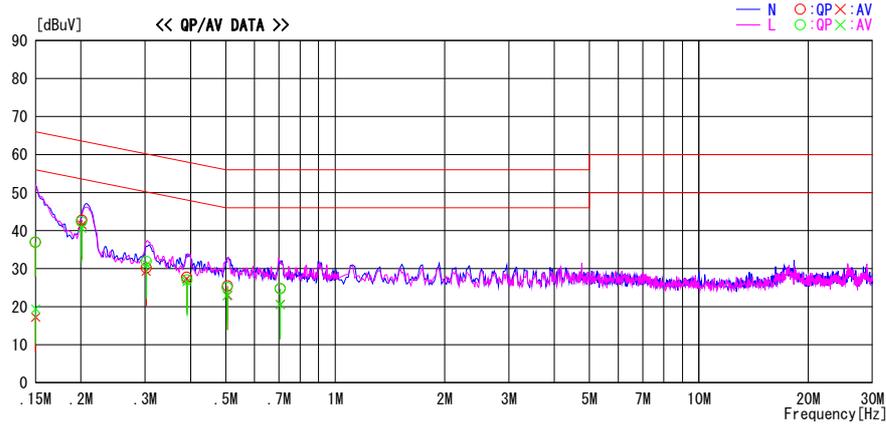
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber  
 Date : 2014/03/25

Report No. : 10240264H  
 Temp./Humi. : 23deg. C / 40% RH  
 Engineer : Keisuke Kawamura

Mode / Remarks : WLAN Tx 11b 2Mbps 2412MHz

LIMIT : FCC15.207 QP  
 FCC15.207 AV

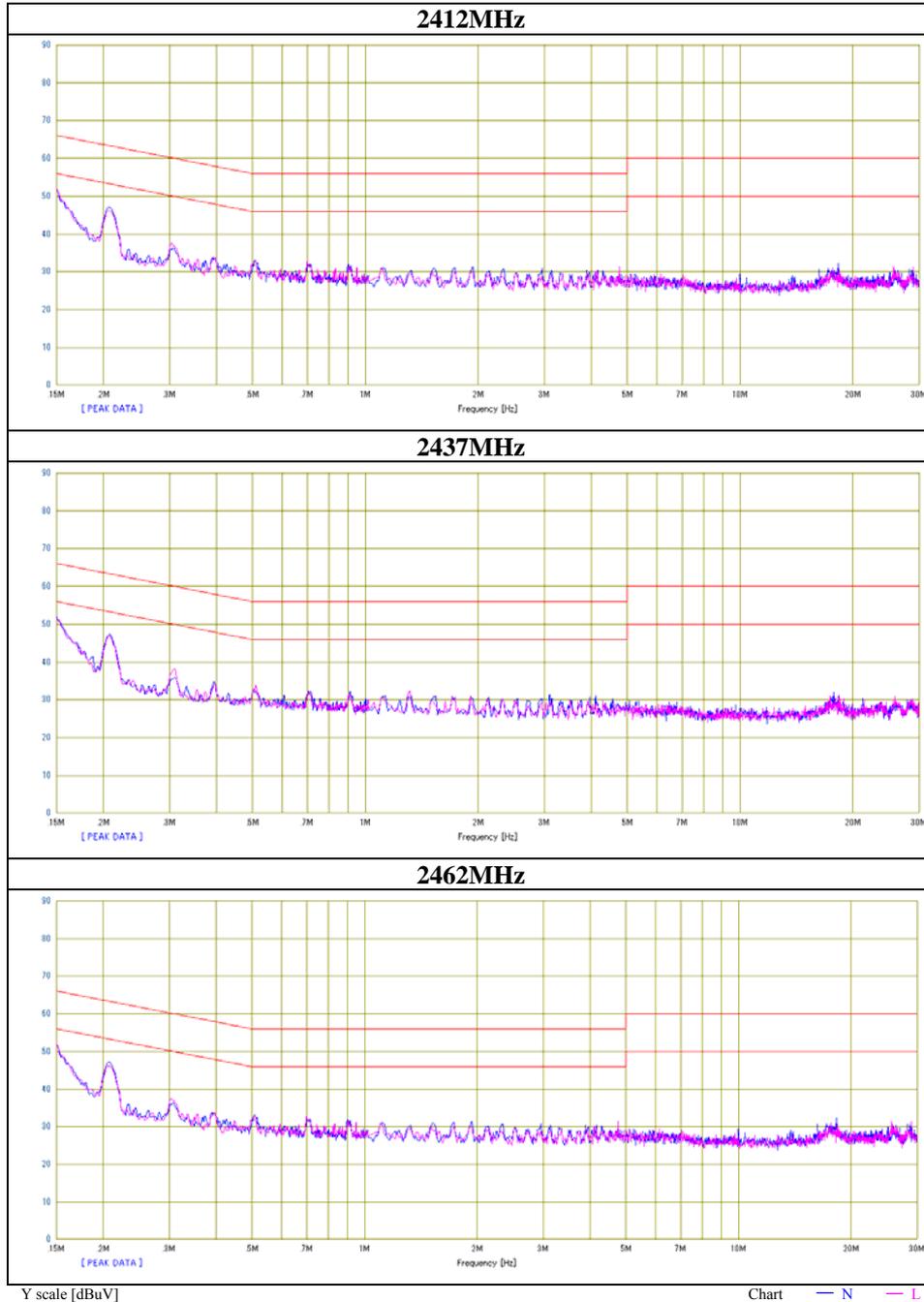


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15001	23.7	4.0	13.2	36.9	17.2	66.0	56.0	29.1	38.8	N	
0.20115	29.4	28.2	13.3	42.7	41.5	63.6	53.6	20.9	12.1	N	
0.30225	16.9	16.0	13.3	30.2	29.3	60.2	50.2	30.0	20.9	N	
0.39075	14.4	14.0	13.3	27.7	27.3	58.0	48.0	30.3	20.7	N	
0.50601	12.2	9.7	13.3	25.5	23.0	56.0	46.0	30.5	23.0	N	
0.70655	11.4	7.3	13.3	24.7	20.6	56.0	46.0	31.3	25.4	N	
0.15001	23.8	6.2	13.2	37.0	19.4	66.0	56.0	29.0	36.6	L	
0.20075	29.1	27.3	13.3	42.4	40.6	63.6	53.6	21.2	13.0	L	
0.30255	18.6	17.8	13.3	31.9	31.1	60.2	50.2	28.3	19.1	L	
0.39121	13.7	13.3	13.3	27.0	26.6	58.0	48.0	31.0	21.4	L	
0.50435	11.8	9.6	13.3	25.1	22.9	56.0	46.0	30.9	23.1	L	
0.70655	11.4	7.3	13.3	24.7	20.6	56.0	46.0	31.3	25.4	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT=READING+C.F (LISN LOSS + ATT LOSS + CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

**Conducted Emission**  
(Power Supply: Chicony)

Test place	Ise HQ EMC Lab. No.3 Semi Anechoic Chamber
Report No.	10240264H
Date	03/25/2014
Temperature/ Humidity	23 deg. C / 40% RH
Engineer	Keisuke Kawamura
Mode	11b Tx Antenna 1



**Conducted Emission**  
(Power Supply: Chicony)

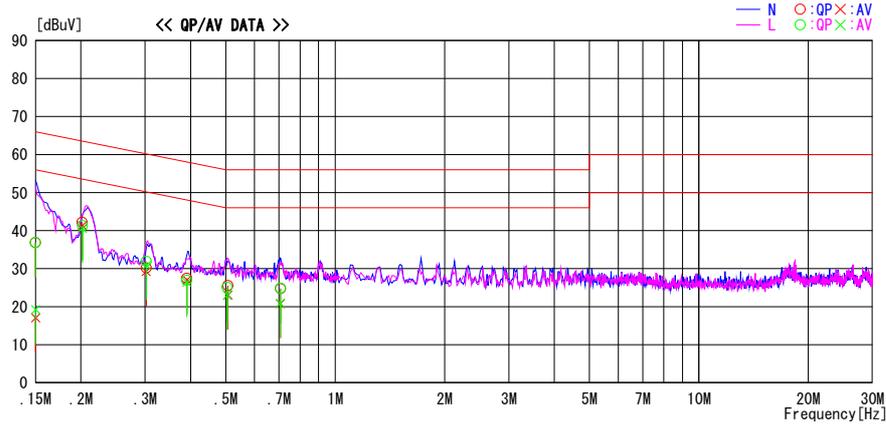
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber  
Date : 2014/03/25

Report No. : 10240264H  
Temp./Humi. : 23deg. C / 40% RH  
Engineer : Keisuke Kawamura

Mode / Remarks : WLAN Tx 11g 24Mbps 2412MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

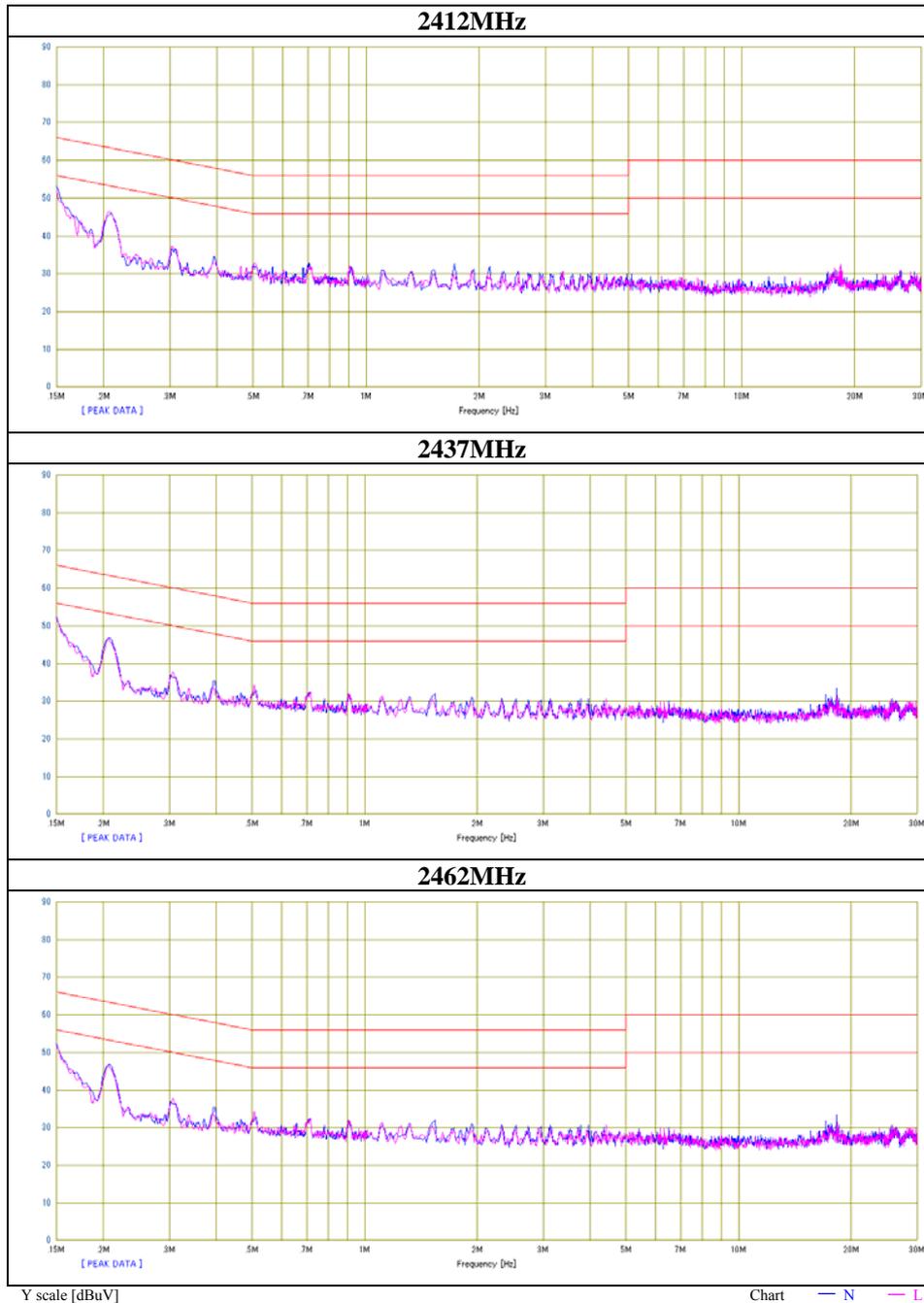


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15001	23.6	3.9	13.2	36.8	17.1	66.0	56.0	29.2	38.9	N	
0.20161	28.9	28.0	13.3	42.2	41.3	63.5	53.5	21.3	12.2	N	
0.30245	16.9	15.9	13.3	30.2	29.2	60.2	50.2	30.0	21.0	N	
0.39091	14.2	13.8	13.3	27.5	27.1	58.0	48.0	30.5	20.9	N	
0.50711	12.3	9.8	13.3	25.6	23.1	56.0	46.0	30.4	22.9	N	
0.70695	11.4	7.5	13.3	24.7	20.8	56.0	46.0	31.3	25.2	N	
0.15001	23.6	6.0	13.2	36.8	19.2	66.0	56.0	29.2	36.8	L	
0.20185	28.0	27.3	13.3	41.3	40.6	63.5	53.5	22.2	12.9	L	
0.30255	18.6	17.6	13.3	31.9	30.9	60.2	50.2	28.3	19.3	L	
0.39111	13.6	13.1	13.3	26.9	26.4	58.0	48.0	31.1	21.6	L	
0.50525	11.8	9.7	13.3	25.1	23.0	56.0	46.0	30.9	23.0	L	
0.70695	11.5	7.6	13.3	24.8	20.9	56.0	46.0	31.2	25.1	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT=READING+C.F(LISN LOSS + ATT LOSS + CABLE LOSS)  
Except for the above table : adequate margin data below the limits.

**Conducted Emission**  
(Power Supply: Chicony)

Test place	Ise HQ EMC Lab. No.3 Semi Anechoic Chamber
Report No.	10240264H
Date	03/25/2014
Temperature/ Humidity	23 deg. C / 40% RH
Engineer	Keisuke Kawamura
Mode	11g Tx Antenna 1



**Radiated Spurious Emission**  
(Power Supply: SONY)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/13/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 24 deg. C / 33% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11b Tx 2412MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	106.751	QP	42.5	11.1	8.1	32.1	29.6	43.5	13.9	
Hori	323.983	QP	43.9	15.1	10.0	31.9	37.1	46.0	8.9	
Hori	576.002	QP	38.3	19.2	11.6	32.0	37.1	46.0	8.9	
Hori	607.531	QP	37.5	19.6	11.8	32.0	36.9	46.0	9.1	
Hori	810.020	QP	33.6	22.0	12.8	31.4	37.0	46.0	9.0	
Hori	901.172	QP	34.2	22.3	13.3	30.9	38.9	46.0	7.1	
Hori	2390.000	PK	46.1	28.2	3.1	32.4	45.0	73.9	29.0	
Hori	4824.000	PK	41.1	30.5	5.3	31.4	45.5	73.9	28.4	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	NS	-	-	-	-	73.9	-	
Hori	2390.000	AV	39.9	28.2	3.1	32.4	38.8	53.9	15.1	
Hori	4824.000	AV	33.4	30.5	5.3	31.4	37.8	53.9	16.1	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	NS	-	-	-	-	53.9	-	
Vert	106.743	QP	47.0	11.1	8.1	32.1	34.1	43.5	9.4	
Vert	323.984	QP	41.4	15.1	10.0	31.9	34.6	46.0	11.4	
Vert	576.005	QP	33.5	19.2	11.6	32.0	32.3	46.0	13.7	
Vert	607.512	QP	41.9	19.6	11.8	32.0	41.3	46.0	4.7	
Vert	810.026	QP	36.5	22.0	12.8	31.4	39.9	46.0	6.1	
Vert	901.180	QP	32.9	22.3	13.3	30.9	37.6	46.0	8.4	
Vert	2390.000	PK	46.6	28.2	3.1	32.4	45.5	73.9	28.4	
Vert	4824.000	PK	41.1	30.5	5.3	31.4	45.5	73.9	28.5	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	NS	-	-	-	-	73.9	-	
Vert	2390.000	AV	38.9	28.2	3.1	32.4	37.8	53.9	16.1	
Vert	4824.000	AV	33.7	30.5	5.3	31.4	38.1	53.9	15.8	
Vert	7236.000	AV	NS	-	-	-	-	53.9	-	
Vert	9648.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
**20dBc Data Sheet**  
(Power Supply: SONY)

Test place : Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 10240264H  
Date : 03/13/2014  
Temperature/ Humidity : 24 deg. C / 33% RH  
Engineer : Kazuya Yoshioka  
Mode : 11b Tx 2412MHz Antenna 1

**20dBc Data Sheet**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2412.000	PK	92.6	28.2	3.1	32.4	91.5	-	-	Carrier
Hori	2400.000	PK	45.4	28.2	3.1	32.4	44.3	71.5	27.2	
Vert	2412.000	PK	96.1	28.2	3.1	32.4	95.0	-	-	Carrier
Vert	2400.000	PK	47.0	28.2	3.1	32.4	45.9	75.0	29.1	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

**Radiated Spurious Emission**  
(Power Supply: SONY)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/13/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 24 deg. C / 33% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11b Tx 2437MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	106.754	QP	42.3	11.1	8.1	32.1	29.4	43.5	14.1	
Hori	323.993	QP	44.0	15.1	10.0	31.9	37.2	46.0	8.8	
Hori	576.001	QP	38.2	19.2	11.6	32.0	37.0	46.0	9.0	
Hori	607.510	QP	37.8	19.6	11.8	32.0	37.2	46.0	8.8	
Hori	810.028	QP	33.0	22.0	12.8	31.4	36.4	46.0	9.6	
Hori	901.180	QP	34.3	22.3	13.3	30.9	39.0	46.0	7.0	
Hori	4874.000	PK	40.7	30.6	5.3	31.4	45.2	73.9	28.7	
Hori	7311.000	PK	NS	-	-	-	-	73.9	-	
Hori	9748.000	PK	NS	-	-	-	-	73.9	-	
Hori	4874.000	AV	33.3	30.6	5.3	31.4	37.8	53.9	16.1	
Hori	7311.000	AV	NS	-	-	-	-	53.9	-	
Hori	9748.000	AV	NS	-	-	-	-	53.9	-	
Vert	106.748	QP	46.8	11.1	8.1	32.1	33.9	43.5	9.6	
Vert	323.985	QP	41.1	15.1	10.0	31.9	34.3	46.0	11.7	
Vert	576.004	QP	33.7	19.2	11.6	32.0	32.5	46.0	13.5	
Vert	607.515	QP	41.7	19.6	11.8	32.0	41.1	46.0	4.9	
Vert	810.022	QP	36.3	22.0	12.8	31.4	39.7	46.0	6.3	
Vert	901.181	QP	32.9	22.3	13.3	30.9	37.6	46.0	8.4	
Vert	4874.000	PK	41.4	30.6	5.3	31.4	45.9	73.9	28.0	
Vert	7311.000	PK	NS	-	-	-	-	73.9	-	
Vert	9748.000	PK	NS	-	-	-	-	73.9	-	
Vert	4874.000	AV	34.4	30.6	5.3	31.4	38.9	53.9	15.0	
Vert	7311.000	AV	NS	-	-	-	-	53.9	-	
Vert	9748.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.  
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB



**Radiated Spurious Emission**  
(Power Supply: SONY)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/13/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 24 deg. C / 33% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11g Tx 2412MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	106.741	QP	42.7	11.1	8.1	32.1	29.8	43.5	13.7	
Hori	323.986	QP	44.1	15.1	10.0	31.9	37.3	46.0	8.7	
Hori	576.004	QP	38.4	19.2	11.6	32.0	37.2	46.0	8.8	
Hori	607.517	QP	38.5	19.6	11.8	32.0	37.9	46.0	8.1	
Hori	810.026	QP	33.2	22.0	12.8	31.4	36.6	46.0	9.4	
Hori	901.169	QP	34.1	22.3	13.3	30.9	38.8	46.0	7.2	
Hori	2390.000	PK	53.3	28.2	3.1	32.4	52.2	73.9	21.7	
Hori	4824.000	PK	NS	-	-	-	-	73.9	-	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	NS	-	-	-	-	73.9	-	
Hori	2390.000	AV	43.6	28.2	3.1	32.4	42.5	53.9	11.4	
Hori	4824.000	AV	NS	-	-	-	-	53.9	-	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	NS	-	-	-	-	53.9	-	
Vert	106.754	QP	46.7	11.1	8.1	32.1	33.8	43.5	9.7	
Vert	323.976	QP	40.7	15.1	10.0	31.9	33.9	46.0	12.1	
Vert	576.010	QP	33.8	19.2	11.6	32.0	32.6	46.0	13.4	
Vert	607.508	QP	42.0	19.6	11.8	32.0	41.4	46.0	4.6	
Vert	810.025	QP	36.5	22.0	12.8	31.4	39.9	46.0	6.1	
Vert	901.173	QP	32.9	22.3	13.3	30.9	37.6	46.0	8.4	
Vert	2390.000	PK	52.9	28.2	3.1	32.4	51.8	73.9	22.1	
Vert	4824.000	PK	NS	-	-	-	-	73.9	-	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	NS	-	-	-	-	73.9	-	
Vert	2390.000	AV	44.8	28.2	3.1	32.4	43.7	53.9	10.2	
Vert	4824.000	AV	NS	-	-	-	-	53.9	-	
Vert	7236.000	AV	NS	-	-	-	-	53.9	-	
Vert	9648.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
**20dBc Data Sheet**  
(Power Supply: SONY)

Test place : Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 10240264H  
Date : 03/13/2014  
Temperature/ Humidity : 24 deg. C / 33% RH  
Engineer : Kazuya Yoshioka  
Mode : 11g Tx 2412MHz Antenna 1

**20dBc Data Sheet**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2412.000	PK	90.7	28.2	3.1	32.4	89.6	-	-	Carrier
Hori	2400.000	PK	58.4	28.2	3.1	32.4	57.3	69.6	12.3	
Vert	2412.000	PK	93.3	28.2	3.1	32.4	92.2	-	-	Carrier
Vert	2400.000	PK	58.7	28.2	3.1	32.4	57.6	72.2	14.6	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)



**Radiated Spurious Emission**  
(Power Supply: SONY)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/13/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 24 deg. C / 33% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11g Tx 2462MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	106.749	QP	42.7	11.1	8.1	32.1	29.8	43.5	13.7	
Hori	323.985	QP	44.0	15.1	10.0	31.9	37.2	46.0	8.8	
Hori	576.003	QP	38.3	19.2	11.6	32.0	37.1	46.0	8.9	
Hori	607.519	QP	38.8	19.6	11.8	32.0	38.2	46.0	7.8	
Hori	810.013	QP	32.8	22.0	12.8	31.4	36.2	46.0	9.8	
Hori	901.177	QP	34.5	22.3	13.3	30.9	39.2	46.0	6.8	
Hori	2483.500	PK	50.5	28.4	3.1	32.3	49.7	73.9	24.2	
Hori	4924.000	PK	NS	-	-	-	-	73.9	-	
Hori	7386.000	PK	NS	-	-	-	-	73.9	-	
Hori	9848.000	PK	NS	-	-	-	-	73.9	-	
Hori	2483.500	AV	40.7	28.4	3.1	32.3	39.9	53.9	14.0	
Hori	4924.000	AV	NS	-	-	-	-	53.9	-	
Hori	7386.000	AV	NS	-	-	-	-	53.9	-	
Hori	9848.000	AV	NS	-	-	-	-	53.9	-	
Vert	106.740	QP	47.1	11.1	8.1	32.1	34.2	43.5	9.3	
Vert	323.966	QP	40.1	15.1	10.0	31.9	33.3	46.0	12.7	
Vert	576.005	QP	33.4	19.2	11.6	32.0	32.2	46.0	13.8	
Vert	607.516	QP	42.2	19.6	11.8	32.0	41.6	46.0	4.4	
Vert	810.021	QP	36.8	22.0	12.8	31.4	40.2	46.0	5.8	
Vert	901.185	QP	32.8	22.3	13.3	30.9	37.5	46.0	8.5	
Vert	2483.500	PK	56.9	28.4	3.1	32.3	56.1	73.9	17.8	
Vert	4924.000	PK	NS	-	-	-	-	73.9	-	
Vert	7386.000	PK	NS	-	-	-	-	73.9	-	
Vert	9848.000	PK	NS	-	-	-	-	73.9	-	
Vert	2483.500	AV	45.6	28.4	3.1	32.3	44.8	53.9	9.1	
Vert	4924.000	AV	NS	-	-	-	-	53.9	-	
Vert	7386.000	AV	NS	-	-	-	-	53.9	-	
Vert	9848.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
(Power Supply: DELTA)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/14/2014 03/18/2014 03/24/2014  
Temperature/ Humidity 23 deg. C / 32% RH 23 deg. C / 35% RH 21 deg. C / 35% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Takumi Shimada  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11b Tx 2412MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.790	QP	42.3	11.4	8.2	32.1	29.8	43.5	13.7	
Hori	327.200	QP	39.1	15.2	10.0	31.9	32.4	46.0	13.6	
Hori	576.006	QP	38.3	19.2	11.6	32.0	37.1	46.0	8.9	
Hori	607.524	QP	38.0	19.6	11.8	32.0	37.4	46.0	8.6	
Hori	810.023	QP	35.0	22.0	12.8	31.4	38.4	46.0	7.6	
Hori	901.153	QP	34.5	22.3	13.3	30.9	39.2	46.0	6.8	
Hori	2390.000	PK	47.9	28.2	3.1	32.4	46.8	73.9	27.1	
Hori	4824.000	PK	40.5	30.5	5.3	31.4	44.9	73.9	29.0	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	NS	-	-	-	-	73.9	-	
Hori	2390.000	AV	38.5	28.2	3.1	32.4	37.4	53.9	16.5	
Hori	4824.000	AV	32.3	30.5	5.3	31.4	36.7	53.9	17.3	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	NS	-	-	-	-	53.9	-	
Vert	31.680	QP	39.3	17.7	7.0	32.2	31.8	40.0	8.2	
Vert	108.780	QP	46.6	11.4	8.2	32.1	34.1	43.5	9.4	
Vert	575.998	QP	34.4	19.2	11.6	32.0	33.2	46.0	12.8	
Vert	607.517	QP	42.1	19.6	11.8	32.0	41.5	46.0	4.5	
Vert	810.019	QP	36.8	22.0	12.8	31.4	40.2	46.0	5.8	
Vert	901.154	QP	33.1	22.3	13.3	30.9	37.8	46.0	8.2	
Vert	2390.000	PK	48.1	28.2	3.1	32.4	47.0	73.9	26.9	
Vert	4824.000	PK	40.5	30.5	5.3	31.4	44.9	73.9	29.0	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	NS	-	-	-	-	73.9	-	
Vert	2390.000	AV	39.0	28.2	3.1	32.4	37.9	53.9	16.0	
Vert	4824.000	AV	31.9	30.5	5.3	31.4	36.3	53.9	17.6	
Vert	7236.000	AV	NS	-	-	-	-	53.9	-	
Vert	9648.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
**20dBc Data Sheet**  
(Power Supply: DELTA)

Test place : Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 10240264H  
Date : 03/14/2014  
Temperature/ Humidity : 23 deg. C / 32% RH  
Engineer : Kazuya Yoshioka  
Mode : 11b Tx 2412MHz Antenna 1

**20dBc Data Sheet**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2412.000	PK	92.7	28.2	3.1	32.4	91.6	-	-	Carrier
Hori	2400.000	PK	42.4	28.2	3.1	32.4	41.3	71.6	30.3	
Vert	2412.000	PK	95.6	28.2	3.1	32.4	94.5	-	-	Carrier
Vert	2400.000	PK	43.9	28.2	3.1	32.4	42.8	74.5	31.7	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

**Radiated Spurious Emission**  
(Power Supply: DELTA)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/14/2014 03/18/2014 03/24/2014  
Temperature/ Humidity 23 deg. C / 32% RH 23 deg. C / 35% RH 21 deg. C / 35% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Takumi Shimada  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11b Tx 2437MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.788	QP	42.2	11.4	8.2	32.1	29.7	43.5	13.8	
Hori	327.201	QP	39.3	15.2	10.0	31.9	32.6	46.0	13.4	
Hori	576.006	QP	38.2	19.2	11.6	32.0	37.0	46.0	9.0	
Hori	607.523	QP	38.1	19.6	11.8	32.0	37.5	46.0	8.5	
Hori	810.023	QP	34.9	22.0	12.8	31.4	38.3	46.0	7.7	
Hori	901.154	QP	34.5	22.3	13.3	30.9	39.2	46.0	6.8	
Hori	4874.000	PK	40.8	30.6	5.3	31.4	45.3	73.9	28.6	
Hori	7311.000	PK	NS	-	-	-	-	73.9	-	
Hori	9748.000	PK	NS	-	-	-	-	73.9	-	
Hori	4874.000	AV	32.2	30.6	5.3	31.4	36.7	53.9	17.2	
Hori	7311.000	AV	NS	-	-	-	-	53.9	-	
Hori	9748.000	AV	NS	-	-	-	-	53.9	-	
Vert	31.682	QP	39.2	17.7	7.0	32.2	31.7	40.0	8.3	
Vert	108.783	QP	46.9	11.4	8.2	32.1	34.4	43.5	9.1	
Vert	576.002	QP	34.7	19.2	11.6	32.0	33.5	46.0	12.5	
Vert	607.517	QP	42.0	19.6	11.8	32.0	41.4	46.0	4.6	
Vert	810.020	QP	36.5	22.0	12.8	31.4	39.9	46.0	6.1	
Vert	901.154	QP	33.1	22.3	13.3	30.9	37.8	46.0	8.2	
Vert	4874.000	PK	40.6	30.6	5.3	31.4	45.1	73.9	28.8	
Vert	7311.000	PK	NS	-	-	-	-	73.9	-	
Vert	9748.000	PK	NS	-	-	-	-	73.9	-	
Vert	4874.000	AV	31.9	30.6	5.3	31.4	36.4	53.9	17.6	
Vert	7311.000	AV	NS	-	-	-	-	53.9	-	
Vert	9748.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.  
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
(Power Supply: DELTA)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/14/2014 03/18/2014 03/24/2014  
Temperature/ Humidity 23 deg. C / 32% RH 23 deg. C / 35% RH 21 deg. C / 35% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Takumi Shimada  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11b Tx 2462MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.793	QP	42.4	11.4	8.2	32.1	29.9	43.5	13.6	
Hori	327.202	QP	39.0	15.2	10.0	31.9	32.3	46.0	13.7	
Hori	576.004	QP	38.1	19.2	11.6	32.0	36.9	46.0	9.1	
Hori	607.519	QP	38.2	19.6	11.8	32.0	37.6	46.0	8.4	
Hori	810.020	QP	35.1	22.0	12.8	31.4	38.5	46.0	7.5	
Hori	901.153	QP	34.3	22.3	13.3	30.9	39.0	46.0	7.0	
Hori	2483.500	PK	46.2	28.4	3.1	32.3	45.4	73.9	28.5	
Hori	4924.000	PK	42.1	30.7	5.3	31.4	46.7	73.9	27.2	
Hori	7386.000	PK	NS	-	-	-	-	73.9	-	
Hori	9848.000	PK	NS	-	-	-	-	73.9	-	
Hori	2483.500	AV	37.1	28.4	3.1	32.3	36.3	53.9	17.6	
Hori	4924.000	AV	34.7	30.7	5.3	31.4	39.3	53.9	14.6	
Hori	7386.000	AV	NS	-	-	-	-	53.9	-	
Hori	9848.000	AV	NS	-	-	-	-	53.9	-	
Vert	31.687	QP	39.2	17.7	7.0	32.2	31.7	40.0	8.3	
Vert	108.781	QP	46.2	11.4	8.2	32.1	33.7	43.5	9.8	
Vert	576.003	QP	34.5	19.2	11.6	32.0	33.3	46.0	12.7	
Vert	607.517	QP	42.0	19.6	11.8	32.0	41.4	46.0	4.6	
Vert	810.019	QP	36.5	22.0	12.8	31.4	39.9	46.0	6.1	
Vert	901.153	QP	33.3	22.3	13.3	30.9	38.0	46.0	8.0	
Vert	2483.500	PK	46.2	28.4	3.1	32.3	45.4	73.9	28.5	
Vert	4924.000	PK	40.1	30.7	5.3	31.4	44.7	73.9	29.2	
Vert	7386.000	PK	NS	-	-	-	-	73.9	-	
Vert	9848.000	PK	NS	-	-	-	-	73.9	-	
Vert	2483.500	AV	37.9	28.4	3.1	32.3	37.1	53.9	16.8	
Vert	4924.000	AV	32.1	30.7	5.3	31.4	36.7	53.9	17.2	
Vert	7386.000	AV	NS	-	-	-	-	53.9	-	
Vert	9848.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB



**Radiated Spurious Emission**  
**20dBc Data Sheet**  
(Power Supply: DELTA)

Test place : Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 10240264H  
Date : 03/14/2014  
Temperature/ Humidity : 23 deg. C / 32% RH  
Engineer : Kazuya Yoshioka  
Mode : 11g Tx 2412MHz Antenna 1

**20dBc Data Sheet**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result dBuV/m	Limit dBuV/m	Margin [dB]	Remark
Hori	2412.000	PK	92.1	28.2	3.1	32.4	91.0	-	-	Carrier
Hori	2400.000	PK	60.3	28.2	3.1	32.4	59.2	71.0	11.8	
Vert	2412.000	PK	93.0	28.2	3.1	32.4	91.9	-	-	Carrier
Vert	2400.000	PK	60.1	28.2	3.1	32.4	59.0	71.9	12.9	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

**Radiated Spurious Emission**  
(Power Supply: DELTA)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/14/2014 03/18/2014 03/24/2014  
Temperature/ Humidity 23 deg. C / 32% RH 23 deg. C / 35% RH 21 deg. C / 35% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Takumi Shimada  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11g Tx 2437MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.783	QP	42.0	11.4	8.2	32.1	29.5	43.5	14.0	
Hori	327.185	QP	39.2	15.2	10.0	31.9	32.5	46.0	13.5	
Hori	576.007	QP	38.4	19.2	11.6	32.0	37.2	46.0	8.8	
Hori	607.515	QP	38.4	19.6	11.8	32.0	37.8	46.0	8.2	
Hori	810.021	QP	35.1	22.0	12.8	31.4	38.5	46.0	7.5	
Hori	901.154	QP	34.2	22.3	13.3	30.9	38.9	46.0	7.1	
Hori	4874.000	PK	NS	-	-	-	-	73.9	-	
Hori	7311.000	PK	NS	-	-	-	-	73.9	-	
Hori	9748.000	PK	NS	-	-	-	-	73.9	-	
Hori	4874.000	AV	NS	-	-	-	-	53.9	-	
Hori	7311.000	AV	NS	-	-	-	-	53.9	-	
Hori	9748.000	AV	NS	-	-	-	-	53.9	-	
Vert	31.721	QP	39.6	17.7	7.0	32.2	32.1	40.0	7.9	
Vert	108.781	QP	46.3	11.4	8.2	32.1	33.8	43.5	9.7	
Vert	576.007	QP	34.6	19.2	11.6	32.0	33.4	46.0	12.6	
Vert	607.515	QP	41.8	19.6	11.8	32.0	41.2	46.0	4.8	
Vert	810.021	QP	36.2	22.0	12.8	31.4	39.6	46.0	6.4	
Vert	901.154	QP	33.2	22.3	13.3	30.9	37.9	46.0	8.1	
Vert	4874.000	PK	NS	-	-	-	-	73.9	-	
Vert	7311.000	PK	NS	-	-	-	-	73.9	-	
Vert	9748.000	PK	NS	-	-	-	-	73.9	-	
Vert	4874.000	AV	NS	-	-	-	-	53.9	-	
Vert	7311.000	AV	NS	-	-	-	-	53.9	-	
Vert	9748.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.  
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
(Power Supply: DELTA)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/14/2014 03/18/2014 03/24/2014  
Temperature/ Humidity 23 deg. C / 32% RH 23 deg. C / 35% RH 21 deg. C / 35% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Takumi Shimada  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11g Tx 2462MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.782	QP	41.8	11.4	8.2	32.1	29.3	43.5	14.2	
Hori	327.186	QP	39.1	15.2	10.0	31.9	32.4	46.0	13.6	
Hori	576.008	QP	38.5	19.2	11.6	32.0	37.3	46.0	8.7	
Hori	607.514	QP	38.3	19.6	11.8	32.0	37.7	46.0	8.3	
Hori	810.023	QP	35.2	22.0	12.8	31.4	38.6	46.0	7.4	
Hori	901.152	QP	34.3	22.3	13.3	30.9	39.0	46.0	7.0	
Hori	2483.500	PK	52.1	28.4	3.1	32.3	51.3	73.9	22.6	
Hori	4924.000	PK	NS	-	-	-	-	73.9	-	
Hori	7386.000	PK	NS	-	-	-	-	73.9	-	
Hori	9848.000	PK	NS	-	-	-	-	73.9	-	
Hori	2483.500	AV	41.6	28.4	3.1	32.3	40.8	53.9	13.1	
Hori	4924.000	AV	NS	-	-	-	-	53.9	-	
Hori	7386.000	AV	NS	-	-	-	-	53.9	-	
Hori	9848.000	AV	NS	-	-	-	-	53.9	-	
Vert	31.722	QP	39.7	17.7	7.0	32.2	32.2	40.0	7.8	
Vert	108.782	QP	46.2	11.4	8.2	32.1	33.7	43.5	9.8	
Vert	576.008	QP	34.4	19.2	11.6	32.0	33.2	46.0	12.8	
Vert	607.514	QP	41.8	19.6	11.8	32.0	41.2	46.0	4.8	
Vert	810.023	QP	36.1	22.0	12.8	31.4	39.5	46.0	6.5	
Vert	901.152	QP	33.3	22.3	13.3	30.9	38.0	46.0	8.0	
Vert	2483.500	PK	60.0	28.4	3.1	32.3	59.2	73.9	14.7	
Vert	4924.000	PK	NS	-	-	-	-	73.9	-	
Vert	7386.000	PK	NS	-	-	-	-	73.9	-	
Vert	9848.000	PK	NS	-	-	-	-	73.9	-	
Vert	2483.500	AV	49.4	28.4	3.1	32.3	48.6	53.9	5.3	
Vert	4924.000	AV	NS	-	-	-	-	53.9	-	
Vert	7386.000	AV	NS	-	-	-	-	53.9	-	
Vert	9848.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
(Power Supply: Chicony)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/14/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 23 deg. C / 32% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11b Tx 2412MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.782	QP	43.9	11.4	8.2	32.1	31.4	43.5	12.1	
Hori	324.551	QP	39.2	15.1	10.0	31.9	32.4	46.0	13.6	
Hori	576.009	QP	42.0	19.2	11.6	32.0	40.8	46.0	5.2	
Hori	607.532	QP	37.6	19.6	11.8	32.0	37.0	46.0	9.0	
Hori	810.032	QP	33.3	22.0	12.8	31.4	36.7	46.0	9.3	
Hori	901.127	QP	34.3	22.3	13.3	30.9	39.0	46.0	7.0	
Hori	2390.000	PK	46.5	28.2	3.1	32.4	45.4	73.9	28.5	
Hori	4824.000	PK	40.7	30.5	5.3	31.4	45.1	73.9	28.8	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	NS	-	-	-	-	73.9	-	
Hori	2390.000	AV	37.7	28.2	3.1	32.4	36.6	53.9	17.3	
Hori	4824.000	AV	32.2	30.5	5.3	31.4	36.6	53.9	17.3	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	NS	-	-	-	-	53.9	-	
Vert	31.701	QP	38.2	17.7	7.0	32.2	30.7	40.0	9.3	
Vert	106.739	QP	45.9	11.1	8.1	32.1	33.0	43.5	10.5	
Vert	576.005	QP	33.5	19.2	11.6	32.0	32.3	46.0	13.7	
Vert	607.511	QP	41.7	19.6	11.8	32.0	41.1	46.0	4.9	
Vert	810.030	QP	36.9	22.0	12.8	31.4	40.3	46.0	5.7	
Vert	901.134	QP	32.9	22.3	13.3	30.9	37.6	46.0	8.4	
Vert	2390.000	PK	47.9	28.2	3.1	32.4	46.8	73.9	27.1	
Vert	4824.000	PK	41.0	30.5	5.3	31.4	45.4	73.9	28.5	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	NS	-	-	-	-	73.9	-	
Vert	2390.000	AV	38.9	28.2	3.1	32.4	37.8	53.9	16.1	
Vert	4824.000	AV	32.1	30.5	5.3	31.4	36.5	53.9	17.4	
Vert	7236.000	AV	NS	-	-	-	-	53.9	-	
Vert	9648.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
**20dBc Data Sheet**  
(Power Supply: Chicony)

Test place : Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 10240264H  
Date : 03/14/2014  
Temperature/ Humidity : 23 deg. C / 32% RH  
Engineer : Kazuya Yoshioka  
Mode : 11b Tx 2412MHz Antenna 1

**20dBc Data Sheet**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2412.000	PK	91.5	28.2	3.1	32.4	90.4	-	-	Carrier
Hori	2400.000	PK	45.3	28.2	3.1	32.4	44.2	70.4	26.2	
Vert	2412.000	PK	94.6	28.2	3.1	32.4	93.5	-	-	Carrier
Vert	2400.000	PK	43.4	28.2	3.1	32.4	42.3	73.5	31.2	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

**Radiated Spurious Emission**  
(Power Supply: Chicony)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/14/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 23 deg. C / 32% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11b Tx 2437MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.786	QP	43.4	11.4	8.2	32.1	30.9	43.5	12.6	
Hori	323.991	QP	40.8	15.1	10.0	31.9	34.0	46.0	12.0	
Hori	575.999	QP	42.1	19.2	11.6	32.0	40.9	46.0	5.1	
Hori	607.523	QP	37.9	19.6	11.8	32.0	37.3	46.0	8.7	
Hori	810.026	QP	33.4	22.0	12.8	31.4	36.8	46.0	9.2	
Hori	901.159	QP	34.2	22.3	13.3	30.9	38.9	46.0	7.1	
Hori	4874.000	PK	40.6	30.6	5.3	31.4	45.1	73.9	28.8	
Hori	7311.000	PK	NS	-	-	-	-	73.9	-	
Hori	9748.000	PK	NS	-	-	-	-	73.9	-	
Hori	4874.000	AV	31.9	30.6	5.3	31.4	36.4	53.9	17.5	
Hori	7311.000	AV	NS	-	-	-	-	53.9	-	
Hori	9748.000	AV	NS	-	-	-	-	53.9	-	
Vert	32.961	QP	38.4	17.1	7.0	32.2	30.3	40.0	9.7	
Vert	106.735	QP	46.0	11.1	8.1	32.1	33.1	43.5	10.4	
Vert	576.003	QP	33.0	19.2	11.6	32.0	31.8	46.0	14.2	
Vert	607.519	QP	41.8	19.6	11.8	32.0	41.2	46.0	4.8	
Vert	810.024	QP	37.0	22.0	12.8	31.4	40.4	46.0	5.6	
Vert	901.158	QP	33.0	22.3	13.3	30.9	37.7	46.0	8.3	
Vert	4874.000	PK	40.6	30.6	5.3	31.4	45.1	73.9	28.8	
Vert	7311.000	PK	NS	-	-	-	-	73.9	-	
Vert	9748.000	PK	NS	-	-	-	-	73.9	-	
Vert	4874.000	AV	32.3	30.6	5.3	31.4	36.8	53.9	17.1	
Vert	7311.000	AV	NS	-	-	-	-	53.9	-	
Vert	9748.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.  
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
(Power Supply: Chicony)

Test place Ise HQ EMC Lab. No.3&No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/14/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 23 deg. C / 32% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11b Tx 2462MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.788	QP	43.5	11.4	8.2	32.1	31.0	43.5	12.5	
Hori	323.975	QP	40.6	15.1	10.0	31.9	33.8	46.0	12.2	
Hori	576.005	QP	42.2	19.2	11.6	32.0	41.0	46.0	5.0	
Hori	607.512	QP	37.7	19.6	11.8	32.0	37.1	46.0	8.9	
Hori	810.023	QP	33.5	22.0	12.8	31.4	36.9	46.0	9.1	
Hori	901.156	QP	34.4	22.3	13.3	30.9	39.1	46.0	6.9	
Hori	2483.500	PK	43.9	28.4	3.1	32.3	43.1	73.9	30.8	
Hori	4924.000	PK	40.5	30.7	5.3	31.4	45.1	73.9	28.8	
Hori	7386.000	PK	NS	-	-	-	-	73.9	-	
Hori	9848.000	PK	NS	-	-	-	-	73.9	-	
Hori	2483.500	AV	35.7	28.4	3.1	32.3	34.9	53.9	19.1	
Hori	4924.000	AV	31.6	30.7	5.3	31.4	36.2	53.9	17.7	
Hori	7386.000	AV	NS	-	-	-	-	53.9	-	
Hori	9848.000	AV	NS	-	-	-	-	53.9	-	
Vert	32.661	QP	38.4	17.3	7.0	32.2	30.5	40.0	9.5	
Vert	106.743	QP	46.0	11.1	8.1	32.1	33.1	43.5	10.4	
Vert	576.010	QP	33.4	19.2	11.6	32.0	32.2	46.0	13.8	
Vert	607.523	QP	41.6	19.6	11.8	32.0	41.0	46.0	5.0	
Vert	810.025	QP	37.0	22.0	12.8	31.4	40.4	46.0	5.6	
Vert	901.165	QP	32.9	22.3	13.3	30.9	37.6	46.0	8.4	
Vert	2483.500	PK	46.2	28.4	3.1	32.3	45.4	73.9	28.5	
Vert	4924.000	PK	40.0	30.7	5.3	31.4	44.6	73.9	29.3	
Vert	7386.000	PK	NS	-	-	-	-	73.9	-	
Vert	9848.000	PK	NS	-	-	-	-	73.9	-	
Vert	2483.500	AV	37.5	28.4	3.1	32.3	36.7	53.9	17.2	
Vert	4924.000	AV	32.0	30.7	5.3	31.4	36.6	53.9	17.3	
Vert	7386.000	AV	NS	-	-	-	-	53.9	-	
Vert	9848.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
(Power Supply: Chicony)

Test place Ise HQ EMC Lab.No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/17/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 23 deg. C / 35% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11g Tx 2412MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.782	QP	43.3	11.4	8.2	32.1	30.8	43.5	12.7	
Hori	323.968	QP	40.4	15.1	10.0	31.9	33.6	46.0	12.4	
Hori	576.010	QP	42.2	19.2	11.6	32.0	41.0	46.0	5.0	
Hori	607.521	QP	37.8	19.6	11.8	32.0	37.2	46.0	8.8	
Hori	810.023	QP	33.4	22.0	12.8	31.4	36.8	46.0	9.2	
Hori	901.150	QP	34.2	22.3	13.3	30.9	38.9	46.0	7.1	
Hori	2390.000	PK	59.8	27.0	2.4	34.7	54.5	73.9	19.4	
Hori	4824.000	PK	NS	-	-	-	-	73.9	-	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	NS	-	-	-	-	73.9	-	
Hori	2390.000	AV	50.6	27.0	2.4	34.7	45.3	53.9	8.6	
Hori	4824.000	AV	NS	-	-	-	-	53.9	-	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	NS	-	-	-	-	53.9	-	
Vert	33.041	QP	38.4	17.1	7.0	32.2	30.3	40.0	9.7	
Vert	106.734	QP	46.2	11.1	8.1	32.1	33.3	43.5	10.2	
Vert	576.006	QP	33.3	19.2	11.6	32.0	32.1	46.0	13.9	
Vert	607.520	QP	41.6	19.6	11.8	32.0	41.0	46.0	5.0	
Vert	810.026	QP	37.0	22.0	12.8	31.4	40.4	46.0	5.6	
Vert	901.154	QP	33.0	22.3	13.3	30.9	37.7	46.0	8.3	
Vert	2390.000	PK	59.9	27.0	2.4	34.7	54.6	73.9	19.3	
Vert	4824.000	PK	NS	-	-	-	-	73.9	-	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	NS	-	-	-	-	73.9	-	
Vert	2390.000	AV	49.8	27.0	2.4	34.7	44.5	53.9	9.4	
Vert	4824.000	AV	NS	-	-	-	-	53.9	-	
Vert	7236.000	AV	NS	-	-	-	-	53.9	-	
Vert	9648.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
**20dBc Data Sheet**  
(Power Supply: Chicony)

Test place : Ise HQ EMC Lab. No.2 Semi Anechoic Chamber  
Report No. : 10240264H  
Date : 03/17/2014  
Temperature/ Humidity : 23 deg. C / 35% RH  
Engineer : Kazuya Yoshioka  
Mode : 11g Tx 2412MHz Antenna 1

**20dBc Data Sheet**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2412.000	PK	95.4	27.0	2.4	34.7	90.1	-	-	Carrier
Hori	2400.000	PK	63.6	27.0	2.4	34.7	58.3	70.1	11.8	
Vert	2412.000	PK	98.2	27.0	2.4	34.7	92.9	-	-	Carrier
Vert	2400.000	PK	63.4	27.0	2.4	34.7	58.1	72.9	14.8	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

**Radiated Spurious Emission**  
(Power Supply: Chicony)

Test place Ise HQ EMC Lab. No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/17/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 23 deg. C / 35% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11g Tx 2437MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.778	QP	43.2	11.4	8.2	32.1	30.7	43.5	12.8	
Hori	323.996	QP	40.8	15.1	10.0	31.9	34.0	46.0	12.0	
Hori	576.004	QP	42.1	19.2	11.6	32.0	40.9	46.0	5.1	
Hori	607.511	QP	37.9	19.6	11.8	32.0	37.3	46.0	8.7	
Hori	810.022	QP	33.7	22.0	12.8	31.4	37.1	46.0	8.9	
Hori	901.156	QP	34.1	22.3	13.3	30.9	38.8	46.0	7.2	
Hori	4874.000	PK	NS	-	-	-	-	73.9	-	
Hori	7311.000	PK	NS	-	-	-	-	73.9	-	
Hori	9748.000	PK	NS	-	-	-	-	73.9	-	
Hori	4874.000	AV	NS	-	-	-	-	53.9	-	
Hori	7311.000	AV	NS	-	-	-	-	53.9	-	
Hori	9748.000	AV	NS	-	-	-	-	53.9	-	
Vert	33.161	QP	38.9	17.0	7.0	32.2	30.7	40.0	9.3	
Vert	106.740	QP	46.0	11.1	8.1	32.1	33.1	43.5	10.4	
Vert	576.006	QP	33.5	19.2	11.6	32.0	32.3	46.0	13.7	
Vert	607.511	QP	41.7	19.6	11.8	32.0	41.1	46.0	4.9	
Vert	810.038	QP	36.6	22.0	12.8	31.4	40.0	46.0	6.0	
Vert	901.164	QP	33.1	22.3	13.3	30.9	37.8	46.0	8.2	
Vert	4874.000	PK	NS	-	-	-	-	73.9	-	
Vert	7311.000	PK	NS	-	-	-	-	73.9	-	
Vert	9748.000	PK	NS	-	-	-	-	73.9	-	
Vert	4874.000	AV	NS	-	-	-	-	53.9	-	
Vert	7311.000	AV	NS	-	-	-	-	53.9	-	
Vert	9748.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.  
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

**Radiated Spurious Emission**  
(Power Supply: Chicony)

Test place Ise HQ EMC Lab.No.2 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/17/2014 03/18/2014 03/25/2014  
Temperature/ Humidity 23 deg. C / 35% RH 23 deg. C / 35% RH 23 deg. C / 40% RH  
Engineer Kazuya Yoshioka Kazuya Yoshioka Kazuya Yoshioka  
(1-10GHz) (10-26.5GHz) (30-1000MHz)  
Mode 11g Tx 2462MHz Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	108.788	QP	43.0	11.4	8.2	32.1	30.5	43.5	13.0	
Hori	323.984	QP	41.0	15.1	10.0	31.9	34.2	46.0	11.8	
Hori	576.003	QP	42.0	19.2	11.6	32.0	40.8	46.0	5.2	
Hori	607.515	QP	37.8	19.6	11.8	32.0	37.2	46.0	8.8	
Hori	810.025	QP	33.7	22.0	12.8	31.4	37.1	46.0	8.9	
Hori	901.167	QP	34.3	22.3	13.3	30.9	39.0	46.0	7.0	
Hori	2483.500	PK	56.4	26.9	2.5	34.7	51.1	73.9	22.8	
Hori	4924.000	PK	NS	-	-	-	-	73.9	-	
Hori	7386.000	PK	NS	-	-	-	-	73.9	-	
Hori	9848.000	PK	NS	-	-	-	-	73.9	-	
Hori	2483.500	AV	44.5	26.9	2.5	34.7	39.2	53.9	14.7	
Hori	4924.000	AV	NS	-	-	-	-	53.9	-	
Hori	7386.000	AV	NS	-	-	-	-	53.9	-	
Hori	9848.000	AV	NS	-	-	-	-	53.9	-	
Vert	31.841	QP	38.2	17.6	7.0	32.2	30.6	40.0	9.4	
Vert	106.736	QP	45.9	11.1	8.1	32.1	33.0	43.5	10.5	
Vert	576.004	QP	33.7	19.2	11.6	32.0	32.5	46.0	13.5	
Vert	607.510	QP	41.7	19.6	11.8	32.0	41.1	46.0	4.9	
Vert	810.024	QP	37.0	22.0	12.8	31.4	40.4	46.0	5.6	
Vert	901.174	QP	33.0	22.3	13.3	30.9	37.7	46.0	8.3	
Vert	2483.500	PK	62.6	26.9	2.5	34.7	57.3	73.9	16.6	
Vert	4924.000	PK	NS	-	-	-	-	73.9	-	
Vert	7386.000	PK	NS	-	-	-	-	73.9	-	
Vert	9848.000	PK	NS	-	-	-	-	73.9	-	
Vert	2483.500	AV	50.9	26.9	2.5	34.7	45.6	53.9	8.3	
Vert	4924.000	AV	NS	-	-	-	-	53.9	-	
Vert	7386.000	AV	NS	-	-	-	-	53.9	-	
Vert	9848.000	AV	NS	-	-	-	-	53.9	-	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

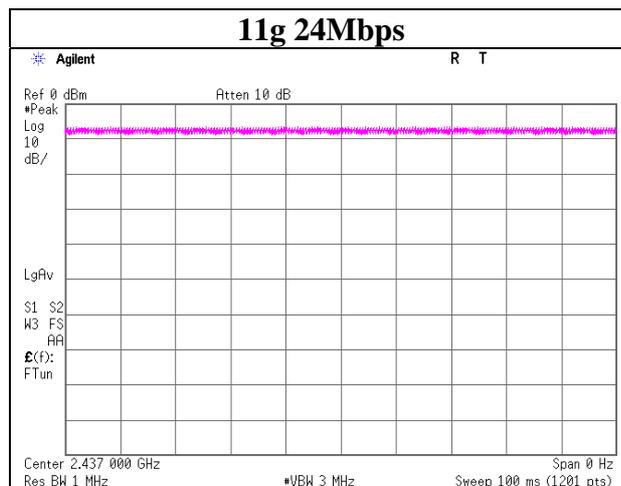
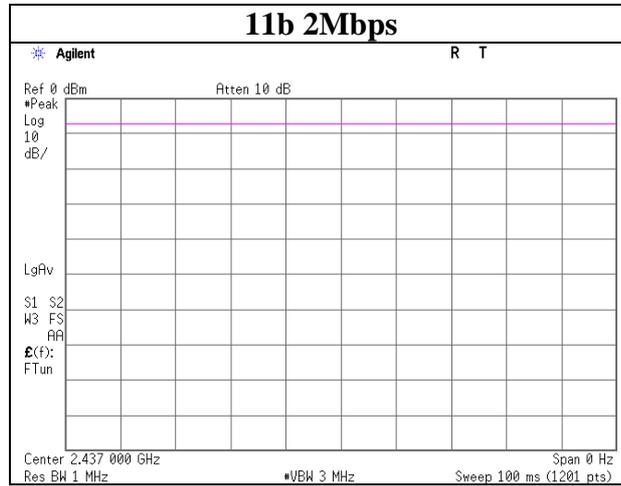
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

### Burst rate confirmation

Test place	Ise HQ EMC Lab. No.3Semi Anechoic Chamber
Report No.	10240264H
Date	03/13/2014
Temperature/ Humidity	24 deg. C / 33% RH
Engineer	Kazuya Yoshioka
Mode	11b Tx, 11g Tx



## APPENDIX 2: Test instruments

### EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE/CE	2014/02/27 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	1301	RE/CE	2014/02/20 * 12
MJM-16	Measure	KOMELON	KMC-36	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2013/05/17 * 12
MCC-133	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336164/4(1m) / 340640(5m)	RE	2013/09/27 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2014/03/24 * 12
MHF-25	High Pass Filter 3.5-18.0GHz	UL Japan	HPF SELECTOR	001	RE/CE	2013/09/01 * 12
MRENT-114	Spectrum Analyzer	Agilent	E4440A	MY46187105	RE	2013/11/11 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2013/06/30 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2014/02/20 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
MSA-13	Spectrum Analyzer	Agilent	E4440A	MY46185823	RE	2013/06/14 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2014/02/21 * 12
MCC-166	Microwave Cable	Junkosha	MWX221	1303S120(1m) / 1311S167(5m)	RE	2013/11/27 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2014/01/21 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2013/05/30 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2013/05/17 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE/CE	2013/08/20 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2013/10/13 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2013/10/13 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2013/07/23 * 12
MAT-70	Attenuator(6dB)	Agilent	8491A-006	MY52460153	RE	2013/04/05 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2014/03/14 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(AE)	2014/01/27 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	8127364	CE(EUT)	2014/01/27 * 12
MTA-31	Terminator	TME	CT-01	-	CE	2014/01/20 * 12
MCC-112	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/SFM141(3m)/sucoform141-PE(1m)/421-010(1.5m)/RFM-E321(Switcher)	-/00640	CE	2013/07/23 * 12
MAT-66	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2014/01/29 * 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, RE: Radiated Emission

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