



# RADIO TEST REPORT

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

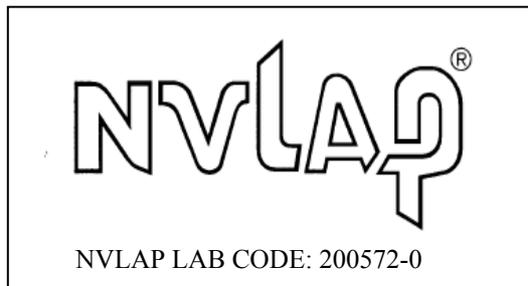
**Applicant** : Sony Computer Entertainment Inc.  
**Type of Equipment** : Computer Entertainment System  
**Model No.** : CECH-4301x  
**FCC ID** : AK8CBEH19C1  
**Test regulation** : FCC Part 15 Subpart C: 2014 (WLAN Part)  
**Class II Permissive Change**  
**\*Conducted emission and Radiated spurious 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 11 to 28, 2014

**Representative test engineer:** T. Shimada  
Takumi Shimada  
Engineer  
Consumer Technology Division

**Approved by:** M. Nishiyama  
Masanori Nishiyama  
Manager  
Consumer Technology Division



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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## **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	0260001 (Power Supply: SONY) 0260004 (Power Supply: DELTA) 0260006 (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.

Details of model name CECH-4301x:

“x” will be replaced by an alphabet denoting the different capacity of storage.

The difference of the capacity of storage does not influence on radio specification.

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

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**UL Japan, Inc.**

**Ise HQ EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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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 7.0dB, 0.15001MHz, N	Complied	-
	IC: RSS-Gen 7.2.4	IC: RSS-Gen 7.2.4	AV 12.6dB, 0.20167MHz, N		
Spurious Emission Restricted Band Edges	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247"	FCC: Section15.247(d)	3.1dB 9848.000MHz, Vertical, AV	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.

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### 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

UL Japan, Inc. Ise HQ EMC Lab. \*NVLAP Lab. code: 200572-0  
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
Telephone : +81 596 24 8999 Facsimile : +81 596 24 8124

	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)**

Mode	Remarks*
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.	

Test Item	Operating Mode	Tested antenna	Tested frequency
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 CISPR 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)

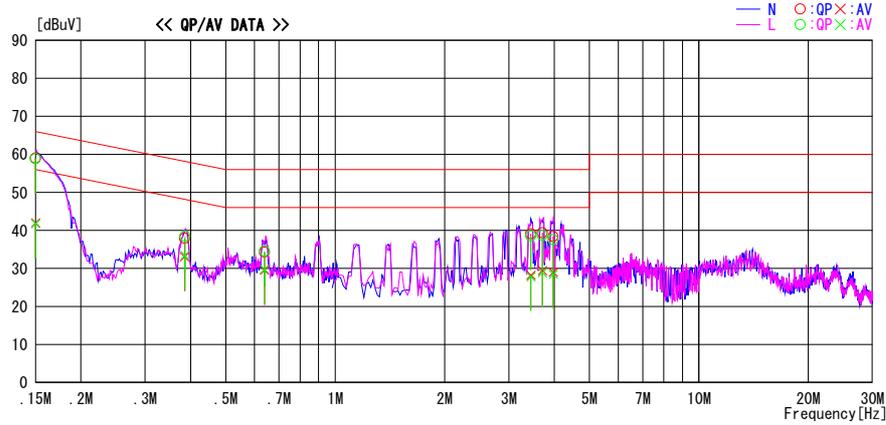
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2014/03/28

Report No. : 10240264H  
Temp./Humi. : 20deg. C / 47% RH  
Engineer : Keisuke Kawamura

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

LIMIT : FCC15.207 QP  
FCC15.207 AV

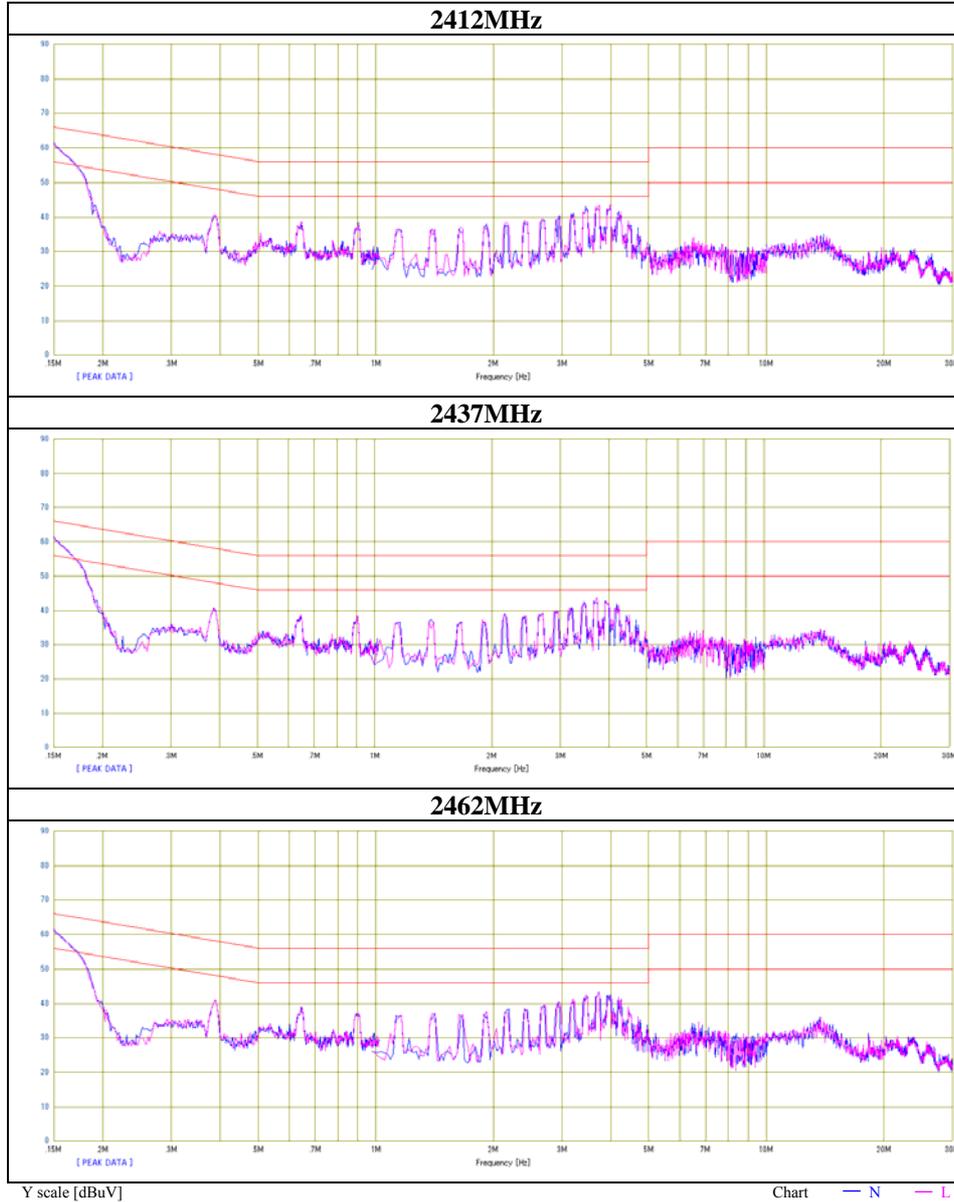


Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15001	45.9	28.9	13.1	59.0	42.0	66.0	56.0	7.0	14.0	N	
0.38537	24.8	20.0	13.1	37.9	33.1	58.2	48.2	20.3	15.1	N	
0.63894	21.2	16.4	13.1	34.3	29.5	56.0	46.0	21.7	16.5	N	
3.45276	25.7	14.8	13.4	39.1	28.2	56.0	46.0	16.9	17.8	N	
3.71323	26.0	16.0	13.4	39.4	29.4	56.0	46.0	16.6	16.6	N	
3.97397	25.0	15.6	13.4	38.4	29.0	56.0	46.0	17.6	17.0	N	
0.15001	45.7	28.7	13.1	58.8	41.8	66.0	56.0	7.2	14.2	L	
0.38613	25.4	20.3	13.1	38.5	33.4	58.1	48.1	19.6	14.7	L	
0.63914	21.5	16.7	13.1	34.6	29.8	56.0	46.0	21.4	16.2	L	
3.45198	25.2	14.4	13.4	38.6	27.8	56.0	46.0	17.4	18.2	L	
3.71421	25.3	15.5	13.4	38.7	28.9	56.0	46.0	17.3	17.1	L	
3.97397	24.2	15.0	13.4	37.6	28.4	56.0	46.0	18.4	17.6	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.1 Semi Anechoic Chamber
Report No.	10240264H
Date	03/27/2014
Temperature/ Humidity	20 deg. C / 47% RH
Engineer	Keisuke Kawamura
Mode	11b Tx, Antenna 1



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

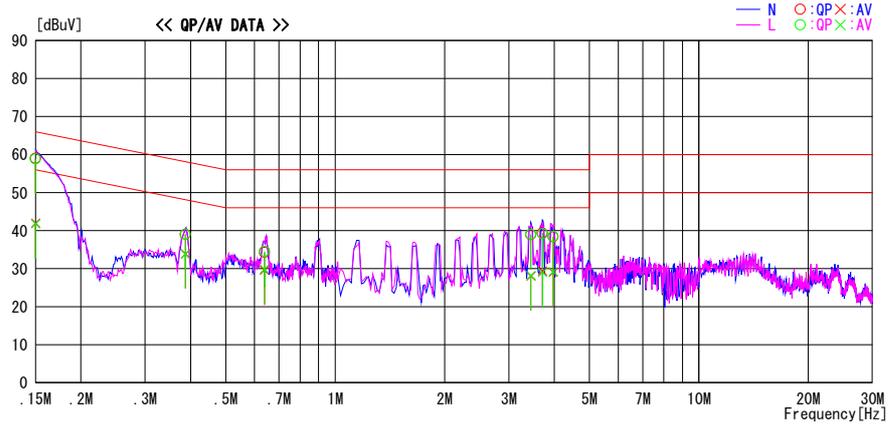
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2014/03/28

Report No. : 10240264H  
Temp./Humi. : 20deg. C / 47% RH  
Engineer : Keisuke Kawamura

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

LIMIT : FCC15.207 QP  
FCC15.207 AV

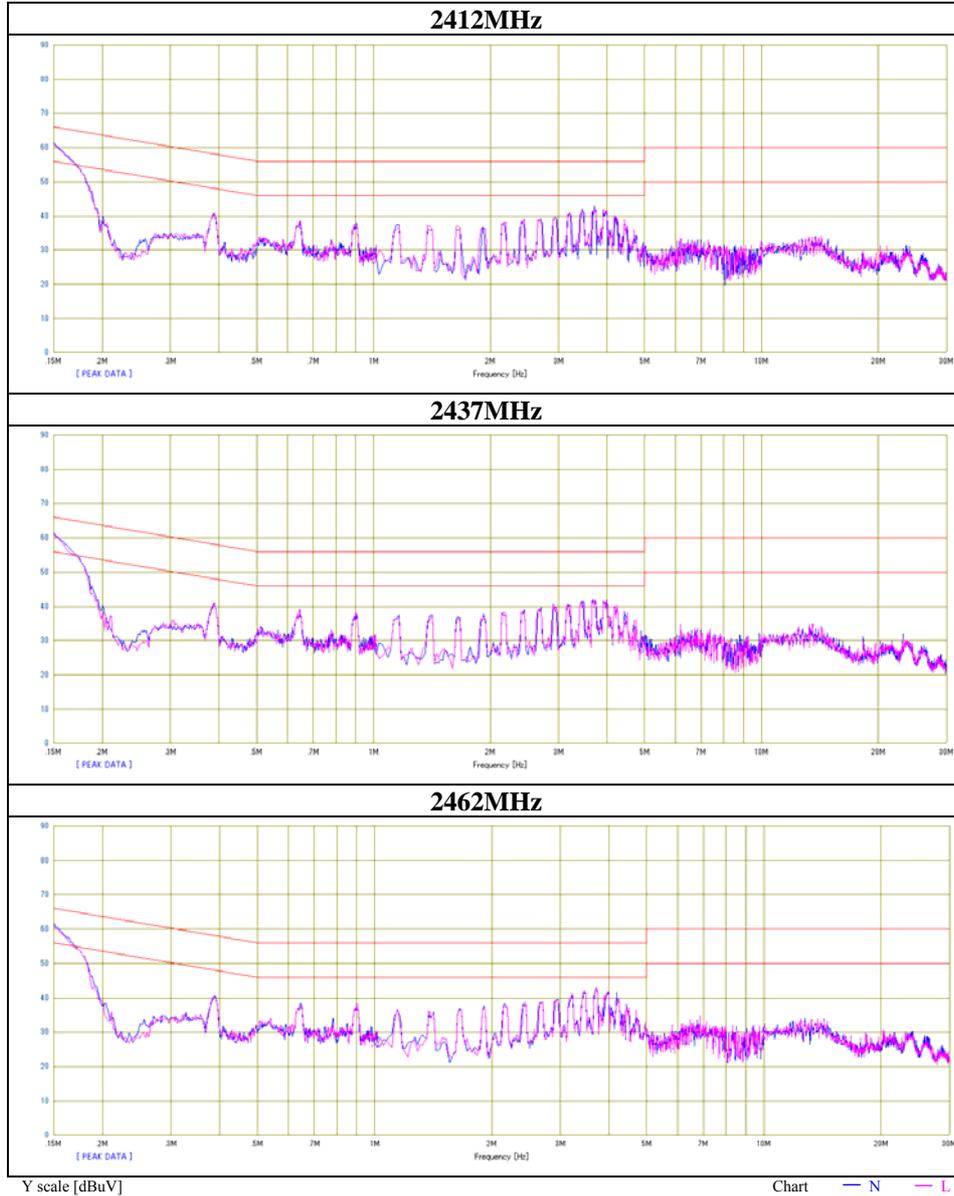


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15001	45.9	28.9	13.1	59.0	42.0	66.0	56.0	7.0	14.0	N	
0.38748	25.9	20.8	13.1	39.0	33.9	58.1	48.1	19.1	14.2	N	
0.63859	21.2	16.5	13.1	34.3	29.6	56.0	46.0	21.7	16.4	N	
3.45198	25.5	14.7	13.4	38.9	28.1	56.0	46.0	17.1	17.9	N	
3.71316	26.0	16.0	13.4	39.4	29.4	56.0	46.0	16.6	16.6	N	
3.97469	25.0	15.7	13.4	38.4	29.1	56.0	46.0	17.6	16.9	N	
0.15001	45.7	28.7	13.1	58.8	41.8	66.0	56.0	7.2	14.2	L	
0.38728	25.9	20.7	13.1	39.0	33.8	58.1	48.1	19.1	14.3	L	
0.63874	21.5	16.8	13.1	34.6	29.9	56.0	46.0	21.4	16.1	L	
3.45198	25.6	14.8	13.4	39.0	28.2	56.0	46.0	17.0	17.8	L	
3.71559	25.8	15.6	13.4	39.2	29.0	56.0	46.0	16.8	17.0	L	
3.97471	25.1	15.8	13.4	38.5	29.2	56.0	46.0	17.5	16.8	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.1 Semi Anechoic Chamber
Report No.	10240264H
Date	03/27/2014
Temperature/ Humidity	20 deg. C / 47% RH
Engineer	Keisuke Kawamura
Mode	11g Tx, Antenna 1



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

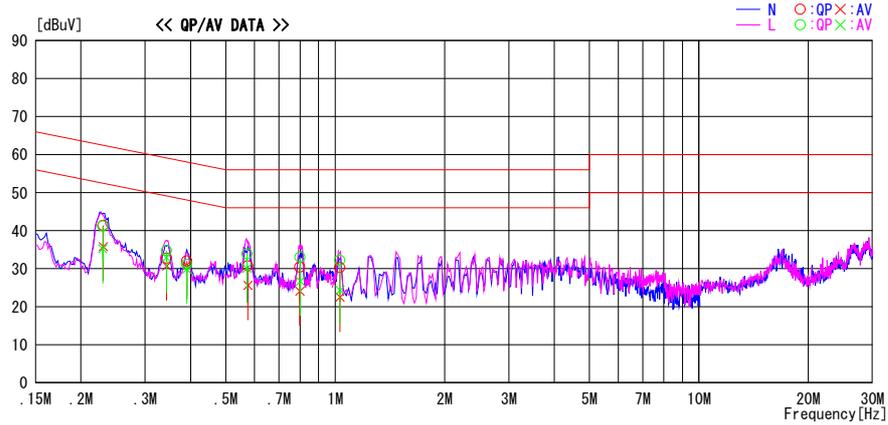
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2014/03/27

Report No. : 10240264H  
Temp./Humi. : 20deg. C / 47% RH  
Engineer : Keisuke Kawamura

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

LIMIT : FCC15.207 QP  
FCC15.207 AV

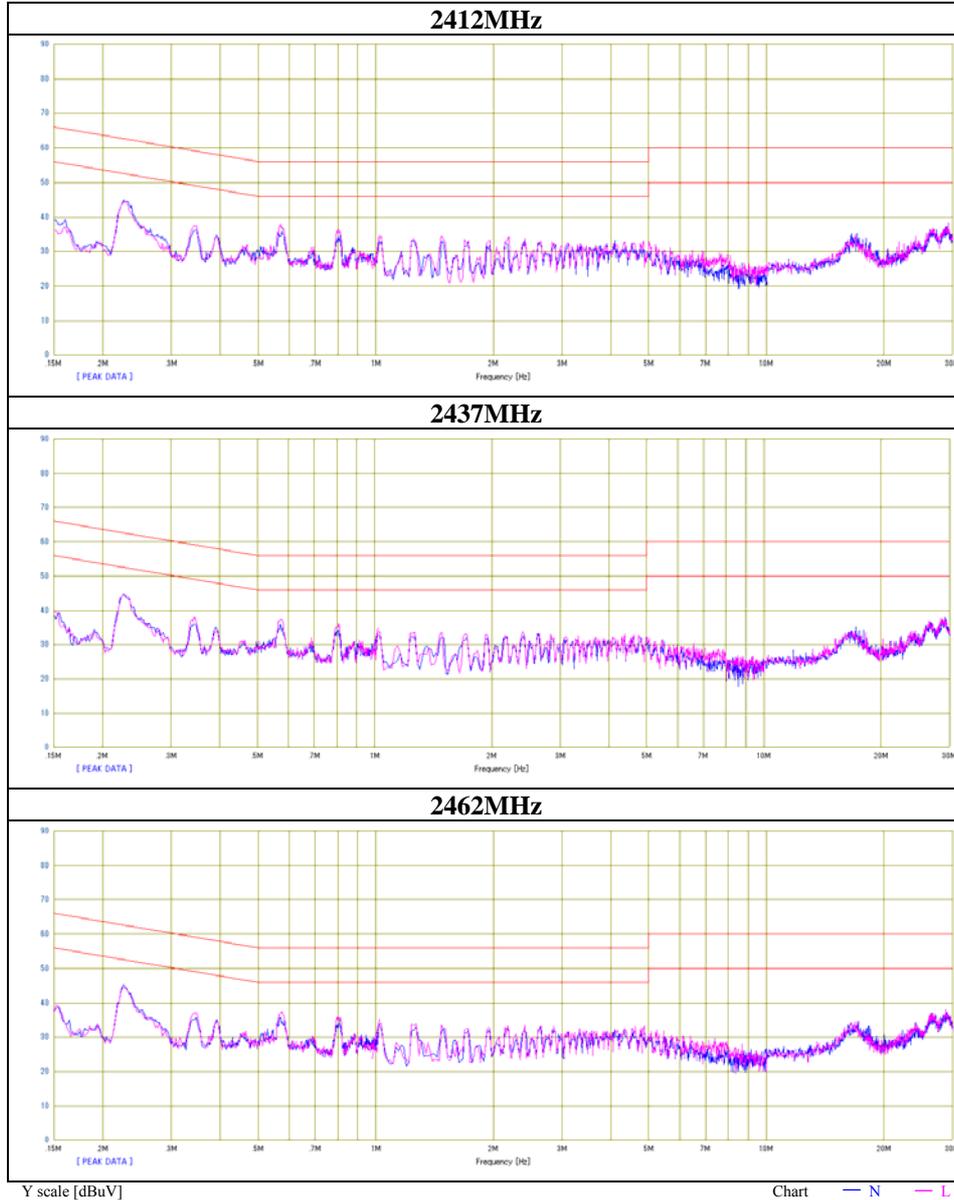


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.23021	28.3	22.7	13.1	41.4	35.8	62.4	52.4	21.0	16.6	N	
0.34391	19.6	17.6	13.1	32.7	30.7	59.1	49.1	26.4	18.4	N	
0.39061	18.9	17.9	13.1	32.0	31.0	58.1	48.1	26.1	17.1	N	
0.57541	17.6	12.5	13.1	30.7	25.6	56.0	46.0	25.3	20.4	N	
0.79931	17.2	10.9	13.2	30.4	24.1	56.0	46.0	25.6	21.9	N	
1.02999	17.1	9.3	13.2	30.3	22.5	56.0	46.0	25.7	23.5	N	
0.22951	28.1	22.1	13.1	41.2	35.2	62.5	52.5	21.3	17.3	L	
0.34379	21.6	19.8	13.1	34.7	32.9	59.1	49.1	24.4	16.2	L	
0.39062	18.0	16.8	13.1	31.1	29.9	58.1	48.1	27.0	18.2	L	
0.57224	20.8	17.0	13.1	33.9	30.1	56.0	46.0	22.1	15.9	L	
0.80075	19.8	13.5	13.2	33.0	26.7	56.0	46.0	23.0	19.3	L	
1.02999	19.0	11.1	13.2	32.2	24.3	56.0	46.0	23.8	21.7	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.1 Semi Anechoic Chamber
Report No.	10240264H
Date	03/27/2014
Temperature/ Humidity	20 deg. C / 47% RH
Engineer	Keisuke Kawamura
Mode	11b Tx, Antenna 1



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

**DATA OF CONDUCTED EMISSION TEST**

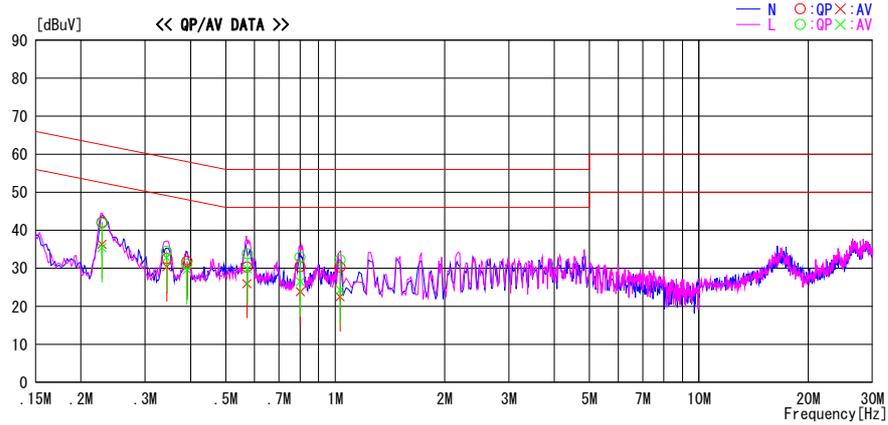
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2014/03/27

Report No. : 10240264H

Temp./Humi. : 20deg. C / 47% RH  
Engineer : Keisuke Kawamura

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

LIMIT : FCC15.207 QP  
FCC15.207 AV

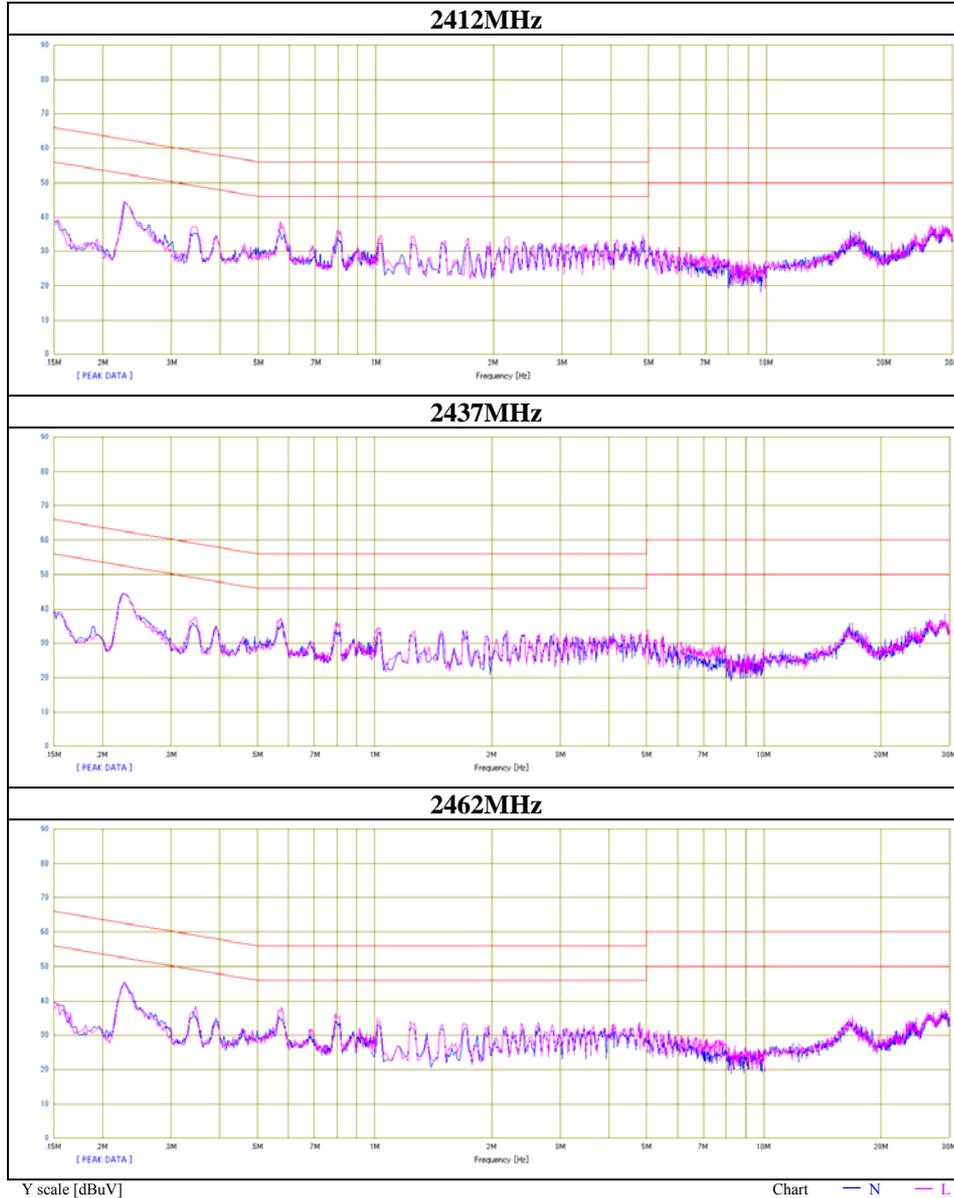


Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.22846	29.0	23.2	13.1	42.1	36.3	62.5	52.5	20.4	16.2	N	
0.34431	19.5	17.3	13.1	32.6	30.4	59.1	49.1	26.5	18.7	N	
0.39131	18.7	17.6	13.1	31.8	30.7	58.0	48.0	26.2	17.3	N	
0.57193	17.2	12.9	13.1	30.3	26.0	56.0	46.0	25.7	20.0	N	
0.80069	17.2	10.7	13.2	30.4	23.9	56.0	46.0	25.6	22.1	N	
1.03152	17.1	9.3	13.2	30.3	22.5	56.0	46.0	25.7	23.5	N	
0.22846	28.7	22.3	13.1	41.8	35.4	62.5	52.5	20.7	17.1	L	
0.34363	21.4	19.7	13.1	34.5	32.8	59.1	49.1	24.6	16.3	L	
0.39118	17.9	16.5	13.1	31.0	29.6	58.0	48.0	27.0	18.4	L	
0.57325	20.7	16.8	13.1	33.8	29.9	56.0	46.0	22.2	16.1	L	
0.80101	19.7	13.3	13.2	32.9	26.5	56.0	46.0	23.1	19.5	L	
1.03152	19.0	11.1	13.2	32.2	24.3	56.0	46.0	23.8	21.7	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.1 Semi Anechoic Chamber
Report No.	10240264H
Date	03/27/2014
Temperature/ Humidity	20 deg. C / 47% RH
Engineer	Keisuke Kawamura
Mode	11g Tx, Antenna 1



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

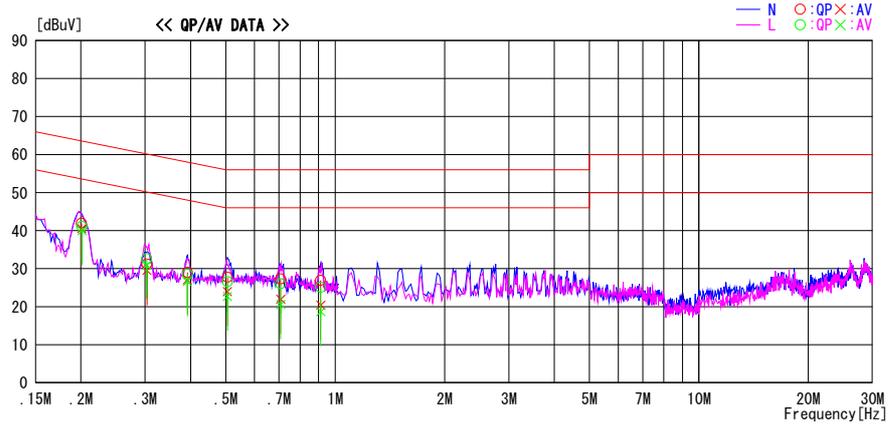
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2014/03/27

Report No. : 10240264H  
Temp./Humi. : 20deg. C / 47% RH  
Engineer : Keisuke Kawamura

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

LIMIT : FCC15.207 QP  
FCC15.207 AV

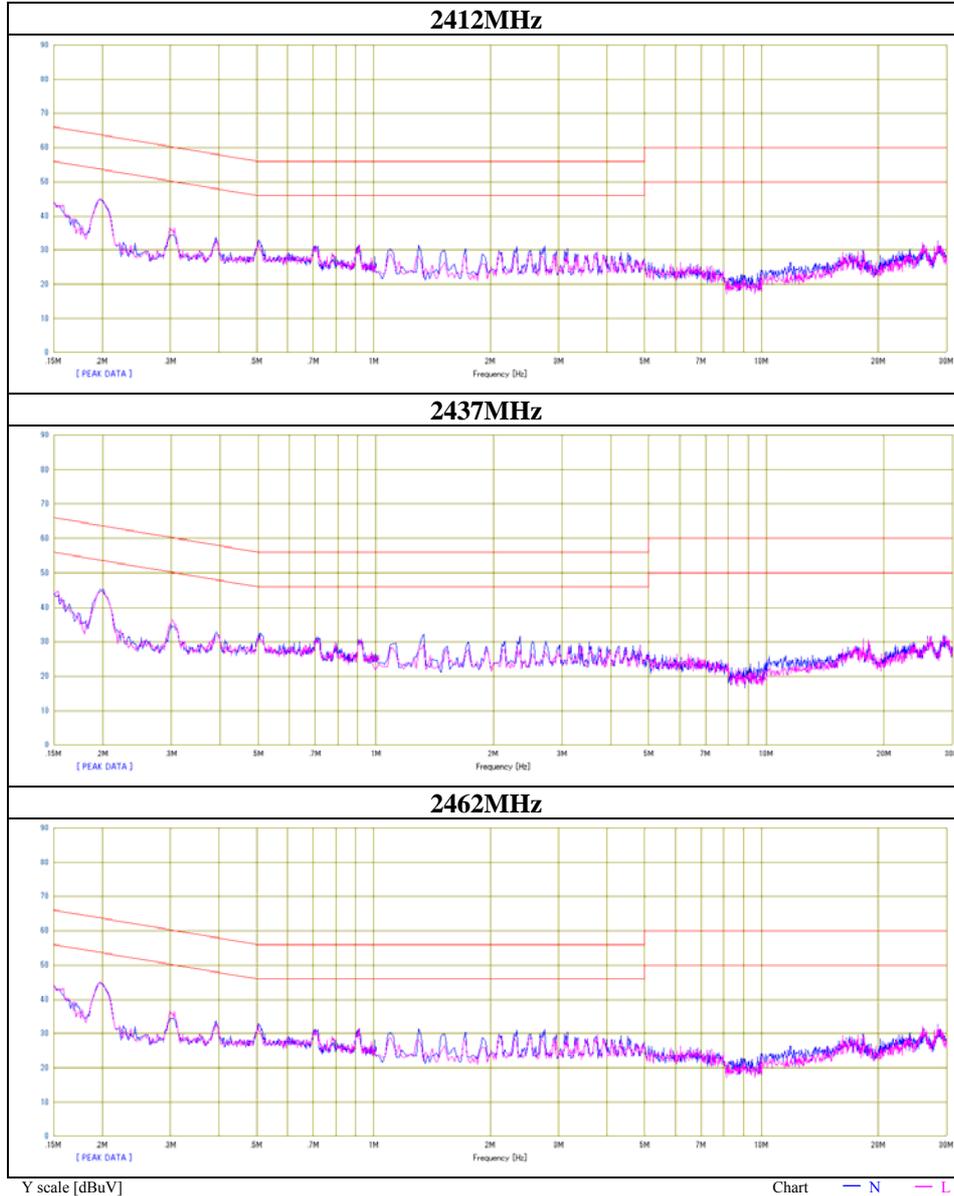


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.20083	28.8	27.4	13.1	41.9	40.5	63.6	53.6	21.7	13.1	N	
0.30354	18.1	16.4	13.1	31.2	29.5	60.1	50.1	28.9	20.6	N	
0.39235	15.9	14.0	13.1	29.0	27.1	58.0	48.0	29.0	20.9	N	
0.50567	14.6	10.9	13.1	27.7	24.0	56.0	46.0	28.3	22.0	N	
0.70792	14.1	8.8	13.2	27.3	22.0	56.0	46.0	28.7	24.0	N	
0.91191	13.7	7.2	13.2	26.9	20.4	56.0	46.0	29.1	25.6	N	
0.20112	28.0	26.9	13.1	41.1	40.0	63.6	53.6	22.5	13.6	L	
0.30337	19.5	17.9	13.1	32.6	31.0	60.1	50.1	27.5	19.1	L	
0.39235	15.5	13.5	13.1	28.6	26.6	58.0	48.0	29.4	21.4	L	
0.50531	13.5	9.6	13.1	26.6	22.7	56.0	46.0	29.4	23.3	L	
0.70779	12.8	7.4	13.2	26.0	20.6	56.0	46.0	30.0	25.4	L	
0.91191	11.9	5.5	13.2	25.1	18.7	56.0	46.0	30.9	27.3	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.1 Semi Anechoic Chamber
Report No.	10240264H
Date	03/27/2014
Temperature/ Humidity	20 deg. C / 47% RH
Engineer	Keisuke Kawamura
Mode	11b Tx, Antenna 1



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

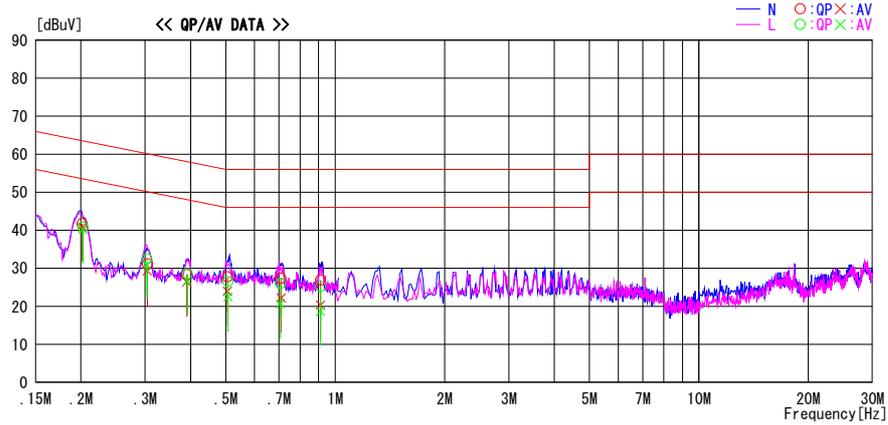
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2014/03/27

Report No. : 10240264H  
Temp./Humi. : 20deg. C / 47% RH  
Engineer : Keisuke Kawamura

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

LIMIT : FCC15.207 QP  
FCC15.207 AV

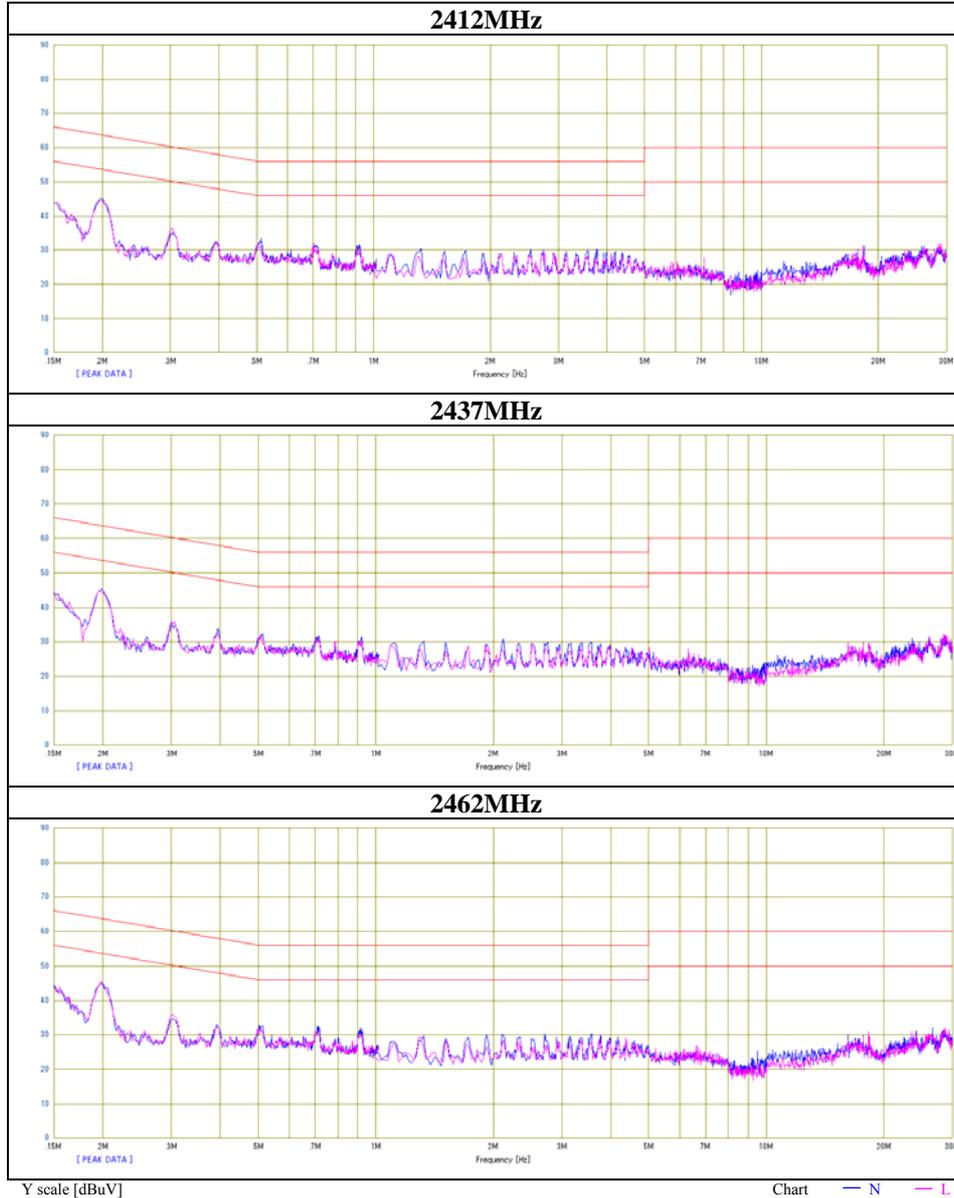


Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.20167	28.6	27.8	13.1	41.7	40.9	63.5	53.5	21.8	12.6	N	
0.30431	18.1	16.2	13.1	31.2	29.3	60.1	50.1	28.9	20.8	N	
0.39061	15.3	13.3	13.1	28.4	26.4	58.1	48.1	29.7	21.7	N	
0.50567	14.6	10.9	13.1	27.7	24.0	56.0	46.0	28.3	22.0	N	
0.70924	14.2	9.0	13.2	27.4	22.2	56.0	46.0	28.6	23.8	N	
0.91105	13.7	7.1	13.2	26.9	20.3	56.0	46.0	29.1	25.7	N	
0.20231	27.7	27.2	13.1	40.8	40.3	63.5	53.5	22.7	13.2	L	
0.30378	19.4	17.8	13.1	32.5	30.9	60.1	50.1	27.6	19.2	L	
0.39235	15.5	13.6	13.1	28.6	26.7	58.0	48.0	29.4	21.3	L	
0.50731	13.4	9.4	13.1	26.5	22.5	56.0	46.0	29.5	23.5	L	
0.70722	12.8	7.5	13.2	26.0	20.7	56.0	46.0	30.0	25.3	L	
0.91105	12.0	5.5	13.2	25.2	18.7	56.0	46.0	30.8	27.3	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.1 Semi Anechoic Chamber
Report No.	10240264H
Date	03/27/2014
Temperature/ Humidity	20 deg. C / 47% 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 03/12/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 24 deg. C / 33% RH 23 deg. C / 35% RH 23 deg. C / 35% 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	63.711	QP	39.5	7.3	7.1	28.5	25.4	40.0	14.6	
Hori	108.785	QP	37.2	11.3	7.5	28.4	27.6	43.5	15.9	
Hori	177.028	QP	34.4	16.0	8.0	28.0	30.4	43.5	13.1	
Hori	323.996	QP	40.6	15.0	8.8	27.8	36.6	46.0	9.4	
Hori	576.004	QP	36.2	19.2	9.8	28.8	36.4	46.0	9.6	
Hori	901.169	QP	32.2	22.2	11.1	27.9	37.6	46.0	8.4	
Hori	2390.000	PK	44.5	28.2	3.1	32.4	43.4	73.9	30.5	
Hori	4824.000	PK	42.2	30.5	5.3	31.4	46.6	73.9	27.3	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	43.4	39.1	7.3	33.0	56.8	73.9	17.1	
Hori	2390.000	AV	36.4	28.2	3.1	32.4	35.3	53.9	18.7	
Hori	4824.000	AV	34.5	30.5	5.3	31.4	38.9	53.9	15.0	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	34.8	39.1	7.3	33.0	48.2	53.9	5.8	
Vert	43.731	QP	36.3	13.2	6.9	28.6	27.8	40.0	12.2	
Vert	106.756	QP	43.2	11.0	7.5	28.4	33.3	43.5	10.2	
Vert	209.099	QP	33.7	16.7	8.2	27.8	30.8	43.5	12.7	
Vert	405.007	QP	34.4	17.3	9.1	28.3	32.5	46.0	13.5	
Vert	576.011	QP	32.8	19.2	9.8	28.8	33.0	46.0	13.0	
Vert	901.157	QP	31.1	22.2	11.1	27.9	36.5	46.0	9.5	
Vert	2390.000	PK	46.9	28.2	3.1	32.4	45.8	73.9	28.1	
Vert	4824.000	PK	41.3	30.5	5.3	31.4	45.7	73.9	28.3	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	43.2	39.1	7.3	33.0	56.6	73.9	17.3	
Vert	2390.000	AV	39.0	28.2	3.1	32.4	37.9	53.9	16.0	
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	35.8	39.1	7.3	33.0	49.2	53.9	4.7	

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&No.2 Semi Anechoic Chamber  
Report No. : 10240264H  
Date : 03/12/2014  
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	92.8	28.2	3.1	32.4	91.7	-	-	Carrier
Hori	2400.000	PK	44.9	28.2	3.1	32.4	43.8	71.7	27.9	
Vert	2412.000	PK	96.9	28.2	3.1	32.4	95.8	-	-	Carrier
Vert	2400.000	PK	50.9	28.2	3.1	32.4	49.8	75.8	26.0	

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 03/12/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 24 deg. C / 33% RH 23 deg. C / 35% RH 23 deg. C / 35% 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	62.400	QP	39.2	7.5	7.1	28.5	25.3	40.0	14.7	
Hori	111.255	QP	37.0	11.7	7.5	28.4	27.8	43.5	15.7	
Hori	177.149	QP	34.5	16.0	8.0	28.0	30.5	43.5	13.0	
Hori	323.788	QP	40.5	15.0	8.8	27.8	36.5	46.0	9.5	
Hori	576.003	QP	36.3	19.2	9.8	28.8	36.5	46.0	9.5	
Hori	900.838	QP	32.0	22.2	11.1	27.9	37.4	46.0	8.6	
Hori	4874.000	PK	41.9	30.6	5.3	31.4	46.4	73.9	27.5	
Hori	7311.000	PK	NS	-	-	-	-	73.9	-	
Hori	9748.000	PK	42.5	39.4	7.3	33.0	56.2	73.9	17.7	
Hori	4874.000	AV	34.7	30.6	5.3	31.4	39.2	53.9	14.7	
Hori	7311.000	AV	NS	-	-	-	-	53.9	-	
Hori	9748.000	AV	34.7	39.4	7.3	33.0	48.4	53.9	5.5	
Vert	39.450	QP	35.1	14.8	6.8	28.6	28.1	40.0	11.9	
Vert	107.001	QP	42.5	11.1	7.5	28.4	32.7	43.5	10.8	
Vert	206.849	QP	33.3	16.7	8.2	27.8	30.4	43.5	13.1	
Vert	323.994	QP	36.5	15.0	8.8	27.8	32.5	46.0	13.5	
Vert	576.005	QP	32.6	19.2	9.8	28.8	32.8	46.0	13.2	
Vert	900.838	QP	30.2	22.2	11.1	27.9	35.6	46.0	10.4	
Vert	4874.000	PK	41.2	30.6	5.3	31.4	45.7	73.9	28.2	
Vert	7311.000	PK	NS	-	-	-	-	73.9	-	
Vert	9748.000	PK	43.7	39.4	7.3	33.0	57.4	73.9	16.5	
Vert	4874.000	AV	33.6	30.6	5.3	31.4	38.1	53.9	15.8	
Vert	7311.000	AV	NS	-	-	-	-	53.9	-	
Vert	9748.000	AV	36.4	39.4	7.3	33.0	50.1	53.9	3.8	

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 03/12/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 24 deg. C / 33% RH 23 deg. C / 35% RH 23 deg. C / 35% 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	62.772	QP	38.5	7.5	7.1	28.5	24.6	40.0	15.4	
Hori	108.971	QP	37.0	11.4	7.5	28.4	27.5	43.5	16.0	
Hori	177.149	QP	33.7	16.0	8.0	28.0	29.7	43.5	13.8	
Hori	323.994	QP	40.8	15.0	8.8	27.8	36.8	46.0	9.2	
Hori	576.035	QP	36.3	19.2	9.8	28.8	36.5	46.0	9.5	
Hori	901.166	QP	32.2	22.2	11.1	27.9	37.6	46.0	8.4	
Hori	2483.500	PK	46.3	28.4	3.1	32.3	45.5	73.9	28.4	
Hori	4924.000	PK	41.5	30.7	5.3	31.4	46.1	73.9	27.8	
Hori	7386.000	PK	NS	-	-	-	-	73.9	-	
Hori	9848.000	PK	42.0	39.6	7.4	33.1	55.9	73.9	18.0	
Hori	2483.500	AV	38.2	28.4	3.1	32.3	37.4	53.9	16.5	
Hori	4924.000	AV	33.3	30.7	5.3	31.4	37.9	53.9	16.0	
Hori	7386.000	AV	NS	-	-	-	-	53.9	-	
Hori	9848.000	AV	34.4	39.6	7.4	33.1	48.3	53.9	5.6	
Vert	43.921	QP	35.7	13.2	6.9	28.6	27.2	40.0	12.8	
Vert	106.755	QP	42.9	11.0	7.5	28.4	33.0	43.5	10.5	
Vert	209.703	QP	33.1	16.7	8.2	27.8	30.2	43.5	13.3	
Vert	323.995	QP	36.5	15.0	8.8	27.8	32.5	46.0	13.5	
Vert	576.010	QP	32.5	19.2	9.8	28.8	32.7	46.0	13.3	
Vert	901.166	QP	31.2	22.2	11.1	27.9	36.6	46.0	9.4	
Vert	2483.500	PK	49.9	28.4	3.1	32.3	49.1	73.9	24.8	
Vert	4924.000	PK	40.7	30.7	5.3	31.4	45.3	73.9	28.6	
Vert	7386.000	PK	NS	-	-	-	-	73.9	-	
Vert	9848.000	PK	43.6	39.6	7.4	33.1	57.5	73.9	16.4	
Vert	2483.500	AV	41.8	28.4	3.1	32.3	41.0	53.9	12.9	
Vert	4924.000	AV	33.0	30.7	5.3	31.4	37.6	53.9	16.3	
Vert	7386.000	AV	NS	-	-	-	-	53.9	-	
Vert	9848.000	AV	35.8	39.6	7.4	33.1	49.7	53.9	4.2	

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 03/12/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 24 deg. C / 33% RH 23 deg. C / 35% RH 23 deg. C / 35% 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	63.611	QP	38.0	7.3	7.1	28.5	23.9	40.0	16.1	
Hori	108.779	QP	37.3	11.3	7.5	28.4	27.7	43.5	15.8	
Hori	177.022	QP	33.6	16.0	8.0	28.0	29.6	43.5	13.9	
Hori	323.996	QP	40.6	15.0	8.8	27.8	36.6	46.0	9.4	
Hori	576.311	QP	36.1	19.2	9.8	28.8	36.3	46.0	9.7	
Hori	901.005	QP	32.3	22.2	11.1	27.9	37.7	46.0	8.3	
Hori	2390.000	PK	57.0	28.2	3.1	32.4	55.9	73.9	18.0	
Hori	4824.000	PK	42.2	30.5	5.3	31.4	46.6	73.9	27.3	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	43.3	39.1	7.3	33.0	56.7	73.9	17.2	
Hori	2390.000	AV	41.7	28.2	3.1	32.4	40.6	53.9	13.3	
Hori	4824.000	AV	33.4	30.5	5.3	31.4	37.8	53.9	16.2	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	35.1	39.1	7.3	33.0	48.5	53.9	5.4	
Vert	44.161	QP	35.8	13.1	6.9	28.6	27.2	40.0	12.8	
Vert	106.763	QP	43.1	11.0	7.5	28.4	33.2	43.5	10.3	
Vert	209.059	QP	33.8	16.7	8.2	27.8	30.9	43.5	12.6	
Vert	405.012	QP	34.1	17.3	9.1	28.3	32.2	46.0	13.8	
Vert	576.022	QP	32.1	19.2	9.8	28.8	32.3	46.0	13.7	
Vert	901.102	QP	31.0	22.2	11.1	27.9	36.4	46.0	9.6	
Vert	2390.000	PK	56.4	28.2	3.1	32.4	55.3	73.9	18.7	
Vert	4824.000	PK	41.2	30.5	5.3	31.4	45.6	73.9	28.3	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	44.0	39.1	7.3	33.0	57.4	73.9	16.6	
Vert	2390.000	AV	42.7	28.2	3.1	32.4	41.6	53.9	12.3	
Vert	4824.000	AV	33.2	30.5	5.3	31.4	37.6	53.9	16.3	
Vert	7236.000	AV	NS	-	-	-	-	53.9	-	
Vert	9648.000	AV	35.6	39.1	7.3	33.0	49.0	53.9	4.9	

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 : 03/12/2014  
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	93.7	28.2	3.1	32.4	92.6	-	-	Carrier
Hori	2400.000	PK	62.1	28.2	3.1	32.4	61.0	72.6	11.6	
Vert	2412.000	PK	95.8	28.2	3.1	32.4	94.7	-	-	Carrier
Vert	2400.000	PK	60.9	28.2	3.1	32.4	59.8	74.7	14.9	

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 03/12/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 24 deg. C / 33% RH 23 deg. C / 35% RH 23 deg. C / 35% 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	62.959	QP	37.6	7.4	7.1	28.5	23.6	40.0	16.4	
Hori	108.712	QP	37.5	11.3	7.5	28.4	27.9	43.5	15.6	
Hori	177.048	QP	33.5	16.0	8.0	28.0	29.5	43.5	14.0	
Hori	323.997	QP	40.7	15.0	8.8	27.8	36.7	46.0	9.3	
Hori	576.025	QP	36.2	19.2	9.8	28.8	36.4	46.0	9.6	
Hori	901.161	QP	32.2	22.2	11.1	27.9	37.6	46.0	8.4	
Hori	2483.500	PK	51.4	28.4	3.1	32.3	50.6	73.9	23.3	
Hori	4924.000	PK	40.8	30.7	5.3	31.4	45.4	73.9	28.5	
Hori	7386.000	PK	NS	-	-	-	-	73.9	-	
Hori	9848.000	PK	42.1	39.6	7.4	33.1	56.0	73.9	17.9	
Hori	2483.500	AV	38.2	28.4	3.1	32.3	37.4	53.9	16.6	
Hori	4924.000	AV	32.4	30.7	5.3	31.4	37.0	53.9	16.9	
Hori	7386.000	AV	NS	-	-	-	-	53.9	-	
Hori	9848.000	AV	34.4	39.6	7.4	33.1	48.3	53.9	5.7	
Vert	39.547	QP	36.7	14.7	6.8	28.6	29.6	40.0	10.4	
Vert	106.743	QP	43.5	11.0	7.5	28.4	33.6	43.5	9.9	
Vert	208.912	QP	33.7	16.7	8.2	27.8	30.8	43.5	12.7	
Vert	405.008	QP	34.1	17.3	9.1	28.3	32.2	46.0	13.8	
Vert	576.036	QP	32.2	19.2	9.8	28.8	32.4	46.0	13.6	
Vert	901.167	QP	31.3	22.2	11.1	27.9	36.7	46.0	9.3	
Vert	2483.500	PK	57.2	28.4	3.1	32.3	56.4	73.9	17.5	
Vert	4924.000	PK	41.2	30.7	5.3	31.4	45.8	73.9	28.1	
Vert	7386.000	PK	NS	-	-	-	-	73.9	-	
Vert	9848.000	PK	43.4	39.6	7.4	33.1	57.3	73.9	16.6	
Vert	2483.500	AV	45.7	28.4	3.1	32.3	44.9	53.9	9.0	
Vert	4924.000	AV	32.6	30.7	5.3	31.4	37.2	53.9	16.7	
Vert	7386.000	AV	NS	-	-	-	-	53.9	-	
Vert	9848.000	AV	35.9	39.6	7.4	33.1	49.8	53.9	4.1	

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 03/13/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 22 deg. C / 31% RH 23 deg. C / 35% RH 24 deg. C / 36% RH  
Engineer Takumi Shimada 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	134.994	QP	37.9	14.1	7.7	28.3	31.4	43.5	12.1	
Hori	206.160	QP	33.3	16.7	8.2	27.8	30.4	43.5	13.1	
Hori	323.996	QP	39.7	15.0	8.8	27.8	35.7	46.0	10.3	
Hori	404.006	QP	32.3	17.3	9.1	28.3	30.4	46.0	15.6	
Hori	576.004	QP	37.9	19.2	9.8	28.8	38.1	46.0	7.9	
Hori	900.838	QP	32.5	22.2	11.1	27.9	37.9	46.0	8.1	
Hori	2390.000	PK	50.2	28.2	3.1	32.4	49.1	73.9	24.8	
Hori	4824.000	PK	42.5	30.5	5.3	31.4	46.9	73.9	27.0	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	43.6	39.1	7.3	33.0	57.0	73.9	16.9	
Hori	2390.000	AV	41.5	28.2	3.1	32.4	40.4	53.9	13.5	
Hori	4824.000	AV	36.2	30.5	5.3	31.4	40.6	53.9	13.3	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	34.7	39.1	7.3	33.0	48.1	53.9	5.9	
Vert	43.840	QP	37.7	13.2	6.9	28.6	29.2	40.0	10.8	
Vert	108.006	QP	45.5	11.2	7.5	28.4	35.8	43.5	7.7	
Vert	120.521	QP	39.7	12.9	7.6	28.4	31.8	43.5	11.7	
Vert	135.003	QP	42.4	14.1	7.7	28.3	35.9	43.5	7.6	
Vert	405.003	QP	34.5	17.3	9.1	28.3	32.6	46.0	13.4	
Vert	576.004	QP	32.9	19.2	9.8	28.8	33.1	46.0	12.9	
Vert	901.162	QP	31.9	22.2	11.1	27.9	37.3	46.0	8.7	
Vert	2390.000	PK	52.2	28.2	3.1	32.4	51.1	73.9	22.9	
Vert	4824.000	PK	42.0	30.5	5.3	31.4	46.4	73.9	27.5	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	41.9	39.1	7.3	33.0	55.3	73.9	18.6	
Vert	2390.000	AV	42.7	28.2	3.1	32.4	41.6	53.9	12.3	
Vert	4824.000	AV	35.4	30.5	5.3	31.4	39.8	53.9	14.1	
Vert	7236.000	AV	NS	-	-	-	-	53.9	-	
Vert	9648.000	AV	35.3	39.1	7.3	33.0	48.7	53.9	5.2	

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.3Semi Anechoic Chamber  
Report No.                    10240264H  
Date                            03/13/2014  
Temperature/ Humidity      22 deg. C / 31% RH  
Engineer                      Takumi Shimada  
                                      (1-10GHz)  
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	95.6	28.2	3.1	32.4	94.5	-	-	Carrier
Hori	2400.000	PK	47.2	28.2	3.1	32.4	46.1	74.5	28.4	
Vert	2412.000	PK	100.2	28.2	3.1	32.4	99.1	-	-	Carrier
Vert	2400.000	PK	51.4	28.2	3.1	32.4	50.3	79.1	28.8	

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 03/13/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 22 deg. C / 31% RH 23 deg. C / 35% RH 24 deg. C / 36% RH  
Engineer Takumi Shimada 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	134.992	QP	38.8	14.1	7.7	28.3	32.3	43.5	11.2	
Hori	206.161	QP	33.3	16.7	8.2	27.8	30.4	43.5	13.1	
Hori	323.995	QP	39.2	15.0	8.8	27.8	35.2	46.0	10.8	
Hori	404.006	QP	32.9	17.3	9.1	28.3	31.0	46.0	15.0	
Hori	576.004	QP	37.7	19.2	9.8	28.8	37.9	46.0	8.1	
Hori	901.191	QP	32.2	22.2	11.1	27.9	37.6	46.0	8.4	
Hori	4874.000	PK	39.2	30.6	5.3	31.4	43.7	73.9	30.2	
Hori	7311.000	PK	NS	-	-	-	-	73.9	-	
Hori	9748.000	PK	38.2	39.4	7.3	33.0	51.9	73.9	22.0	
Hori	4874.000	AV	33.7	30.6	5.3	31.4	38.2	53.9	15.7	
Hori	7311.000	AV	NS	-	-	-	-	53.9	-	
Hori	9748.000	AV	32.6	39.4	7.3	33.0	46.3	53.9	7.6	
Vert	43.841	QP	36.9	13.2	6.9	28.6	28.4	40.0	11.6	
Vert	108.005	QP	45.1	11.2	7.5	28.4	35.4	43.5	8.1	
Vert	120.522	QP	39.6	12.9	7.6	28.4	31.7	43.5	11.8	
Vert	135.013	QP	43.0	14.1	7.7	28.3	36.5	43.5	7.0	
Vert	405.004	QP	34.0	17.3	9.1	28.3	32.1	46.0	13.9	
Vert	576.001	QP	32.7	19.2	9.8	28.8	32.9	46.0	13.1	
Vert	901.162	QP	31.2	22.2	11.1	27.9	36.6	46.0	9.4	
Vert	4874.000	PK	44.4	30.6	5.3	31.4	48.9	73.9	25.1	
Vert	7311.000	PK	NS	-	-	-	-	73.9	-	
Vert	9748.000	PK	38.0	39.4	7.3	33.0	51.7	73.9	22.2	
Vert	4874.000	AV	37.6	30.6	5.3	31.4	42.1	53.9	11.8	
Vert	7311.000	AV	NS	-	-	-	-	53.9	-	
Vert	9748.000	AV	32.7	39.4	7.3	33.0	46.4	53.9	7.5	

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 03/13/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 22 deg. C / 31% RH 23 deg. C / 35% RH 24 deg. C / 36% RH  
Engineer Takumi Shimada 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	134.993	QP	38.5	14.1	7.7	28.3	32.0	43.5	11.5	
Hori	206.161	QP	33.1	16.7	8.2	27.8	30.2	43.5	13.3	
Hori	323.995	QP	39.2	15.0	8.8	27.8	35.2	46.0	10.8	
Hori	404.996	QP	33.0	17.3	9.1	28.3	31.1	46.0	14.9	
Hori	576.004	QP	38.0	19.2	9.8	28.8	38.2	46.0	7.8	
Hori	901.192	QP	32.4	22.2	11.1	27.9	37.8	46.0	8.2	
Hori	2483.500	PK	47.2	28.4	3.1	32.3	46.4	73.9	27.5	
Hori	4924.000	PK	40.7	30.7	5.3	31.4	45.3	73.9	28.6	
Hori	7386.000	PK	NS	-	-	-	-	73.9	-	
Hori	9848.000	PK	42.7	39.6	7.4	33.1	56.6	73.9	17.3	
Hori	2483.500	AV	38.0	28.4	3.1	32.3	37.2	53.9	16.7	
Hori	4924.000	AV	32.5	30.7	5.3	31.4	37.1	53.9	16.8	
Hori	7386.000	AV	NS	-	-	-	-	53.9	-	
Hori	9848.000	AV	33.6	39.6	7.4	33.1	47.5	53.9	6.4	
Vert	43.841	QP	37.6	13.2	6.9	28.6	29.1	40.0	10.9	
Vert	108.002	QP	45.6	11.2	7.5	28.4	35.9	43.5	7.6	
Vert	120.521	QP	39.8	12.9	7.6	28.4	31.9	43.5	11.6	
Vert	135.013	QP	43.0	14.1	7.7	28.3	36.5	43.5	7.0	
Vert	405.990	QP	34.1	17.3	9.2	28.3	32.3	46.0	13.7	
Vert	576.001	QP	32.9	19.2	9.8	28.8	33.1	46.0	12.9	
Vert	901.162	QP	31.2	22.2	11.1	27.9	36.6	46.0	9.4	
Vert	2483.500	PK	54.5	28.4	3.1	32.3	53.7	73.9	20.2	
Vert	4924.000	PK	40.7	30.7	5.3	31.4	45.3	73.9	28.6	
Vert	7386.000	PK	NS	-	-	-	-	73.9	-	
Vert	9848.000	PK	43.0	39.6	7.4	33.1	56.9	73.9	17.0	
Vert	2483.500	AV	45.1	28.4	3.1	32.3	44.3	53.9	9.6	
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	33.5	39.6	7.4	33.1	47.4	53.9	6.5	

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 03/13/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 22 deg. C / 31% RH 23 deg. C / 35% RH 24 deg. C / 36% RH  
Engineer Takumi Shimada 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	134.993	QP	39.0	14.1	7.7	28.3	32.5	43.5	11.0	
Hori	206.161	QP	33.4	16.7	8.2	27.8	30.5	43.5	13.0	
Hori	323.986	QP	39.5	15.0	8.8	27.8	35.5	46.0	10.5	
Hori	405.008	QP	34.0	17.3	9.1	28.3	32.1	46.0	13.9	
Hori	576.007	QP	37.9	19.2	9.8	28.8	38.1	46.0	7.9	
Hori	901.192	QP	32.1	22.2	11.1	27.9	37.5	46.0	8.5	
Hori	2390.000	PK	54.2	28.2	3.1	32.4	53.1	73.9	20.9	
Hori	4824.000	PK	41.6	30.5	5.3	31.4	46.0	73.9	27.9	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	41.2	39.1	7.3	33.0	54.6	73.9	19.3	
Hori	2390.000	AV	44.0	28.2	3.1	32.4	42.9	53.9	11.0	
Hori	4824.000	AV	32.4	30.5	5.3	31.4	36.8	53.9	17.1	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	33.2	39.1	7.3	33.0	46.6	53.9	7.3	
Vert	43.841	QP	37.7	13.2	6.9	28.6	29.2	40.0	10.8	
Vert	108.002	QP	45.5	11.2	7.5	28.4	35.8	43.5	7.7	
Vert	120.521	QP	39.8	12.9	7.6	28.4	31.9	43.5	11.6	
Vert	135.013	QP	43.2	14.1	7.7	28.3	36.7	43.5	6.8	
Vert	405.990	QP	34.2	17.3	9.2	28.3	32.4	46.0	13.6	
Vert	576.006	QP	33.0	19.2	9.8	28.8	33.2	46.0	12.8	
Vert	901.156	QP	31.7	22.2	11.1	27.9	37.1	46.0	8.9	
Vert	2390.000	PK	59.2	28.2	3.1	32.4	58.1	73.9	15.8	
Vert	4824.000	PK	41.6	30.5	5.3	31.4	46.0	73.9	27.9	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	43.2	39.1	7.3	33.0	56.6	73.9	17.3	
Vert	2390.000	AV	49.2	28.2	3.1	32.4	48.1	53.9	5.8	
Vert	4824.000	AV	32.5	30.5	5.3	31.4	36.9	53.9	17.0	
Vert	7236.000	AV	NS	-	-	-	-	53.9	-	
Vert	9648.000	AV	35.7	39.1	7.3	33.0	49.1	53.9	4.8	

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.3Semi Anechoic Chamber  
Report No.                    10240264H  
Date                            03/13/2014  
Temperature/ Humidity      22 deg. C / 31% RH  
Engineer                      Takumi Shimada  
                                    (1-10GHz)  
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	92.3	28.2	3.1	32.4	91.2	-	-	Carrier
Hori	2400.000	PK	60.1	28.2	3.1	32.4	59.0	71.2	12.2	
Vert	2412.000	PK	96.3	28.2	3.1	32.4	95.2	-	-	Carrier
Vert	2400.000	PK	64.4	28.2	3.1	32.4	63.3	75.2	11.9	

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 03/13/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 22 deg. C / 31% RH 23 deg. C / 35% RH 24 deg. C / 36% RH  
Engineer Takumi Shimada 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	135.002	QP	39.0	14.1	7.7	28.3	32.5	43.5	11.0	
Hori	206.174	QP	33.3	16.7	8.2	27.8	30.4	43.5	13.1	
Hori	323.986	QP	39.7	15.0	8.8	27.8	35.7	46.0	10.3	
Hori	405.002	QP	34.1	17.3	9.1	28.3	32.2	46.0	13.8	
Hori	576.002	QP	37.8	19.2	9.8	28.8	38.0	46.0	8.0	
Hori	901.191	QP	32.2	22.2	11.1	27.9	37.6	46.0	8.4	
Hori	4874.000	PK	41.0	30.6	5.3	31.4	45.5	73.9	28.4	
Hori	7311.000	PK	NS	-	-	-	-	73.9	-	
Hori	9748.000	PK	41.9	39.4	7.3	33.0	55.6	73.9	18.3	
Hori	4874.000	AV	32.0	30.6	5.3	31.4	36.5	53.9	17.4	
Hori	7311.000	AV	NS	-	-	-	-	53.9	-	
Hori	9748.000	AV	33.6	39.4	7.3	33.0	47.3	53.9	6.7	
Vert	39.721	QP	38.4	14.7	6.8	28.6	31.3	40.0	8.7	
Vert	107.999	QP	45.8	11.2	7.5	28.4	36.1	43.5	7.4	
Vert	120.324	QP	40.7	12.9	7.6	28.4	32.8	43.5	10.7	
Vert	135.003	QP	43.5	14.1	7.7	28.3	37.0	43.5	6.5	
Vert	405.991	QP	34.3	17.3	9.2	28.3	32.5	46.0	13.5	
Vert	576.010	QP	33.1	19.2	9.8	28.8	33.3	46.0	12.7	
Vert	901.150	QP	31.5	22.2	11.1	27.9	36.9	46.0	9.1	
Vert	4874.000	PK	41.2	30.6	5.3	31.4	45.7	73.9	28.2	
Vert	7311.000	PK	NS	-	-	-	-	73.9	-	
Vert	9748.000	PK	42.0	39.4	7.3	33.0	55.7	73.9	18.2	
Vert	4874.000	AV	32.1	30.6	5.3	31.4	36.6	53.9	17.3	
Vert	7311.000	AV	NS	-	-	-	-	53.9	-	
Vert	9748.000	AV	33.7	39.4	7.3	33.0	47.4	53.9	6.5	

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 03/11/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 22 deg. C / 32% RH 23 deg. C / 35% RH 24 deg. C / 36% 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	134.996	QP	35.9	14.1	7.7	28.3	29.4	43.5	14.1	
Hori	269.989	QP	35.9	18.1	8.5	27.7	34.8	46.0	11.2	
Hori	323.999	QP	40.0	15.0	8.8	27.8	36.0	46.0	10.0	
Hori	405.001	QP	33.3	17.3	9.1	28.3	31.4	46.0	14.6	
Hori	576.002	QP	37.4	19.2	9.8	28.8	37.6	46.0	8.4	
Hori	901.152	QP	31.8	22.2	11.1	27.9	37.2	46.0	8.8	
Hori	2390.000	PK	48.9	28.2	3.1	32.4	47.8	73.9	26.1	
Hori	4824.000	PK	43.2	30.5	5.3	31.4	47.6	73.9	26.3	
Hori	7236.000	PK	NS	-	-	-	-	73.9	-	
Hori	9648.000	PK	43.0	39.1	7.3	33.0	56.4	73.9	17.5	
Hori	2390.000	AV	41.6	28.2	3.1	32.4	40.5	53.9	13.4	
Hori	4824.000	AV	36.3	30.5	5.3	31.4	40.7	53.9	13.2	
Hori	7236.000	AV	NS	-	-	-	-	53.9	-	
Hori	9648.000	AV	35.5	39.1	7.3	33.0	48.9	53.9	5.0	
Vert	39.490	QP	39.2	14.7	6.8	28.6	32.1	40.0	7.9	
Vert	107.996	QP	44.6	11.2	7.5	28.4	34.9	43.5	8.6	
Vert	120.161	QP	40.7	12.9	7.6	28.4	32.8	43.5	10.7	
Vert	135.002	QP	41.5	14.1	7.7	28.3	35.0	43.5	8.5	
Vert	405.005	QP	34.3	17.3	9.1	28.3	32.4	46.0	13.6	
Vert	576.008	QP	33.1	19.2	9.8	28.8	33.3	46.0	12.7	
Vert	900.838	QP	31.8	22.2	11.1	27.9	37.2	46.0	8.8	
Vert	2390.000	PK	50.3	28.2	3.1	32.4	49.2	73.9	24.7	
Vert	4824.000	PK	42.0	30.5	5.3	31.4	46.4	73.9	27.5	
Vert	7236.000	PK	NS	-	-	-	-	73.9	-	
Vert	9648.000	PK	43.8	39.1	7.3	33.0	57.2	73.9	16.7	
Vert	2390.000	AV	43.7	28.2	3.1	32.4	42.6	53.9	11.3	
Vert	4824.000	AV	35.2	30.5	5.3	31.4	39.6	53.9	14.3	
Vert	7236.000	AV	NS	-	-	-	-	53.9	-	
Vert	9648.000	AV	35.8	39.1	7.3	33.0	49.2	53.9	4.7	

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 : 03/11/2014  
Temperature/ Humidity : 22 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	95.7	28.2	3.1	32.4	94.6	-	-	Carrier
Hori	2400.000	PK	49.6	28.2	3.1	32.4	48.5	74.6	26.1	
Vert	2412.000	PK	99.5	28.2	3.1	32.4	98.4	-	-	Carrier
Vert	2400.000	PK	54.4	28.2	3.1	32.4	53.3	78.4	25.1	

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 03/11/2014 03/18/2014 03/19/2014  
Temperature/ Humidity 22 deg. C / 32% RH 23 deg. C / 35% RH 24 deg. C / 36% 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	134.995	QP	35.8	14.1	7.7	28.3	29.3	43.5	14.2	
Hori	269.988	QP	35.8	18.1	8.5	27.7	34.7	46.0	11.3	
Hori	323.999	QP	40.1	15.0	8.8	27.8	36.1	46.0	9.9	
Hori	405.002	QP	33.2	17.3	9.1	28.3	31.3	46.0	14.7	
Hori	576.003	QP	37.5	19.2	9.8	28.8	37.7	46.0	8.3	
Hori	901.152	QP	31.7	22.2	11.1	27.9	37.1	46.0	8.9	
Hori	4874.000	PK	42.4	30.6	5.3	31.4	46.9	73.9	27.0	
Hori	7311.000	PK	NS	-	-	-	-	73.9	-	
Hori	9748.000	PK	42.6	39.4	7.3	33.0	56.3	73.9	17.6	
Hori	4874.000	AV	35.3	30.6	5.3	31.4	39.8	53.9	14.1	
Hori	7311.000	AV	NS	-	-	-	-	53.9	-	
Hori	9748.000	AV	34.6	39.4	7.3	33.0	48.3	53.9	5.6	
Vert	39.491	QP	39.2	14.7	6.8	28.6	32.1	40.0	7.9	
Vert	107.995	QP	44.6	11.2	7.5	28.4	34.9	43.5	8.6	
Vert	120.162	QP	40.7	12.9	7.6	28.4	32.8	43.5	10.7	
Vert	135.012	QP	41.5	14.1	7.7	28.3	35.0	43.5	8.5	
Vert	405.005	QP	34.3	17.3	9.1	28.3	32.4	46.0	13.6	
Vert	576.007	QP	33.1	19.2	9.8	28.8	33.3	46.0	12.7	
Vert	901.156	QP	31.8	22.2	11.1	27.9	37.2	46.0	8.8	
Vert	4874.000	PK	42.7	30.6	5.3	31.4	47.2	73.9	26.7	
Vert	7311.000	PK	NS	-	-	-	-	73.9	-	
Vert	9748.000	PK	43.0	39.4	7.3	33.0	56.7	73.9	17.2	
Vert	4874.000	AV	34.3	30.6	5.3	31.4	38.8	53.9	15.2	
Vert	7311.000	AV	NS	-	-	-	-	53.9	-	
Vert	9748.000	AV	34.7	39.4	7.3	33.0	48.4	53.9	5.5	

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 : 03/11/2014  
Temperature/ Humidity : 22 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	93.0	28.2	3.1	32.4	91.9	-	-	Carrier
Hori	2400.000	PK	59.0	28.2	3.1	32.4	57.9	71.9	14.0	
Vert	2412.000	PK	97.6	28.2	3.1	32.4	96.5	-	-	Carrier
Vert	2400.000	PK	62.0	28.2	3.1	32.4	60.9	76.5	15.6	

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 03/11/2014 03/18/2014 03/20/2014  
Temperature/ Humidity 22 deg. C / 32% RH 23 deg. C / 35% RH 23 deg. C / 37% 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	108.115	QP	40.1	11.2	7.5	28.4	30.4	43.5	13.1	
Hori	132.323	QP	32.6	13.9	7.7	28.3	25.9	43.5	17.6	
Hori	323.997	QP	38.9	15.0	8.8	27.8	34.9	46.0	11.1	
Hori	405.011	QP	32.4	17.3	9.1	28.3	30.5	46.0	15.5	
Hori	576.013	QP	36.1	19.2	9.8	28.8	36.3	46.0	9.7	
Hori	901.073	QP	31.3	22.2	11.1	27.9	36.7	46.0	9.3	
Hori	2483.500	PK	57.2	28.4	3.1	32.3	56.4	73.9	17.5	
Hori	4924.000	PK	NS	-	-	-	-	73.9	-	
Hori	7386.000	PK	NS	-	-	-	-	73.9	-	
Hori	9848.000	PK	43.4	39.6	7.4	33.1	57.3	73.9	16.6	
Hori	2483.500	AV	45.3	28.4	3.1	32.3	44.5	53.9	9.4	
Hori	4924.000	AV	NS	-	-	-	-	53.9	-	
Hori	7386.000	AV	NS	-	-	-	-	53.9	-	
Hori	9848.000	AV	35.2	39.6	7.4	33.1	49.1	53.9	4.8	
Vert	39.501	QP	38.4	14.7	6.8	28.6	31.3	40.0	8.7	
Vert	108.008	QP	44.6	11.2	7.5	28.4	34.9	43.5	8.6	
Vert	120.502	QP	40.1	12.9	7.6	28.4	32.2	43.5	11.3	
Vert	207.634	QP	34.4	16.7	8.2	27.8	31.5	43.5	12.0	
Vert	405.006	QP	34.5	17.3	9.1	28.3	32.6	46.0	13.4	
Vert	576.013	QP	33.3	19.2	9.8	28.8	33.5	46.0	12.5	
Vert	901.022	QP	31.1	22.2	11.1	27.9	36.5	46.0	9.5	
Vert	2483.500	PK	60.8	28.4	3.1	32.3	60.0	73.9	13.9	
Vert	4924.000	PK	NS	-	-	-	-	73.9	-	
Vert	7386.000	PK	NS	-	-	-	-	73.9	-	
Vert	9848.000	PK	43.5	39.6	7.4	33.1	57.4	73.9	16.5	
Vert	2483.500	AV	48.4	28.4	3.1	32.3	47.6	53.9	6.3	
Vert	4924.000	AV	NS	-	-	-	-	53.9	-	
Vert	7386.000	AV	NS	-	-	-	-	53.9	-	
Vert	9848.000	AV	35.7	39.6	7.4	33.1	49.6	53.9	4.3	

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

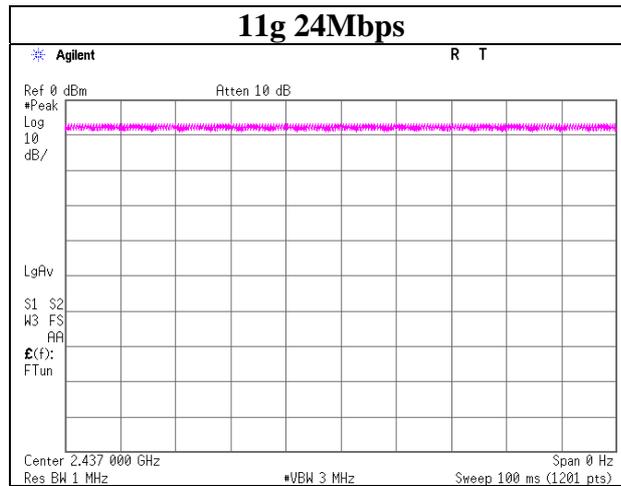
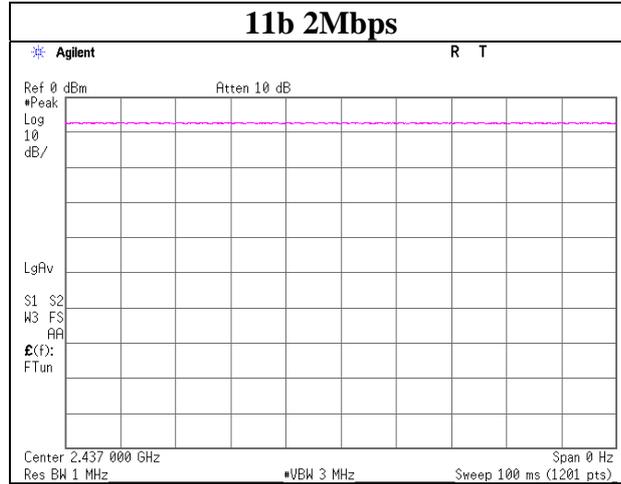
\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

\*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.3 Semi Anechoic Chamber  
Report No. 10240264H  
Date 03/11/2014  
Temperature/ Humidity 22 deg. C / 32% 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	2014/02/27 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	1301	RE	2014/02/20 * 12
MJM-16	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2013/11/25 * 12
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	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	-
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
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2013/05/17 * 12
MSA-13	Spectrum Analyzer	Agilent	E4440A	MY46185823	RE	2013/06/14 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2013/06/11 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2013/10/13 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2013/10/13 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2014/02/20 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2013/11/26 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2013/09/12 * 12
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	CE	2013/08/01 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	CE	2014/02/20 * 12
MJM-21	Measure	KOMELON	KMC-36	-	CE	-
MTR-09	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	CE	2013/06/07 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	8127383	CE(AE)	2013/07/11 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	8127384	CE(EUT)	2014/03/10 * 12
MTA-28	Terminator	TME	CT-01	-	CE	2013/11/26 * 12
MCC-59	Coaxial cable	Suhner	-	-	CE	2013/07/22 * 12
MAT-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2014/01/29 * 12

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**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**