RADIO TEST REPORT

Test Report No. : 10004953H-B-R2

Applicant	:	**Sony Corporation**
Type of Equipment	:	**Personal Computer**
Model No.	:	**SVD132A14L**
FCC ID	:	**AK8SVD132A14L**
Test regulation	:	**FCC Part 15 Subpart C: 2012** ***Conducted Emission and Spurious Emission tests only**
Test Result	:	**Complied**

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. 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.
6. This report is a revised version of 10004953H-B-R1. 10004953H-B-R1 is replaced with this report.

Date of test: April 28 and 30, 2013

Representative test engineer:
Kazuya Yoshioka
Engineer of WiSE Japan,
UL Verification Service

Approved by:
Takahiro Hatakeda
Leader of WiSE Japan,
UL Verification Service

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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Head Office EMC Lab.
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REVISION HISTORY

Original Test Report No.: 10004953H-B

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10004953H-B	May 10, 2013	-	-
1	10004953H-B-R1	May 14, 2013	P. 1	Corrected test item in Test regulation part
1	10004953H-B-R1	May 14, 2013	P. 6	Corrected antenna terminal conducted test result from “Complied” to “N/A” in the table in section 3.2
2	10004953H-B-R2	May 17, 2013	P. 4, 5	Added the information about NFC module in section 2.2

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SECTION 1: Customer information

Company Name	:	Sony Corporation.
Address	:	1-7-1 Konan, Minato-ku, Tokyo, 399-8282 Japan
Telephone Number	:	+81-3-6748-2569
Facsimile Number	:	+81-3-6748-2574
Contact Person	:	Hirofumi Kojima

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

2.1 Identification of E.U.T.

Type of Equipment	:	Personal Computer
Model No.	:	SVD132A14L
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	INPUT: 100-240V, 1.2A, 50/60Hz OUTPUT: DC 10.5V, 3.8A, 39.9W DC 5V, 1A, 5W
Receipt Date of Sample	:	February 27, 2013
Country of Mass-production	:	Japan
Condition of EUT	:	Engineering 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

General Specification

Feature of EUT	This model is co-located with Wireless LAN and Bluetooth module(IEEE802.11 a/b/g/n, Bluetooth) and NFC module. Each antenna is included in the Personal computer. This model can co-operate Wireless LAN(5GHz band) + Bluetooth + NFC.
Operation Clock	CPU: 1.0GHz

Radio Specification

Bluetooth (BDR/EDR)

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	FHSS
Bandwidth & Channel spacing	1MHz & 1MHz
Antenna Type	PIFA
Antenna Gain	-0.56 dBi (peak) (Including Cable Loss)

Bluetooth (Low Energy)

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	GFSK
Bandwidth & Channel spacing	1MHz & 2MHz
Antenna Type	PIFA
Antenna Gain	-0.56 dBi (peak) (Including Cable Loss)

WLAN (IEEE802.11a/b/g/n-20)

Equipment Type	Transceiver	
Frequency of Operation	2412-2462MHz	5180-5320MHz 5500-5700MHz * 5745-5825MHz
Type of Modulation	DSSS, OFDM	OFDM
Bandwidth & Channel spacing	20MHz & 5MHz	20MHz & 20MHz
Antenna Type	PIFA	
Antenna Gain	Ant 0: -0.56dBi (peak) Ant 1: -4.07dBi (peak) (Including Cable Loss)	Ant 0: 5150-5350MHz -0.46dBi (peak) 5470-5725MHz -1.25dBi (peak) 5825-5850MHz -2.63dBi (peak) Ant 1: 5150-5350MHz +1.32dBi (peak) 5470-5725MHz +1.20dBi (peak) 5825-5850MHz -2.73dBi (peak) (Including Cable Loss)

*5600MHz-5640MHz is not used in Canada.

WLAN (IEEE802.11n-40)

Equipment Type	Transceiver	
Frequency of Operation	2422-2452MHz	5190-5310MHz 5510-5670MHz * 5755-5795MHz
Type of Modulation	OFDM	OFDM
Bandwidth & Channel spacing	40MHz & 5MHz	40MHz & 40MHz
Antenna Type	PIFA	
Antenna Gain	Ant 0: -0.56dBi (peak) Ant 1: -4.07dBi (peak) (Including Cable Loss)	Ant 0: 5150-5350MHz -0.46dBi (peak) 5470-5725MHz -1.25dBi (peak) 5825-5850MHz -2.63dBi (peak) Ant 1: 5150-5350MHz +1.32dBi (peak) 5470-5725MHz +1.20dBi (peak) 5825-5850MHz -2.73dBi (peak) (Including Cable Loss)

*5590MHz-5630MHz is not used in Canada.

NFC (FCC ID: NKR-DFCN67H)

Equipment Type	Transceiver
Frequency of Operation	13.56MHz
Type of Modulation	ASK

*This test report applies for Bluetooth (BDR/EDR).

*NFC module was operated by polling mode during the testing.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	Test specification: FCC Part 15 Subpart C: 2012, final revised on December 27, 2012 and effective January 28, 2013
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

* The EUT complies with FCC Part 15 Subpart B: 2012, final revised on December 27, 2012 and effective January 28, 2013.

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 **IC:** RSS-Gen 7.2.4	**FCC:** Section 15.207 **IC:** RSS-Gen 7.2.4	**QP** 20.8dB, 0.15000MHz, N **AV** 18.4dB, 18.32089MHz, L	Complied	-
Carrier Frequency Separation	**FCC:** FCC Public Notice DA 00-705 **IC:** -	**FCC:** Section15.247(a)(1) **IC:** RSS-210 A8.1 (b)	See data.	N/A *1)	Conducted
20dB Bandwidth	**FCC:** FCC Public Notice DA 00-705 **IC:** -	**FCC:** Section15.247(a)(1) **IC:** RSS-210 A8.1 (a)		N/A *1)	Conducted
Number of Hopping Frequency	**FCC:** FCC Public Notice DA 00-705 **IC:** -	**FCC:** Section15.247(a)(1)(iii) **IC:** RSS-210 A8.1 (d)		N/A *1)	Conducted
Dwell time	**FCC:** FCC Public Notice DA 00-705 **IC:** -	**FCC:** Section15.247(a)(1)(iii) **IC:** RSS-210 A8.1 (d)		N/A *1)	Conducted
Maximum Peak Output Power	**FCC:** FCC Public Notice DA 00-705 **IC:** RSS-Gen 4.8	**FCC:** Section15.247(a)(b)(1) **IC:** RSS-210 A8.4 (2)		N/A *1)	Conducted
Spurious Emission & Band Edge Compliance	**FCC:** FCC Public Notice DA 00-705 **IC:** RSS-Gen 4.9	**FCC:** Section15.247(d) **IC:** RSS-210 A8.5 RSS-Gen 6 and 7.2.3	10.2dB 7440.000MHz, AV, Horizontal	Complied	Radiated
Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422. *1) The test was performed with embedded Bluetooth module (FCC ID: QDS-BRCM1073, Test Report No. FR330410AC issued by SPORTON International Inc.).					

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

FCC 15.31 (e)
This EUT provides stable voltage(DC3.3V) constantly to RF Module 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	3.6dB
No.3	3.6dB
No.4	3.6dB

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	4.3dB	5.0dB	5.1dB	4.9dB	5.8dB	4.4dB	4.3dB
No.2	4.3dB	5.2dB	5.1dB	5.0dB	5.7dB	4.3dB	4.2dB
No.3	4.6dB	5.0dB	5.1dB	5.0dB	5.7dB	4.5dB	4.2dB
No.4	4.8dB	5.2dB	5.0dB	5.0dB	5.7dB	5.2dB	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 test report has enough margin, more than the site margin.

3.5 Test Location

UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
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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	4.75 x 5.4 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 4.5 x 2.8m	2.0 x 2.0m	-
No.10 measurement room	-	-	2.6 x 2.8 x 2.5m	2.4 x 2.4m	-
No.11 measurement room	-	-	3.1 x 3.4 x 3.0m	2.4 x 3.4m	-

* 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

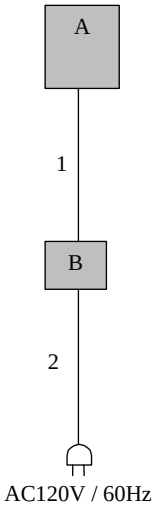
4.1 Operating Mode(s)

Bluetooth (BT): Transmitting (Tx), Payload: PRBS9

Details of Operating Mode(s)

Test Item	Mode	Tested frequency
Conducted Emission, Spurious Emission (Radiated)	Tx (Hopping off) DH5, 3DH5	2402MHz 2441MHz 2480MHz
*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload length. *The Co-location with WLAN is tested in the test report 10004953H-A/-C issued by UL Japan, Inc. *EUT has the power settings by the software as follows; Power settings: 0 Software: Bluetool, Version 1.7.4.4 *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.		

4.2 Configuration and peripherals



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Personal Computer	SVD132A14L	ZOPJJPB 9	SONY	EUT
B	AC Adaptor	VGP-AC10V10	000006701 0000346	SONY	EUT

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	1.7	Unshielded	Unshielded	-
2	AC Cable	1.5	Unshielded	Unshielded	-

SECTION 5: Conducted Emission

Test Procedure and conditions

EUT was placed on a urethane platform of nominal size, 0.5m by 1.0m, 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.

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

SECTION 6: Radiated Spurious Emission

Test Procedure

EUT was placed on a urethane platform of nominal size, 0.5m 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	30MHz to 300MHz	300MHz to 1GHz	Above 1GHz
Antenna Type	Biconical	Logperiodic	Horn

Frequency	Below 1GHz	Above 1GHz	
Instrument used	Test Receiver	Spectrum Analyzer	
Detector	QP	PK	AV
IF Bandwidth	BW 120kHz(T/R)	RBW: 1MHz VBW: 3MHz	RBW: 1MHz VBW: 10Hz *1)
Test Distance	3m	3m (below 10GHz), 1m *2) (above 10GHz)	

*1) Although 00-705 accepts VBW=10Hz for AV measurements, confirmed that superfluous smoothing was not performed.
*2) Distance Factor: 20 x log (3.0m/1.0m) = 9.5dB

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of Tablet Style and Laptop Style 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

APPENDIX 1: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

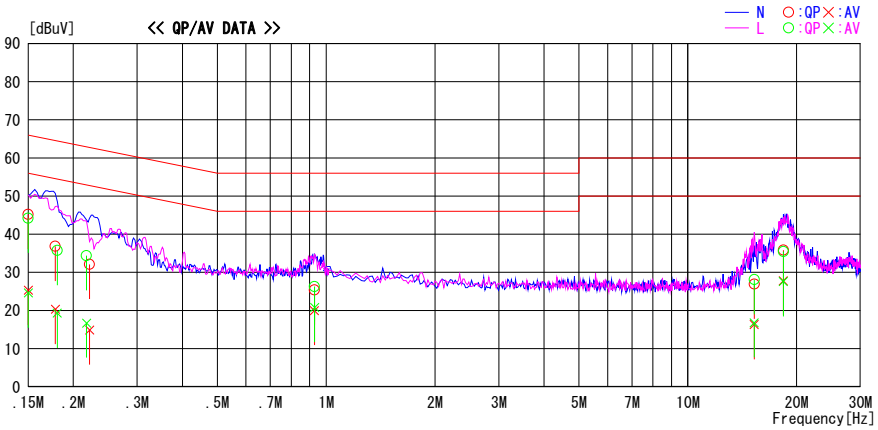
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2013/04/30

Report No. : 10004953H

Temp./Humi. : 21deg. C / 38% RH
Engineer : Kazuya Yoshioka

Mode / Remarks : Tx DH5 2402MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



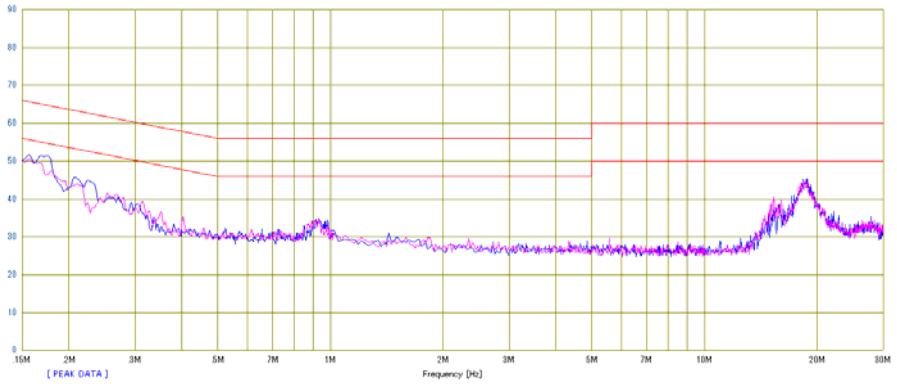
Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	31.9	12.0	13.3	45.2	25.3	66.0	56.0	20.8	30.7	N	
0.17828	23.5	7.0	13.3	36.8	20.3	64.6	54.6	27.8	34.3	N	
0.22178	18.8	1.6	13.3	32.1	14.9	62.8	52.8	30.7	37.9	N	
0.92715	11.9	6.5	13.5	25.4	20.0	56.0	46.0	30.6	26.0	N	
15.26326	12.3	1.7	14.6	26.9	16.3	60.0	50.0	33.1	33.7	N	
18.37102	20.9	12.9	14.9	35.8	27.8	60.0	50.0	24.2	22.2	N	
0.15000	30.9	11.3	13.3	44.2	24.6	66.0	56.0	21.8	31.4	L	
0.18045	22.4	6.0	13.3	35.7	19.3	64.5	54.5	28.8	35.2	L	
0.21743	21.1	3.4	13.3	34.4	16.7	62.9	52.9	28.5	36.2	L	
0.92865	12.8	7.3	13.5	26.3	20.8	56.0	46.0	29.7	25.2	L	
15.26326	13.5	2.2	14.6	28.1	16.8	60.0	50.0	31.9	33.2	L	
18.37102	20.6	12.7	14.9	35.5	27.6	60.0	50.0	24.5	22.4	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.

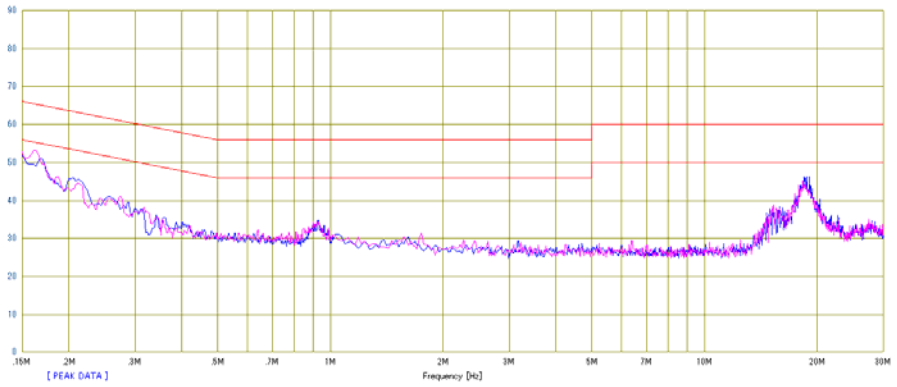
Conducted Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	10004953H
Date	04/30/2013
Temperature/ Humidity	21 deg. C / 38% RH
Engineer	Kazuya Yoshioka
Mode	Tx DH5

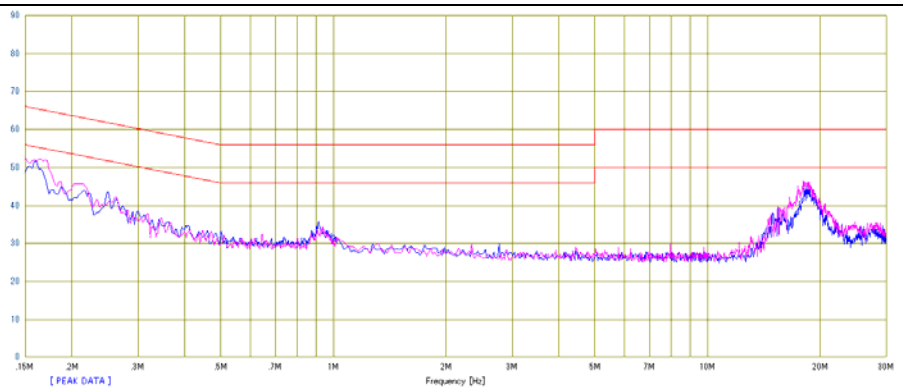
2402MHz



2441MHz



2480MHz



Y scale [dBuV] Chart — N — L

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

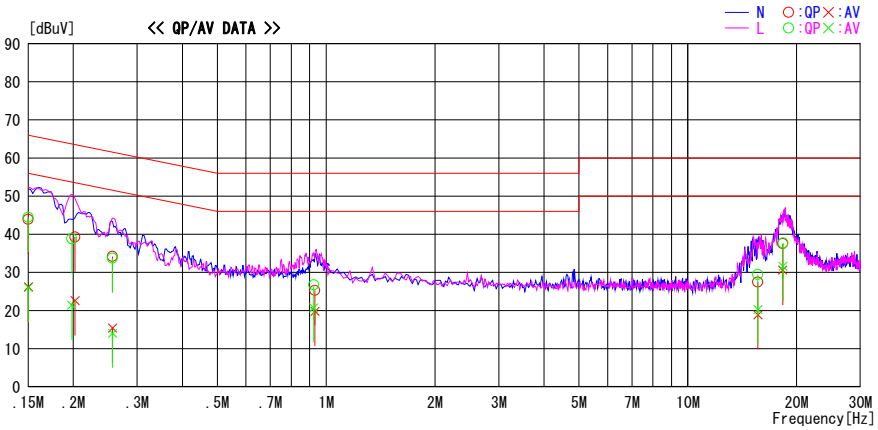
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2013/04/30

Report No. : 10004953H

Temp./Humi. : 21deg. C / 38% RH
Engineer : Kazuya Yoshioka

Mode / Remarks : Tx 3DH5 2402MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	30.6	12.9	13.3	43.9	26.2	66.0	56.0	22.1	29.8	N	
0.20220	26.0	9.3	13.3	39.3	22.6	63.5	53.5	24.2	30.9	N	
0.25658	20.9	2.1	13.3	34.2	15.4	61.5	51.5	27.3	36.1	N	
0.93052	11.8	6.3	13.5	25.3	19.8	56.0	46.0	30.7	26.2	N	
15.61414	12.8	4.2	14.7	27.5	18.9	60.0	50.0	32.5	31.1	N	
18.29127	22.7	15.7	14.9	37.6	30.6	60.0	50.0	22.4	19.4	N	
0.15000	31.2	12.8	13.3	44.5	26.1	66.0	56.0	21.5	29.9	L	
0.19785	25.5	8.1	13.3	38.8	21.4	63.7	53.7	24.9	32.3	L	
0.25658	20.4	0.8	13.3	33.7	14.1	61.5	51.5	27.8	37.4	L	
0.92302	13.2	7.2	13.5	26.7	20.7	56.0	46.0	29.3	25.3	L	
15.61414	14.8	5.5	14.7	29.5	20.2	60.0	50.0	30.5	29.8	L	
18.32089	22.8	16.7	14.9	37.7	31.6	60.0	50.0	22.3	18.4	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.

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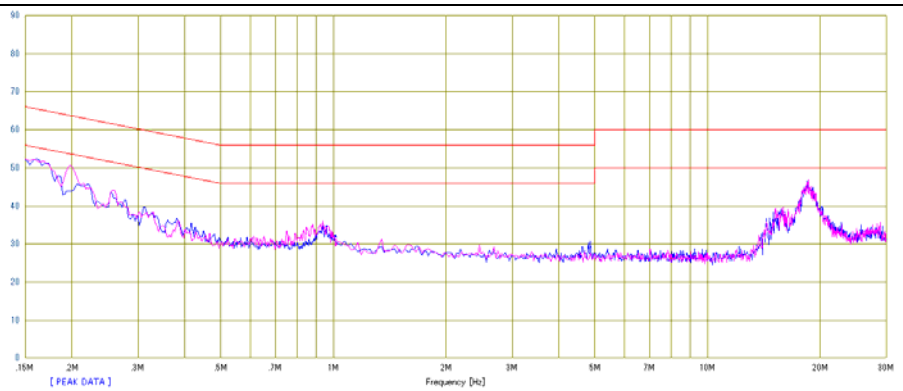
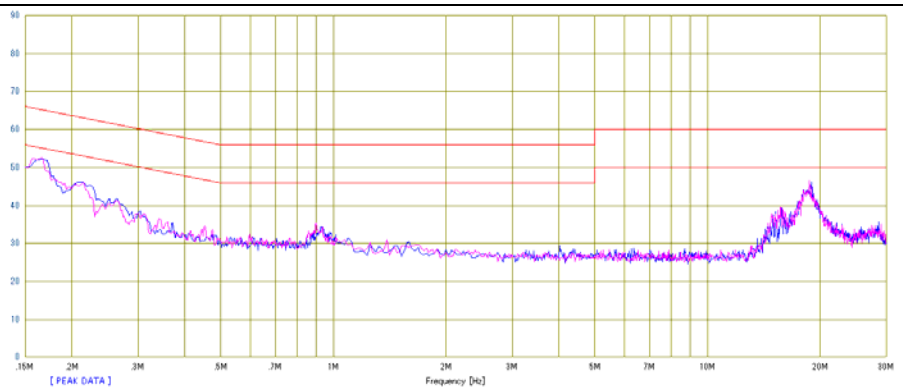
Conducted Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	10004953H
Date	04/30/2013
Temperature/ Humidity	21 deg. C / 38% RH
Engineer	Kazuya Yoshioka
Mode	Tx 3DH5

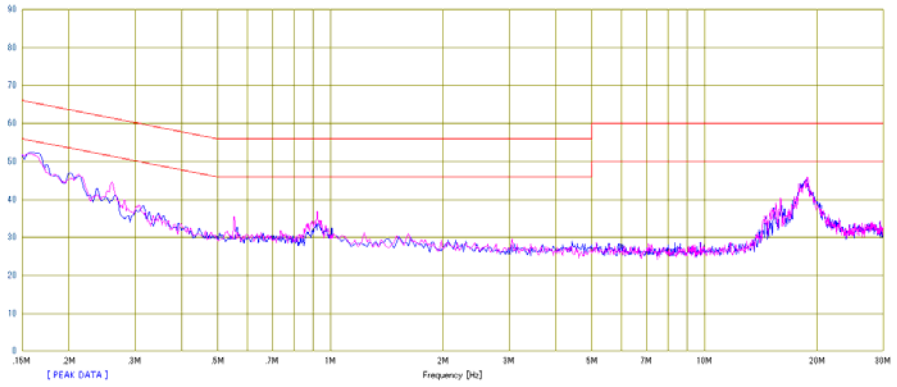
2402MHz



2441MHz



2480MHz



Y scale [dBuV] Chart — N — L

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 and 4 Semi Anechoic Chamber	
Report No.	10004953H	
Date	04/28/2013	04/30/2013
Temperature/ Humidity	21 deg.C/ 41% RH	22 deg. C / 34%RH
Engineer	Keisuke Kawamura (1-10GHz)	Kazuya Yoshioka (10-26.5GHz)/(Below 1GHz)
Mode	Tx, DH5 2402MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	56.042	QP	27.0	9.4	7.5	32.2	11.7	40.0	28.3	
Hori	79.240	QP	35.8	6.7	7.8	32.1	18.2	40.0	21.8	
Hori	320.022	QP	36.5	16.7	9.9	32.0	31.1	46.0	14.9	
Hori	336.023	QP	39.1	16.9	10.1	32.0	34.1	46.0	11.9	
Hori	352.024	QP	35.6	17.2	10.2	32.0	31.0	46.0	15.0	
Hori	368.025	QP	30.3	17.4	10.3	32.0	26.0	46.0	20.0	
Hori	2390.000	PK	47.3	26.8	2.4	35.7	40.8	73.9	33.1	
Hori	2700.011	PK	49.6	27.1	2.5	35.5	43.7	73.9	30.3	
Hori	4804.000	PK	47.0	30.6	4.2	34.9	46.9	73.9	27.0	
Hori	7206.000	PK	45.4	35.5	4.9	34.9	50.9	73.9	23.0	
Hori	9608.000	PK	44.8	38.2	5.7	35.4	53.3	73.9	20.7	
Hori	2390.000	AV	33.6	26.8	2.4	35.7	27.1	53.9	26.8	
Hori	2700.011	AV	45.3	27.9	2.6	32.3	43.5	53.9	10.4	
Hori	4804.000	AV	33.9	30.6	4.2	34.9	33.8	53.9	20.1	
Hori	7206.000	AV	35.3	35.5	4.9	34.9	40.8	53.9	13.1	
Hori	9608.000	AV	31.8	38.2	5.7	35.4	40.3	53.9	13.6	
Vert	55.982	QP	38.3	9.4	7.5	32.2	23.0	40.0	17.0	
Vert	84.921	QP	42.6	7.5	7.9	32.0	26.0	40.0	14.0	
Vert	320.023	QP	29.4	16.7	9.9	32.0	24.0	46.0	22.0	
Vert	336.022	QP	32.5	16.9	10.1	32.0	27.5	46.0	18.5	
Vert	352.025	QP	31.7	17.2	10.2	32.0	27.1	46.0	18.9	
Vert	368.026	QP	29.3	17.4	10.3	32.0	25.0	46.0	21.0	
Vert	2390.000	PK	49.8	27.5	2.4	32.4	47.3	73.9	26.6	
Vert	2700.011	PK	49.7	27.9	2.6	32.3	47.9	73.9	26.0	
Vert	4804.000	PK	45.1	30.6	4.2	34.9	45.0	73.9	28.9	
Vert	7206.000	PK	44.5	35.5	4.9	34.9	50.0	73.9	23.9	
Vert	9608.000	PK	43.8	38.2	5.7	35.4	52.3	73.9	21.6	
Vert	2390.000	AV	35.9	27.5	2.4	32.4	33.4	53.9	20.6	
Vert	2700.011	AV	45.0	27.9	2.6	32.3	43.2	53.9	10.7	
Vert	4804.000	AV	36.2	30.6	4.2	34.9	36.1	53.9	17.9	
Vert	7206.000	AV	34.6	35.5	4.9	34.9	40.1	53.9	13.8	
Vert	9608.000	AV	31.7	38.2	5.7	35.4	40.2	53.9	13.7	

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).

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

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	2402.000	PK	105.3	26.8	2.4	35.7	98.8	-	-	Carrier
Hori	2400.000	PK	45.3	26.8	2.4	35.7	38.8	78.8	40.0	
Vert	2402.000	PK	109.2	27.5	2.4	32.4	106.7	-	-	Carrier
Vert	2400.000	PK	48.5	27.5	2.4	32.4	46.0	86.7	40.7	

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

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Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 and 4 Semi Anechoic Chamber	
Report No.	10004953H	
Date	04/28/2013	04/30/2013
Temperature/ Humidity	21 deg.C/ 41% RH	22 deg. C / 34%RH
Engineer	Keisuke Kawamura (1-10GHz)	Kazuya Yoshioka (10-26.5GHz)/(Below 1GHz)
Mode	Tx, DH5 2441MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	56.280	QP	26.1	9.3	7.5	32.2	10.7	40.0	29.3	
Hori	79.441	QP	33.6	6.7	7.8	32.1	16.0	40.0	24.0	
Hori	320.021	QP	36.9	16.7	9.9	32.0	31.5	46.0	14.5	
Hori	336.030	QP	39.9	16.9	10.1	32.0	34.9	46.0	11.1	
Hori	352.025	QP	35.8	17.2	10.2	32.0	31.2	46.0	14.8	
Hori	368.029	QP	29.9	17.4	10.3	32.0	25.6	46.0	20.4	
Hori	2700.011	PK	49.6	27.1	2.5	35.5	43.7	73.9	30.2	
Hori	4882.000	PK	42.4	30.9	4.2	34.9	42.6	73.9	31.4	
Hori	7323.000	PK	45.5	35.7	4.9	34.9	51.2	73.9	22.8	
Hori	9764.000	PK	44.8	38.4	5.7	35.4	53.5	73.9	20.4	
Hori	2700.011	AV	45.1	27.1	2.5	35.5	39.2	53.9	14.7	
Hori	4882.000	AV	32.2	30.9	4.2	34.9	32.4	53.9	21.5	
Hori	7323.000	AV	35.2	35.7	4.9	34.9	40.9	53.9	13.0	
Hori	9764.000	AV	31.8	38.4	5.7	35.4	40.5	53.9	13.4	
Vert	55.741	QP	37.3	9.5	7.5	32.2	22.1	40.0	17.9	
Vert	84.841	QP	41.3	7.5	7.9	32.0	24.7	40.0	15.3	
Vert	320.017	QP	29.9	16.7	9.9	32.0	24.5	46.0	21.5	
Vert	336.031	QP	32.9	16.9	10.1	32.0	27.9	46.0	18.1	
Vert	352.019	QP	31.5	17.2	10.2	32.0	26.9	46.0	19.1	
Vert	368.025	QP	29.3	17.4	10.3	32.0	25.0	46.0	21.0	
Vert	2700.011	PK	50.0	27.1	2.5	35.5	44.1	73.9	29.8	
Vert	4882.000	PK	44.6	30.9	4.2	34.9	44.8	73.9	29.1	
Vert	7323.000	PK	43.3	35.7	4.9	34.9	49.0	73.9	24.9	
Vert	9764.000	PK	43.8	38.4	5.7	35.4	52.5	73.9	21.4	
Vert	2700.011	AV	45.3	27.1	2.5	35.5	39.4	53.9	14.5	
Vert	4882.000	AV	36.2	30.9	4.2	34.9	36.4	53.9	17.5	
Vert	7323.000	AV	32.9	35.7	4.9	34.9	38.6	53.9	15.3	
Vert	9764.000	AV	31.7	38.4	5.7	35.4	40.4	53.9	13.5	

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).

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 and 4 Semi Anechoic Chamber	
Report No.	10004953H	
Date	04/28/2013	04/30/2013
Temperature/ Humidity	21 deg.C/ 41% RH	22 deg. C / 34%RH
Engineer	Keisuke Kawamura (1-10GHz)	Kazuya Yoshioka (10-26.5GHz)/(Below 1GHz)
Mode	Tx, DH5 2480MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	55.941	QP	26.8	9.4	7.5	32.2	11.5	40.0	28.5	
Hori	79.441	QP	32.8	6.7	7.8	32.1	15.2	40.0	24.8	
Hori	320.023	QP	36.4	16.7	9.9	32.0	31.0	46.0	15.0	
Hori	336.026	QP	40.0	16.9	10.1	32.0	35.0	46.0	11.0	
Hori	352.026	QP	35.6	17.2	10.2	32.0	31.0	46.0	15.0	
Hori	368.020	QP	29.6	17.4	10.3	32.0	25.3	46.0	20.7	
Hori	2483.500	PK	57.1	26.7	2.4	35.7	50.5	73.9	23.4	
Hori	2700.011	PK	49.6	27.1	2.5	35.5	43.7	73.9	30.2	
Hori	4960.000	PK	43.4	31.1	4.2	34.9	43.8	73.9	30.1	
Hori	7440.000	PK	46.8	35.9	5.0	34.9	52.8	73.9	21.1	
Hori	9920.000	PK	44.8	38.7	5.8	35.4	53.9	73.9	20.0	
Hori	2483.500	AV	39.4	26.7	2.4	35.7	32.8	53.9	21.1	
Hori	2700.011	AV	45.1	27.1	2.5	35.5	39.2	53.9	14.7	
Hori	4960.000	AV	33.8	31.1	4.2	34.9	34.2	53.9	19.7	
Hori	7440.000	AV	37.7	35.9	5.0	34.9	43.7	53.9	10.2	
Hori	9920.000	AV	31.8	38.7	5.8	35.4	40.9	53.9	13.0	
Vert	55.841	QP	37.4	9.4	7.5	32.2	22.1	40.0	17.9	
Vert	84.421	QP	40.7	7.4	7.9	32.1	23.9	40.0	16.1	
Vert	320.030	QP	29.6	16.7	9.9	32.0	24.2	46.0	21.8	
Vert	336.010	QP	32.6	16.9	10.1	32.0	27.6	46.0	18.4	
Vert	352.030	QP	31.7	17.2	10.2	32.0	27.1	46.0	18.9	
Vert	368.036	QP	28.7	17.4	10.3	32.0	24.4	46.0	21.6	
Vert	2483.500	PK	52.3	26.7	2.4	35.7	45.7	73.9	28.2	
Vert	2700.011	PK	50.0	27.1	2.5	35.5	44.1	73.9	29.8	
Vert	4960.000	PK	45.6	31.1	4.2	34.9	46.0	73.9	27.9	
Vert	7440.000	PK	45.9	35.9	5.0	34.9	51.9	73.9	22.0	
Vert	9920.000	PK	43.8	38.7	5.8	35.4	52.9	73.9	21.0	
Vert	2483.500	AV	36.2	26.7	2.4	35.7	29.6	53.9	24.3	
Vert	2700.011	AV	45.3	27.1	2.5	35.5	39.4	53.9	14.5	
Vert	4960.000	AV	36.7	31.1	4.2	34.9	37.1	53.9	16.8	
Vert	7440.000	AV	36.2	35.9	5.0	34.9	42.2	53.9	11.7	
Vert	9920.000	AV	31.7	38.7	5.8	35.4	40.8	53.9	13.1	

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).

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 and 4 Semi Anechoic Chamber	
Report No.	10004953H	
Date	04/28/2013	04/30/2013
Temperature/ Humidity	21 deg.C/ 41% RH	22 deg. C / 34%RH
Engineer	Keisuke Kawamura	Kazuya Yoshioka
	(1-10GHz)	(10-26.5GHz)/(Below 1GHz)
Mode	Tx, 3DH5 2402MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	56.001	QP	27.4	9.4	7.5	32.2	12.1	40.0	27.9	
Hori	79.441	QP	32.5	6.7	7.8	32.1	14.9	40.0	25.1	
Hori	320.019	QP	36.5	16.7	9.9	32.0	31.1	46.0	14.9	
Hori	336.020	QP	40.1	16.9	10.1	32.0	35.1	46.0	10.9	
Hori	352.022	QP	36.0	17.2	10.2	32.0	31.4	46.0	14.6	
Hori	368.027	QP	30.8	17.4	10.3	32.0	26.5	46.0	19.5	
Hori	2390.000	PK	47.2	26.8	2.4	35.7	40.7	73.9	33.2	
Hori	2700.011	PK	49.6	27.1	2.5	35.5	43.7	73.9	30.2	
Hori	4804.000	PK	46.8	30.6	4.2	34.9	46.7	73.9	27.2	
Hori	7206.000	PK	42.5	35.5	4.9	34.9	48.0	73.9	25.9	
Hori	9608.000	PK	44.4	38.2	5.7	35.4	52.9	73.9	21.0	
Hori	2390.000	AV	33.8	26.8	2.4	35.7	27.3	53.9	26.6	
Hori	2700.011	AV	45.1	27.1	2.5	35.5	39.2	53.9	14.7	
Hori	4804.000	AV	31.6	30.6	4.2	34.9	31.5	53.9	22.4	
Hori	7206.000	AV	30.9	35.5	4.9	34.9	36.4	53.9	17.5	
Hori	9608.000	AV	31.7	38.2	5.7	35.4	40.2	53.9	13.7	
Vert	55.966	QP	38.3	9.4	7.5	32.2	23.0	40.0	17.0	
Vert	84.961	QP	41.6	7.5	7.9	32.0	25.0	40.0	15.0	
Vert	320.008	QP	29.3	16.7	9.9	32.0	23.9	46.0	22.1	
Vert	336.021	QP	33.4	16.9	10.1	32.0	28.4	46.0	17.6	
Vert	352.033	QP	31.8	17.2	10.2	32.0	27.2	46.0	18.8	
Vert	368.031	QP	29.1	17.4	10.3	32.0	24.8	46.0	21.2	
Vert	2390.000	PK	48.6	26.8	2.4	35.7	42.1	73.9	31.8	
Vert	2700.011	PK	50.0	27.1	2.5	35.5	44.1	73.9	29.8	
Vert	4804.000	PK	44.8	30.6	4.2	34.9	44.7	73.9	29.2	
Vert	7206.000	PK	42.7	35.5	4.3	34.9	47.6	73.9	26.3	
Vert	9608.000	PK	42.9	38.2	5.0	35.4	50.7	73.9	23.2	
Vert	2390.000	AV	35.4	26.8	2.4	35.7	28.9	53.9	25.0	
Vert	2700.011	AV	45.3	27.1	2.5	35.5	39.4	53.9	14.5	
Vert	4804.000	AV	33.4	30.6	4.2	34.9	33.3	53.9	20.6	
Vert	7206.000	AV	30.9	35.5	4.3	34.9	35.8	53.9	18.1	
Vert	9608.000	AV	31.8	38.2	5.0	35.4	39.6	53.9	14.3	

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).

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

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	2402.000	PK	102.6	26.8	2.4	35.7	96.1	-	-	Carrier
Hori	2400.000	PK	44.7	26.8	2.4	35.7	38.2	76.1	37.9	
Vert	2402.000	PK	105.5	26.8	2.4	35.7	99.0	-	-	Carrier
Vert	2400.000	PK	47.3	26.8	2.4	35.7	40.8	79.0	38.2	

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 and 4 Semi Anechoic Chamber	
Report No.	10004953H	
Date	04/28/2013	04/30/2013
Temperature/ Humidity	21 deg.C/ 41% RH	22 deg. C / 34%RH
Engineer	Keisuke Kawamura (1-10GHz)	Kazuya Yoshioka (10-26.5GHz)/(Below 1GHz)
Mode	Tx, 3DH5 2441MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	56.023	QP	27.9	9.4	7.5	32.2	12.6	40.0	27.4	
Hori	80.438	QP	34.7	6.7	7.8	32.1	17.1	40.0	22.9	
Hori	304.021	QP	35.9	16.4	9.8	32.0	30.1	46.0	15.9	
Hori	320.022	QP	37.1	16.7	9.9	32.0	31.7	46.0	14.3	
Hori	336.024	QP	40.1	16.9	10.1	32.0	35.1	46.0	10.9	
Hori	352.024	QP	36.0	17.2	10.2	32.0	31.4	46.0	14.6	
Hori	2700.011	PK	49.6	27.1	2.5	35.5	43.7	73.9	30.2	
Hori	4882.000	PK	42.7	30.9	4.2	34.9	42.9	73.9	31.0	
Hori	7323.000	PK	42.5	35.7	4.9	34.9	48.2	73.9	25.7	
Hori	9764.000	PK	44.4	38.4	5.7	35.4	53.1	73.9	20.8	
Hori	2700.011	AV	45.1	27.1	2.5	35.5	39.2	53.9	14.7	
Hori	4882.000	AV	31.2	30.9	4.2	34.9	31.4	53.9	22.5	
Hori	7323.000	AV	30.9	35.7	4.9	34.9	36.6	53.9	17.3	
Hori	9764.000	AV	31.7	38.4	5.7	35.4	40.4	53.9	13.5	
Vert	56.004	QP	39.2	9.4	7.5	32.2	23.9	40.0	16.1	
Vert	85.668	QP	42.0	7.6	7.9	32.0	25.5	40.0	14.5	
Vert	304.022	QP	30.2	16.4	9.8	32.0	24.4	46.0	21.6	
Vert	320.021	QP	32.6	16.7	9.9	32.0	27.2	46.0	18.8	
Vert	336.023	QP	34.3	16.9	10.1	32.0	29.3	46.0	16.7	
Vert	352.023	QP	32.8	17.2	10.2	32.0	28.2	46.0	17.8	
Vert	2700.011	PK	50.0	27.1	2.5	35.5	44.1	73.9	29.8	
Vert	4882.000	PK	43.4	30.9	4.2	34.9	43.6	73.9	30.3	
Vert	7323.000	PK	42.7	35.7	4.9	34.9	48.4	73.9	25.5	
Vert	9764.000	PK	42.9	38.4	5.7	35.4	51.6	73.9	22.3	
Vert	2700.011	AV	45.3	27.1	2.5	35.5	39.4	53.9	14.5	
Vert	4882.000	AV	31.8	30.9	4.2	34.9	32.0	53.9	21.9	
Vert	7323.000	AV	30.9	35.7	4.9	34.9	36.6	53.9	17.3	
Vert	9764.000	AV	31.8	38.4	5.7	35.4	40.5	53.9	13.4	

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).

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 and 4 Semi Anechoic Chamber	
Report No.	10004953H	
Date	04/28/2013	04/30/2013
Temperature/ Humidity	21 deg.C/ 41% RH	22 deg. C / 34%RH
Engineer	Keisuke Kawamura (1-10GHz)	Kazuya Yoshioka (10-26.5GHz)/(Below 1GHz)
Mode	Tx, 3DH5 2480MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	56.004	QP	27.7	9.4	7.5	32.2	12.4	40.0	27.6	
Hori	80.064	QP	37.3	6.7	7.8	32.1	19.7	40.0	20.3	
Hori	304.020	QP	36.2	16.4	9.8	32.0	30.4	46.0	15.6	
Hori	320.022	QP	38.2	16.7	9.9	32.0	32.8	46.0	13.2	
Hori	336.023	QP	40.3	16.9	10.1	32.0	35.3	46.0	10.7	
Hori	352.025	QP	36.1	17.2	10.2	32.0	31.5	46.0	14.5	
Hori	2483.500	PK	53.2	26.7	2.4	35.7	46.6	73.9	27.3	
Hori	2700.011	PK	49.6	27.1	2.5	35.5	43.7	73.9	30.2	
Hori	4960.000	PK	43.4	31.1	4.2	34.9	43.8	73.9	30.1	
Hori	7440.000	PK	42.5	35.9	5.0	34.9	48.5	73.9	25.4	
Hori	9920.000	PK	44.4	38.7	5.8	35.4	53.5	73.9	20.4	
Hori	2483.500	AV	37.0	26.7	2.4	35.7	30.4	53.9	23.5	
Hori	2700.011	AV	45.1	27.1	2.5	35.5	39.2	53.9	14.7	
Hori	4960.000	AV	33.0	31.1	4.2	34.9	33.4	53.9	20.5	
Hori	7440.000	AV	30.9	35.9	5.0	34.9	36.9	53.9	17.0	
Hori	9920.000	AV	31.7	38.7	5.8	35.4	40.8	53.9	13.1	
Vert	56.007	QP	38.7	9.4	7.5	32.2	23.4	40.0	16.6	
Vert	85.567	QP	44.2	7.6	7.9	32.0	27.7	40.0	12.3	
Vert	320.022	QP	33.4	16.7	9.9	32.0	28.0	46.0	18.0	
Vert	336.024	QP	33.2	16.9	10.1	32.0	28.2	46.0	17.8	
Vert	352.024	QP	32.7	17.2	10.2	32.0	28.1	46.0	17.9	
Vert	368.026	QP	30.9	17.4	10.3	32.0	26.6	46.0	19.4	
Vert	2483.500	PK	51.7	26.7	2.4	35.7	45.1	73.9	28.8	
Vert	2700.011	PK	50.0	27.1	2.5	35.5	44.1	73.9	29.8	
Vert	4960.000	PK	45.1	31.1	4.2	34.9	45.5	73.9	28.4	
Vert	7440.000	PK	42.7	35.9	5.0	34.9	48.7	73.9	25.2	
Vert	9920.000	PK	42.9	38.7	5.8	35.4	52.0	73.9	21.9	
Vert	2483.500	AV	36.2	26.7	2.4	35.7	29.6	53.9	24.3	
Vert	2700.011	AV	45.3	27.1	2.5	35.5	39.4	53.9	14.5	
Vert	4960.000	AV	34.0	31.1	4.2	34.9	34.4	53.9	19.5	
Vert	7440.000	AV	30.9	35.9	5.0	34.9	36.9	53.9	17.1	
Vert	9920.000	AV	31.8	38.7	5.8	35.4	40.9	53.9	13.0	

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).

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

APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE/CE	2013/02/28 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE/CE	2013/02/26 * 12
MJM-09	Measure	KDS	E19-55	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE/CE	2012/11/20 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2012/08/17 * 12
MCC-141	Microwave Cable	Junkosha	MWX221	1203S212(1m)/ 1204S062(5m)	RE	2012/04/23 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2013/03/19 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2012/05/30 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2012/06/27 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE/CE	2013/04/10 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE	2013/01/07 * 12
MAT-67	Attenuator	JFW Industries, Inc.	50FP-013H2 N	-	CE	2013/01/09 * 12
MCC-113	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/ SFM141(5m)/ 421-010(1m)/ sucoform141-PE(1m)/ RFM-E121(Switcher)	-/04178	CE	2012/07/12 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2012/11/18 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2012/11/18 * 12
MCC-50	Coaxial Cable	UL Japan	-	-	RE	2012/06/01 * 12
MAT-68	Attenuator	Anritsu	MP721B	6200961025	RE	2012/11/21 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2013/03/12 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2012/06/29 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2013/02/26 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2013/04/03 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2013/02/15 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2013/01/10 * 12
MHA-02	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	RE	2013/02/15 * 12
MCC-132	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336161/4(1m) / 340639(5m)	RE	2012/09/05 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2012/05/30 * 12
MHF-16	High Pass Filter 7-20GHz	TOKIMEC	TF37NCCA	7001	RE	2012/09/06 * 12
MCC-77	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278942/4	RE	2012/12/14 * 12
MHA-04	Horn Antenna 26.5-40GHz	EMCO	3160-10	1140	RE	2012/11/07 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	3950M00205	RE	2012/06/22 * 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