



RADIO TEST REPORT

Test Report No. : 10400823H-B

Applicant : Sony Computer Entertainment Inc.
Type of Equipment : PlayStation® TV
Model No. : VTE-1001
FCC ID : AK8VTE1001S1
Test regulation : FCC Part 15 Subpart C: 2014
*Bluetooth Part
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.

Date of test: August 5 to 20, 2014

Representative test engineer: 
Takumi Shimada
Engineer
Consumer Technology Division

Approved by: 
Masanori Nishiyama
Manager
Consumer Technology Division



NVLAP LAB CODE: 200572-0

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

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Ise EMC Lab.

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13-EM-F0429

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SECTION 1: Customer information

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

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

2.1 Identification of E.U.T.

Type of Equipment	PlayStation® TV
Model No	VTE-1001
Serial No	Refer to Section 4, Clause 4.2
Country of Manufacture	China
Receipt Date of Sample	August 2, 2014
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

VTE-1001 is PlayStation® TV.

WLAN antenna and Bluetooth antenna transmit simultaneously, but there is no correlation between WLAN antenna and Bluetooth antenna.

Product Specification

Maximum clock frequency in the system	444MHz
Operating Temperature	5-35 deg. C
Power Supply	DC 5.0V
Size	105.0 x 65.0 x 13.6 mm
Weight	Approx. 110g

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Radio Specification

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

Equipment Type	Transceiver
Frequency of Operation	2412-2462MHz
Type of Modulation	DSSS, OFDM
Bandwidth & Channel spacing	20MHz & 5MHz
Method of frequency generation	Synthesizer
Power Supply (inner)	DC 1.8V/DC 3.1V
Antenna Type	Inverted F
Antenna Gain	1.25dBi (Peak)

Bluetooth (BDR/EDR)

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	FHSS (GFSK, $\pi/4$ DQPSK, 8DPSK)
Bandwidth & Channel spacing	1MHz & 1MHz
Method of frequency generation	Synthesizer
Power Supply (inner)	DC 1.8V
Antenna Type	Inverted F
Antenna Gain	-0.88dBi (peak)

*This test report applies for Bluetooth.

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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 May 1, 2014 and effective June 2, 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

* The EUT complies with FCC Part 15 Subpart B: 2014, final revised on May 1, 2014 and effective June 2, 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 IC: RSS-Gen 7.2.4	FCC: Section 15.207 IC: RSS-Gen 7.2.4	QP 20.8dB, 0.61949MHz, L AV 18.7dB, 0.61900MHz, L (DH5) 2.27052MHz, N (3DH5) 0.61949MHz, L (3DH5)	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.	Complied	Conducted
20dB Bandwidth	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1) IC: RSS-210 A8.1 (a)		Complied	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)		Complied	Conducted
Dwell time	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1)(iii) IC: RSS-210 A8.1 (d)		Complied	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)		Complied	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		4.1dB 370.878MHz, QP, Horizontal	Complied

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 Part 15.31 (e)

This EUT provides stable voltage (DC 1.8V/3.1V) 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.

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3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Bandwidth	IC: RSS-Gen 4.6.1	IC: RSS-Gen 4.6.1	N/A	-	Conducted

Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

EMI

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

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

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

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

Power meter (+dB)	
Below 1GHz	Above 1GHz
0.7dB	1.5dB

Antenna terminal conducted emission and Power density (+dB)			Antenna terminal conducted emission (+dB)		Channel power (+dB)
Below 1GHz	1GHz-3GHz	3GHz-18GHz	18GHz-26.5GHz	26.5GHz-40GHz	
1.5dB	1.7dB	2.8dB	2.8dB	2.9dB	2.6dB

Conducted Emission test

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

Radiated emission test (3m)

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

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3.5 Test Location

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	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	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	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	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	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.

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

4.1 Operating Mode(s)

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

Details of Operating Mode(s)

Test Item	Mode	Tested frequency
Conducted Emission, Spurious Emission (Conducted/Radiated)	Tx (Hopping off) DH5, 3DH5	2402MHz 2441MHz 2480MHz
20dB Bandwidth, Carrier Frequency Separation	Tx (Hopping on) DH5, 3DH5 Inquiry	2402MHz 2441MHz 2480MHz
Number of Hopping Frequency	Tx (Hopping on) DH5, 3DH5 Inquiry	-
Dwell time	Tx (Hopping on), -DH1, DH3, DH5 -3DH1, 3DH3, 3DH5 Inquiry	-
Maximum Peak Output Power	Tx (Hopping off) DH5, 2DH5, 3DH5 Inquiry	2402MHz 2441MHz 2480MHz
Band Edge Compliance (Conducted)	Tx DH5, 3DH5 -Hopping on -Hopping off	2402MHz 2480MHz
99% Occupied Bandwidth	Tx DH5, 3DH5 -Hopping on -Hopping off Inquiry	2402MHz 2441MHz 2480MHz
<p>*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload length (except Dwell time test) *2DH mode (2Mb/s EDR: pi/4DQPSK) was excluded for other tests than power measurement by using 3DH mode (3 Mb/s EDR: 8DPSK) as a representative.</p> <p>*EUT has the power settings by the software as follows; Power settings: Same as production model Software: LABTOOL-VTE10-L.L-Ver.1.0.2 *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.</p>		

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4.2 Configuration and peripherals

This page has been submitted for a separate exhibit.

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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.

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

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SECTION 6: Radiated Spurious Emission

Test Procedure

EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, 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 FCC15.205 / 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	PK
IF Bandwidth	BW 120kHz	RBW: 1MHz VBW: 3MHz	RBW: 1MHz VBW: 10Hz *1)	RBW: 100kHz VBW: 300kHz
Test Distance	3m	3m (below 10GHz), 1m*2) (above 10GHz)		3m (below 10GHz), 1m*2) (above 10GHz)

*1) Although 00-705 accepts VBW=10Hz for AV measurements, it was confirmed that superfluous smoothing was not performed.”

*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, Y and Z 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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SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
20dB Bandwidth	3MHz	30kHz	100kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth	Enough width to display 20dB Bandwidth	1 to 3% of Span	Three times of RBW	Auto	Peak	Max Hold *1)	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak Average *2)	-	Power Meter (Sensor: 50MHz BW)
Carrier Frequency Separation	5MHz or 3MHz	100kHz or 30kHz	300kHz or 100kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Number of Hopping Frequency	30MHz	300kHz	1MHz	Auto	Peak	Max Hold	Spectrum Analyzer
Dwell Time	Zero Span	100kHz, 1MHz	300kHz, 3MHz	As necessary capture the entire dwell time per hopping channel	Peak	Clear Write	Spectrum Analyzer
Conducted Spurious Emission *3)	9kHz to 150kHz	200Hz	620Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150kHz to 30MHz	9.1kHz	27kHz				
	30MHz to 25GHz (Less or equal to 5GHz)	100kHz	300kHz				
Conducted Spurious Emission Band Edge compliance	10MHz	100kHz	300kHz	Auto	Peak	Max Hold	Spectrum Analyzer
*1) The measurement was performed with Max Hold since the duty cycle was not 100%. *2) Reference data *3) In the frequency range below 30MHz, RBW was narrowed to separate the noise contents. Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart. (9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=9.1kHz)							

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

Test data : APPENDIX
Test result : Pass

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APPENDIX 1: Data of EMI test

Conducted Emission

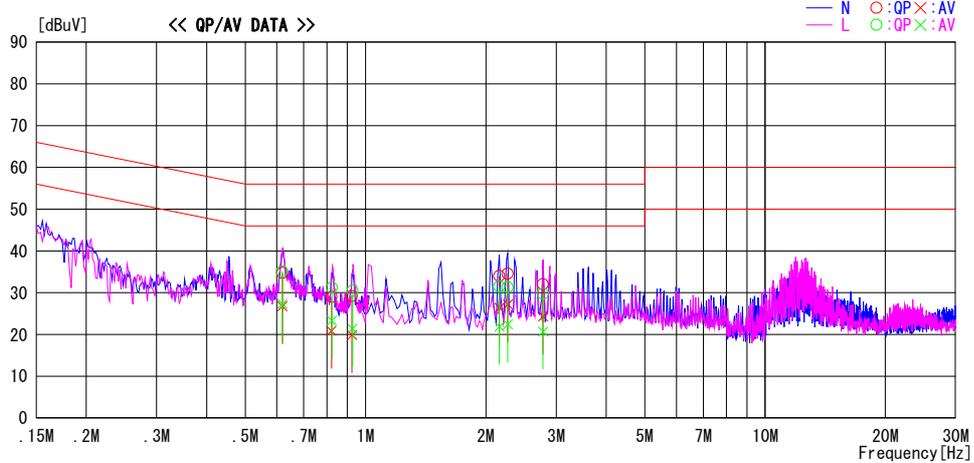
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber
Date : 2014/08/20

Report No. : 10400823H
Temp./Humi. : 24deg. C / 62% RH
Engineer : Yuta Moriya

Mode / Remarks : Tx DH5 2441MHz

LIMIT : FCC15.207 QP
FCC15.207 AV

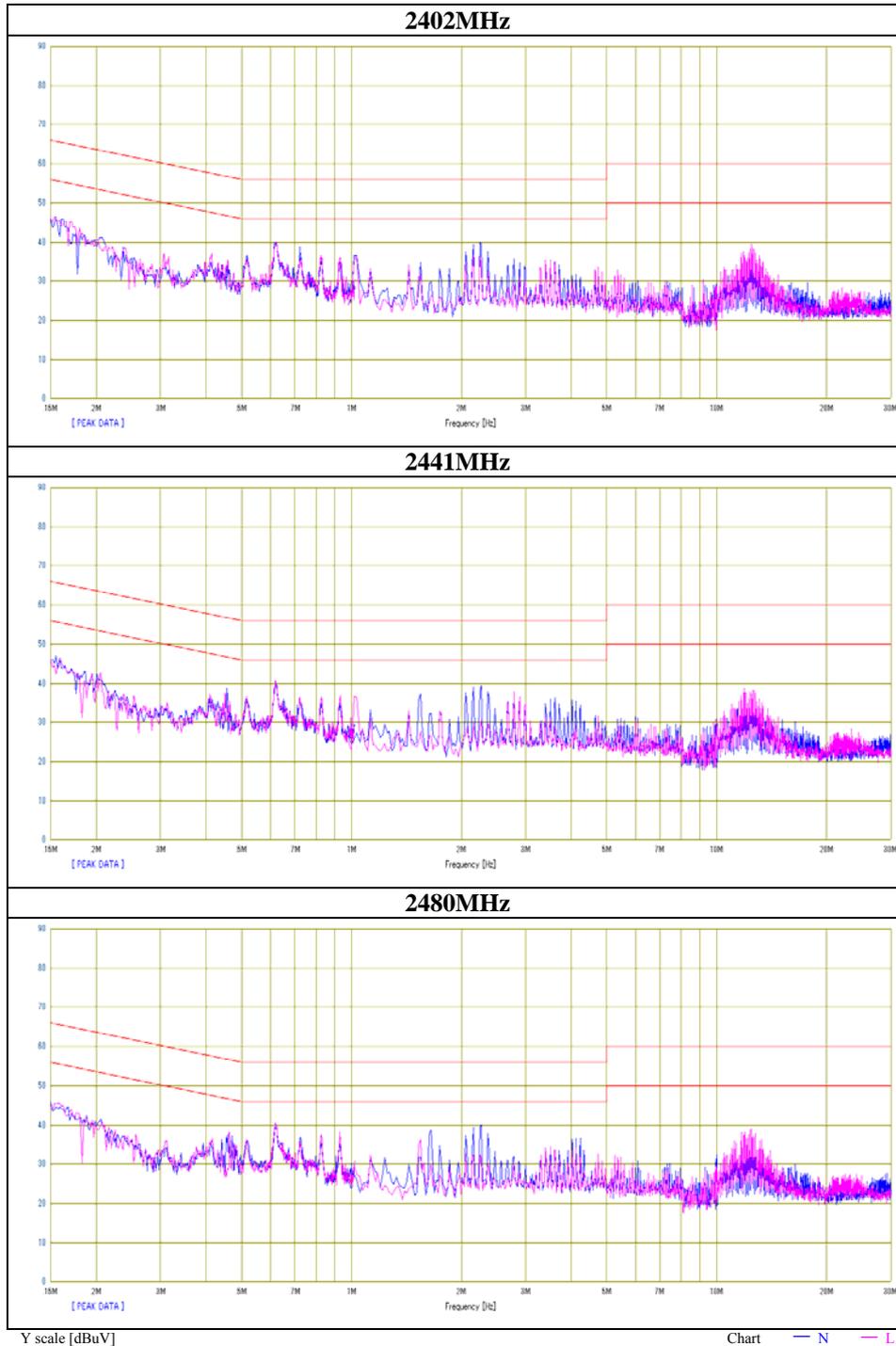


Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.61949	21.3	13.4	13.4	34.7	26.8	56.0	46.0	21.3	19.2	N	
0.82148	15.6	7.5	13.4	29.0	20.9	56.0	46.0	27.0	25.1	N	
0.92460	15.8	6.5	13.4	29.2	19.9	56.0	46.0	26.8	26.1	N	
2.16146	20.3	12.7	13.7	34.0	26.4	56.0	46.0	22.0	19.6	N	
2.27052	20.9	13.5	13.7	34.6	27.2	56.0	46.0	21.4	18.8	N	
2.77946	18.3	10.6	13.7	32.0	24.3	56.0	46.0	24.0	21.7	N	
0.61900	21.7	13.9	13.4	35.1	27.3	56.0	46.0	20.9	18.7	L	
0.82345	17.8	9.9	13.4	31.2	23.3	56.0	46.0	24.8	22.7	L	
0.92719	17.1	8.0	13.4	30.5	21.4	56.0	46.0	25.5	24.6	L	
2.16146	17.8	8.2	13.7	31.5	21.9	56.0	46.0	24.5	24.1	L	
2.27052	17.6	8.7	13.7	31.3	22.4	56.0	46.0	24.7	23.6	L	
2.77946	16.0	7.0	13.7	29.7	20.7	56.0	46.0	26.3	25.3	L	

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

Conducted Emission

Test place	Ise EMC Lab. No.1 Semi Anechoic Chamber
Report No.	10400823H
Date	08/20/2014
Temperature/ Humidity	24 deg. C / 62% RH
Engineer	Yuta Moriya
Mode	Tx, DH5



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Conducted Emission

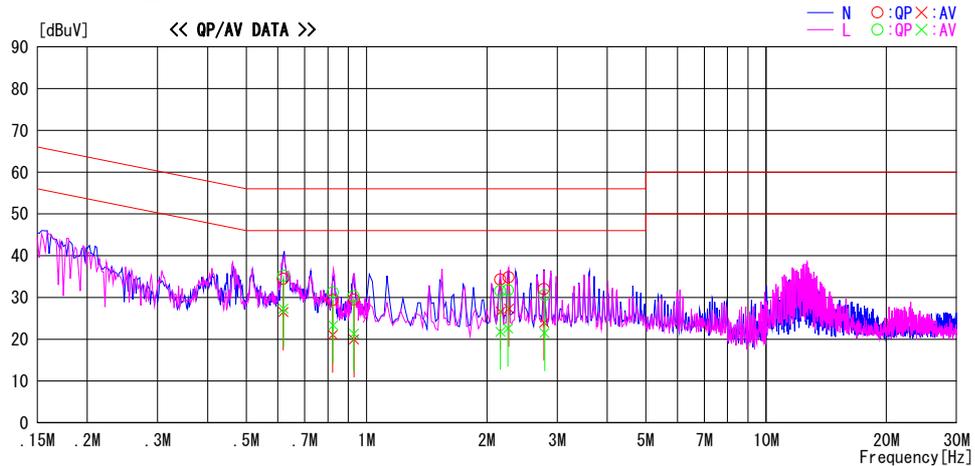
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber
Date : 2014/08/20

Report No. : 10400823H
Temp./Humi. : 24deg. C / 62% RH
Engineer : Yuta Moriya

Mode / Remarks : Tx 3DH5 2441MHz

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]		
0.61874	21.1	13.1	13.4	34.5	26.5	56.0	46.0	21.5	19.5	N	
0.82222	16.0	7.7	13.4	29.4	21.1	56.0	46.0	26.6	24.9	N	
0.92934	16.1	6.6	13.4	29.5	20.0	56.0	46.0	26.5	26.0	N	
2.16143	20.6	12.9	13.7	34.3	26.6	56.0	46.0	21.7	19.4	N	
2.27052	21.1	13.6	13.7	34.8	27.3	56.0	46.0	21.2	18.7	N	
2.77946	18.3	10.3	13.7	32.0	24.0	56.0	46.0	24.0	22.0	N	
0.61949	21.8	13.9	13.4	35.2	27.3	56.0	46.0	20.8	18.7	L	
0.82448	17.8	9.9	13.4	31.2	23.3	56.0	46.0	24.8	22.7	L	
0.92829	16.9	7.9	13.4	30.3	21.3	56.0	46.0	25.7	24.7	L	
2.16146	17.9	8.1	13.7	31.6	21.8	56.0	46.0	24.4	24.2	L	
2.26052	18.0	8.9	13.7	31.7	22.6	56.0	46.0	24.3	23.4	L	
2.78946	16.9	7.8	13.7	30.6	21.5	56.0	46.0	25.4	24.5	L	

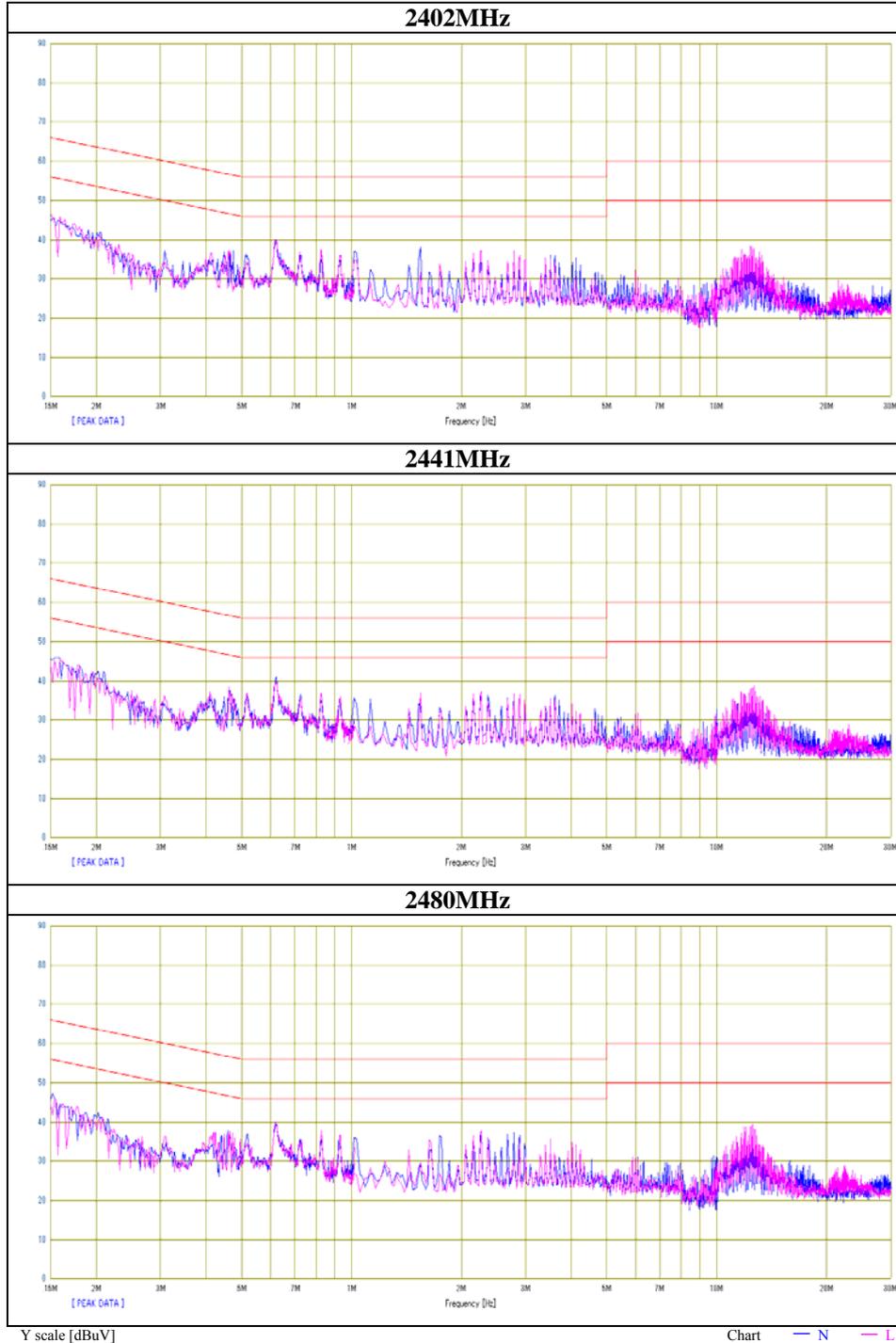
CHART : WITH FACTOR, Peak hold data. CALCULATION : RESULT[dBuV] = READING[dBuV] + C. F[dB] (LISN + CABLE + ATTEN.)
Except for the above table : adequate margin data below the limits.

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Conducted Emission

Test place	Ise EMC Lab. No.1 Semi Anechoic Chamber
Report No.	10400823H
Date	08/20/2014
Temperature/ Humidity	24 deg. C / 62% RH
Engineer	Yuta Moriya
Mode	Tx, 3DH5

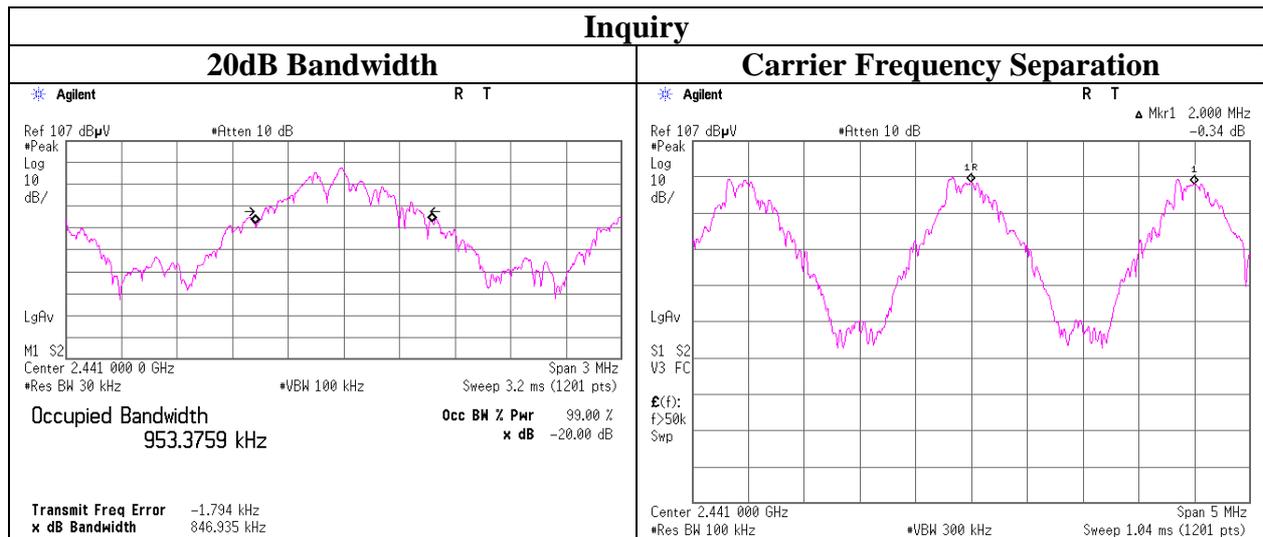


20dB Bandwidth and Carrier Frequency Separation

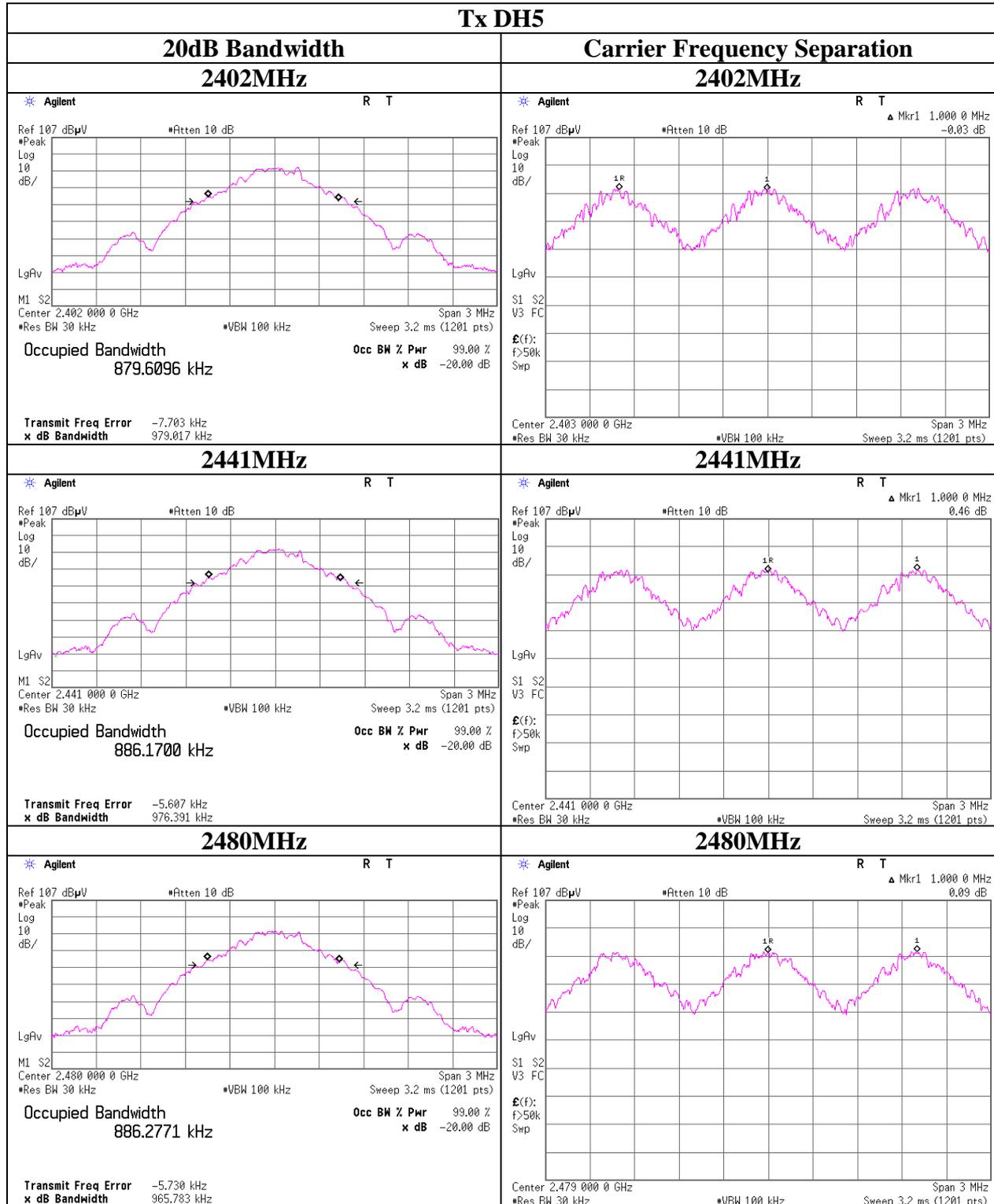
Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/06/2014
Temperature/ Humidity	26 deg. C / 48% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on) DH5/3DH5/Inquiry

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.979	1.000	≧ 0.653
DH5	2441.0	0.976	1.000	≧ 0.651
DH5	2480.0	0.966	1.000	≧ 0.644
3DH5	2402.0	1.305	1.000	≧ 0.870
3DH5	2441.0	1.301	1.000	≧ 0.867
3DH5	2480.0	1.311	1.000	≧ 0.874
Inquiry	2441.0	0.847	2.000	≧ 0.565

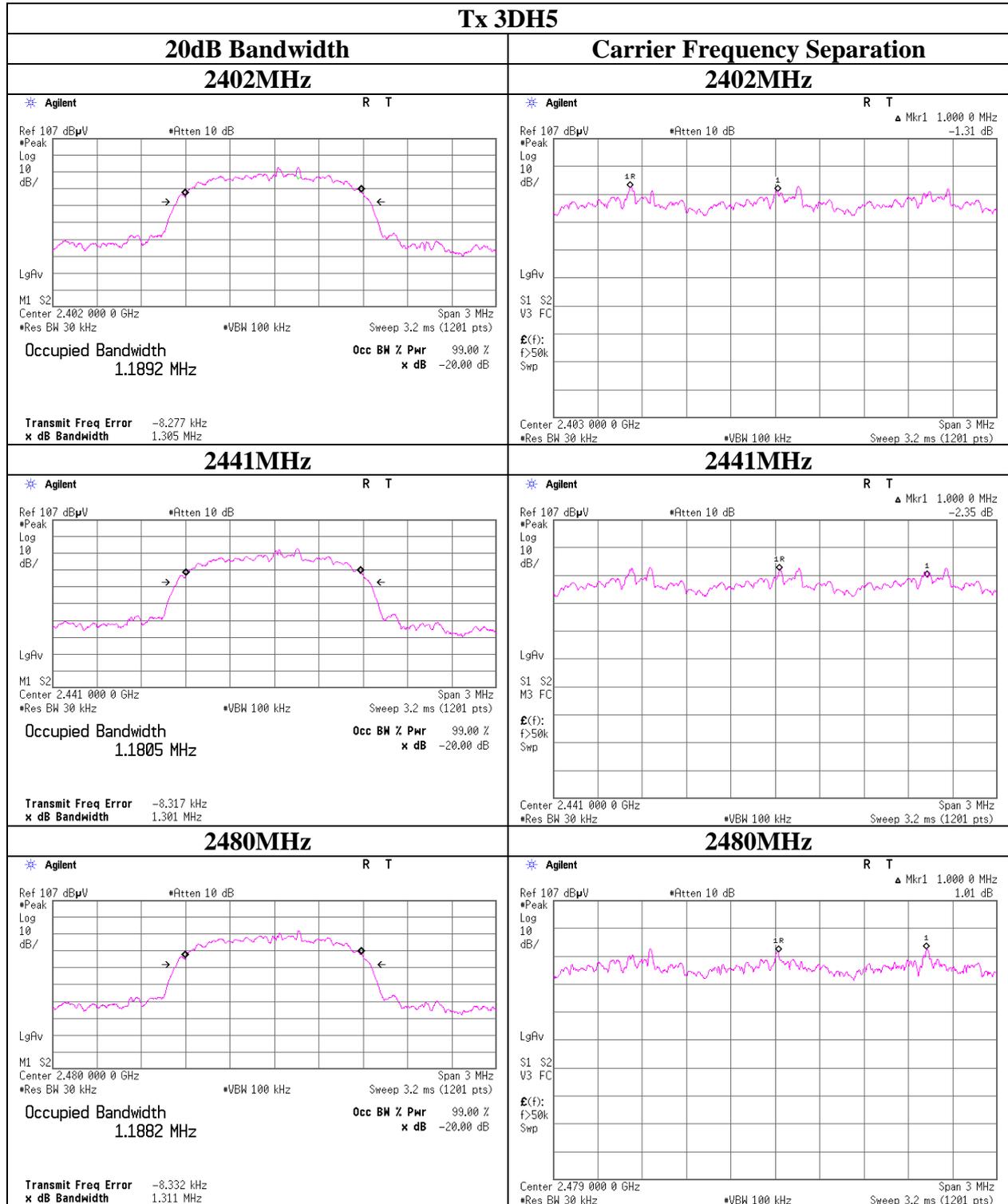
Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).
No limit applies to 20dB Bandwidth.



20dB Bandwidth and Carrier Frequency Separation



20dB Bandwidth and Carrier Frequency Separation

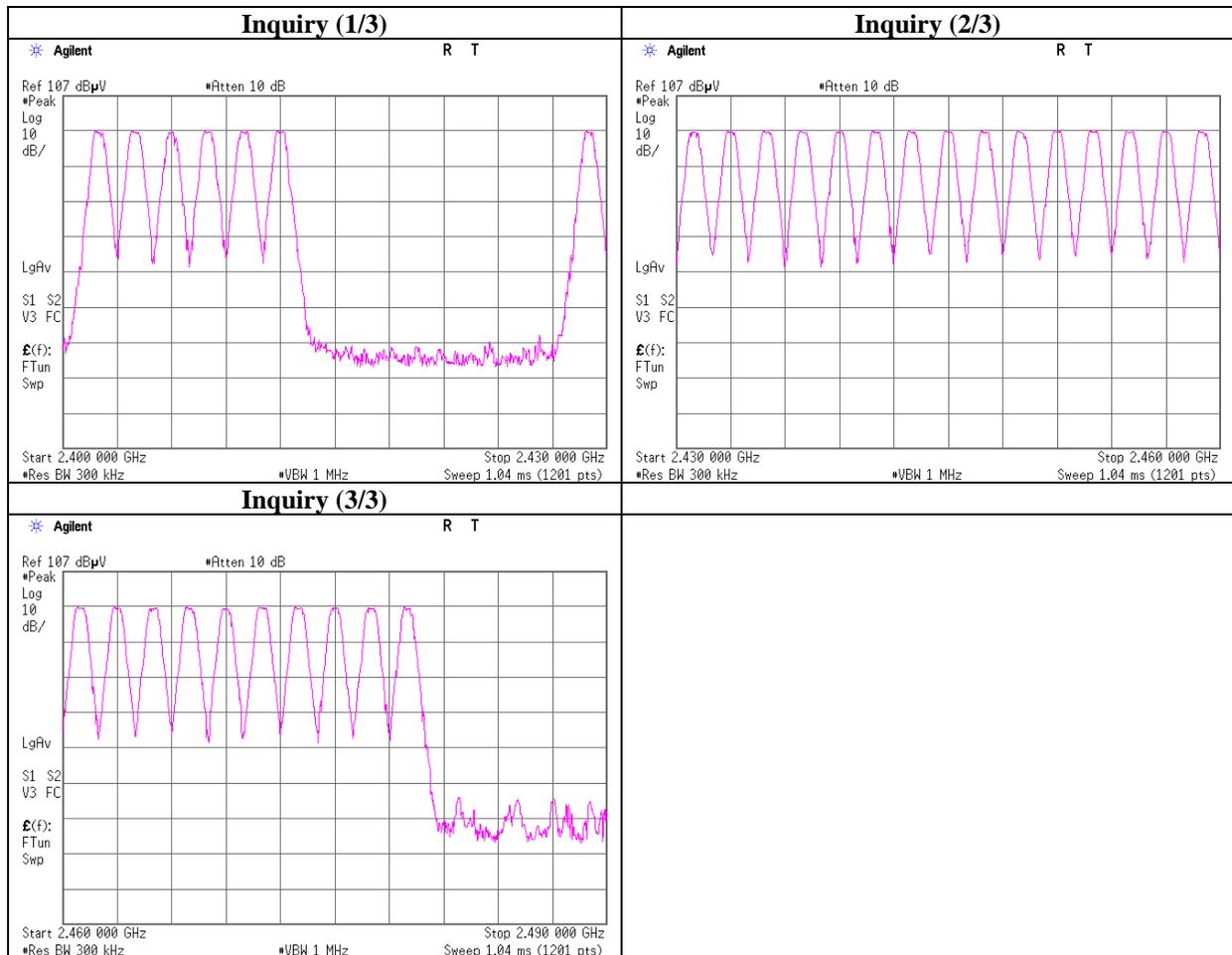


Number of Hopping Frequency

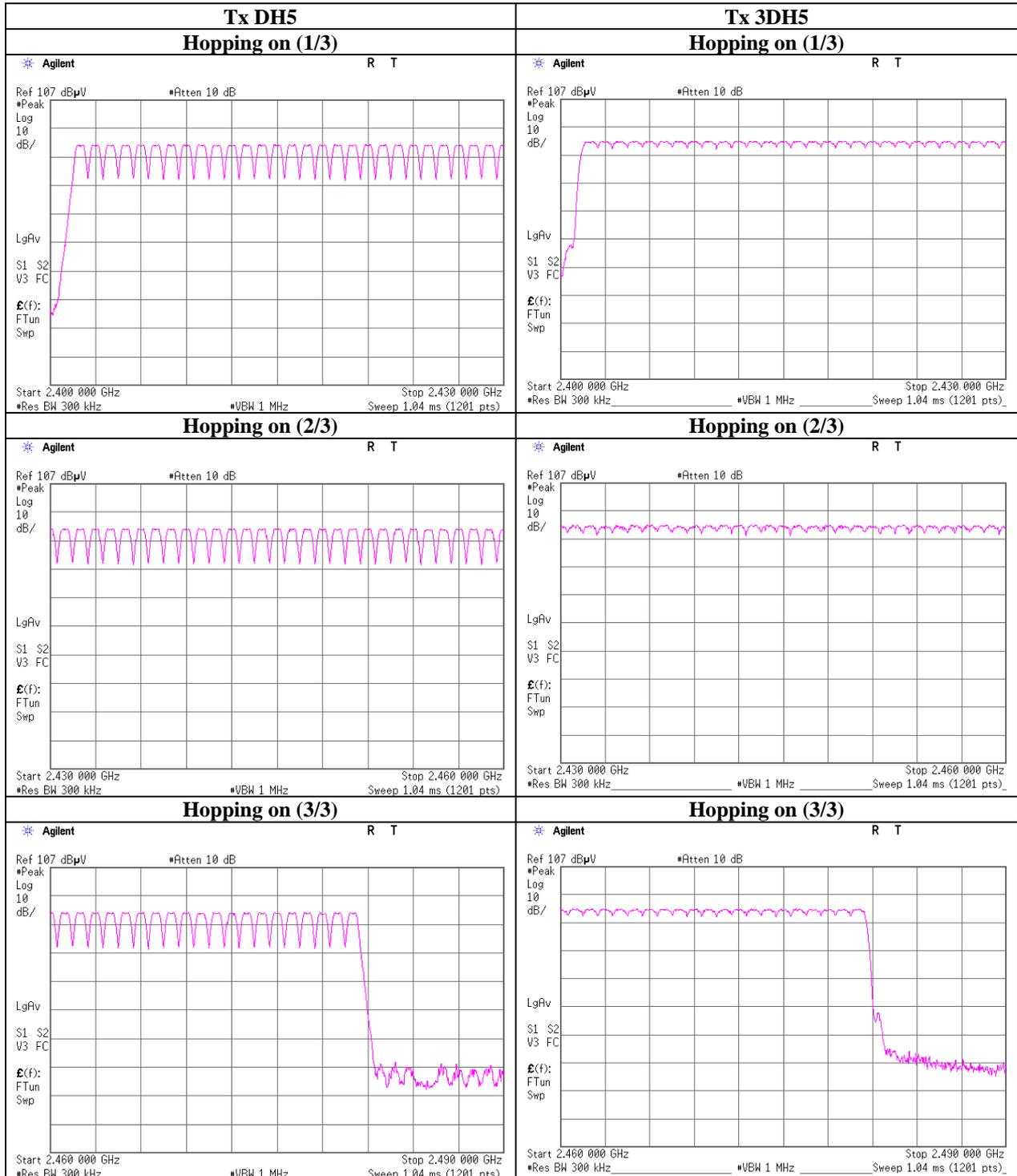
Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/06/2014
Temperature/ Humidity	26 deg. C / 48% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on) DH5/3DH5/Inquiry

Mode	Number of channel [times]	Limit [times]
DH5	79	>= 15
3DH5	79	>= 15
Inquiry	32	>= 15

Test was not performed at AFH mode whose number of hopping channel is 20 channels because this Bluetooth radio is in compliance of Bluetooth Specification.



Number of Hopping Frequency



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Dwell time

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/06/2014
Temperature/ Humidity	26 deg. C / 48% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on) DH5/3DH5/Inquiry

Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	48.4 times / 5 sec. x 31.6 sec. = 306 times	0.402	123	400
DH3	22.8 times / 5 sec. x 31.6 sec. = 145 times	1.657	240	400
DH5	18.6 times / 5 sec. x 31.6 sec. = 118 times	2.906	343	400
3DH1	50.0 times / 5 sec. x 31.6 sec. = 316 times	0.397	125	400
3DH3	26.8 times / 5 sec. x 31.6 sec. = 170 times	1.648	280	400
3DH5	18.6 times / 5 sec. x 31.6 sec. = 118 times	2.911	343	400
Inquiry	100.0 times / 1 sec. x 12.8 sec. = 1280 times	0.098	126	400

Sample Calculation

Result = Number of transmission x Length of transmission time

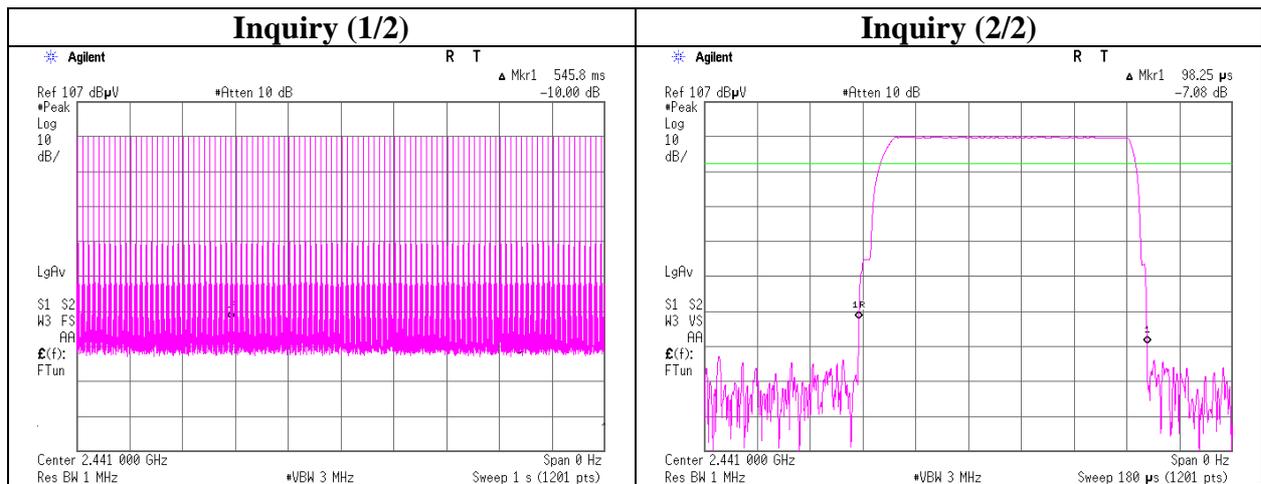
*Average data of 5 tests.(except Inquiry)

Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	48	49	49	47	49	48.4
DH3	22	21	24	22	25	22.8
DH5	17	15	18	23	20	18.6
3DH1	50	50	50	50	50	50
3DH3	30	28	24	26	26	26.8
3DH5	17	17	21	19	19	18.6

Sample Calculation

Average= Summation(Sampling 1 to 5) / 5

This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in $N \times 0.4s$, where N is the number of channels being used in the hopping sequence ($20 \leq N \leq 79$), is always less than 0.4s regardless of packet size. This is confirmed in the test report for $N=79$.



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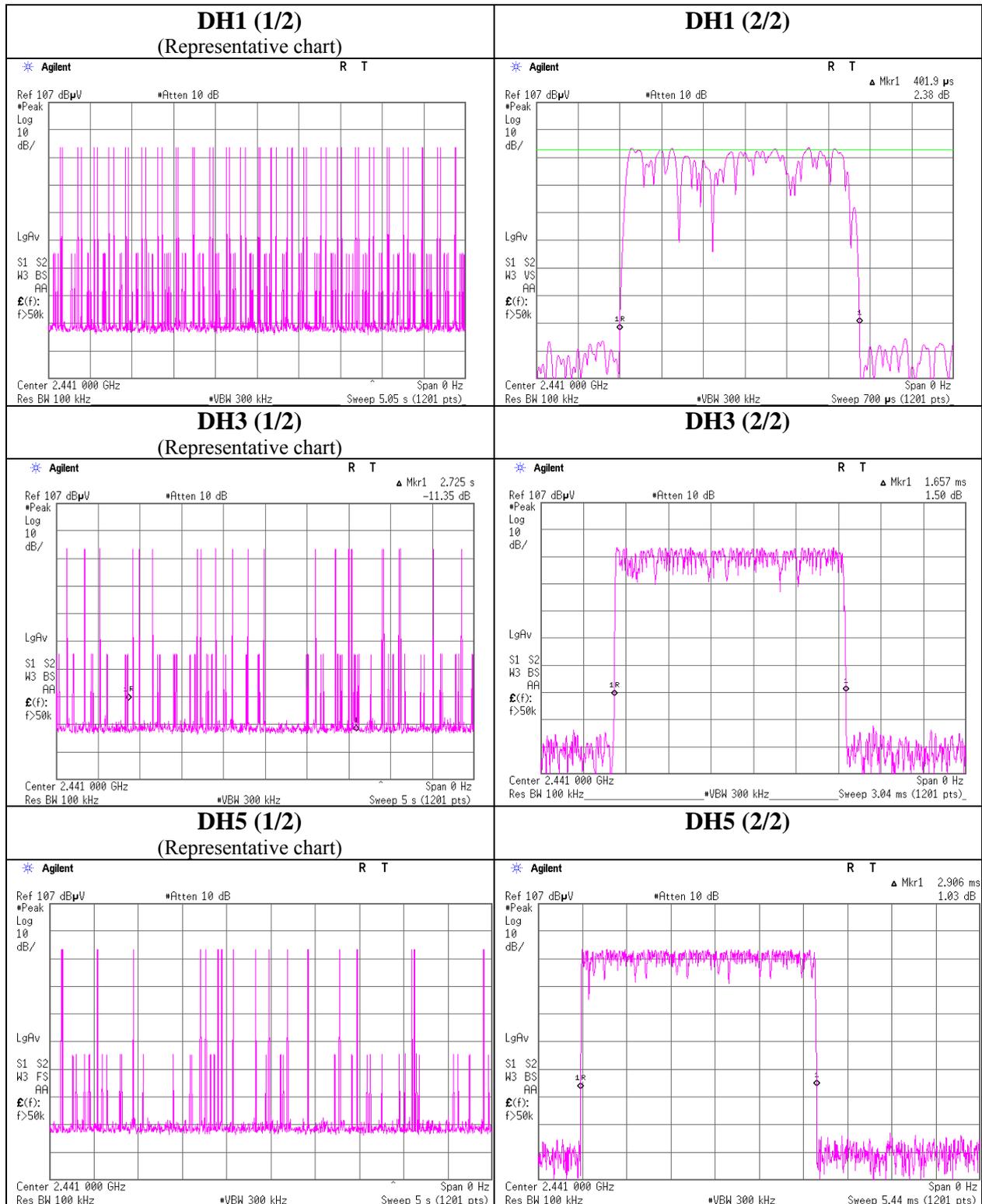
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Dwell time



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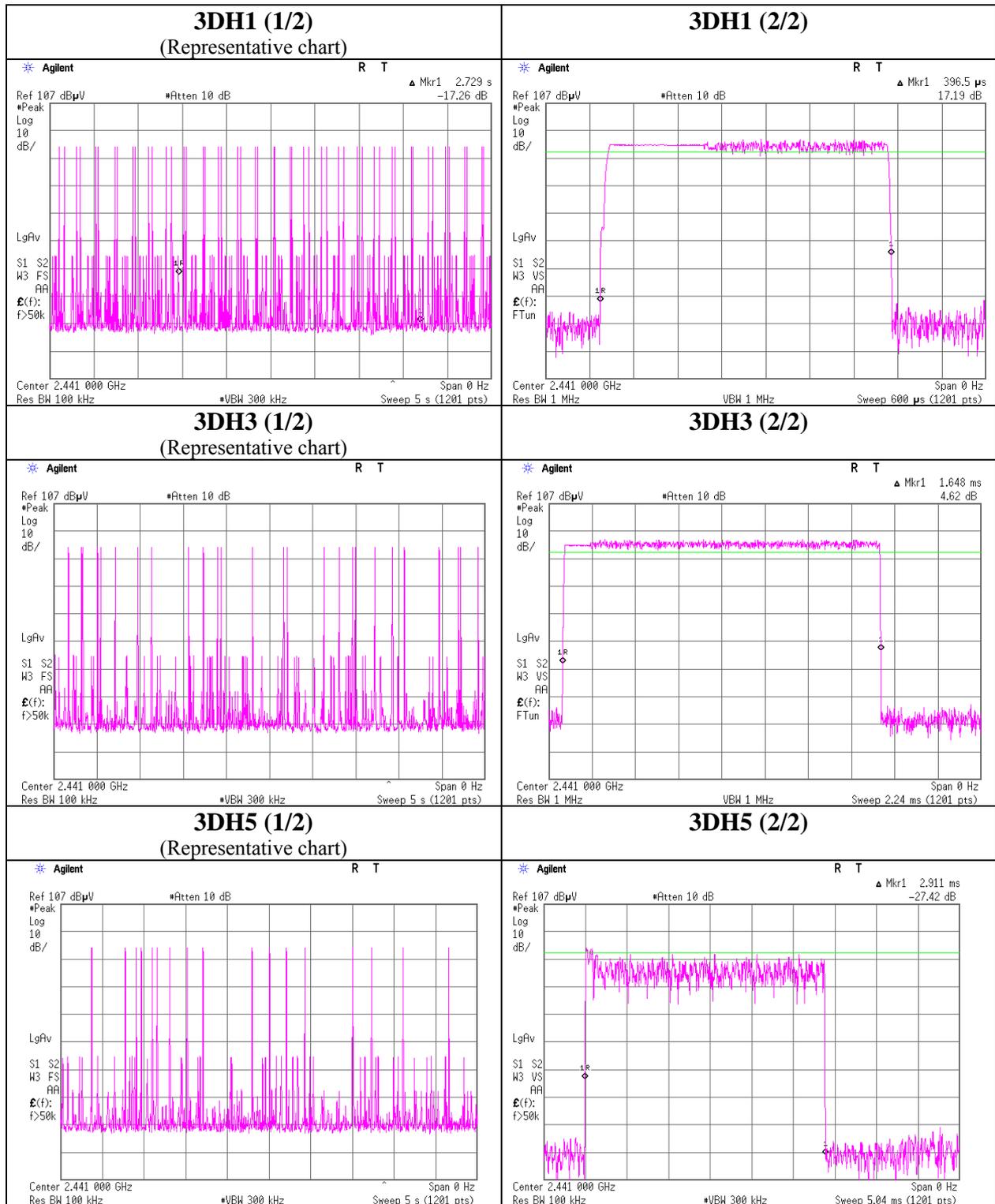
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Dwell time



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Maximum Peak Output Power

Test place : Ise EMC Lab. No.11 Measurement Room
Report No. : 10400823H
Date : 2014/08/05
Temperature/ Humidity : 25 deg. C / 45% RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) DH5/2DH5/3DH5/Inquiry

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
DH5	2402.0	-15.21	0.50	10.04	-4.67	0.34	20.96	125	25.63
DH5	2441.0	-15.31	0.50	10.04	-4.77	0.33	20.96	125	25.73
DH5	2480.0	-15.35	0.50	10.04	-4.81	0.33	20.96	125	25.77
2DH5	2402.0	-12.65	0.50	10.04	-2.11	0.62	20.96	125	23.07
2DH5	2441.0	-12.66	0.50	10.04	-2.12	0.61	20.96	125	23.08
2DH5	2480.0	-12.81	0.50	10.04	-2.27	0.59	20.96	125	23.23
3DH5	2402.0	-12.14	0.50	10.04	-1.60	0.69	20.96	125	22.56
3DH5	2441.0	-12.16	0.50	10.04	-1.62	0.69	20.96	125	22.58
3DH5	2480.0	-12.32	0.50	10.04	-1.78	0.66	20.96	125	22.74
Inquiry	2441.0	-10.40	0.50	10.04	0.14	1.03	20.96	125	20.82

Sample Calculation:

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

Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not influence on the output power and bandwidth of the EUT.

As this device had AFH mode and frequency separation could not meet the requirement of over 20dB BW without 2/3 relaxation, 125mW power limit was applied to it.

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Average Output Power
(Reference data for SAR testing)

Test place Ise EMC Lab. No.11 Measurement Room
Report No. 10400823H
Date 2014/08/05
Temperature/ Humidity 25 deg. C / 45% RH
Engineer Tsubasa Takayama
Mode Tx (Hopping off) DH5/2DH5/3DH5/Inquiry

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
					[dBm]	[mW]
DH5	2402.0	-16.76	0.50	10.04	-6.22	0.24
DH5	2441.0	-16.83	0.50	10.04	-6.29	0.23
DH5	2480.0	-16.95	0.50	10.04	-6.41	0.23
2DH5	2402.0	-16.16	0.50	10.04	-5.62	0.27
2DH5	2441.0	-16.22	0.50	10.04	-5.68	0.27
2DH5	2480.0	-16.36	0.50	10.04	-5.82	0.26
3DH5	2402.0	-16.15	0.50	10.04	-5.61	0.27
3DH5	2441.0	-16.22	0.50	10.04	-5.68	0.27
3DH5	2480.0	-16.36	0.50	10.04	-5.82	0.26
Inquiry	2441.0	-18.30	0.50	10.04	-7.76	0.17

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 and 1 Semi Anechoic Chamber
Report No. : 10400823H
Date : 08/07/2014 08/18/2014
Temperature/ Humidity : 21 deg. C / 59% RH 24 deg. C / 68% RH
Engineer : Satofumi Matsuyama Satofumi Matsuyama
(Above 1GHz) (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	74.172	QP	50.8	6.5	8.1	38.8	26.6	40.0	13.4	
Hori	148.356	QP	48.4	14.8	9.0	38.9	33.3	43.5	10.2	
Hori	222.531	QP	50.5	16.8	9.8	39.0	38.1	46.0	7.9	
Hori	296.702	QP	43.5	19.6	10.4	38.6	34.9	46.0	11.1	
Hori	370.881	QP	52.6	16.4	11.0	38.4	41.6	46.0	4.4	
Hori	445.058	QP	43.5	17.6	11.6	38.3	34.4	46.0	11.6	
Hori	4882.000	PK	42.7	32.0	5.3	33.9	46.1	73.9	27.8	
Hori	7323.000	PK	43.6	35.8	6.7	33.8	52.3	73.9	21.6	
Hori	9764.000	PK	43.4	38.3	7.1	34.5	54.3	73.9	19.6	
Hori	12205.000	PK	43.0	39.5	-1.6	33.5	47.4	73.9	26.5	
Hori	4882.000	AV	30.5	32.0	5.3	33.9	33.9	53.9	20.1	
Hori	7323.000	AV	31.0	35.8	6.7	33.8	39.7	53.9	14.2	
Hori	9764.000	AV	30.4	38.3	7.1	34.5	41.3	53.9	12.6	
Hori	12205.000	AV	30.4	39.5	-1.6	33.5	34.8	53.9	19.1	
Vert	74.167	QP	54.3	6.5	8.1	38.8	30.1	40.0	9.9	
Vert	148.352	QP	48.6	14.8	9.0	38.9	33.5	43.5	10.0	
Vert	222.531	QP	50.4	16.8	9.8	39.0	38.0	46.0	8.0	
Vert	296.703	QP	40.4	19.6	10.4	38.6	31.8	46.0	14.2	
Vert	370.879	QP	51.2	16.4	11.0	38.4	40.2	46.0	5.8	
Vert	445.057	QP	42.8	17.6	11.6	38.3	33.7	46.0	12.3	
Vert	4882.000	PK	42.6	32.0	5.3	33.9	46.0	73.9	27.9	
Vert	7323.000	PK	43.8	35.8	6.7	33.8	52.5	73.9	21.4	
Vert	9764.000	PK	43.5	38.3	7.1	34.5	54.4	73.9	19.5	
Vert	12205.000	PK	43.2	39.5	-1.6	33.5	47.6	73.9	26.3	
Vert	4882.000	AV	30.5	32.0	5.3	33.9	33.9	53.9	20.0	
Vert	7323.000	AV	31.0	35.8	6.7	33.8	39.7	53.9	14.2	
Vert	9764.000	AV	30.4	38.3	7.1	34.5	41.3	53.9	12.6	
Vert	12205.000	AV	30.4	39.5	-1.6	33.5	34.8	53.9	19.1	

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

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 and 1 Semi Anechoic Chamber
Report No. : 10400823H
Date : 08/07/2014 08/18/2014
Temperature/ Humidity : 21 deg. C / 59% RH 24 deg. C / 68% RH
Engineer : Satofumi Matsuyama Satofumi Matsuyama
(Above 1GHz) (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	74.174	QP	50.5	6.5	8.1	38.8	26.3	40.0	13.7	
Hori	148.352	QP	49.0	14.8	9.0	38.9	33.9	43.5	9.6	
Hori	222.533	QP	50.4	16.8	9.8	39.0	38.0	46.0	8.0	
Hori	296.703	QP	43.4	19.6	10.4	38.6	34.8	46.0	11.2	
Hori	370.878	QP	52.9	16.4	11.0	38.4	41.9	46.0	4.1	
Hori	445.058	QP	43.2	17.6	11.6	38.3	34.1	46.0	11.9	
Hori	2483.500	PK	47.6	26.9	2.5	34.7	42.3	73.9	31.6	
Hori	4960.000	PK	42.5	32.2	3.7	34.0	44.4	73.9	29.5	
Hori	7440.000	PK	43.6	35.8	4.6	33.9	50.1	73.9	23.8	
Hori	9920.000	PK	43.3	38.7	5.3	34.5	52.8	73.9	21.1	
Hori	12400.000	PK	43.2	39.4	-3.5	33.4	45.7	73.9	28.2	
Hori	2483.500	AV	32.1	26.9	2.5	34.7	26.8	53.9	27.1	
Hori	4960.000	AV	30.3	32.2	3.7	34.0	32.2	53.9	21.7	
Hori	7440.000	AV	31.5	35.8	4.6	33.9	38.0	53.9	15.9	
Hori	9920.000	AV	30.8	38.7	5.3	34.5	40.3	53.9	13.7	
Hori	12400.000	AV	30.7	39.4	-3.5	33.4	33.2	53.9	20.7	
Vert	74.169	QP	54.2	6.5	8.1	38.8	30.0	40.0	10.0	
Vert	148.345	QP	48.7	14.8	9.0	38.9	33.6	43.5	9.9	
Vert	222.531	QP	50.3	16.8	9.8	39.0	37.9	46.0	8.1	
Vert	296.701	QP	40.2	19.6	10.4	38.6	31.6	46.0	14.4	
Vert	370.877	QP	50.9	16.4	11.0	38.4	39.9	46.0	6.1	
Vert	445.056	QP	42.3	17.6	11.6	38.3	33.2	46.0	12.8	
Vert	2483.500	PK	47.9	26.9	2.5	34.7	42.6	73.9	31.3	
Vert	4960.000	PK	42.6	32.2	3.7	34.0	44.5	73.9	29.4	
Vert	7440.000	PK	43.8	35.8	4.6	33.9	50.3	73.9	23.6	
Vert	9920.000	PK	43.4	38.7	5.3	34.5	52.9	73.9	21.0	
Vert	12400.000	PK	43.0	39.4	-3.5	33.4	45.5	73.9	28.4	
Vert	2483.500	AV	32.1	26.9	2.5	34.7	26.8	53.9	27.1	
Vert	4960.000	AV	30.3	32.2	3.7	34.0	32.2	53.9	21.7	
Vert	7440.000	AV	31.5	35.8	4.6	33.9	38.0	53.9	15.9	
Vert	9920.000	AV	30.8	38.7	5.3	34.5	40.3	53.9	13.7	
Vert	12400.000	AV	30.7	39.4	-3.5	33.4	33.2	53.9	20.7	

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

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 and 1 Semi Anechoic Chamber
Report No. : 10400823H
Date : 08/07/2014 08/18/2014
Temperature/ Humidity : 21 deg. C / 59% RH 24 deg. C / 68% RH
Engineer : Satofumi Matsuyama Satofumi Matsuyama
(Above 1GHz) (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	74.175	QP	50.3	6.5	8.1	38.8	26.1	40.0	13.9	
Hori	148.354	QP	48.0	14.8	9.0	38.9	32.9	43.5	10.6	
Hori	222.532	QP	50.0	16.8	9.8	39.0	37.6	46.0	8.4	
Hori	296.705	QP	43.1	19.6	10.4	38.6	34.5	46.0	11.5	
Hori	370.882	QP	52.1	16.4	11.0	38.4	41.1	46.0	4.9	
Hori	445.061	QP	43.1	17.6	11.6	38.3	34.0	46.0	12.0	
Hori	4882.000	PK	42.7	32.0	5.3	33.9	46.1	73.9	27.8	
Hori	7323.000	PK	43.6	35.8	6.7	33.8	52.3	73.9	21.6	
Hori	9764.000	PK	43.4	38.3	7.1	34.5	54.3	73.9	19.6	
Hori	12205.000	PK	43.0	39.5	-1.6	33.5	47.4	73.9	26.5	
Hori	4882.000	AV	30.5	32.0	5.3	33.9	33.9	53.9	20.1	
Hori	7323.000	AV	31.0	35.8	6.7	33.8	39.7	53.9	14.2	
Hori	9764.000	AV	30.4	38.3	7.1	34.5	41.3	53.9	12.6	
Hori	12205.000	AV	30.4	39.5	-1.6	33.5	34.8	53.9	19.1	
Vert	74.172	QP	53.9	6.5	8.1	38.8	29.7	40.0	10.3	
Vert	148.356	QP	48.4	14.8	9.0	38.9	33.3	43.5	10.2	
Vert	222.531	QP	49.9	16.8	9.8	39.0	37.5	46.0	8.5	
Vert	296.702	QP	40.7	19.6	10.4	38.6	32.1	46.0	13.9	
Vert	370.879	QP	51.1	16.4	11.0	38.4	40.1	46.0	5.9	
Vert	445.057	QP	42.4	17.6	11.6	38.3	33.3	46.0	12.7	
Vert	4882.000	PK	42.6	32.0	5.3	33.9	46.0	73.9	27.9	
Vert	7323.000	PK	43.8	35.8	6.7	33.8	52.5	73.9	21.4	
Vert	9764.000	PK	43.5	38.3	7.1	34.5	54.4	73.9	19.5	
Vert	12205.000	PK	43.2	39.5	-1.6	33.5	47.6	73.9	26.3	
Vert	4882.000	AV	30.5	32.0	5.3	33.9	33.9	53.9	20.0	
Vert	7323.000	AV	31.0	35.8	6.7	33.8	39.7	53.9	14.2	
Vert	9764.000	AV	30.4	38.3	7.1	34.5	41.3	53.9	12.6	
Vert	12205.000	AV	30.4	39.5	-1.6	33.5	34.8	53.9	19.1	

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

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Ise EMC Lab.

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Telephone : +81 596 24 8999

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Radiated Spurious Emission

Test place Ise EMC Lab. No.2 and 1 Semi Anechoic Chamber
Report No. 10400823H
Date 08/07/2014 08/18/2014
Temperature/ Humidity 21 deg. C / 59% RH 24 deg. C / 68% RH
Engineer Satofumi Matsuyama Satofumi Matsuyama
(Above 1GHz) (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	74.169	QP	50.4	6.5	8.1	38.8	26.2	40.0	13.8	
Hori	148.353	QP	48.3	14.8	9.0	38.9	33.2	43.5	10.3	
Hori	222.532	QP	50.6	16.8	9.8	39.0	38.2	46.0	7.8	
Hori	296.701	QP	43.3	19.6	10.4	38.6	34.7	46.0	11.3	
Hori	370.882	QP	52.3	16.4	11.0	38.4	41.3	46.0	4.7	
Hori	445.061	QP	43.2	17.6	11.6	38.3	34.1	46.0	11.9	
Hori	2483.500	PK	49.8	26.9	2.5	34.7	44.5	73.9	29.4	
Hori	4960.000	PK	42.5	32.2	3.7	34.0	44.4	73.9	29.5	
Hori	7440.000	PK	43.6	35.8	4.6	33.9	50.1	73.9	23.8	
Hori	9920.000	PK	43.3	38.7	5.3	34.5	52.8	73.9	21.1	
Hori	12400.000	PK	43.2	39.4	-3.5	33.4	45.7	73.9	28.2	
Hori	2483.500	AV	33.2	26.9	2.5	34.7	27.9	53.9	26.0	
Hori	4960.000	AV	30.3	32.2	3.7	34.0	32.2	53.9	21.7	
Hori	7440.000	AV	31.5	35.8	4.6	33.9	38.0	53.9	15.9	
Hori	9920.000	AV	30.8	38.7	5.3	34.5	40.3	53.9	13.7	
Hori	12400.000	AV	30.7	39.4	-3.5	33.4	33.2	53.9	20.7	
Vert	74.168	QP	54.2	6.5	8.1	38.8	30.0	40.0	10.0	
Vert	148.350	QP	48.5	14.8	9.0	38.9	33.4	43.5	10.1	
Vert	222.533	QP	50.3	16.8	9.8	39.0	37.9	46.0	8.1	
Vert	296.701	QP	40.7	19.6	10.4	38.6	32.1	46.0	13.9	
Vert	370.883	QP	51.0	16.4	11.0	38.4	40.0	46.0	6.0	
Vert	445.059	QP	42.5	17.6	11.6	38.3	33.4	46.0	12.6	
Vert	2483.500	PK	50.2	26.9	2.5	34.7	44.9	73.9	29.0	
Vert	4960.000	PK	42.6	32.2	3.7	34.0	44.5	73.9	29.4	
Vert	7440.000	PK	43.8	35.8	4.6	33.9	50.3	73.9	23.6	
Vert	9920.000	PK	43.4	38.7	5.3	34.5	52.9	73.9	21.0	
Vert	12400.000	PK	43.0	39.4	-3.5	33.4	45.5	73.9	28.4	
Vert	2483.500	AV	33.2	26.9	2.5	34.7	27.9	53.9	26.0	
Vert	4960.000	AV	30.3	32.2	3.7	34.0	32.2	53.9	21.7	NS
Vert	7440.000	AV	31.5	35.8	4.6	33.9	38.0	53.9	15.9	NS
Vert	9920.000	AV	30.8	38.7	5.3	34.5	40.3	53.9	13.7	NS
Vert	12400.000	AV	30.7	39.4	-3.5	33.4	33.2	53.9	20.7	NS

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

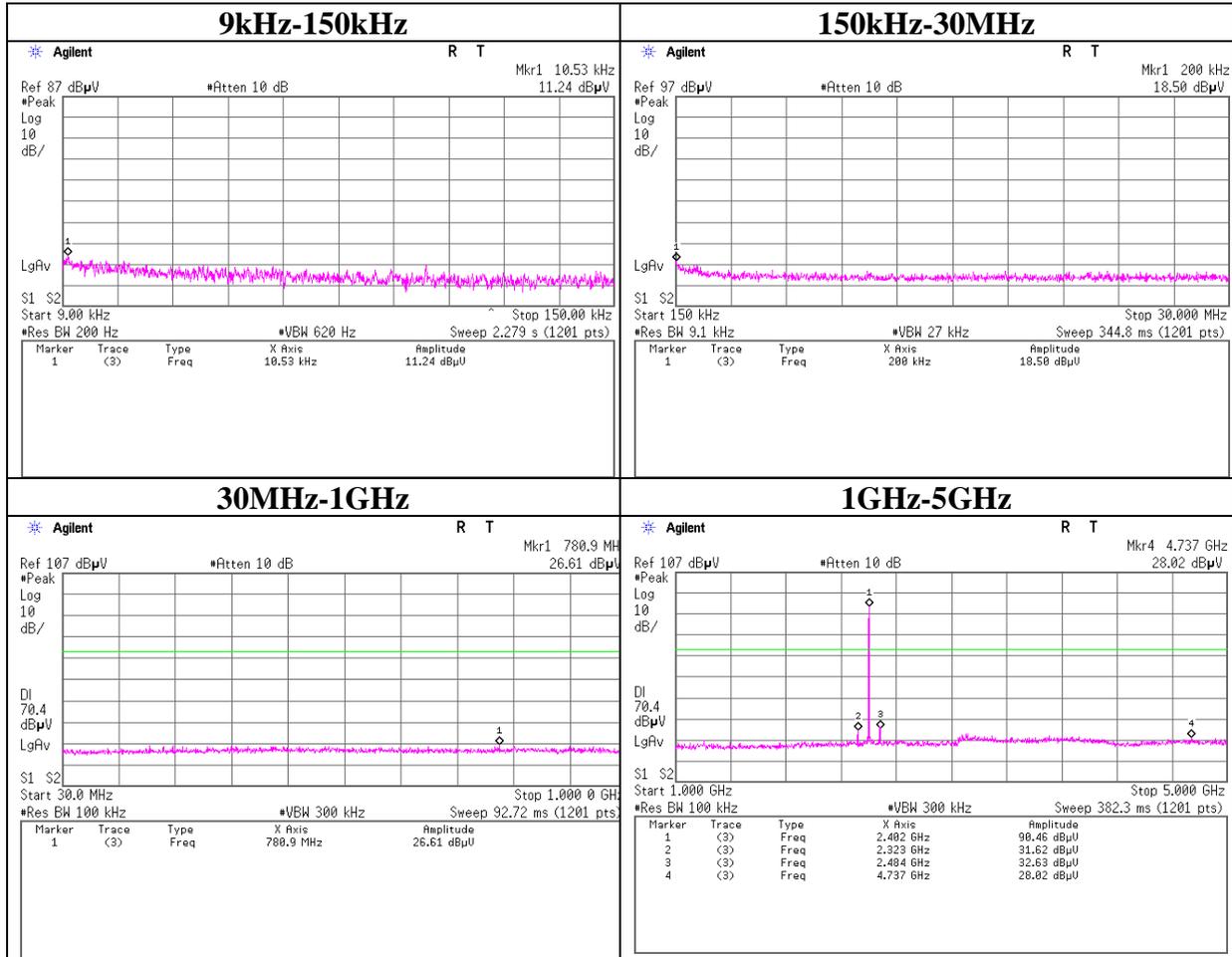
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

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

Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/06/2014
Temperature/ Humidity	26 deg. C / 48% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) DH5

Tx DH5 2402MHz



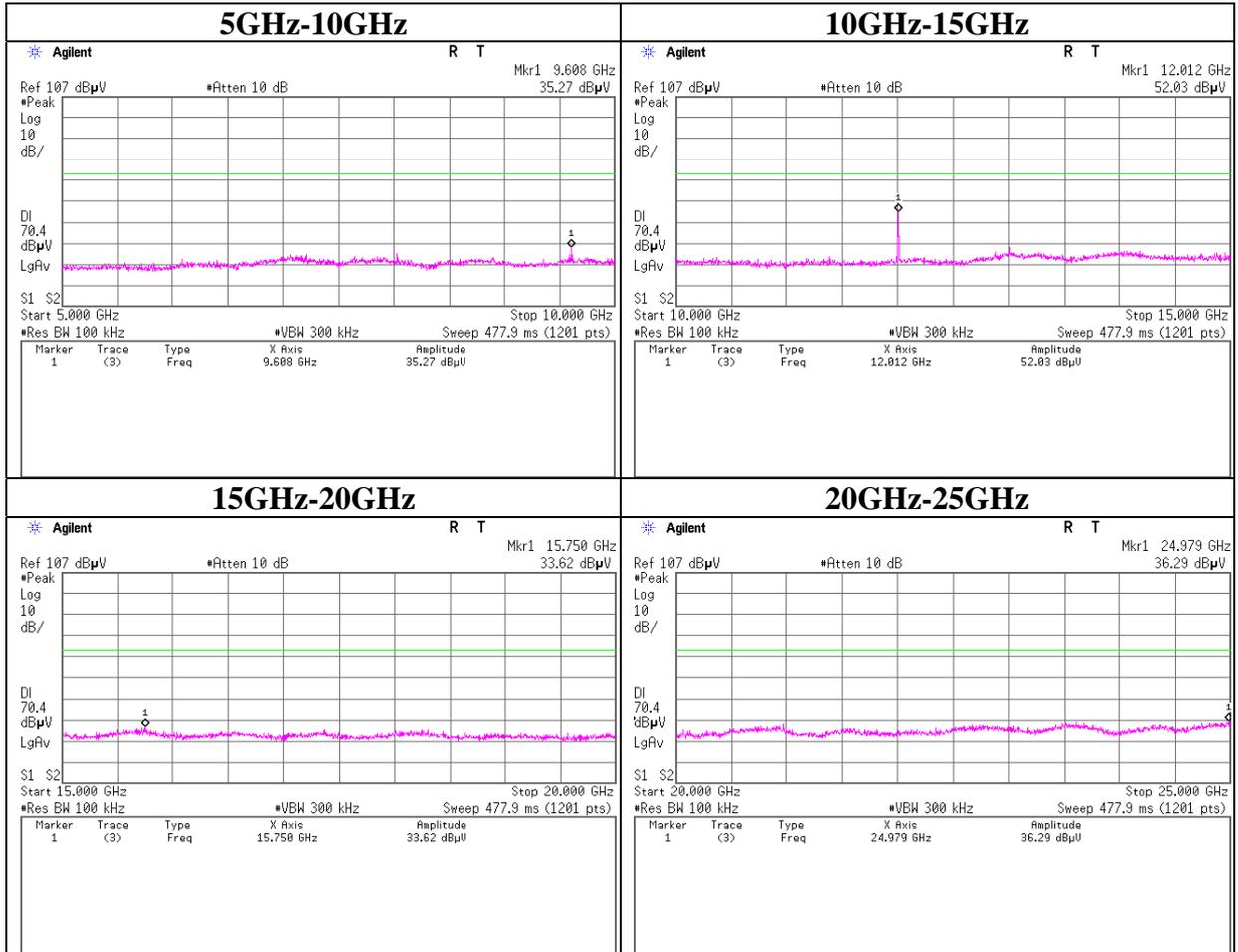
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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/06/2014
Temperature/ Humidity	26 deg. C / 48% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) DH5

Tx DH5 2402MHz



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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/06/2014
Temperature/ Humidity	26 deg. C / 48% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) DH5

Tx DH5 2441MHz



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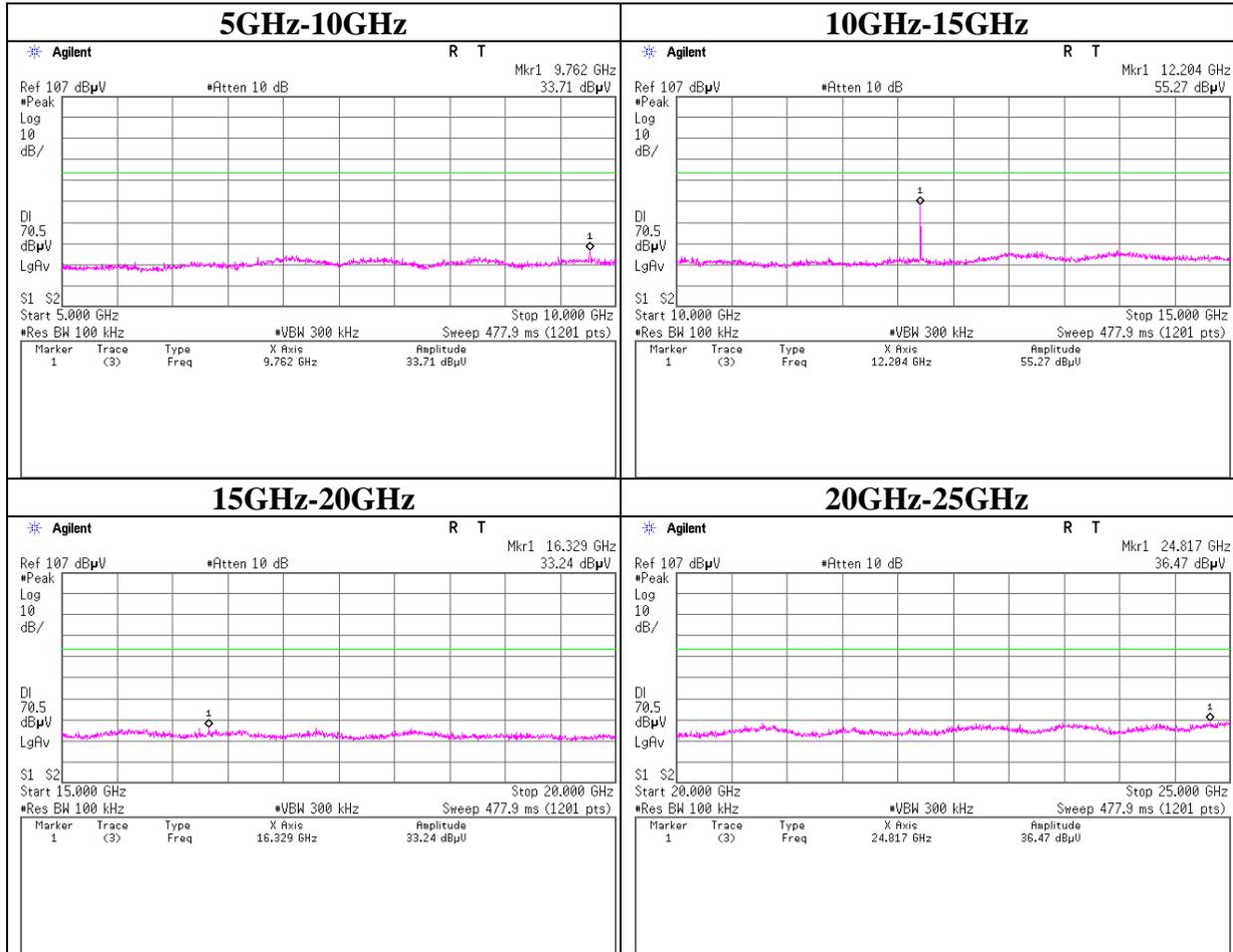
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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/06/2014
Temperature/ Humidity	26 deg. C / 48% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) DH5

Tx DH5 2441MHz



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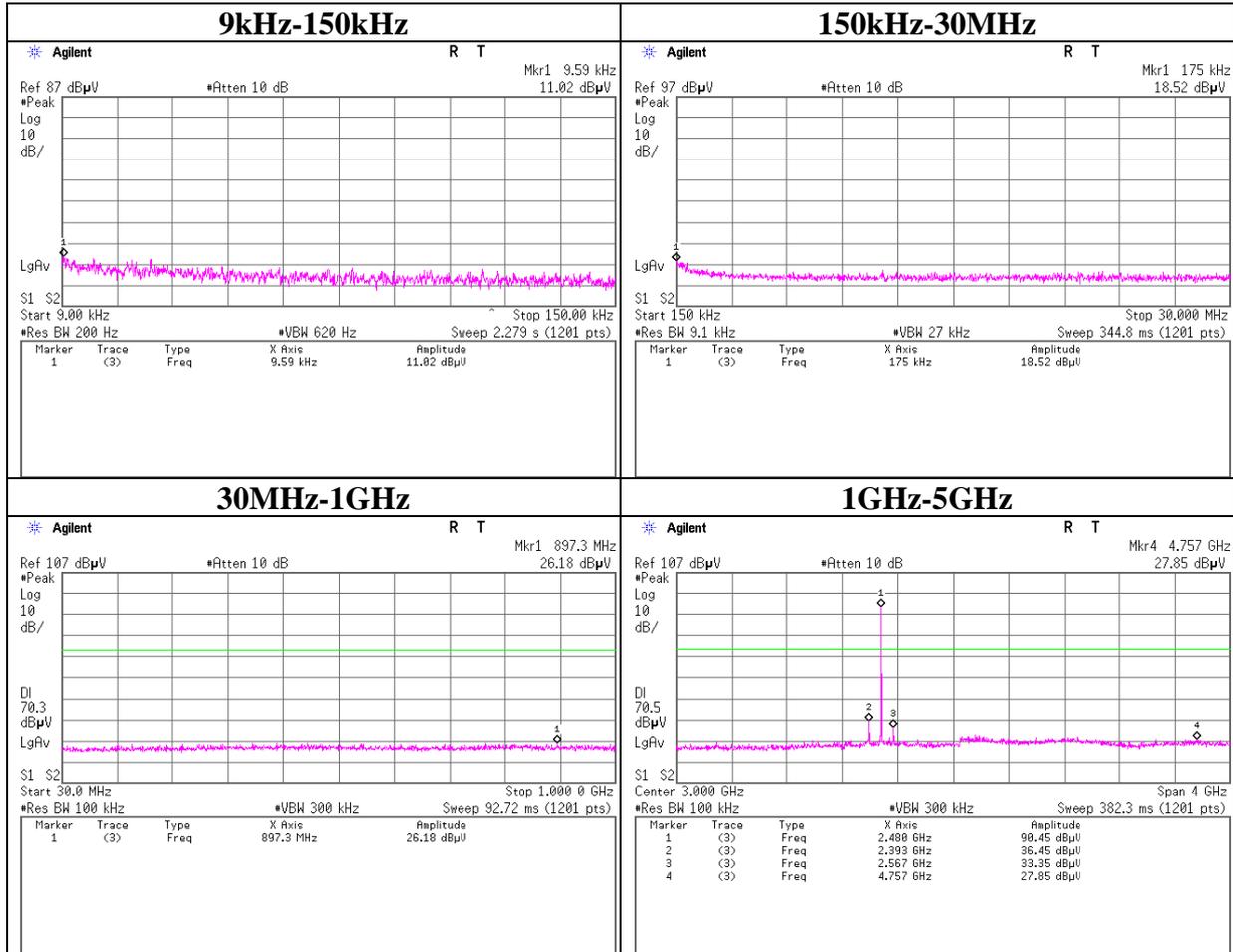
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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/06/2014
Temperature/ Humidity	26 deg. C / 48% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) DH5

Tx DH5 2480MHz



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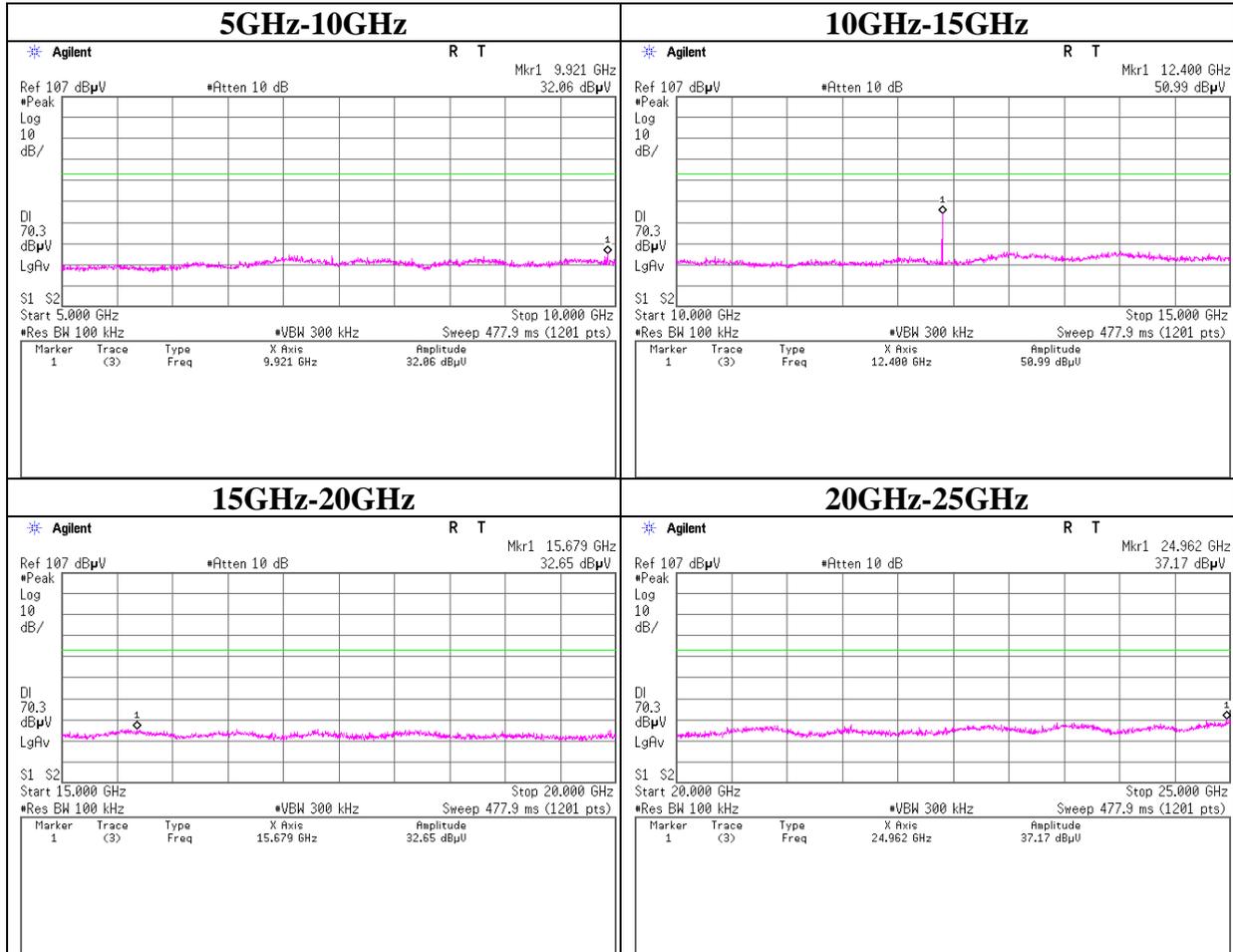
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Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/06/2014
Temperature/ Humidity	26 deg. C / 48% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) DH5

Tx DH5 2480MHz



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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) 3DH5

Tx 3DH5 2402MHz



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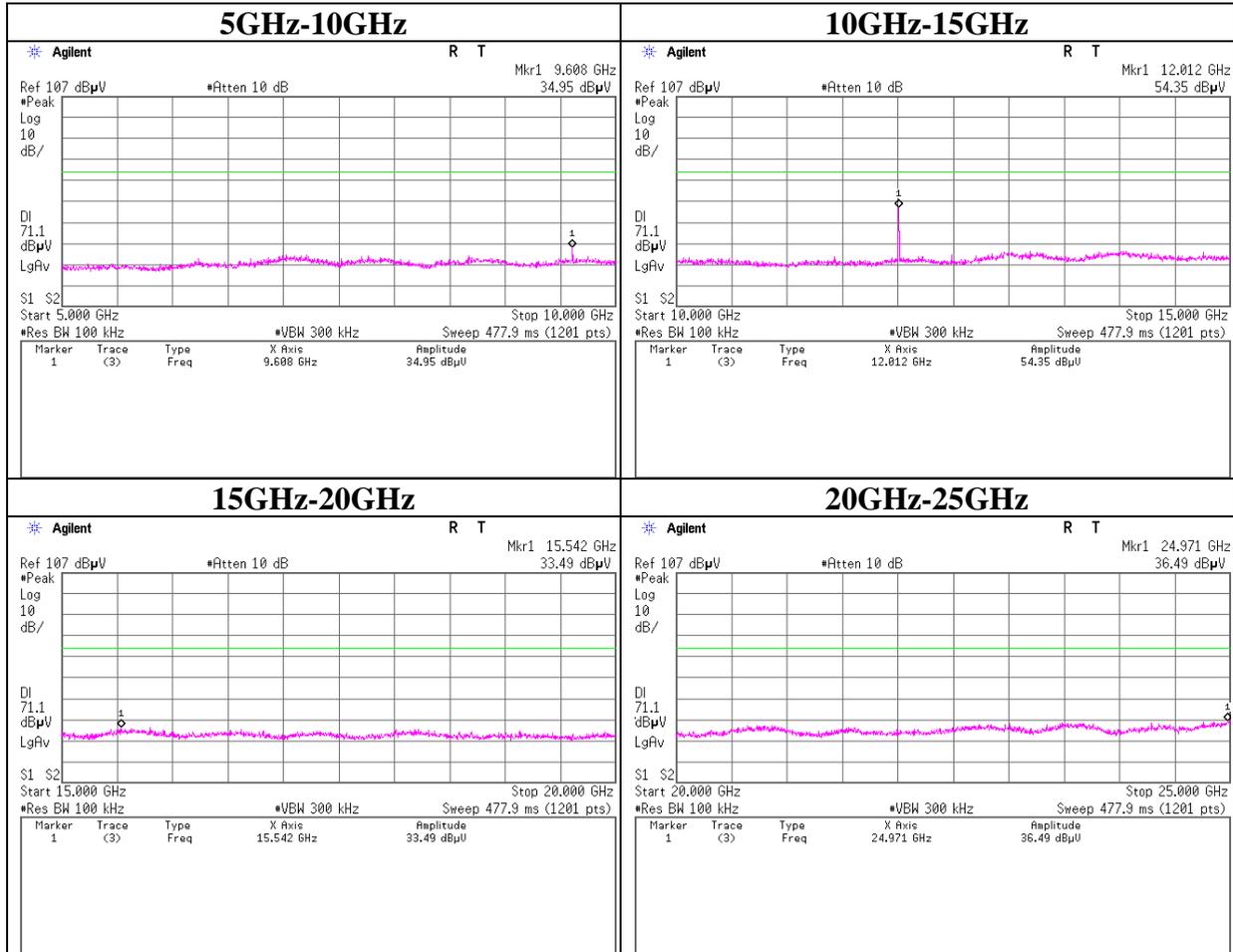
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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) 3DH5

Tx 3DH5 2402MHz



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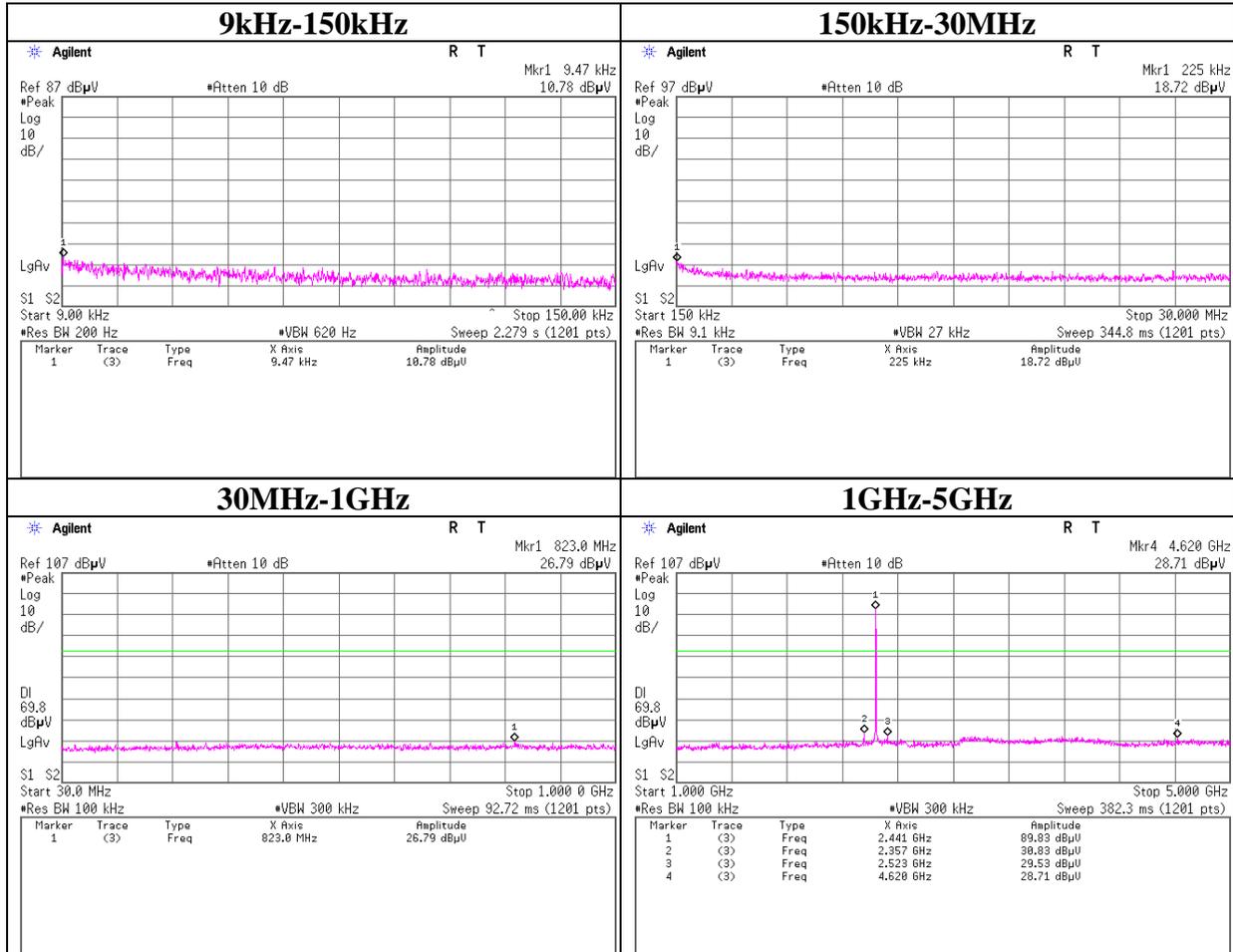
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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) 3DH5

Tx 3DH5 2441MHz



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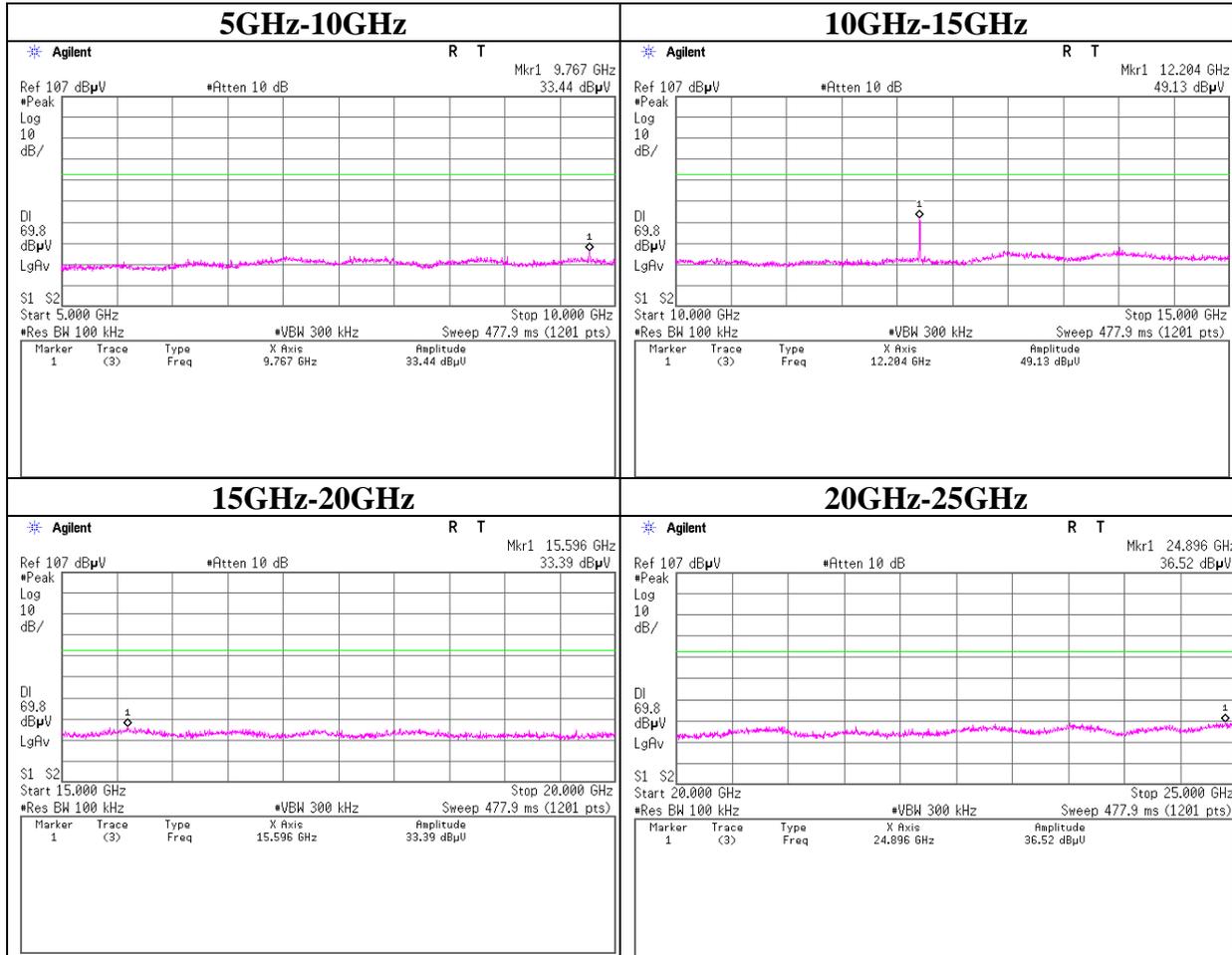
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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) 3DH5

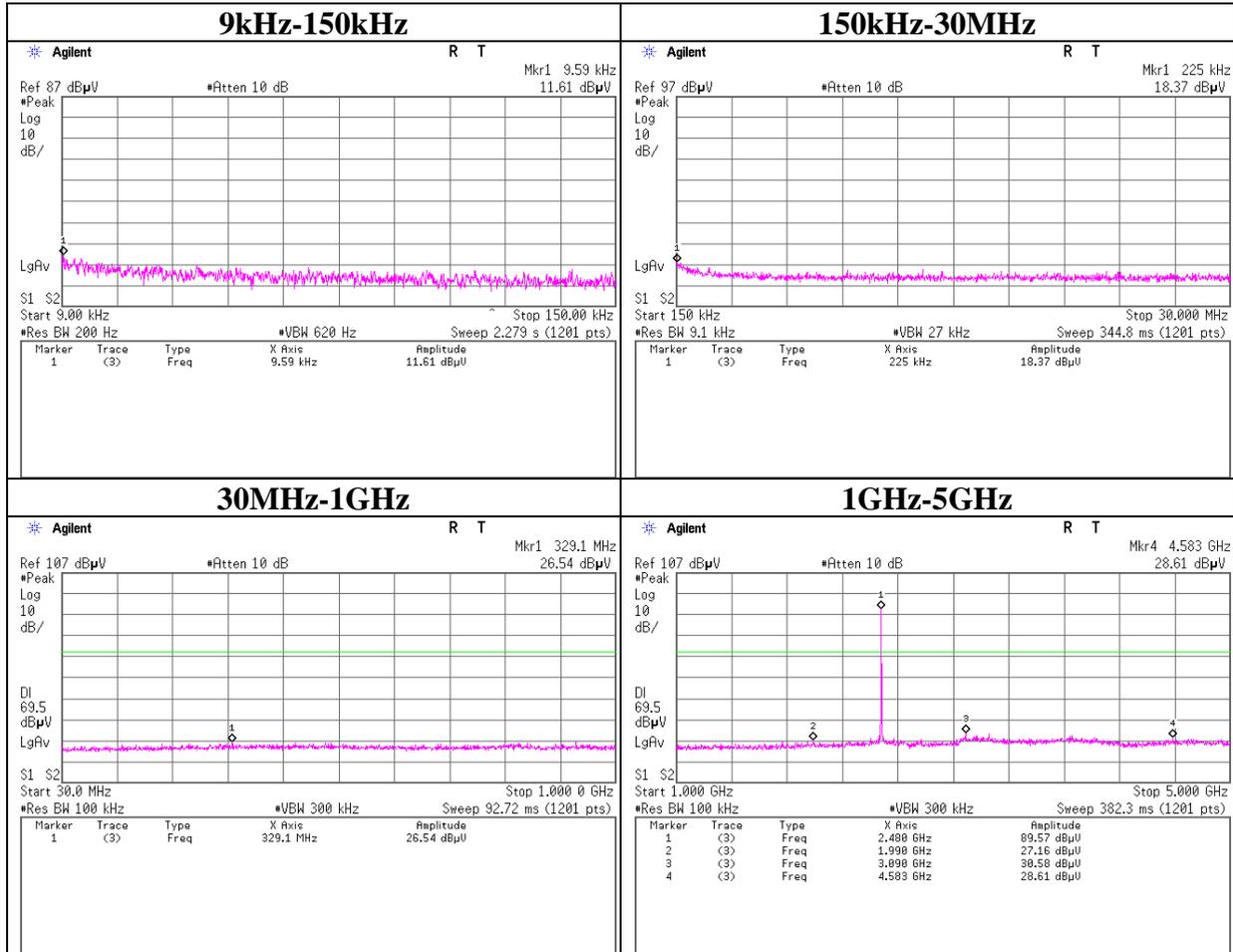
Tx 3DH5 2441MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) 3DH5

Tx 3DH5 2480MHz



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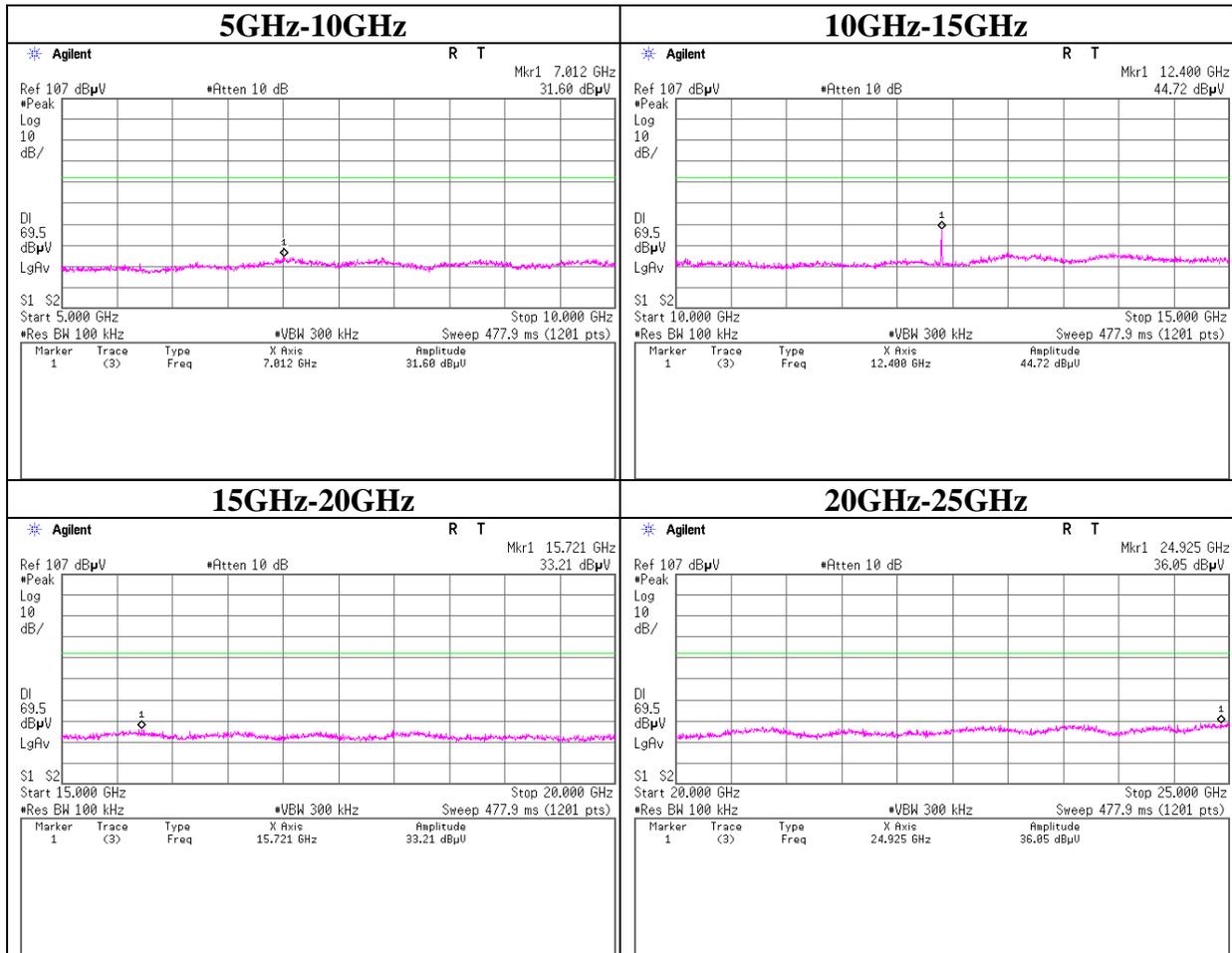
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) 3DH5

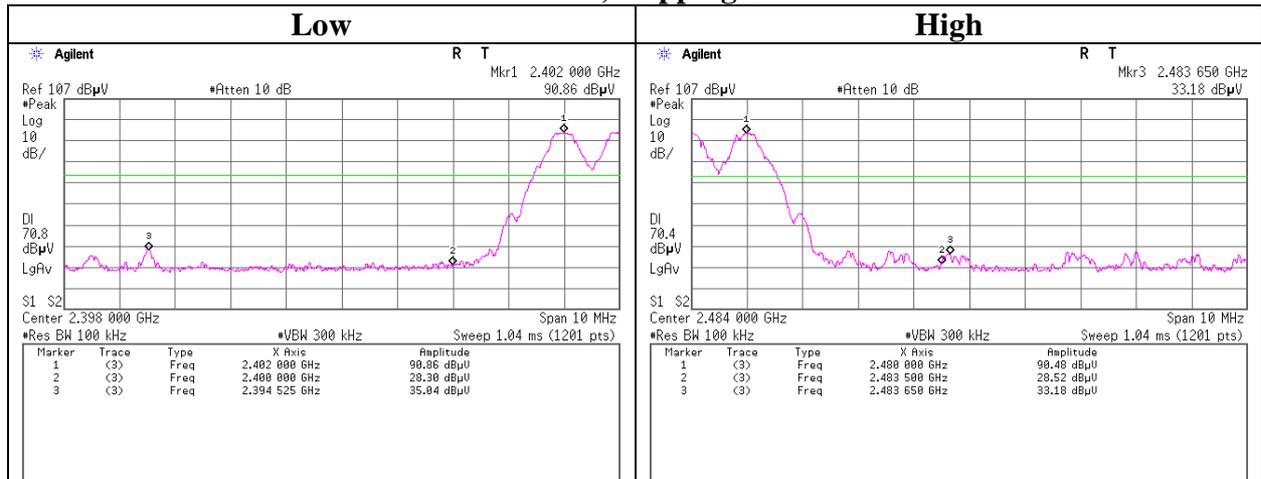
Tx 3DH5 2480MHz



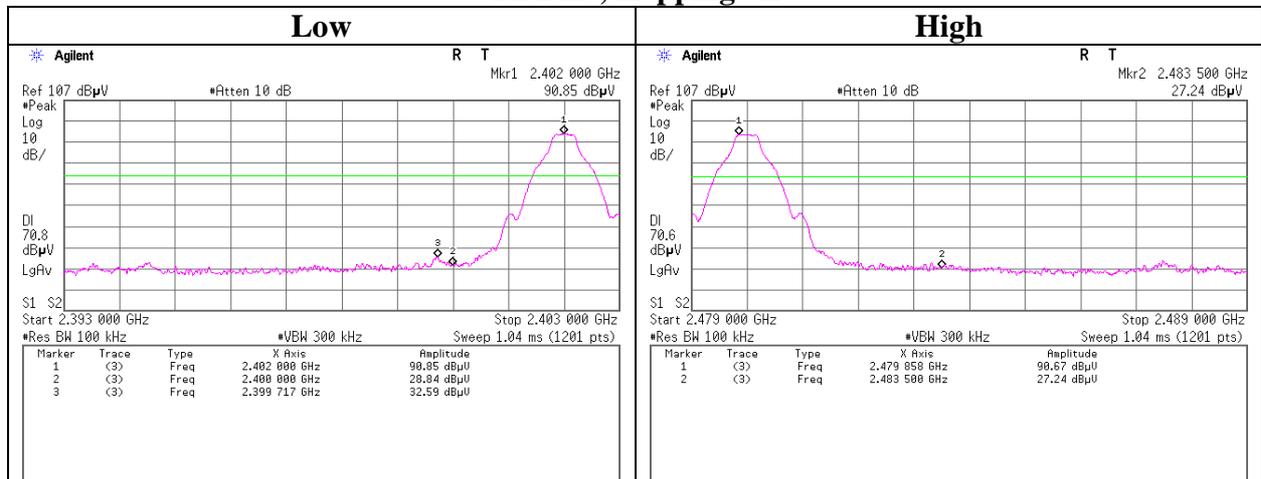
Conducted Emission Band Edge compliance

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on/off) DH5

Tx DH5, Hopping on



Tx DH5, Hopping off



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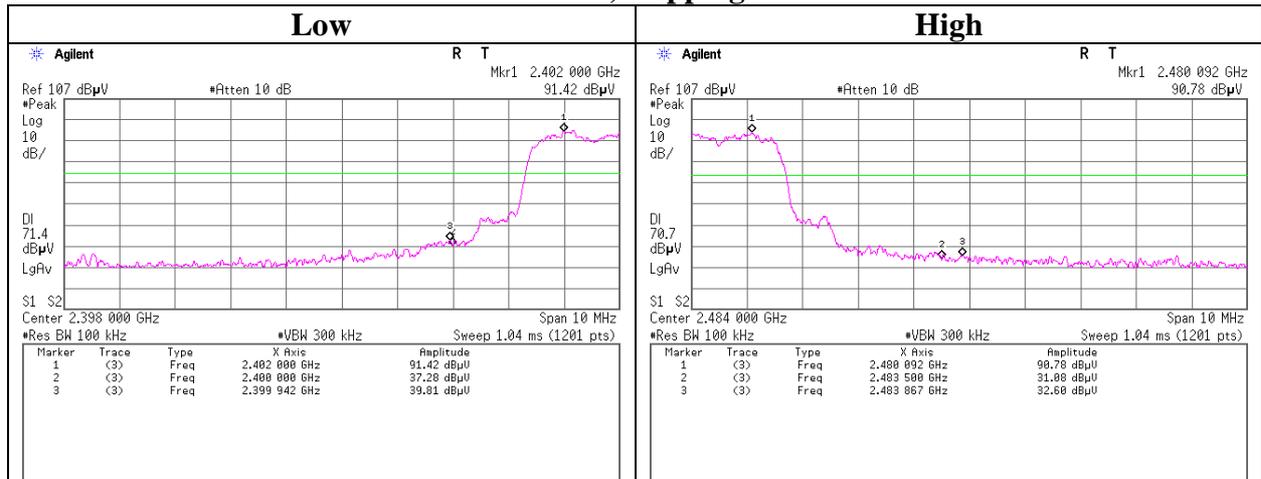
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

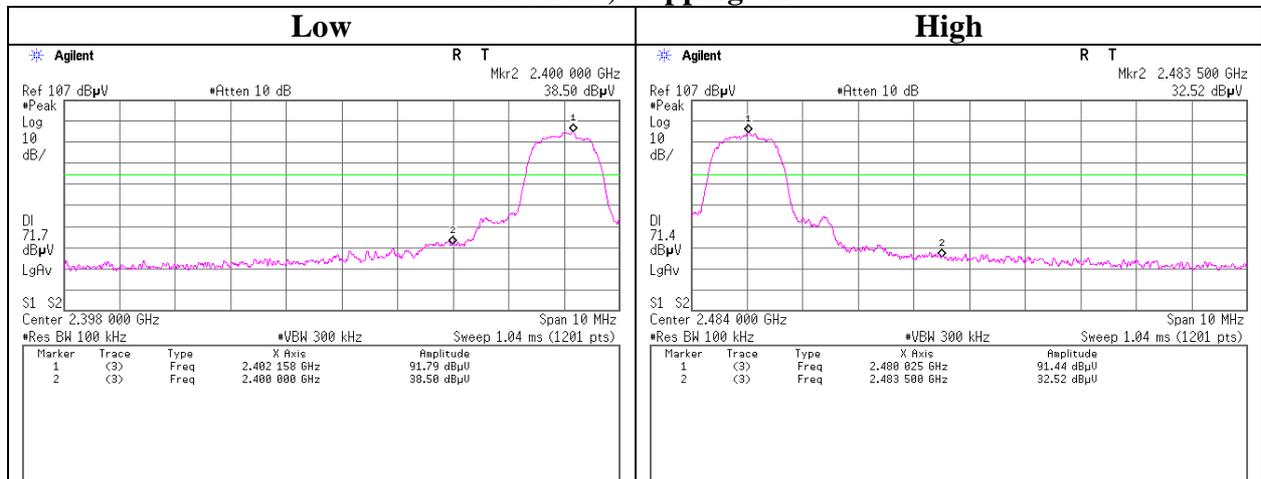
Conducted Emission Band Edge compliance

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on/off) 3DH5

Tx 3DH5, Hopping on



Tx 3DH5, Hopping off



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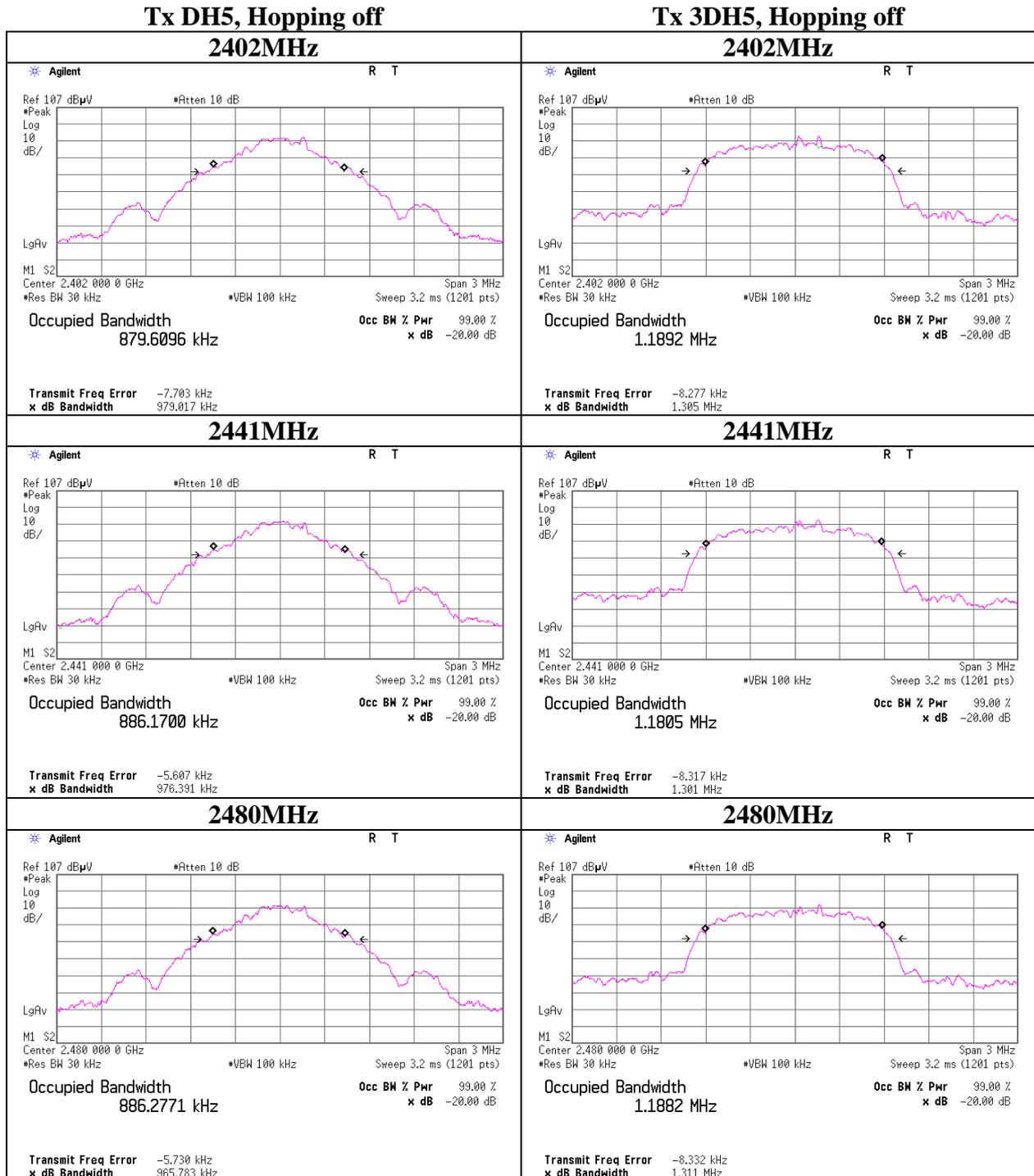
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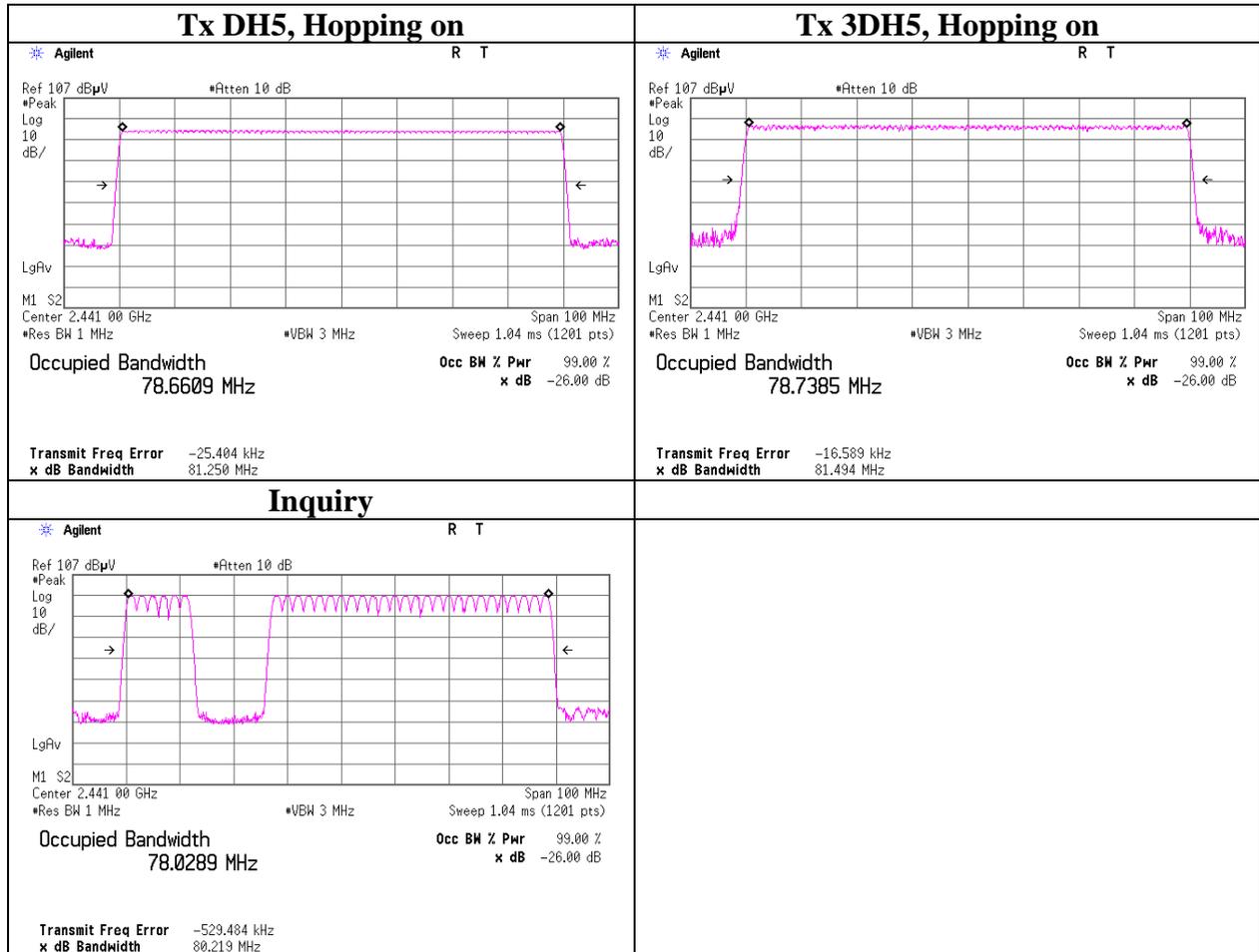
99%Occupied Bandwidth

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) DH5/3DH5



99% Occupied Bandwidth

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10400823H
Date	08/07/2014
Temperature/ Humidity	25 deg. C / 51% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on) DH5 / 3DH5 / Inquiry



APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	AT	2013/12/17 * 12
MPM-09	Power Meter	Anritsu	ML2495A	6K00003348	AT	2013/10/21 * 12
MPSE-12	Power sensor	Anritsu	MA2411B	011598	AT	2013/10/21 * 12
MAT-58	Attenuator(10dB)	Suhner	6810.19.A	-	AT	2014/01/15 * 12
MSA-13	Spectrum Analyzer	Agilent	E4440A	MY46185823	AT	2014/06/06 * 12
MPSU-13	Power Supply	NF	ES1000S		AT	Pre Check
MCC-137	Microwave cable	HUBER+SUHNER	SUCOFLEX 102	37954/2	AT	2013/10/18 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	AT	2013/11/25 * 12
MAT-20	Attenuator(10dB)(above1 GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	AT	2014/01/29 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2014/06/25 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2014/02/20 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2014/02/20 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2014/02/21 * 12
MCC-166	Microwave Cable	Junkosha	MWX221	1303S120(1m) / 1311S167(5m)	RE	2013/11/27 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2014/01/21 * 12
MHA-02	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	RE	2014/02/21 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2014/05/21 * 12
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE/CE	2013/08/01 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE/CE	2014/02/20 * 12
MJM-21	Measure	KOMELON	KMC-36	-	RE/CE	-
MTR-09	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	RE/CE	2014/06/06 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2013/11/24 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2013/11/24 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2013/11/26 * 12
MCC-02	Coaxial Cable	Suhner/storm/Agilent/TSJ	-	-	RE	2013/09/12 * 12
MPA-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2014/02/17 * 12
MLS-25	LISN(AMN)	Schwarzbeck	NSLK8127	8127-731	CE(EUT)	2014/07/09 * 12
MLS-26	LISN(AMN)	Schwarzbeck	NSLK8127	8127-732	CE(AE)	2014/07/09 * 12
MTA-30	Terminator	TME	CT-01	-	CE	2014/01/20 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/3D-2W(7.5m)/RG400u(1.5m)/RFM-E421(Switcher)	- /01068(Switcher)	CE	2013/09/12 * 12
MAT-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2014/01/29 * 12

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

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

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item: CE: Conducted Emission test

RE: Radiated Emission test

AT: Antenna Terminal Conducted test

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