



# RADIO TEST REPORT

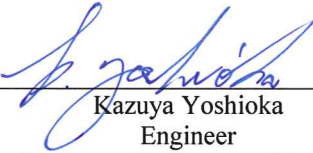
**Test Report No. : 10628918H-A-R1**

**Applicant** : NIKON CORPORATION  
**Type of Equipment** : Wireless Microphone  
**Model No.** : ME-W1  
**FCC ID** : CGJ1151EA  
**Test regulation** : FCC Part 15 Subpart C: 2015  
**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.
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6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 10628918H-A. 10628918H-A is replaced with this report.

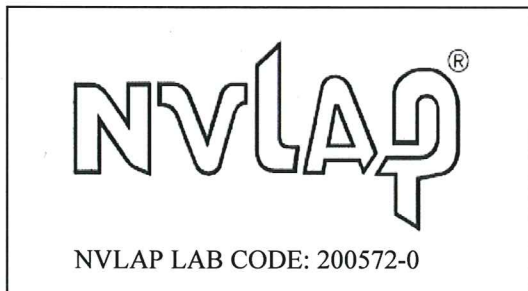
**Date of test:** April 20 to 29, 2015

**Representative test engineer:**

  
Kazuya Yoshioka  
Engineer  
Consumer Technology Division

**Approved by:**

  
Takayuki Shimada  
Engineer  
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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## REVISION HISTORY

**Original Test Report No.: 10628918H-A**

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10628918H-A	May 21, 2015	-	-
1	10628918H-A-R1	May 25, 2015	P8	Correction of explanatory note for software

<b>CONTENTS</b>	<b>PAGE</b>
<b>SECTION 1: Customer information.....</b>	<b>4</b>
<b>SECTION 2: Equipment under test (E.U.T.).....</b>	<b>4</b>
<b>SECTION 3: Test specification, procedures &amp; results.....</b>	<b>5</b>
<b>SECTION 4: Operation of E.U.T. during testing.....</b>	<b>8</b>
<b>SECTION 5: Radiated Spurious Emission .....</b>	<b>10</b>
<b>SECTION 6: Antenna Terminal Conducted Tests.....</b>	<b>11</b>
<b>APPENDIX 1: Test data .....</b>	<b>12</b>
20dB Bandwidth and Carrier Frequency Separation.....	12
Number of Hopping Frequency .....	15
Dwell time.....	17
Maximum Peak Output Power .....	20
Radiated Spurious Emission .....	22
Conducted Spurious Emission .....	30
Conducted Emission Band Edge compliance .....	42
99% Occupied Bandwidth .....	44
<b>APPENDIX 2: Test instruments .....</b>	<b>46</b>
<b>APPENDIX 3: Photographs of test setup.....</b>	<b>47</b>
Radiated Spurious Emission .....	47
Worst Case Position.....	48

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## **SECTION 1: Customer information**

Company Name : NIKON CORPORATION  
Address : 6-3, Nishi-Ohi 1-Chome, Shinagawa-ku, Tokyo 140-8601, Japan  
Telephone Number : +81-3-6433-3872  
Facsimile Number : +81-3-6433-3781  
Contact Person : Ryuichi Mori

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

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

Type of Equipment : Wireless Microphone  
Model No. : ME-W1  
Serial No. : Refer to Section 4, Clause 4.2  
Rating : DC 1.5 V  
Receipt Date of Sample : April 17, 2015  
Country of Mass-production : Japan  
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**

Wireless Microphone is the Microphone and Receiver.

The test was performed with Microphone as a representative since there is no difference in their hardware and RF characteristic.

### **General Specification**

Clock frequency(ies) in the system : 32 MHz

### **Radio Specification**

#### **[Bluetooth Ver3.0+EDR]**

Radio Type : Transceiver  
Frequency of Operation : 2402 MHz - 2480 MHz  
Modulation : FHSS  
Power Supply (radio part input) : DC 3.3 V  
Antenna type : Pattern Antenna  
Antenna Gain : +2.1 dBi

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

### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart C: 2015, final revised on January 21, 2015

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

### **3.2 Procedures and results**

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.4:2009 7. AC powerline conducted emission measurements IC: RSS-Gen 8.8	FCC: Section 15.207 ----- IC: RSS-Gen 8.8	N/A *1)	N/A	-
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 6.12	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 6.13	FCC: Section15.247(d) ----- IC: RSS-210 A8.5 RSS-Gen 8.9 RSS-Gen 8.10		9.1 dB 9764.000 MHz / 9608.000 MHz, Horizontal, AV	Complied

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

\*1) The test is not applicable since the EUT is not the device that is designed to be connected to the public utility (AC) power line.

\* In case any questions arise about test procedure, ANSI C63.4: 2009 is also referred.

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

The test was performed with the New Battery (DC 1.5 V) and the stable voltage was supplied to the EUT during the tests. Therefore, the 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 6.6	IC: -	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)	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

#### Radiated emission test (3 m)

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

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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 Test data, 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

Details of Operating Mode(s)

<b>Test Item</b>	<b>Mode</b>	<b>Tested frequency</b>
Spurious Emission (Conducted/Radiated), 20dB Bandwidth	Tx (Hopping off) DH5, 3DH5	2402MHz 2441MHz 2480MHz
Carrier Frequency Separation	Tx (Hopping on) DH5, 3DH5	2402MHz 2441MHz 2480MHz
Number of Hopping Frequency	Tx (Hopping on) DH5, 3DH5	-
Dwell time	Tx (Hopping on), -DH1, DH3, DH5 -3DH1, 3DH3, 3DH5	-
Maximum Peak Output Power	Tx (Hopping off) DH5, 2DH5, 3DH5	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	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)</p> <p>*It is considered that the non-tested packet type (e.g. inquiry) can be omitted as it is complied with above all the test items based on Bluetooth Core specification.</p> <p>*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>*The power value of the EUT was set for testing as follows (setting value might be different from product specification value);  Power settings: 8 dBm  Software: CSR Blue Test 3 Ver 2.5.8.667  *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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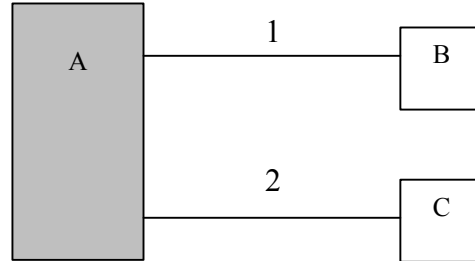
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#### 4.2 Configuration and peripherals



\* 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	Wireless Microphone (Microphone)	ME-W1	003M for RE* 5280081S for AT*	NIKON CORPORATION	EUT
B	Microphone	ME-1	SL-D2829	NIKON CORPORATION	-
C	Earphone	RE-11L(IV)	-	ELPA	-

#### List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Microphone Cable	0.3	Shielded	Shielded	-
2	Earphone Cable	1.0	Shielded	Shielded	-

\*RE: Radiated Spurious Emission test, AT: Antenna Terminal Conducted tests

## **SECTION 5: Radiated Spurious Emission**

### **Test Procedure**

EUT was placed on a urethane platform of nominal size, 0.5 m by 1.0 m, raised 0.8 m 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

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 4 of RSS-Gen 8.9 (IC) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (IC).**

Frequency	Below 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-25GHz  
**Test data** : APPENDIX  
**Test result** : Pass

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## **SECTION 6: Antenna Terminal Conducted Tests**

### **Test Procedure**

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

<b>Test</b>	<b>Span</b>	<b>RBW</b>	<b>VBW</b>	<b>Sweep time</b>	<b>Detector</b>	<b>Trace</b>	<b>Instrument used</b>
20dB Bandwidth	3MHz	30kHz	100kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth *1)	Enough width to display 20dB Bandwidth	1 to 5% of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak Average *2)	-	Power Meter (Sensor: 50MHz BW)
Carrier Frequency Separation	3MHz	30kHz	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) Peak hold was applied as Worst-case measurement.  
\*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 low enough 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

## APPENDIX 1: Test data

### 20dB Bandwidth and Carrier Frequency Separation

Test place Ise EMC Lab. No.6 Measurement Room  
Report No. 10628918H  
Date 04/20/2015  
Temperature/ Humidity 23deg. C / 52% RH  
Engineer Kazuya Yoshioka  
Mode Tx (Hopping on/off) DH5/3DH5

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.934	1.000	$\geq 0.623$
DH5	2441.0	0.925	1.000	$\geq 0.617$
DH5	2480.0	0.940	1.000	$\geq 0.627$
3DH5	2402.0	1.290	1.000	$\geq 0.860$
3DH5	2441.0	1.264	1.000	$\geq 0.843$
3DH5	2480.0	1.303	1.000	$\geq 0.869$

Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).

No limit applies to 20dB Bandwidth.

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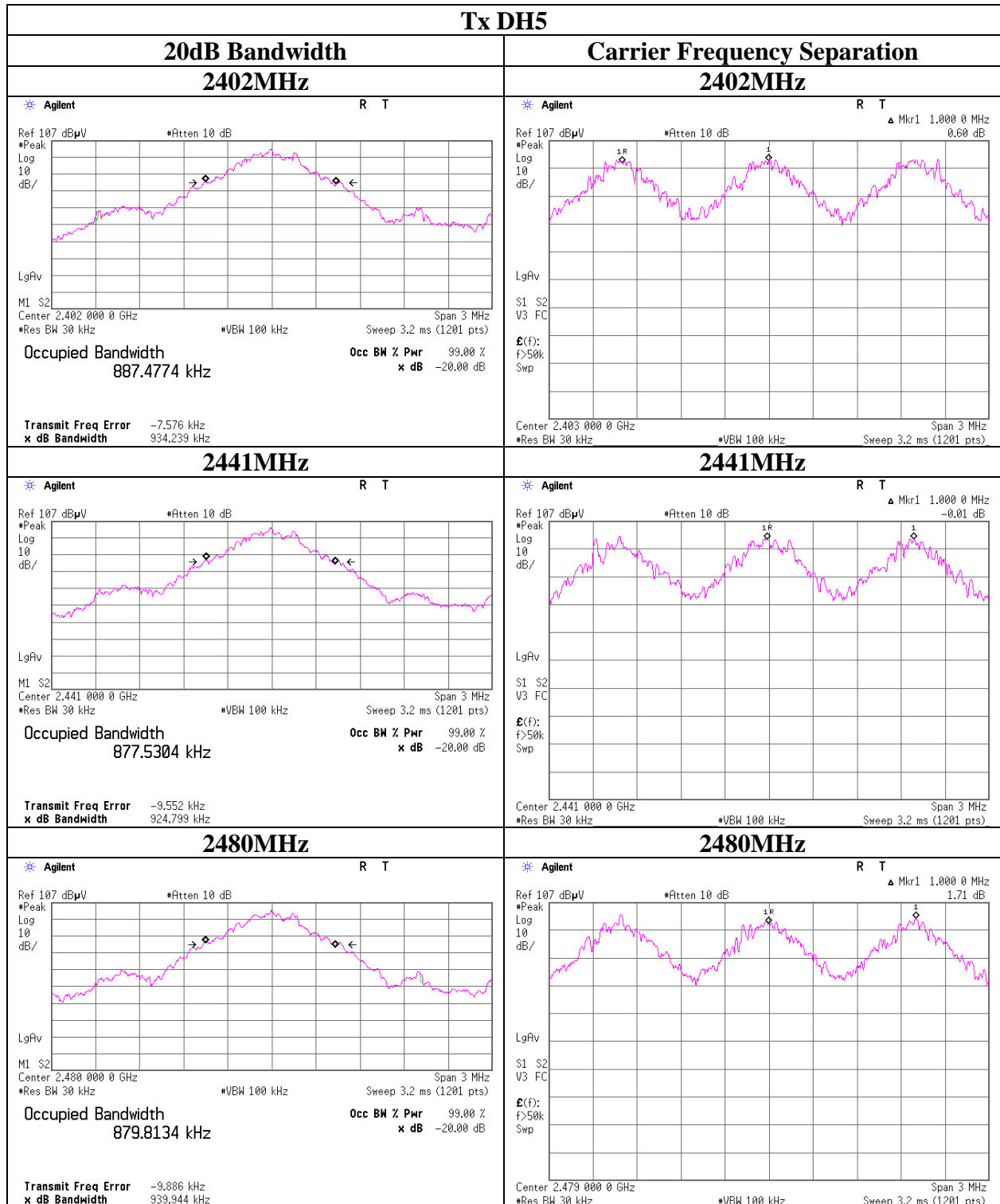
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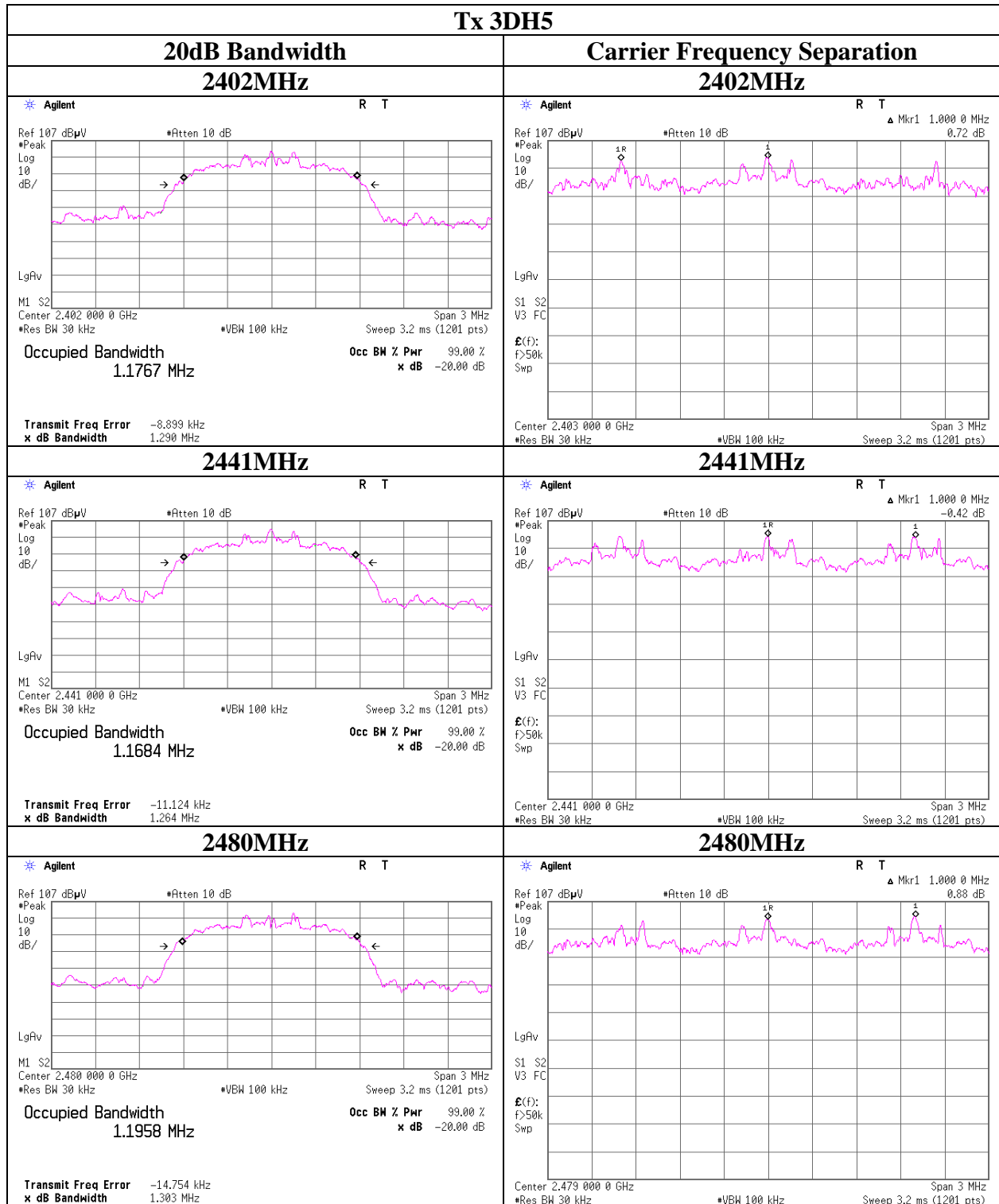
## 20dB Bandwidth and Carrier Frequency Separation



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## 20dB Bandwidth and Carrier Frequency Separation



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### Number of Hopping Frequency

Test place Ise EMC Lab. No.6 Measurement Room  
Report No. 10628918H  
Date 04/20/2015  
Temperature/ Humidity 23deg. C / 52% RH  
Engineer Kazuya Yoshioka  
Mode Tx (Hopping on) DH5/3DH5

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

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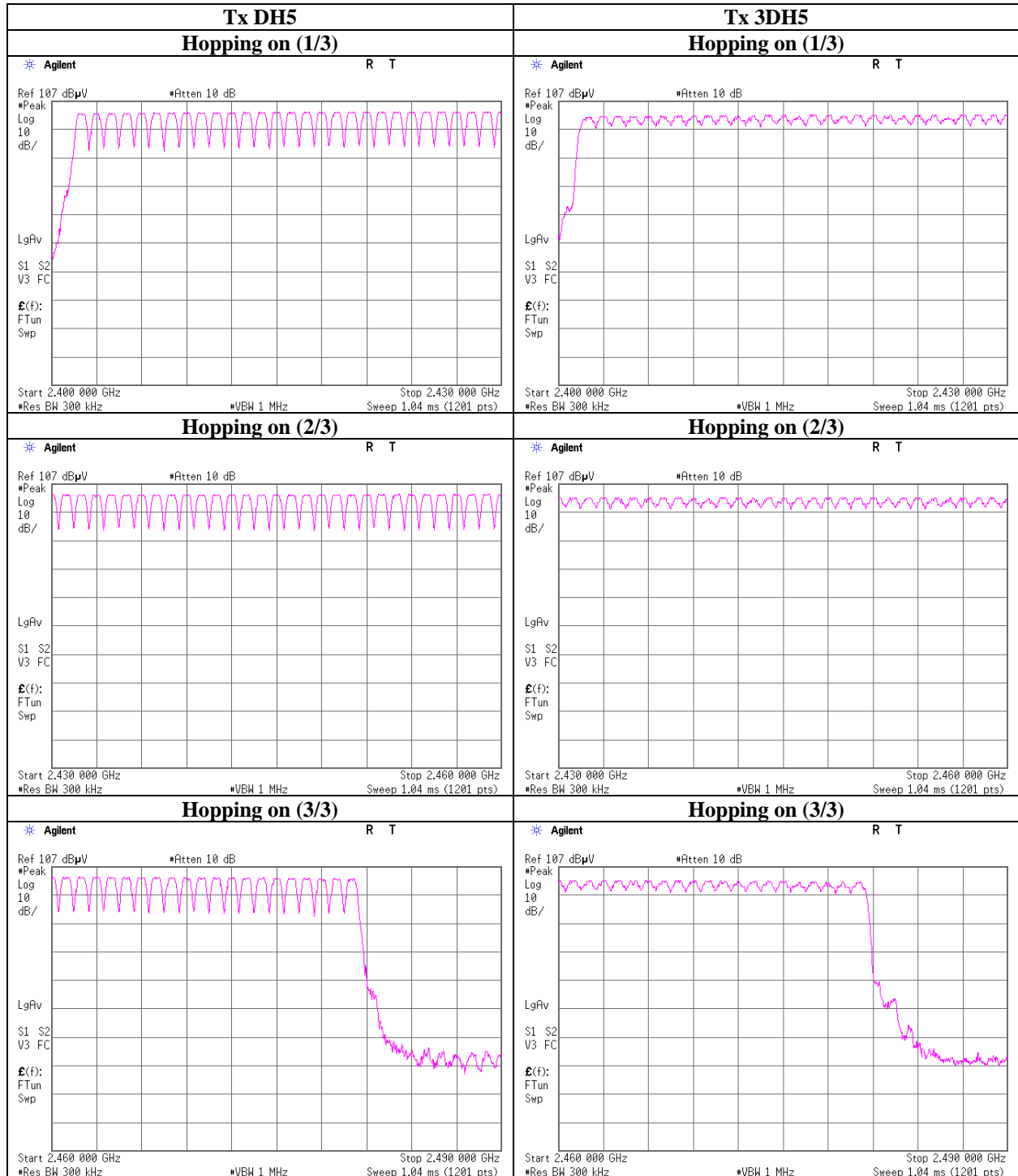
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### Number of Hopping Frequency



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### Dwell time

Test place : Ise EMC Lab. No.6 Measurement Room  
 Report No. : 10628918H  
 Date : 04/20/2015  
 Temperature/ Humidity : 23deg. C / 52% RH  
 Engineer : Kazuya Yoshioka  
 Mode : Tx (Hopping on) DH5/3DH5

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	51.0 times / 5 sec. x 31.6 sec. = 323 times	0.521	168	400
DH3	26.0 times / 5 sec. x 31.6 sec. = 165 times	1.778	293	400
DH5	17.0 times / 5 sec. x 31.6 sec. = 108 times	3.033	328	400
3DH1	51.0 times / 5 sec. x 31.6 sec. = 323 times	0.536	173	400
3DH3	26.0 times / 5 sec. x 31.6 sec. = 165 times	1.790	295	400
3DH5	17.0 times / 5 sec. x 31.6 sec. = 108 times	3.043	329	400

Sample Calculation

Result = Number of transmission x Length of transmission time

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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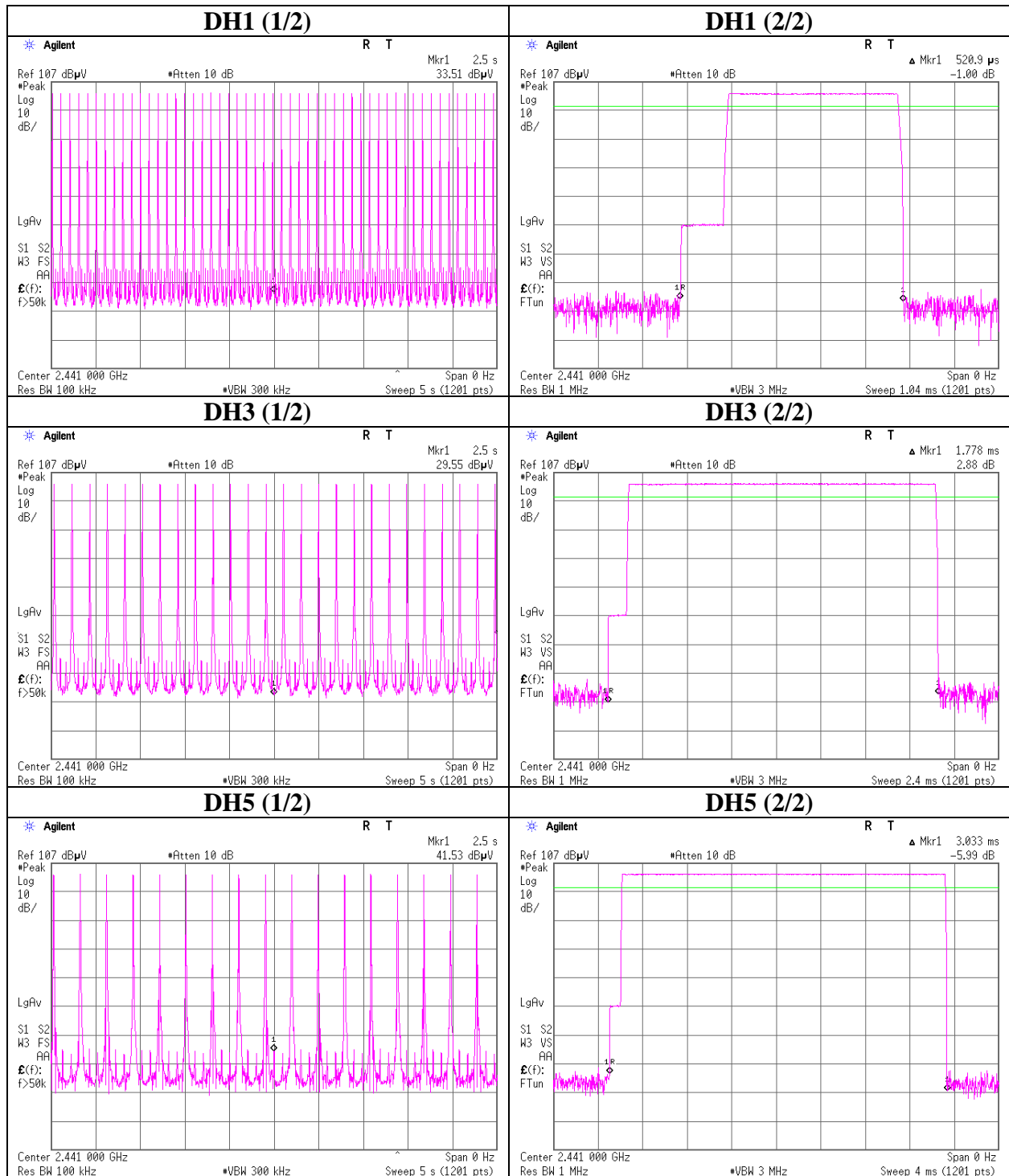
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### Dwell time



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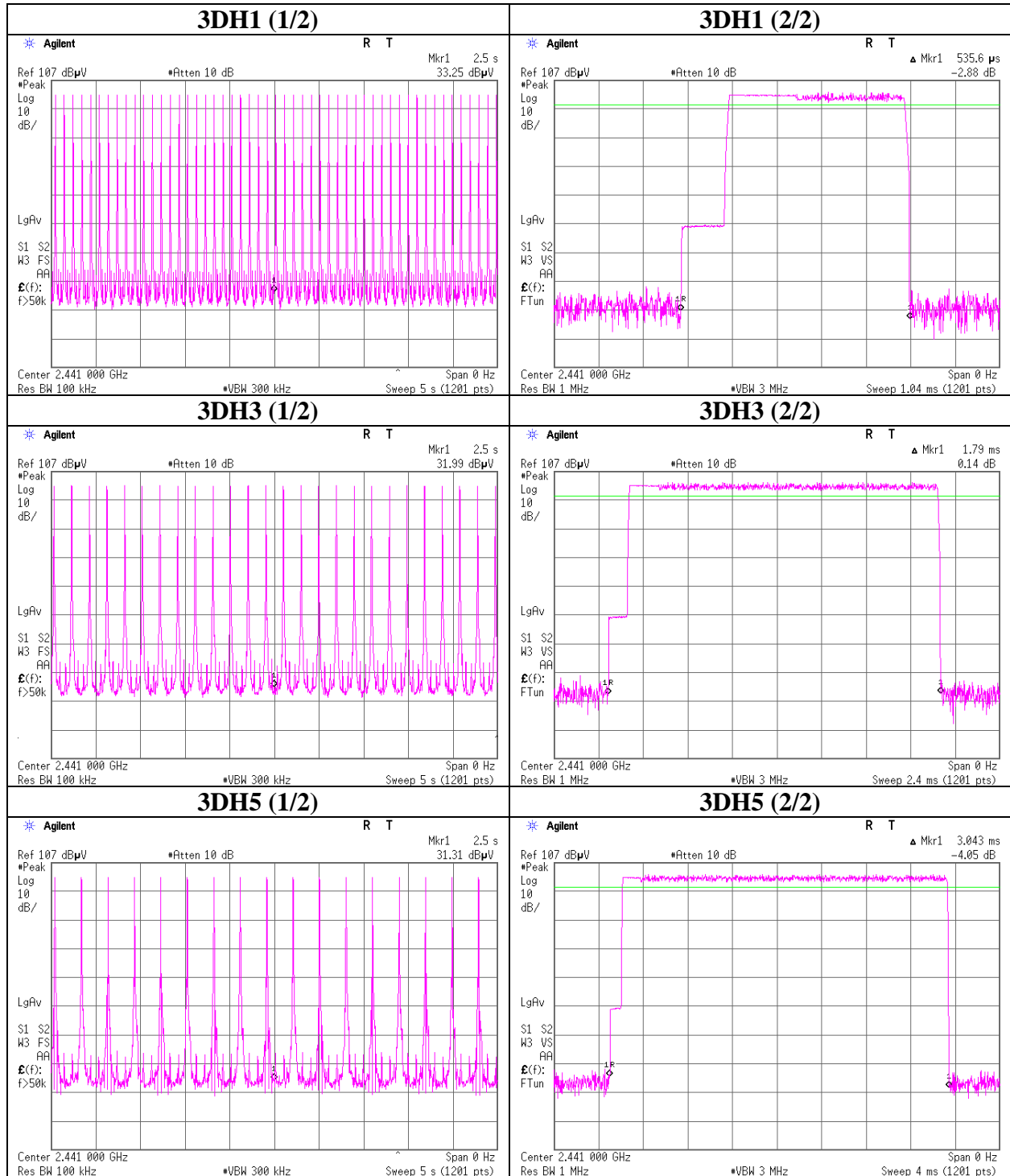
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**Dwell time**



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**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Maximum Peak Output Power

Test place : Ise EMC Lab. No.6 Measurement Room  
 Report No. : 10628918H  
 Date : 04/20/2015  
 Temperature/ Humidity : 23deg. C / 52% RH  
 Engineer : Kazuya Yoshioka  
 Mode : Tx (Hopping off) DH5/2DH5/3DH5

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
DH5	2402	-4.40	1.02	10.02	6.64	4.61	20.96	125	14.32
DH5	2441	-4.47	1.02	10.02	6.57	4.54	20.96	125	14.39
DH5	2480	-4.22	1.03	10.02	6.83	4.82	20.96	125	14.13
2DH5	2402	-4.39	1.02	10.02	6.65	4.62	20.96	125	14.31
2DH5	2441	-3.64	1.02	10.02	7.40	5.50	20.96	125	13.56
2DH5	2480	-4.21	1.03	10.02	6.84	4.83	20.96	125	14.12
3DH5	2402	-4.23	1.02	10.02	6.81	4.80	20.96	125	14.15
3DH5	2441	-3.61	1.02	10.02	7.43	5.53	20.96	125	13.53
3DH5	2480	-4.03	1.03	10.02	7.02	5.04	20.96	125	13.94

Sample Calculation:

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

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)**

Test place Ise EMC Lab. No.6 Measurement Room  
Report No. 10628918H  
Date 04/20/2015  
Temperature/ Humidity 23deg. C / 52% RH  
Engineer Kazuya Yoshioka  
Mode Tx (Hopping off) DH5/2DH5/3DH5

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.)		Result (e.i.r.p)	
						[dBm]	[mW]	[dBm]	[mW]
DH5	2402	-5.77	1.02	10.02	2.10	5.27	3.37	7.37	5.46
DH5	2441	-5.89	1.02	10.02	2.10	5.15	3.27	7.25	5.31
DH5	2480	-5.65	1.03	10.02	2.10	5.40	3.47	7.50	5.62
2DH5	2402	-8.07	1.02	10.02	2.10	2.97	1.98	5.07	3.21
2DH5	2441	-7.48	1.02	10.02	2.10	3.56	2.27	5.66	3.68
2DH5	2480	-8.12	1.03	10.02	2.10	2.93	1.96	5.03	3.18
3DH5	2402	-8.05	1.02	10.02	2.10	2.99	1.99	5.09	3.23
3DH5	2441	-7.33	1.02	10.02	2.10	3.71	2.35	5.81	3.81
3DH5	2480	-7.94	1.03	10.02	2.10	3.11	2.05	5.21	3.32

Sample Calculation:

Result(Cond.) = Reading + Cable Loss + Atten.Loss

Result(e.i.r.p.) = Reading + Cable Loss + Atten.Loss + Antenna Gain

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## Radiated Spurious Emission

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
 Report No. : 10628918H  
 Date : 04/27/2015                      04/29/2015  
 Temperature/ Humidity : 22deg. C / 45% RH      21deg. C / 61% RH  
 Engineer : Kenshi Shimomura      Keisuke Kawamura  
                 (1-10GHz)                      (Above 10GHz and 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	38.123	QP	22.9	14.8	7.2	32.1	12.8	40.0	27.2	
Hori	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Hori	239.939	QP	26.2	17.0	9.4	31.8	20.8	46.0	25.2	
Hori	420.641	QP	22.7	18.5	10.7	31.9	20.0	46.0	26.0	
Hori	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Hori	886.379	QP	25.7	24.3	13.3	31.2	32.1	46.0	13.9	
Hori	1601.030	PK	49.3	26.0	2.7	33.3	44.7	73.9	29.2	
Hori	2390.000	PK	48.1	27.4	3.2	32.3	46.4	73.9	27.5	
Hori	4804.000	PK	45.7	31.5	5.4	31.6	51.0	73.9	22.9	
Hori	7206.000	PK	42.4	36.8	6.6	32.8	53.0	73.9	20.9	
Hori	9608.000	PK	43.4	38.8	7.3	33.2	56.3	73.9	17.6	
Hori	1601.030	AV	43.4	26.0	2.7	33.3	38.8	53.9	15.1	
Hori	2390.000	AV	29.9	27.4	3.2	32.3	28.2	53.9	25.7	
Hori	4804.000	AV	38.2	31.5	5.4	31.6	43.5	53.9	10.4	
Hori	7206.000	AV	30.8	36.8	6.6	32.8	41.4	53.9	12.5	
Hori	9608.000	AV	31.7	38.8	7.3	33.2	44.6	53.9	9.3	
Vert	38.123	QP	22.8	14.8	7.2	32.1	12.7	40.0	27.3	
Vert	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Vert	239.939	QP	22.5	17.0	9.4	31.8	17.1	46.0	28.9	
Vert	420.641	QP	22.8	18.5	10.7	31.9	20.1	46.0	25.9	
Vert	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Vert	886.379	QP	23.4	24.3	13.3	31.2	29.8	46.0	16.2	
Vert	1601.030	PK	52.0	26.0	2.7	33.3	47.4	73.9	26.5	
Vert	2390.000	PK	44.1	27.4	3.2	32.3	42.4	73.9	31.5	
Vert	4804.000	PK	45.1	31.5	5.4	31.6	50.4	73.9	23.5	
Vert	7206.000	PK	44.0	36.8	6.6	32.8	54.6	73.9	19.3	
Vert	9608.000	PK	44.6	38.8	7.3	33.2	57.5	73.9	16.4	
Vert	1601.030	AV	45.5	26.0	2.7	33.3	40.9	53.9	13.0	
Vert	2390.000	AV	30.8	27.4	3.2	32.3	29.1	53.9	24.8	
Vert	4804.000	AV	31.5	31.5	5.4	31.6	36.8	53.9	17.1	
Vert	7206.000	AV	30.2	36.8	6.6	32.8	40.8	53.9	13.1	
Vert	9608.000	AV	31.4	38.8	7.3	33.2	44.3	53.9	9.6	

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	106.6	27.4	3.2	32.3	104.9	-	-	Carrier
Hori	2400.000	PK	56.8	27.4	3.2	32.3	55.1	84.9	29.8	
Vert	2402.000	PK	99.9	27.4	3.2	32.3	98.2	-	-	Carrier
Vert	2400.000	PK	50.1	27.4	3.2	32.3	48.4	78.2	29.8	

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

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## Radiated Spurious Emission

Test place Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. 10628918H  
Date 04/27/2015 04/29/2015  
Temperature/ Humidity 22deg. C / 45% RH 21deg. C / 61% RH  
Engineer Kenshi Shimomura Keisuke Kawamura  
(1-10GHz) (Above 10GHz and 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	38.123	QP	22.9	14.8	7.2	32.1	12.8	40.0	27.2	
Hori	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Hori	239.939	QP	26.2	17.0	9.4	31.8	20.8	46.0	25.2	
Hori	420.641	QP	22.7	18.5	10.7	31.9	20.0	46.0	26.0	
Hori	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Hori	886.379	QP	25.7	24.3	13.3	31.2	32.1	46.0	13.9	
Hori	1626.900	PK	50.5	26.0	2.7	33.2	46.0	73.9	27.9	
Hori	4882.000	PK	44.2	31.8	5.5	31.6	49.9	73.9	24.0	
Hori	7323.000	PK	43.8	37.0	6.5	32.8	54.5	73.9	19.4	
Hori	9764.000	PK	43.7	38.9	7.4	33.3	56.7	73.9	17.2	
Hori	1626.900	AV	44.4	26.0	2.7	33.2	39.9	53.9	14.0	
Hori	4882.000	AV	35.4	31.8	5.5	31.6	41.1	53.9	12.8	
Hori	7323.000	AV	31.8	37.0	6.5	32.8	42.5	53.9	11.4	
Hori	9764.000	AV	31.5	38.9	7.4	33.3	44.5	53.9	9.4	
Vert	38.123	QP	22.8	14.8	7.2	32.1	12.7	40.0	27.3	
Vert	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Vert	239.939	QP	22.5	17.0	9.4	31.8	17.1	46.0	28.9	
Vert	420.641	QP	22.8	18.5	10.7	31.9	20.1	46.0	25.9	
Vert	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Vert	886.379	QP	23.4	24.3	13.3	31.2	29.8	46.0	16.2	
Vert	1626.900	PK	49.5	26.0	2.7	33.2	45.0	73.9	28.9	
Vert	4882.000	PK	44.0	31.8	5.5	31.6	49.7	73.9	24.2	
Vert	7323.000	PK	42.5	37.0	6.5	32.8	53.2	73.9	20.8	
Vert	9764.000	PK	43.2	38.9	7.4	33.3	56.2	73.9	17.7	
Vert	1626.900	AV	45.6	26.0	2.7	33.2	41.1	53.9	12.8	
Vert	4882.000	AV	34.7	31.8	5.5	31.6	40.4	53.9	13.5	
Vert	7323.000	AV	30.1	37.0	6.5	32.8	40.8	53.9	13.1	
Vert	9764.000	AV	31.5	38.9	7.4	33.3	44.5	53.9	9.4	

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

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## Radiated Spurious Emission

Test place Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. 10628918H  
Date 04/27/2015 04/29/2015  
Temperature/ Humidity 22deg. C / 45% RH 21deg. C / 61% RH  
Engineer Kenshi Shimomura Keisuke Kawamura  
(1-10GHz) (Above 10GHz and 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	38.123	QP	22.9	14.8	7.2	32.1	12.8	40.0	27.2	
Hori	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Hori	239.939	QP	26.2	17.0	9.4	31.8	20.8	46.0	25.2	
Hori	420.641	QP	22.7	18.5	10.7	31.9	20.0	46.0	26.0	
Hori	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Hori	886.379	QP	25.7	24.3	13.3	31.2	32.1	46.0	13.9	
Hori	1650.000	PK	49.0	26.1	2.7	33.2	44.6	73.9	29.4	
Hori	2483.500	PK	55.8	27.6	3.3	32.3	54.4	73.9	19.5	
Hori	4960.000	PK	45.7	32.0	5.5	31.6	51.6	73.9	22.3	
Hori	7440.000	PK	42.4	37.2	6.5	32.9	53.2	73.9	20.7	
Hori	9920.000	PK	43.1	39.0	7.4	33.3	56.2	73.9	17.7	
Hori	1650.000	AV	43.4	26.1	2.7	33.2	39.0	53.9	14.9	
Hori	2483.500	AV	41.6	27.6	3.3	32.3	40.2	53.9	13.7	
Hori	4960.000	AV	36.7	32.0	5.5	31.6	42.6	53.9	11.3	
Hori	7440.000	AV	30.1	37.2	6.5	32.9	40.9	53.9	13.0	
Hori	9920.000	AV	30.7	39.0	7.4	33.3	43.8	53.9	10.1	
Vert	38.123	QP	22.8	14.8	7.2	32.1	12.7	40.0	27.3	
Vert	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Vert	239.939	QP	22.5	17.0	9.4	31.8	17.1	46.0	28.9	
Vert	420.641	QP	22.8	18.5	10.7	31.9	20.1	46.0	25.9	
Vert	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Vert	886.379	QP	23.4	24.3	13.3	31.2	29.8	46.0	16.2	
Vert	1650.000	PK	43.5	26.1	2.7	33.2	39.1	73.9	34.8	
Vert	2483.500	PK	51.8	27.6	3.3	32.3	50.4	73.9	23.5	
Vert	4960.000	PK	44.5	32.0	5.5	31.6	50.4	73.9	23.5	
Vert	7440.000	PK	42.1	37.2	6.5	32.9	52.9	73.9	21.0	
Vert	9920.000	PK	42.9	39.0	7.4	33.3	56.0	73.9	17.9	
Vert	1650.000	AV	32.3	26.1	2.7	33.2	27.9	53.9	26.0	
Vert	2483.500	AV	37.4	27.6	3.3	32.3	36.0	53.9	17.9	
Vert	4960.000	AV	34.5	32.0	5.5	31.6	40.4	53.9	13.5	
Vert	7440.000	AV	30.1	37.2	6.5	32.9	40.9	53.9	13.0	
Vert	9920.000	AV	31.3	39.0	7.4	33.3	44.4	53.9	9.5	

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

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## Radiated Spurious Emission

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. : 10628918H  
Date : 04/27/2015                      04/29/2015  
Temperature/ Humidity : 22deg. C / 45% RH      21deg. C / 61% RH  
Engineer : Kenshi Shimomura              Keisuke Kawamura  
(1-10GHz)                      (Above 10GHz and 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	38.123	QP	22.9	14.8	7.2	32.1	12.8	40.0	27.2	
Hori	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Hori	239.939	QP	26.2	17.0	9.4	31.8	20.8	46.0	25.2	
Hori	420.641	QP	22.7	18.5	10.7	31.9	20.0	46.0	26.0	
Hori	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Hori	886.379	QP	25.7	24.3	13.3	31.2	32.1	46.0	13.9	
Hori	1601.000	PK	49.6	26.0	2.7	33.3	45.0	73.9	28.9	
Hori	2390.000	PK	46.9	27.4	3.2	32.3	45.2	73.9	28.7	
Hori	4804.000	PK	43.7	31.5	5.4	31.6	49.0	73.9	24.9	
Hori	7206.000	PK	42.4	36.8	6.6	32.8	53.0	73.9	20.9	
Hori	9608.000	PK	43.3	38.8	7.3	33.2	56.2	73.9	17.7	
Hori	1601.000	AV	43.9	26.0	2.7	33.3	39.3	53.9	14.6	
Hori	2390.000	AV	34.4	27.4	3.2	32.3	32.7	53.9	21.2	
Hori	4804.000	AV	32.3	31.5	5.4	31.6	37.6	53.9	16.3	
Hori	7206.000	AV	30.9	36.8	6.6	32.8	41.5	53.9	12.4	
Hori	9608.000	AV	31.9	38.8	7.3	33.2	44.8	53.9	9.1	
Vert	38.123	QP	22.8	14.8	7.2	32.1	12.7	40.0	27.3	
Vert	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Vert	239.939	QP	22.5	17.0	9.4	31.8	17.1	46.0	28.9	
Vert	420.641	QP	22.8	18.5	10.7	31.9	20.1	46.0	25.9	
Vert	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Vert	886.379	QP	23.4	24.3	13.3	31.2	29.8	46.0	16.2	
Vert	1601.000	PK	50.6	26.0	2.7	33.3	46.0	73.9	27.9	
Vert	2390.000	PK	44.4	27.4	3.2	32.3	42.7	73.9	31.2	
Vert	4804.000	PK	43.8	31.5	5.4	31.6	49.1	73.9	24.9	
Vert	7206.000	PK	43.8	36.8	6.6	32.8	54.4	73.9	19.6	
Vert	9608.000	PK	44.2	38.8	7.3	33.2	57.1	73.9	16.8	
Vert	1601.000	AV	46.5	26.0	2.7	33.3	41.9	53.9	12.0	
Vert	2390.000	AV	31.9	27.4	3.2	32.3	30.2	53.9	23.7	
Vert	4804.000	AV	31.7	31.5	5.4	31.6	37.0	53.9	16.9	
Vert	7206.000	AV	30.4	36.8	6.6	32.8	41.0	53.9	12.9	
Vert	9608.000	AV	31.8	38.8	7.3	33.2	44.7	53.9	9.2	

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).

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	105.8	27.4	3.2	32.3	104.1	-	-	Carrier
Hori	2400.000	PK	62.1	27.4	3.2	32.3	60.4	84.1	23.7	
Vert	2402.000	PK	98.9	27.4	3.2	32.3	97.2	-	-	Carrier
Vert	2400.000	PK	55.1	27.4	3.2	32.3	53.4	77.2	23.8	

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

### Radiated Spurious Emission

Test place Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. 10628918H  
Date 04/27/2015 04/29/2015  
Temperature/ Humidity 22deg. C / 45% RH 21deg. C / 61% RH  
Engineer Kenshi Shimomura Keisuke Kawamura  
(1-10GHz) (Above 10GHz and 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	38.123	QP	22.9	14.8	7.2	32.1	12.8	40.0	27.2	
Hori	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Hori	239.939	QP	26.2	17.0	9.4	31.8	20.8	46.0	25.2	
Hori	420.641	QP	22.7	18.5	10.7	31.9	20.0	46.0	26.0	
Hori	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Hori	886.379	QP	25.7	24.3	13.3	31.2	32.1	46.0	13.9	
Hori	1627.000	PK	49.7	26.0	2.7	33.2	45.2	73.9	28.7	
Hori	4882.000	PK	44.8	31.8	5.5	31.6	50.5	73.9	23.4	
Hori	7323.000	PK	43.9	37.0	6.5	32.8	54.6	73.9	19.3	
Hori	9764.000	PK	43.6	38.9	7.4	33.3	56.6	73.9	17.3	
Hori	1627.000	AV	45.8	26.0	2.7	33.2	41.3	53.9	12.6	
Hori	4882.000	AV	32.6	31.8	5.5	31.6	38.3	53.9	15.6	
Hori	7323.000	AV	31.7	37.0	6.5	32.8	42.4	53.9	11.5	
Hori	9764.000	AV	31.8	38.9	7.4	33.3	44.8	53.9	9.1	
Vert	38.123	QP	22.8	14.8	7.2	32.1	12.7	40.0	27.3	
Vert	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Vert	239.939	QP	22.5	17.0	9.4	31.8	17.1	46.0	28.9	
Vert	420.641	QP	22.8	18.5	10.7	31.9	20.1	46.0	25.9	
Vert	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Vert	886.379	QP	23.4	24.3	13.3	31.2	29.8	46.0	16.2	
Vert	1627.000	PK	51.4	26.0	2.7	33.2	46.9	73.9	27.0	
Vert	4882.000	PK	43.6	31.8	5.5	31.6	49.3	73.9	24.6	
Vert	7323.000	PK	42.4	37.0	6.5	32.8	53.1	73.9	20.8	
Vert	9764.000	PK	43.3	38.9	7.4	33.3	56.3	73.9	17.6	
Vert	1627.000	AV	48.1	26.0	2.7	33.2	43.6	53.9	10.3	
Vert	4882.000	AV	31.3	31.8	5.5	31.6	37.0	53.9	16.9	
Vert	7323.000	AV	30.3	37.0	6.5	32.8	41.0	53.9	12.9	
Vert	9764.000	AV	31.3	38.9	7.4	33.3	44.3	53.9	9.6	

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

**UL Japan, Inc.**

**Ise EMC Lab.**

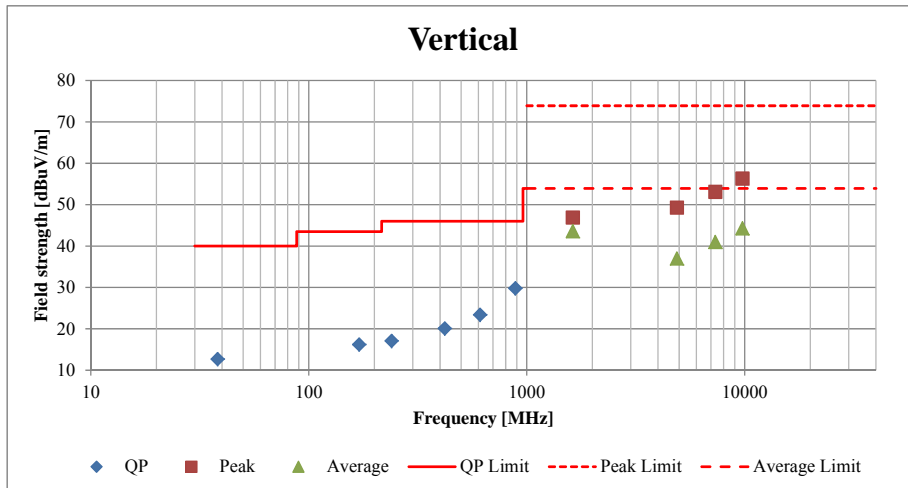
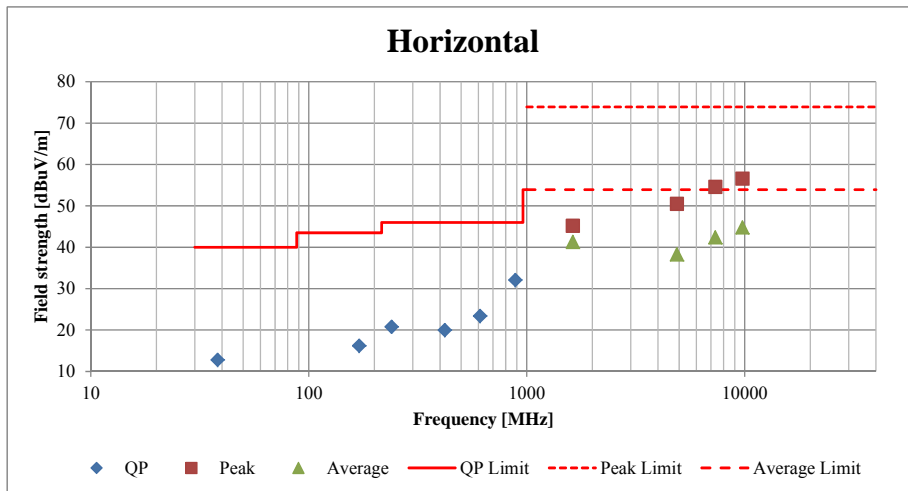
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Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

**Radiated Spurious Emission**  
**Plot data (Worst case of Maximum Peak Output Power)**

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber	
Report No.	10628918H	
Date	04/27/2015	04/29/2015
Temperature/ Humidity	22deg. C / 45% RH	21deg. C / 61% RH
Engineer	Kenshi Shimomura (1-10GHz)	Keisuke Kawamura (Above 10GHz and below 1GHz)
Mode	Tx, 3DH5 2441MHz	



## Radiated Spurious Emission

Test place Ise EMC Lab. No.4 Semi Anechoic Chamber  
Report No. 10628918H  
Date 04/27/2015 04/29/2015  
Temperature/ Humidity 22deg. C / 45% RH 21deg. C / 61% RH  
Engineer Kenshi Shimomura Keisuke Kawamura  
(1-10GHz) (Above 10GHz and 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	38.123	QP	22.9	14.8	7.2	32.1	12.8	40.0	27.2	
Hori	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Hori	239.939	QP	26.2	17.0	9.4	31.8	20.8	46.0	25.2	
Hori	420.641	QP	22.7	18.5	10.7	31.9	20.0	46.0	26.0	
Hori	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Hori	886.379	QP	25.7	24.3	13.3	31.2	32.1	46.0	13.9	
Hori	1653.000	PK	49.0	26.1	2.7	33.1	44.7	73.9	29.2	
Hori	2483.500	PK	58.4	27.6	3.3	32.3	57.0	73.9	16.9	
Hori	4960.000	PK	43.0	32.0	5.5	31.6	48.9	73.9	25.0	
Hori	7440.000	PK	43.3	37.2	6.5	32.9	54.1	73.9	19.8	
Hori	9920.000	PK	43.4	39.0	7.4	33.3	56.5	73.9	17.4	
Hori	1653.000	AV	44.2	26.1	2.7	33.1	39.9	53.9	14.0	
Hori	2483.500	AV	44.1	27.6	3.3	32.3	42.7	53.9	11.2	
Hori	4960.000	AV	31.1	32.0	5.5	31.6	37.0	53.9	16.9	
Hori	7440.000	AV	30.1	37.2	6.5	32.9	40.9	53.9	13.0	
Hori	9920.000	AV	31.4	39.0	7.4	33.3	44.5	53.9	9.4	
Vert	38.123	QP	22.8	14.8	7.2	32.1	12.7	40.0	27.3	
Vert	170.211	QP	23.4	15.8	8.9	31.9	16.2	43.5	27.3	
Vert	239.939	QP	22.5	17.0	9.4	31.8	17.1	46.0	28.9	
Vert	420.641	QP	22.8	18.5	10.7	31.9	20.1	46.0	25.9	
Vert	610.312	QP	23.3	20.4	11.8	32.1	23.4	46.0	22.6	
Vert	886.379	QP	23.4	24.3	13.3	31.2	29.8	46.0	16.2	
Vert	1653.000	PK	49.4	26.1	2.7	33.1	45.1	73.9	28.8	
Vert	2483.500	PK	56.2	27.6	3.3	32.3	54.8	73.9	19.1	
Vert	4960.000	PK	39.7	32.0	5.5	31.6	45.6	73.9	28.3	
Vert	7440.000	PK	42.0	37.2	6.5	32.9	52.8	73.9	21.1	
Vert	9920.000	PK	42.7	39.0	7.4	33.3	55.8	73.9	18.1	
Vert	1653.000	AV	44.4	26.1	2.7	33.1	40.1	53.9	13.8	
Vert	2483.500	AV	42.0	27.6	3.3	32.3	40.6	53.9	13.3	
Vert	4960.000	AV	30.0	32.0	5.5	31.6	35.9	53.9	18.0	
Vert	7440.000	AV	30.2	37.2	6.5	32.9	41.0	53.9	12.9	
Vert	9920.000	AV	31.4	39.0	7.4	33.3	44.5	53.9	9.4	

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

**UL Japan, Inc.**

**Ise EMC Lab.**

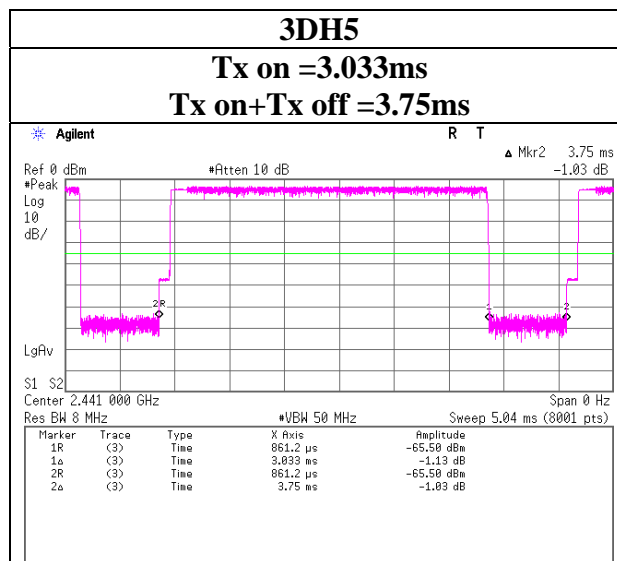
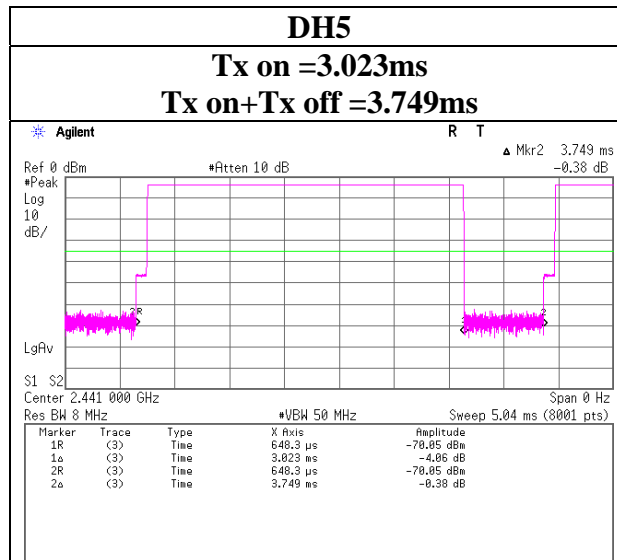
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Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Duty Cycle

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) DH5/3DH5



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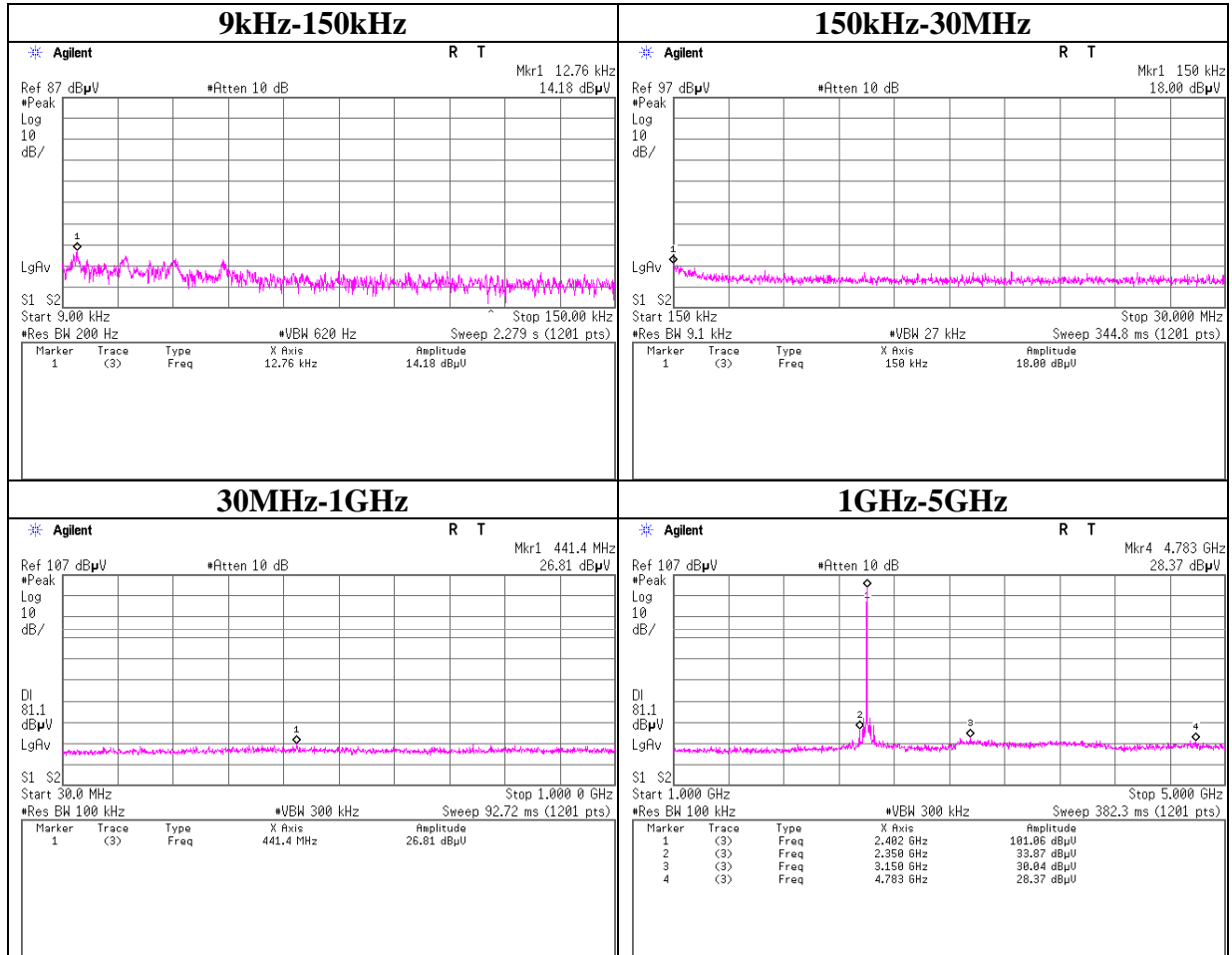
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) DH5

### Tx DH5 2402MHz



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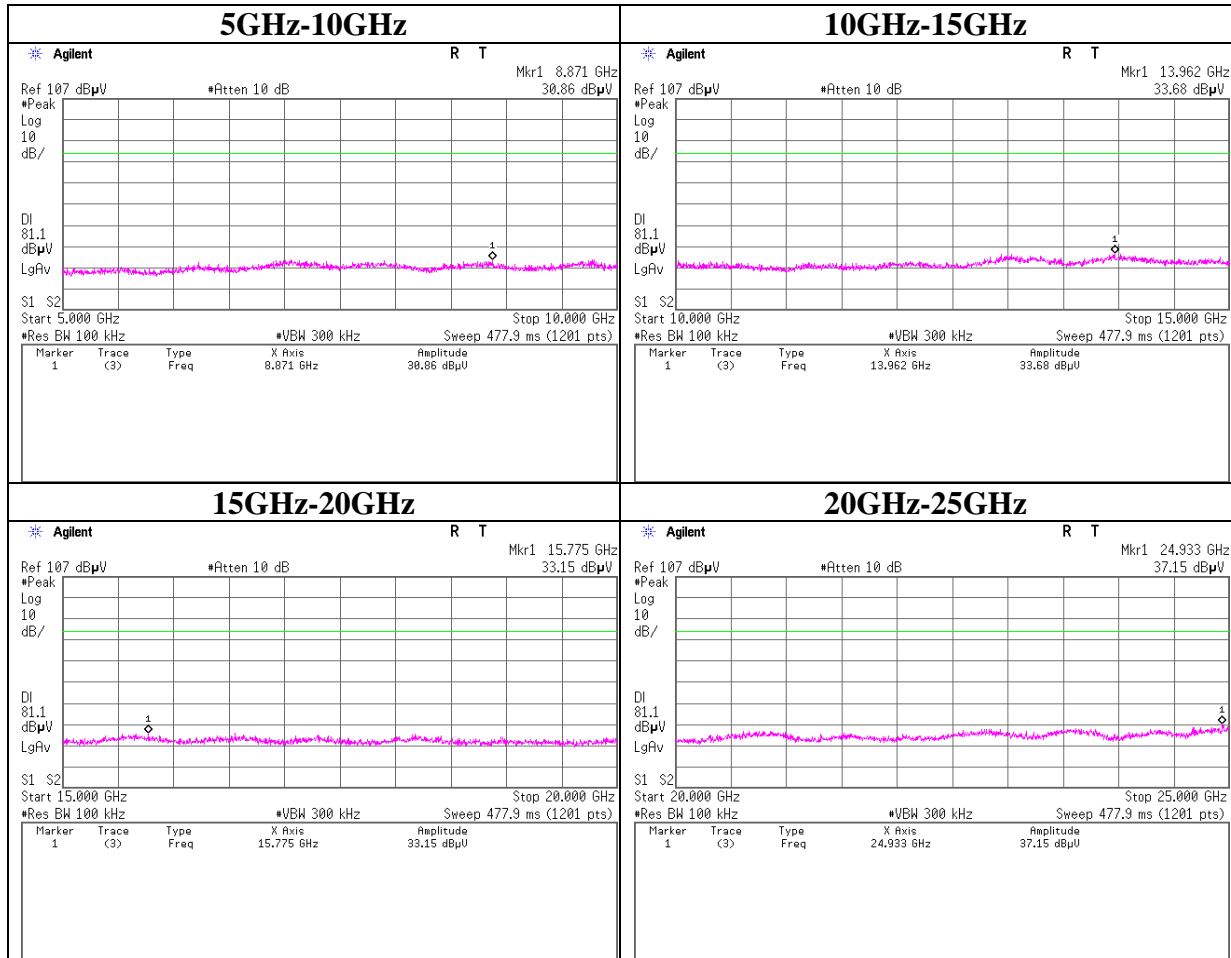
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) DH5

### Tx DH5 2402MHz



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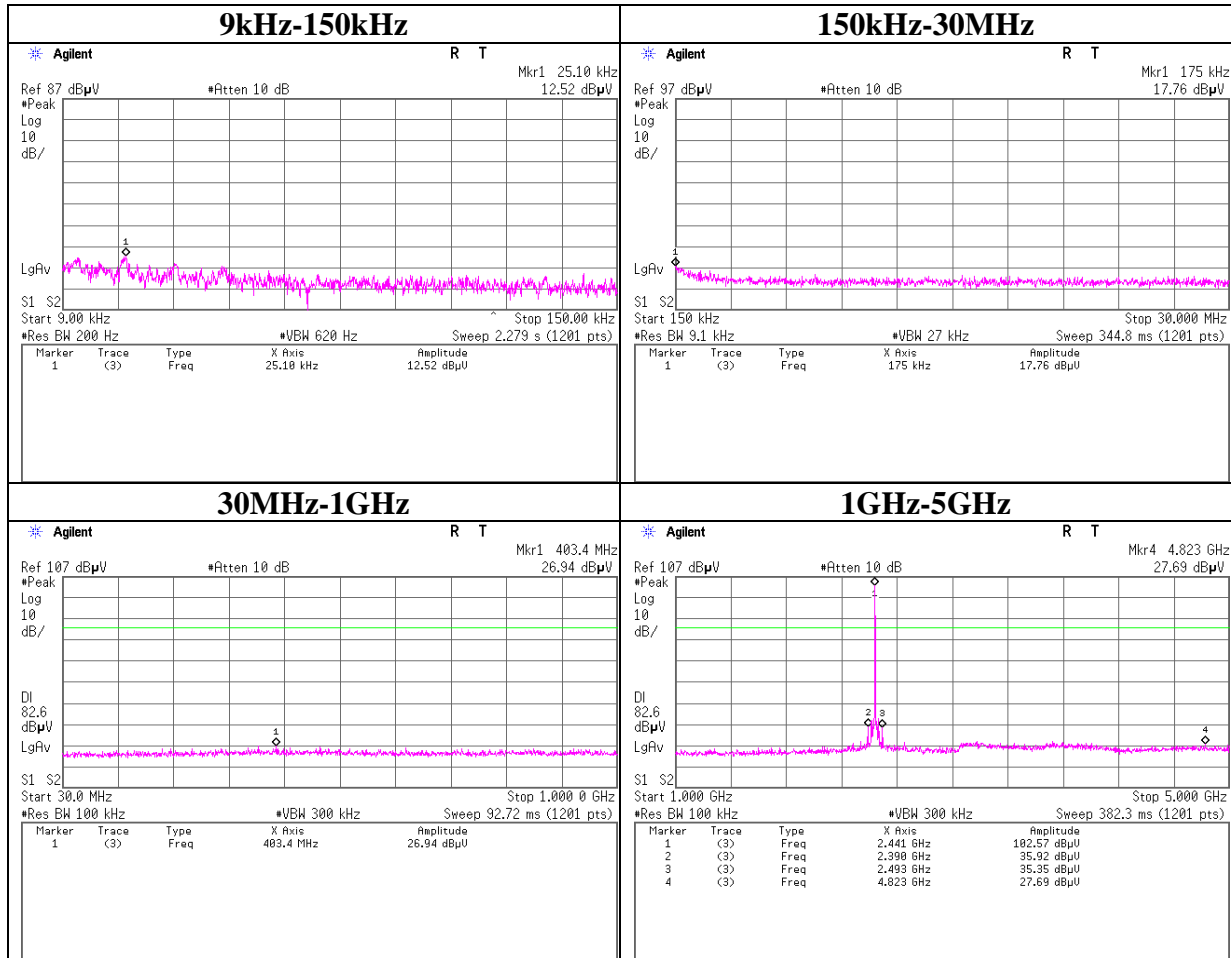
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) DH5

### Tx DH5 2441MHz



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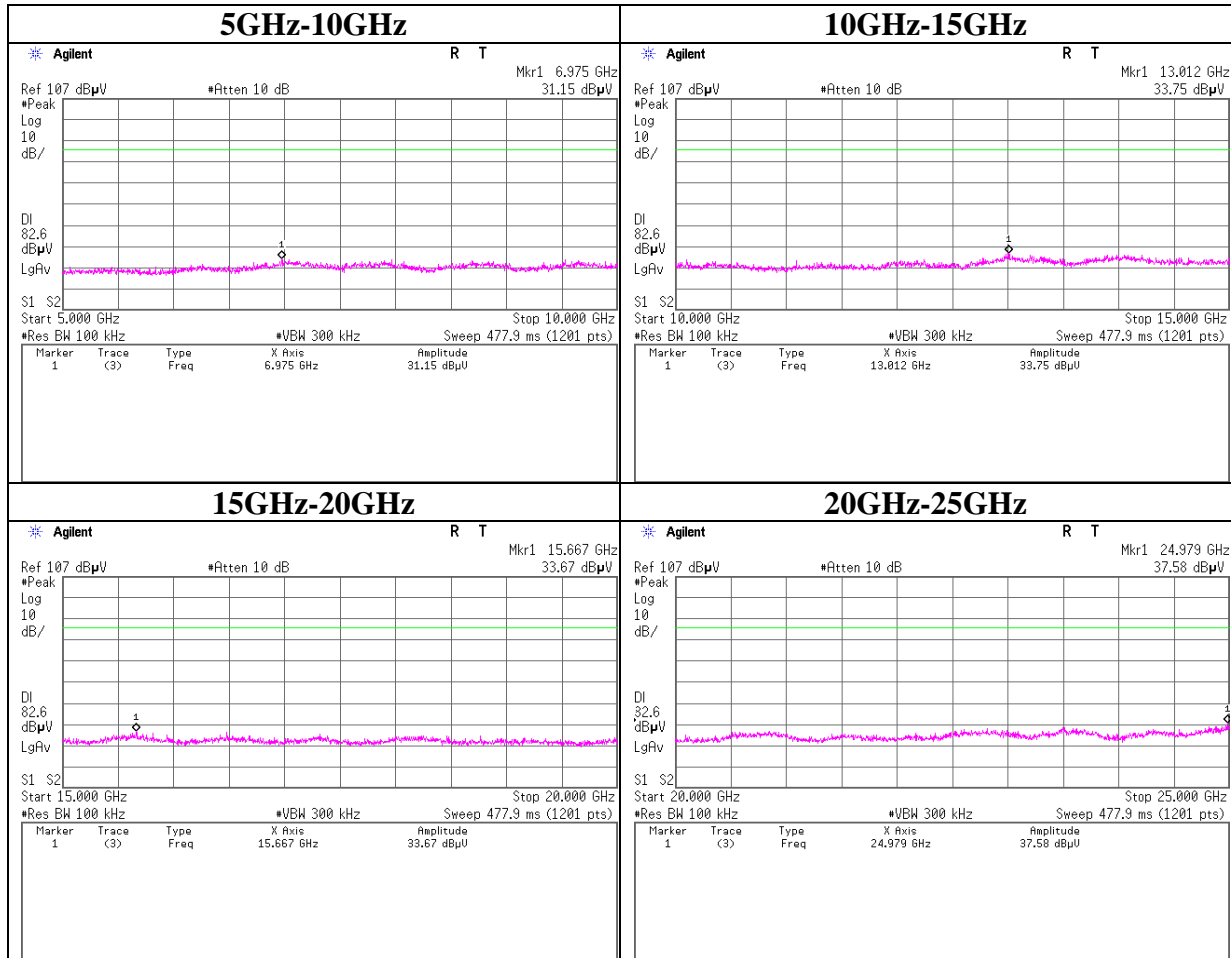
Facsimile : +81 596 24 8124



## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) DH5

### Tx DH5 2441MHz



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**Ise EMC Lab.**

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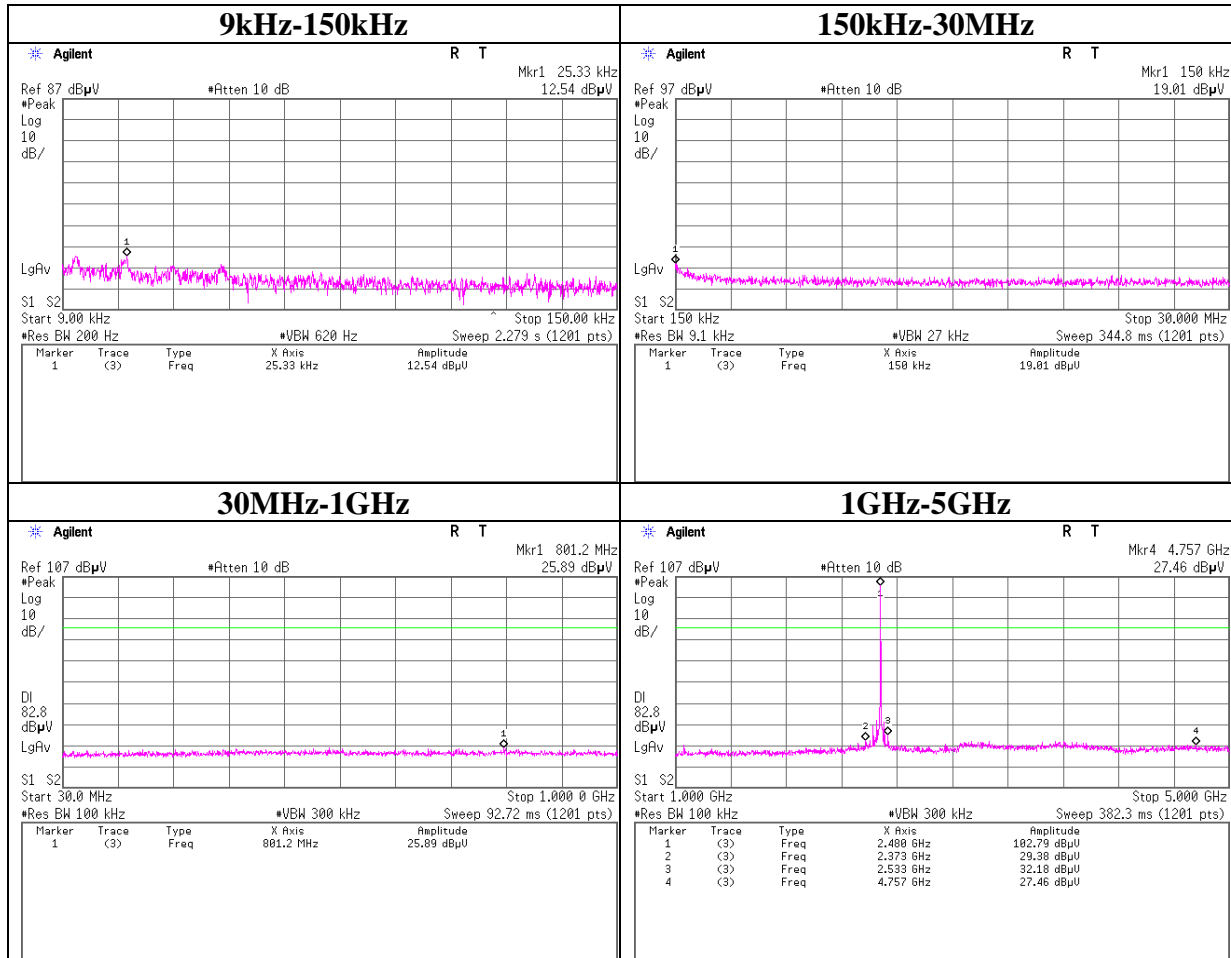
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) DH5

### Tx DH5 2480MHz



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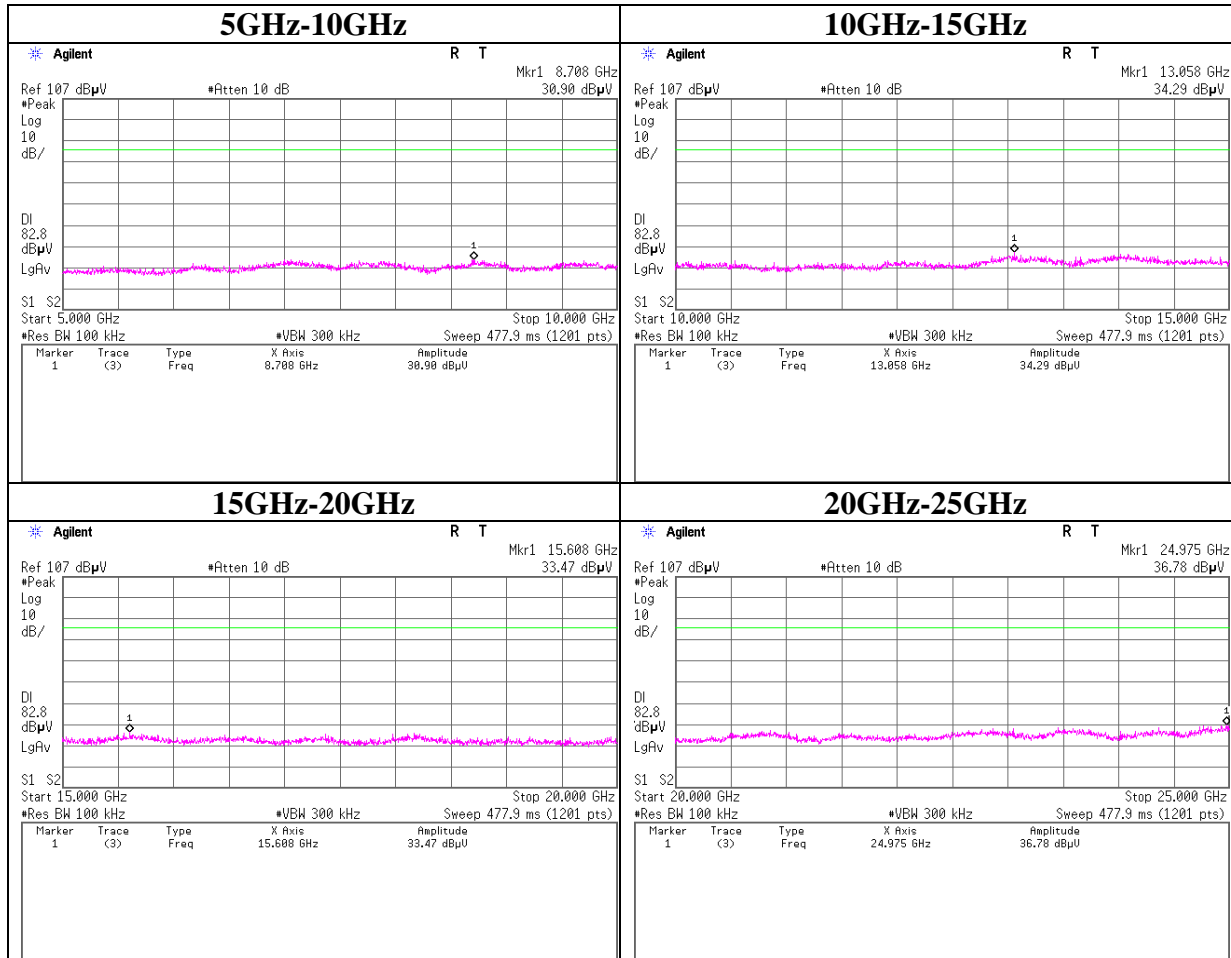
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

### Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) DH5

#### Tx DH5 2480MHz



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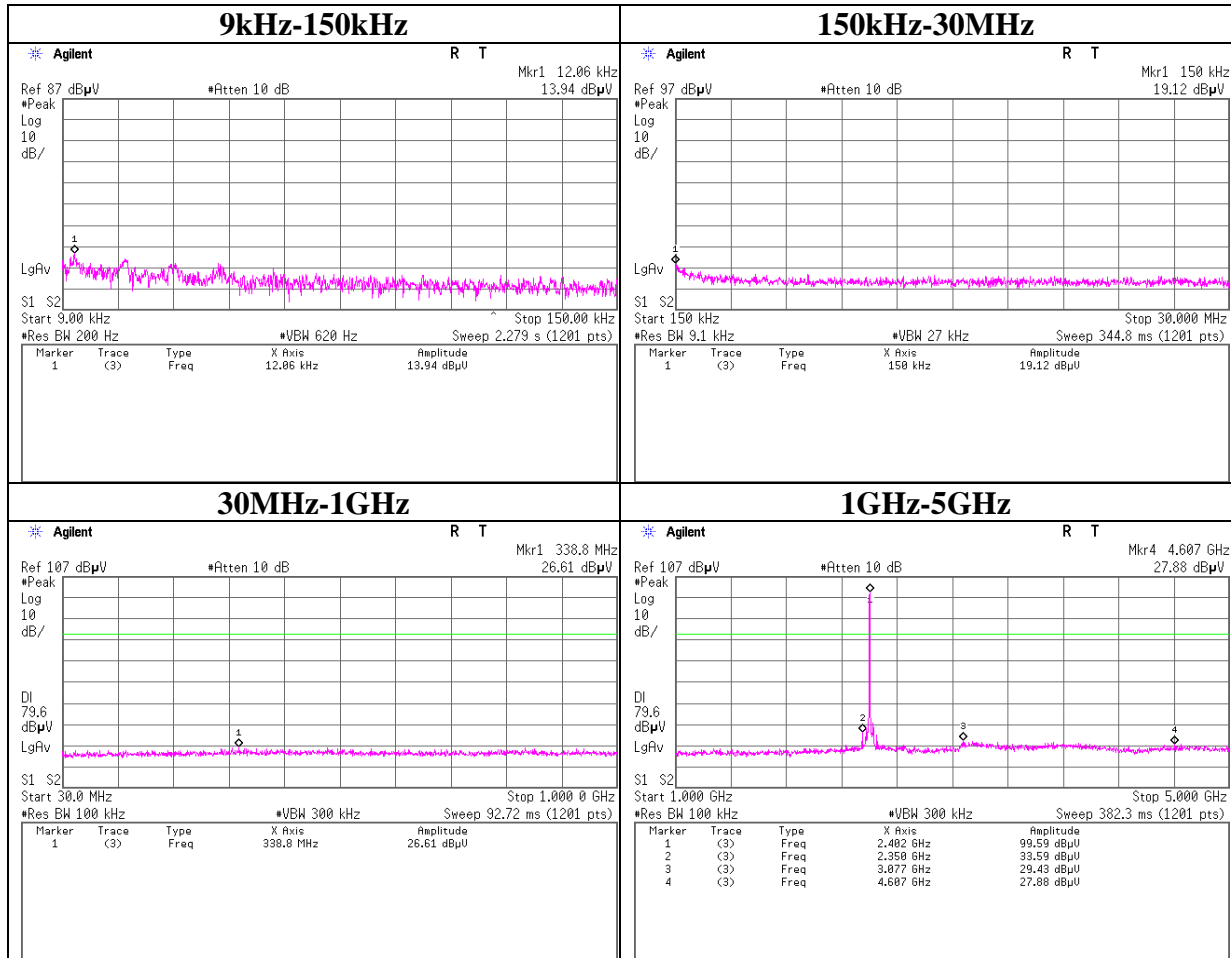
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) 3DH5

### Tx 3DH5 2402MHz



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**Ise EMC Lab.**

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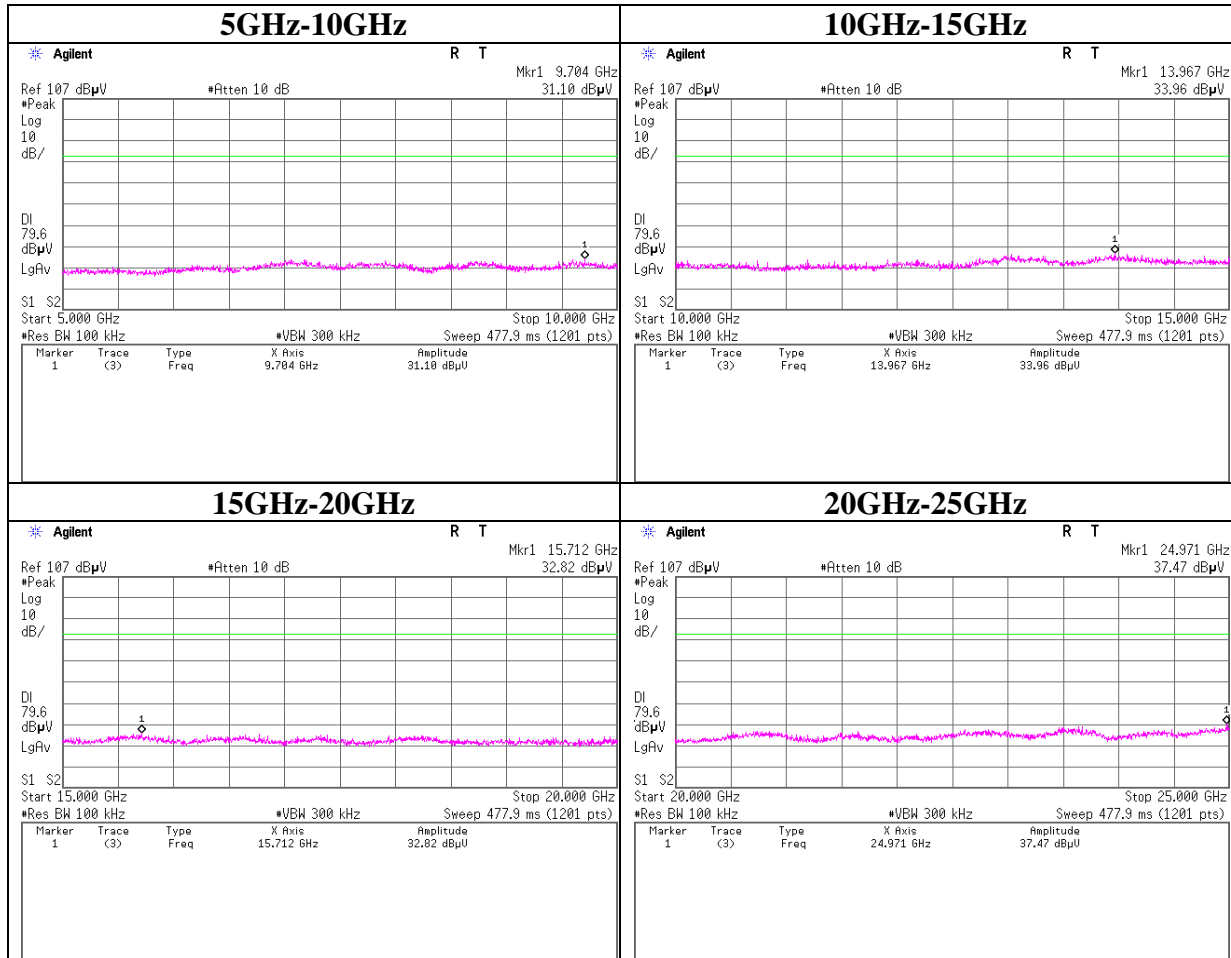
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) 3DH5

### Tx 3DH5 2402MHz



**UL Japan, Inc.**

**Ise EMC Lab.**

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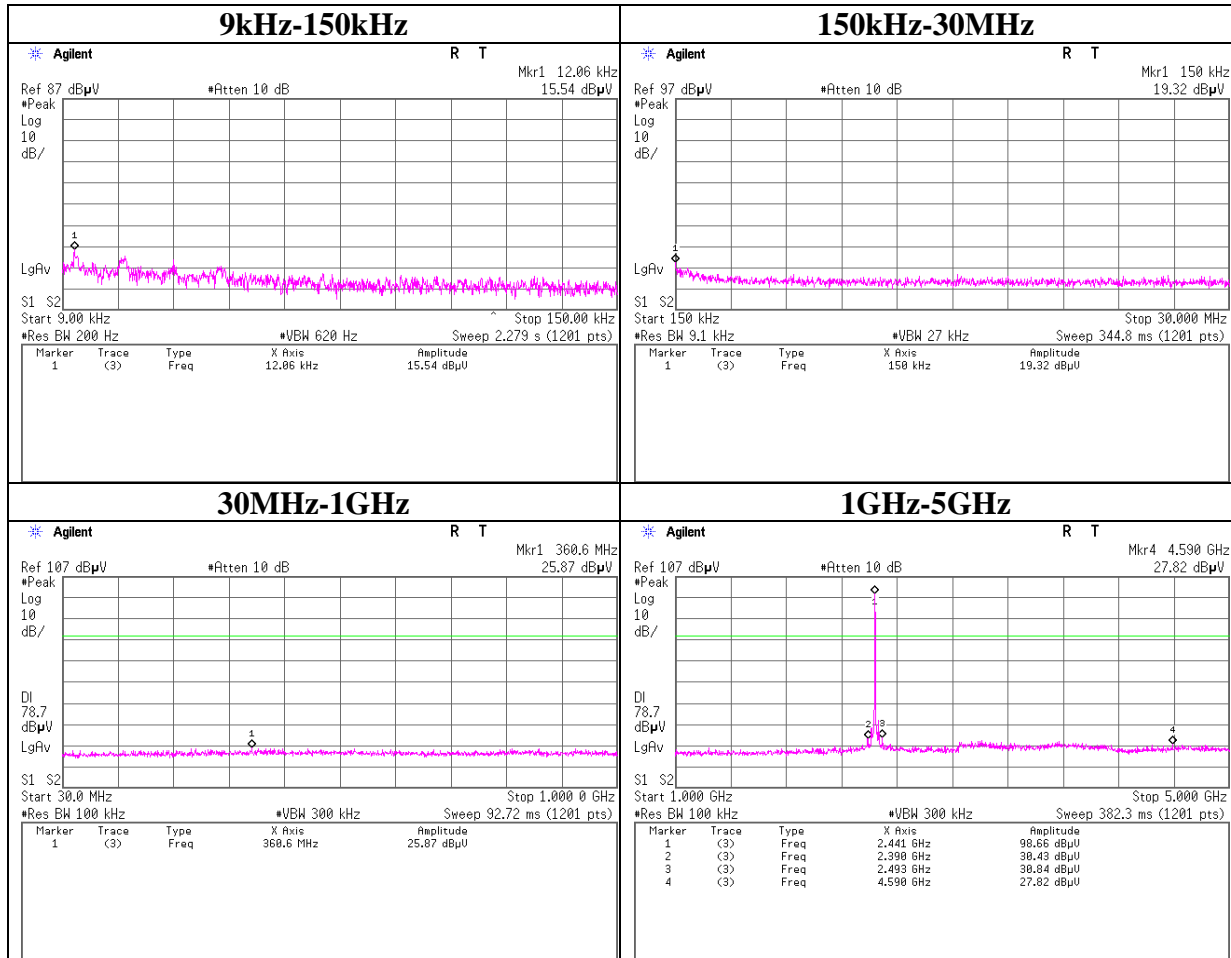
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) 3DH5

### Tx 3DH5 2441MHz



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**Ise EMC Lab.**

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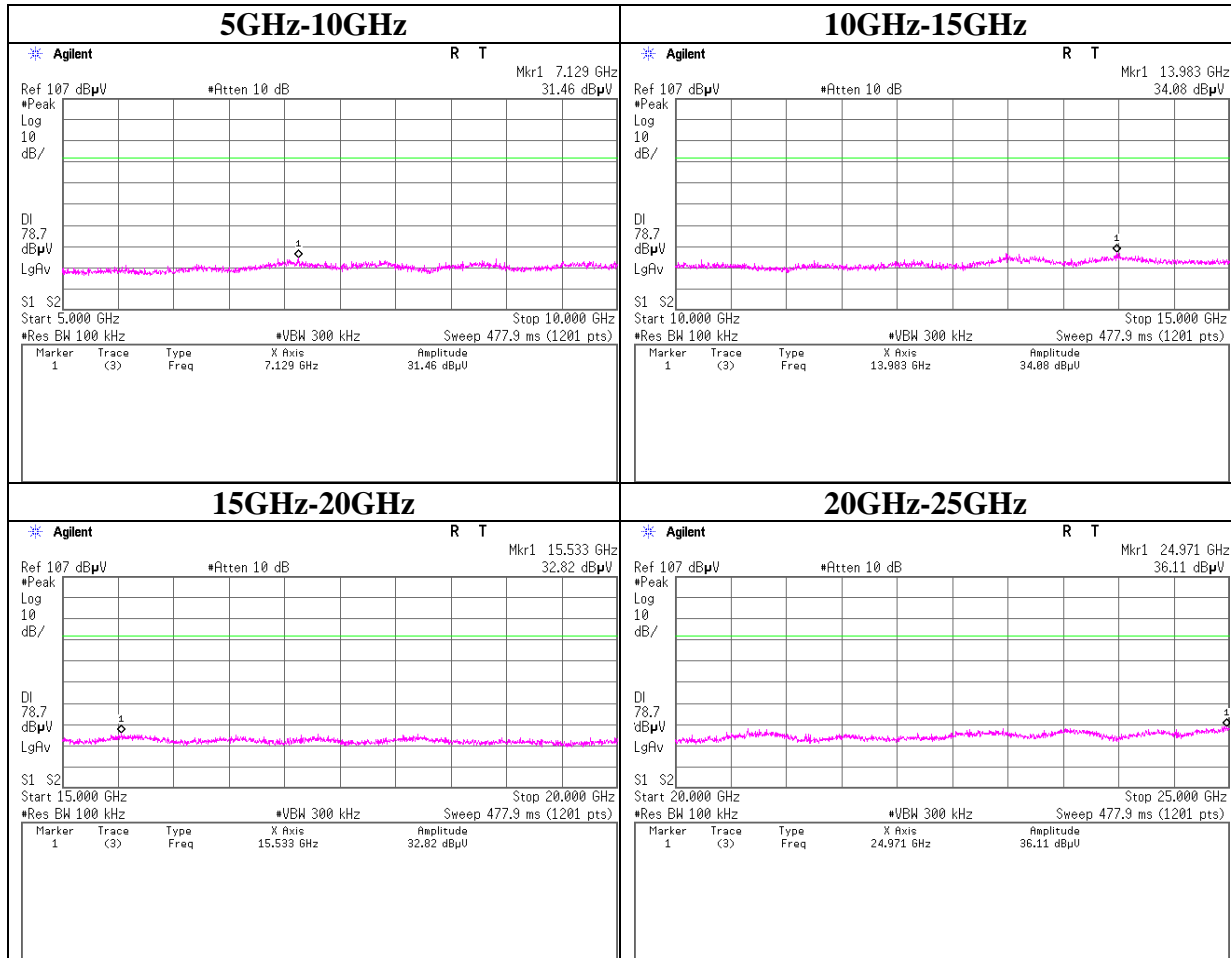
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) 3DH5

### Tx 3DH5 2441MHz



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**Ise EMC Lab.**

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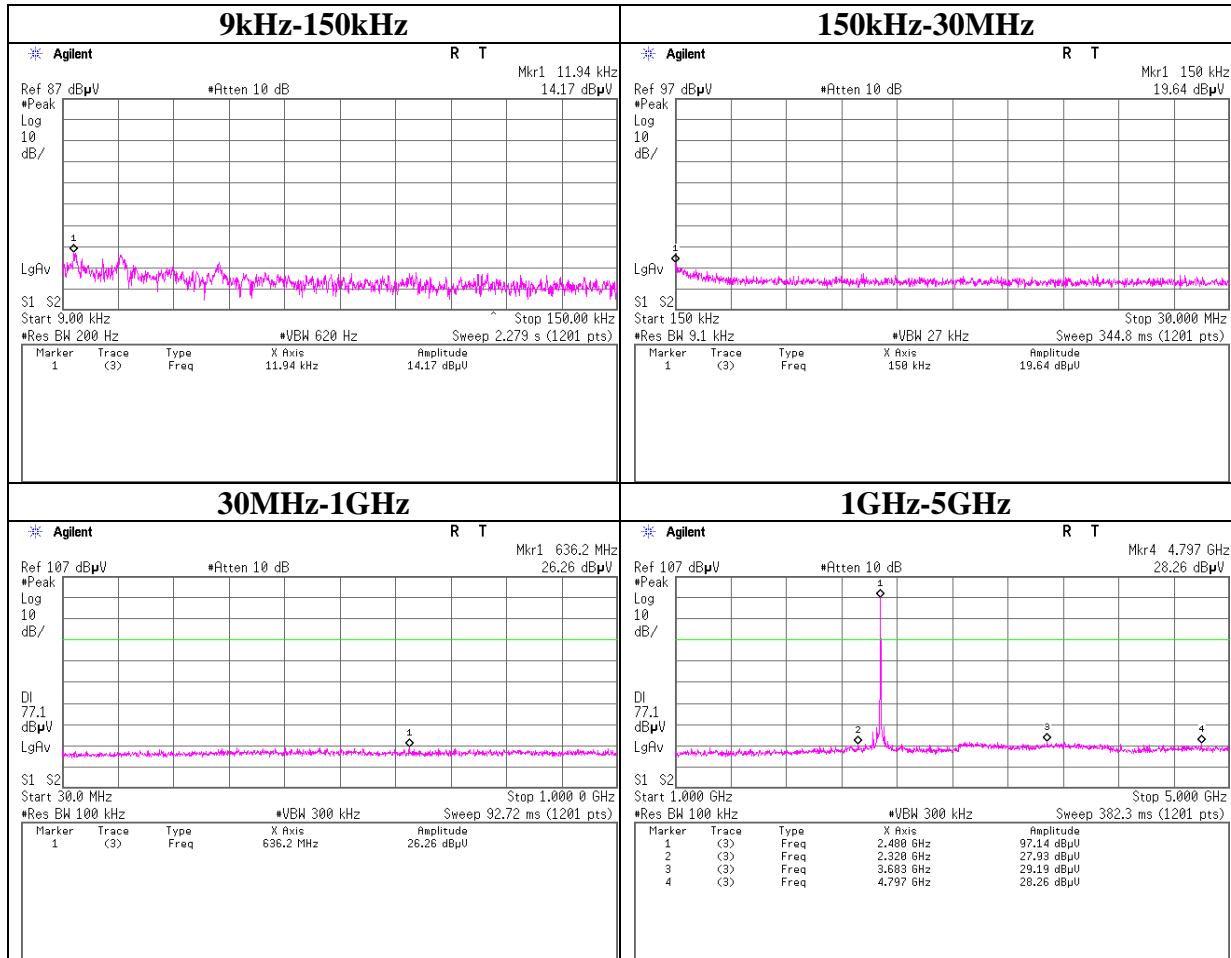
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) 3DH5

### Tx 3DH5 2480MHz



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**Ise EMC Lab.**

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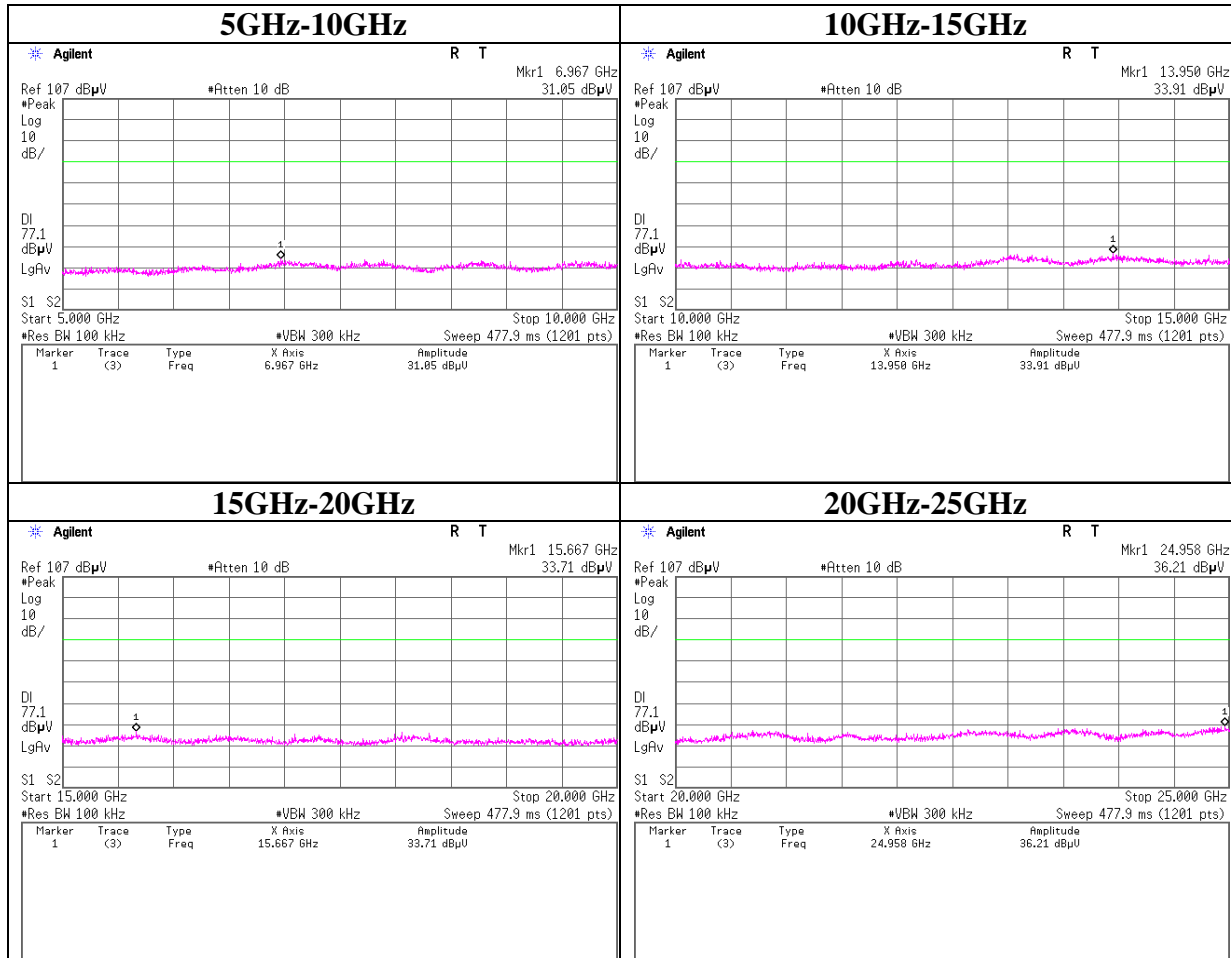
Facsimile : +81 596 24 8124



## Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) 3DH5

### Tx 3DH5 2480MHz



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**Ise EMC Lab.**

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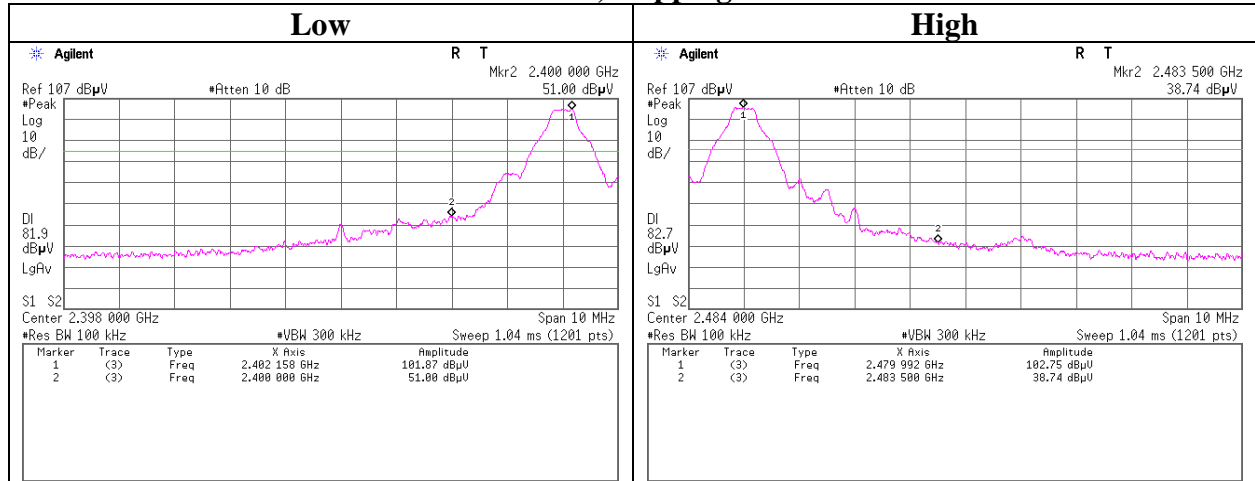
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

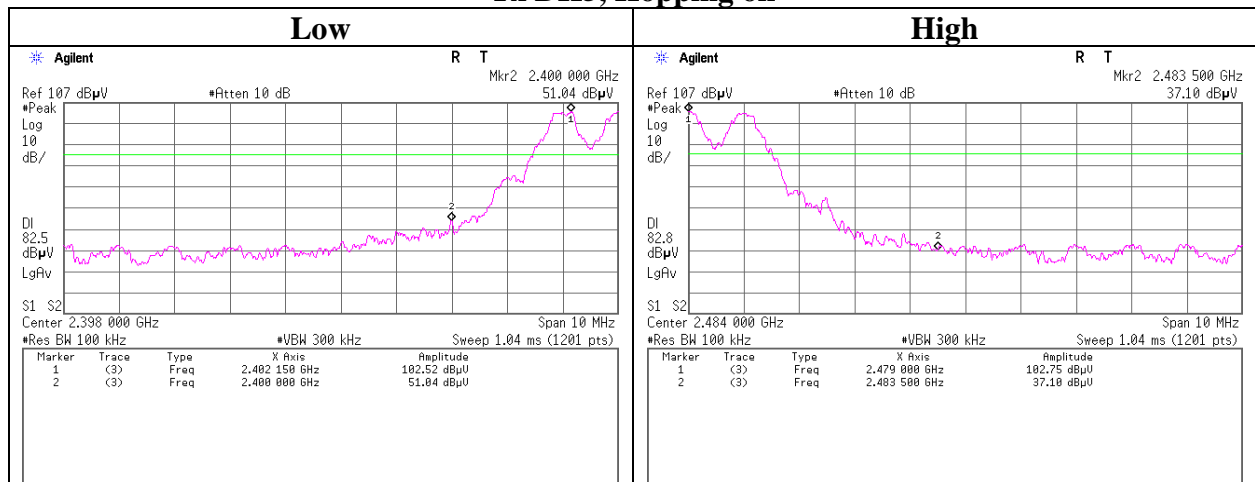
### Conducted Emission Band Edge compliance

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping on/off) DH5

#### Tx DH5, Hopping off



#### Tx DH5, Hopping on



**UL Japan, Inc.**

**Ise EMC Lab.**

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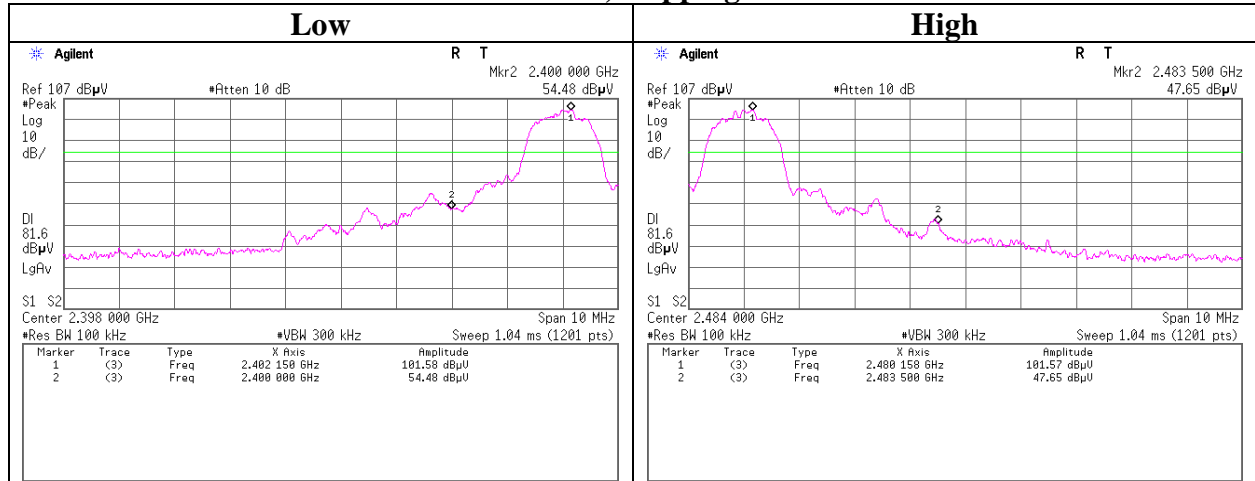
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

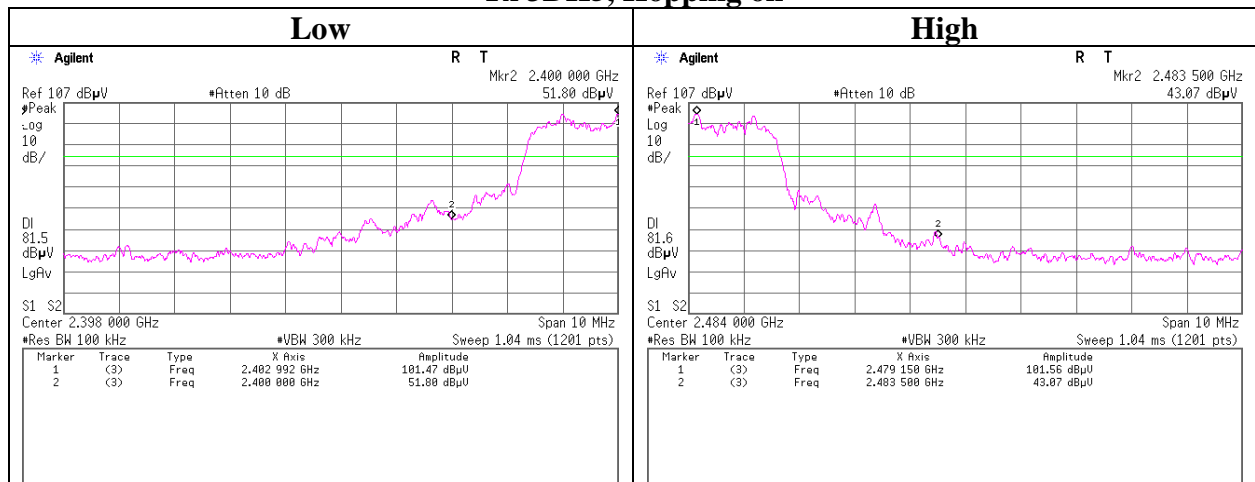
## Conducted Emission Band Edge compliance

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping on/off) 3DH5

### Tx 3DH5, Hopping off



### Tx 3DH5, Hopping on



**UL Japan, Inc.**

**Ise EMC Lab.**

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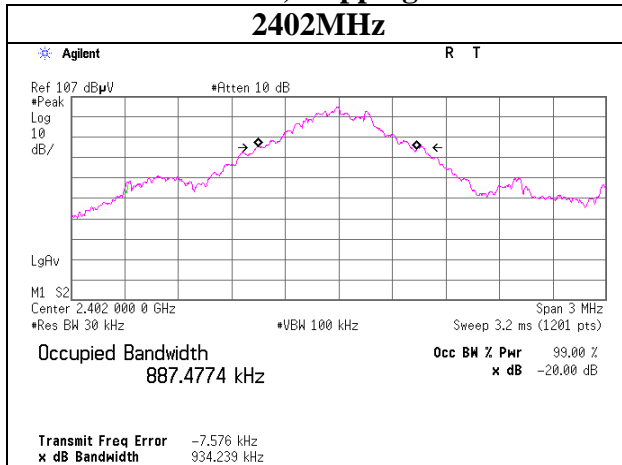
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

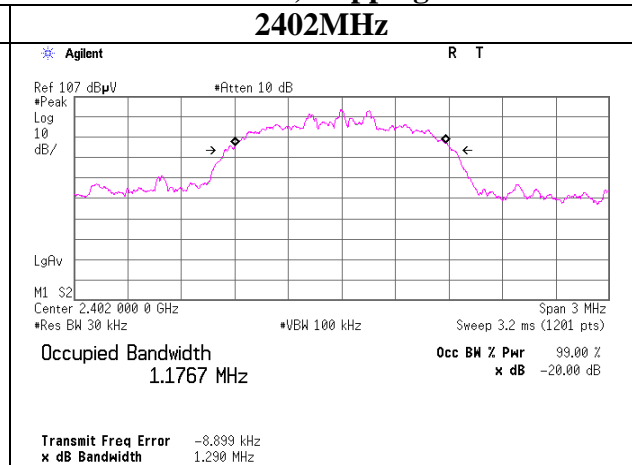
## 99% Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping off) DH5/3DH5

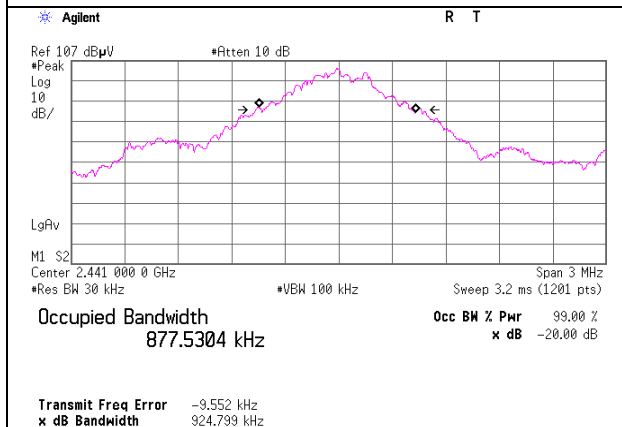
### Tx DH5, Hopping off



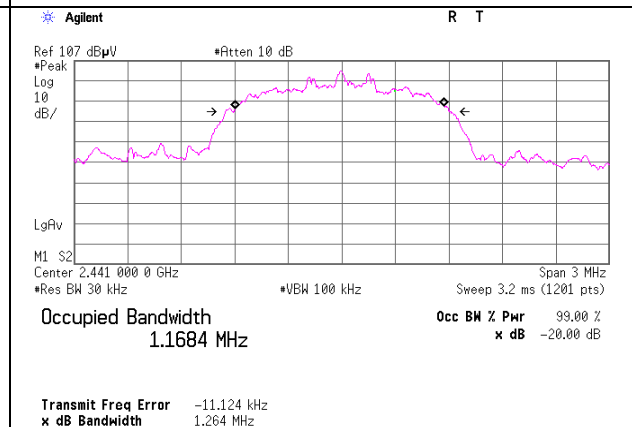
### Tx 3DH5, Hopping off



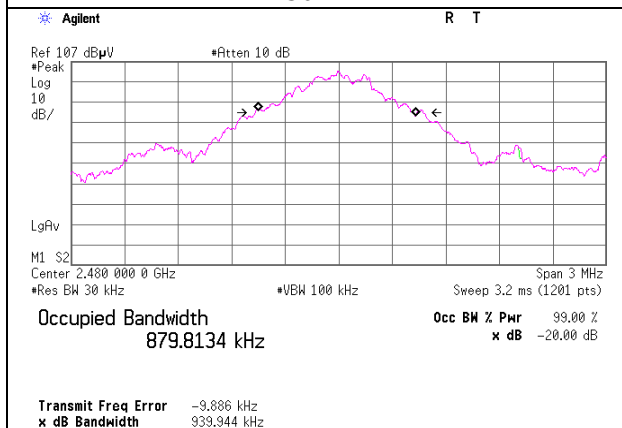
### 2441MHz



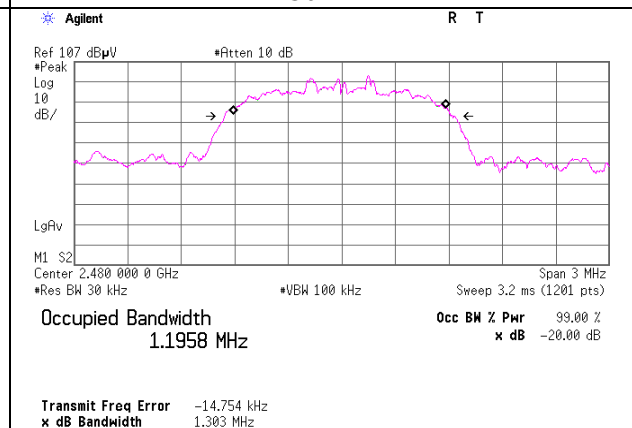
### 2441MHz



### 2480MHz



### 2480MHz



**UL Japan, Inc.**

**Ise EMC Lab.**

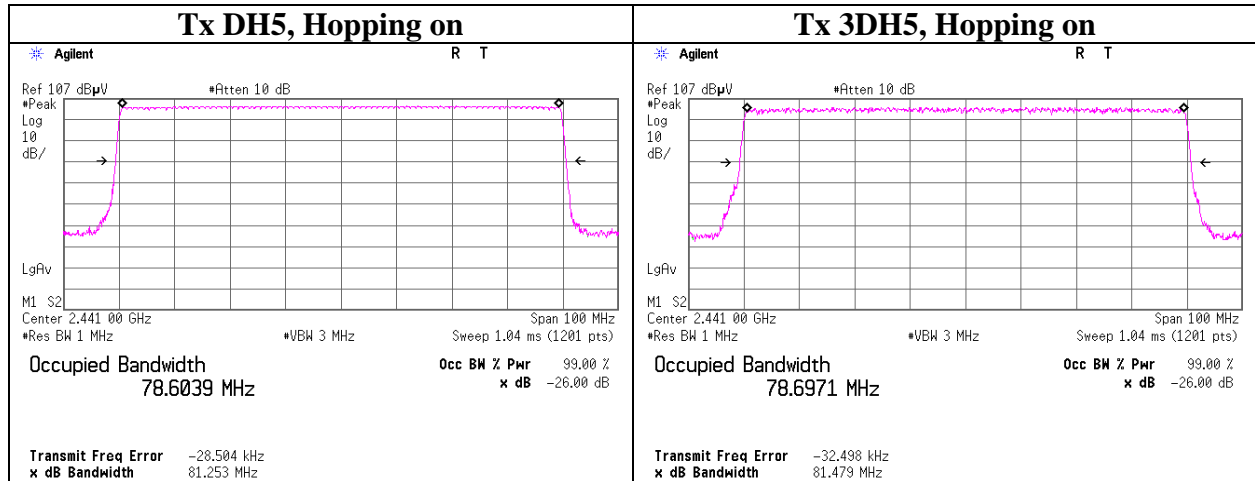
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

### 99% Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10628918H
Date	04/20/2015
Temperature/ Humidity	23deg. C / 52% RH
Engineer	Kazuya Yoshioka
Mode	Tx (Hopping on) DH5/3DH5



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## **APPENDIX 2: Test instruments**

### **EMI test equipment**

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	AT/RE	2014/11/12 * 12
MCC-174	Microwave Cable	Junkosha	MWX221	1409S497	AT	2015/03/04 * 12
MAT-22	Attenuator(10dB)	Orient Microwave	BX10-0476-00	-	AT	2015/03/18 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2014/10/16 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2014/10/15 * 12
MOTS-MATM	Antenna Terminal Measurement Software	UL Japan	-	-	AT	-
MOS-14	Thermo-Hygrometer	Custom	CTH-201	1401	AT	2015/01/13 * 12
MCC-67	Microwave Cable 1G- 40GHz	Suhner	SUCOFLEX102	28635/2	AT	2015/04/09 * 12
MAT-10	Attenuator(10dB)	Weinschel Corp	2	BL1173	AT	2014/11/19 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2015/02/26 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	1501	RE	2015/01/13 * 12
MJM-23	Measure	ASKUL	-	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2014/08/12 * 12
MCC-141	Microwave Cable	Junkosha	MWX221	1305S002R(1m) / 1405S146(5m)	RE	2014/06/11 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2015/03/12 * 12
MHF-26	High Pass Filter 3.5- 18.0GHz	UL Japan	HPF SELECTOR	002	RE	2014/09/24 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	100084	RE	2014/11/10 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2014/11/22 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2014/11/22 * 12
MCC-50	Coaxial Cable	UL Japan	-	-	RE	2014/06/02 * 12
MAT-68	Attenuator	Anritsu	MP721B	6200961025	RE	2014/11/11 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2015/03/09 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2014/05/26 * 12
MTW-04	Torque wrench	HUBER+SUHNER	74 Z-0-0-21	17129	RE	2015/01/16 * 36

**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: RE: Radiated Emission test**

**AT: Antenna Terminal Conducted test**

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