



# RADIO TEST REPORT

Test Report No. : 10255750H-A

**Applicant** : DENSO CORPORATION  
**Type of Equipment** : Display Control Unit  
**Model No.** : DNNS086  
**FCC ID** : HYQDNNS086  
**Test regulation** : FCC Part 15 Subpart C: 2014  
**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:** April 2 to 9, 2014

**Representative test engineer:** *S. Matsuyama*  
Satofumi Matsuyama  
Engineer  
Consumer Technology Division

**Approved by:** *Takayuki Shimada*  
Takayuki Shimada  
Engineer  
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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13-EM-F0429



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## **SECTION 1: Customer information**

Company Name : DENSO CORPORATION  
Address : 1-1 Showa-cho, Kariya-shi, Aichi-ken, 448-8661 Japan  
Telephone Number : +81-566-26-5919  
Facsimile Number : +81-566-25-4920  
Contact Person : ISAMU SUZUKI

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

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

Type of Equipment : Display Control Unit  
Model No. : DNNS086  
Serial No. : Refer to Section 4, Clause 4.2  
Rating : DC 12.0V  
Receipt Date of Sample : April 2, 2014  
Country of Mass-production : China  
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**

#### **General Specification**

Clock frequency(ies) in the system : Bluetooth: 26MHz

#### **Radio Specification**

##### **[Bluetooth Ver. 3.0 (with EDR)]**

Radio Type : Transceiver  
Frequency of Operation : 2402-2480MHz  
Modulation : FHSS, GFSK,  $\pi/4$ DQPSK, 8DPSK  
Power Supply (radio part input) : DC 3.3V  
Antenna type : Chip Antenna  
Antenna Gain : -1.0dBi(max)

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

### **3.1 Test Specification**

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

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators  
Section 15.207 Conducted limits  
Section 15.247 Operation within the bands 902-928MHz,  
2400-2483.5MHz, and 5725-5850MHz

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

### 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	N/A	N/A *1)	-
Carrier Frequency Separation	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section 15.247(a)(1) ----- IC: RSS-210 A8.1 (b)	See data.	Complied	Conducted
20dB Bandwidth	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section 15.247(a)(1) ----- IC: RSS-210 A8.1 (a)		Complied	Conducted
Number of Hopping Frequency	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section 15.247(a)(1)(iii) ----- IC: RSS-210 A8.1 (d)		Complied	Conducted
Dwell time	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section 15.247(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: Section 15.247(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: Section 15.247(d) ----- IC: RSS-210 A8.5 RSS-Gen 6 and 7.2.3		3.9dB 7206.000MHz, AV, Hori.	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: 2003 is also referred.

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

The EUT is a battery-operated device and test was performed with the full-charged battery. 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)	Radiated emission (10m*)(+dB)		
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz
No.1	4.0dB	5.1dB	4.7dB
No.2	-	-	-
No.3	-	-	-
No.4	-	-	-

\*10m = Measurement distance

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(3m)

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

### 3.5 Test Location

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

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

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

Refer to APPENDIX.

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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)

<b>Test Item</b>	<b>Mode</b>	<b>Tested frequency</b>
Spurious Emission (Conducted/Radiated)	Tx (Hopping off) DH5, 3DH5	2402MHz 2441MHz 2480MHz
Carrier Frequency Separation, 20dB Bandwidth	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	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.  *EUT has the power settings by the software as follows;  Power settings: BDR: 55, EDR: 53 (For Antenna terminal conducted tests)  BDR: 57, EDR: 55 (For Radiated spurious emission test)  Software: CSR BlueTest3  *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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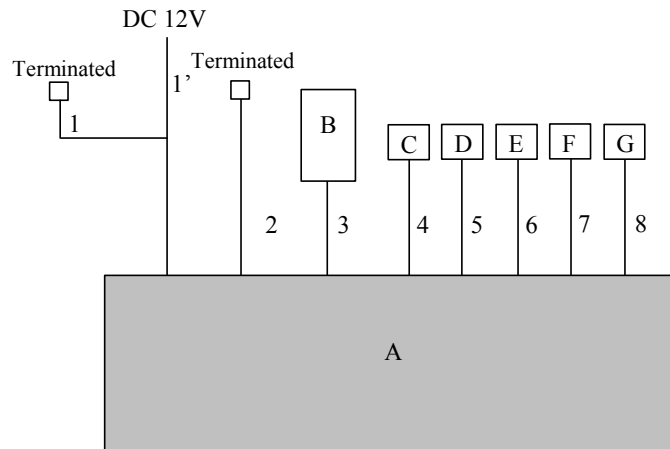
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## 4.2 Configuration and peripherals



\*Cabling and setup 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	Display Control Unit	DNNS086	No.11 for RE* No.01 for AT*	DENSO CORPORATION	EUT
B	DCM USB Dummy Load	-	-	DENSO CORPORATION	-
C	AUX USB Dummy Load	-	-	DENSO CORPORATION	-
D	Audio USB Dummy Load	-	-	DENSO CORPORATION	-
E	Navi USB Dummy Load	-	-	DENSO CORPORATION	-
F	Navi LVDS Dummy Load	-	-	DENSO CORPORATION	-
G	2 <sup>nd</sup> Disp LVDS Dummy Load	-	-	DENSO CORPORATION	-

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

### List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal Cable	2.1	Unshielded	Unshielded	-
1'	DC Cable	2.1	Unshielded	Unshielded	-
2	Signal Cable	2.1	Unshielded	Unshielded	-
3	USB Cable	3.5	Shielded	Shielded	-
4	Signal Cable	2.1	Shielded	Shielded	-
5	Signal Cable	2.1	Shielded	Shielded	-
6	Signal Cable	2.1	Shielded	Shielded	-
7	Signal Cable	2.1	Shielded	Shielded	-
8	Signal Cable	2.1	Shielded	Shielded	-

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## **SECTION 5: 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(T/R)	RBW: 1MHz VBW: 3MHz	RBW: 1MHz VBW: 10Hz *1)	RBW: 100kHz VBW: 300kHz (S/A)
Test Distance	3m	3m (below 10GHz), 1m*2) (above 10GHz)		3m (below 10GHz), 1m*3) (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 test was made on EUT at the normal use position.

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

## **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	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 *3)	-	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	Max Hold	Spectrum Analyzer
Conducted Spurious Emission *2)	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) 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)  
\*3) Reference data

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

**Test data** : **APPENDIX**  
**Test result** : **Pass**

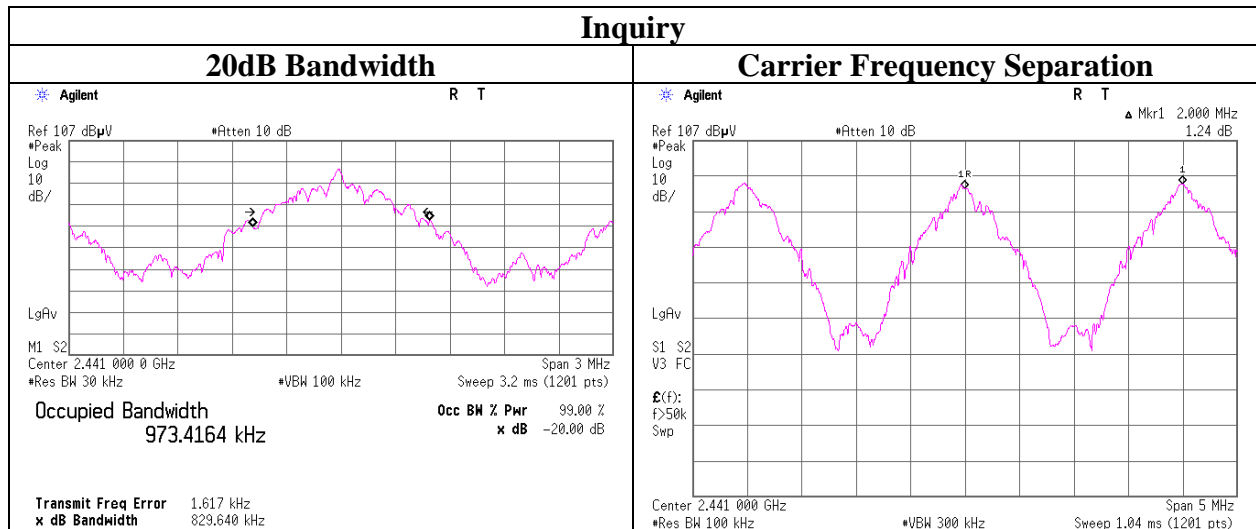
**APPENDIX 1: Data of EMI test**

**20dB Bandwidth and Carrier Frequency Separation**

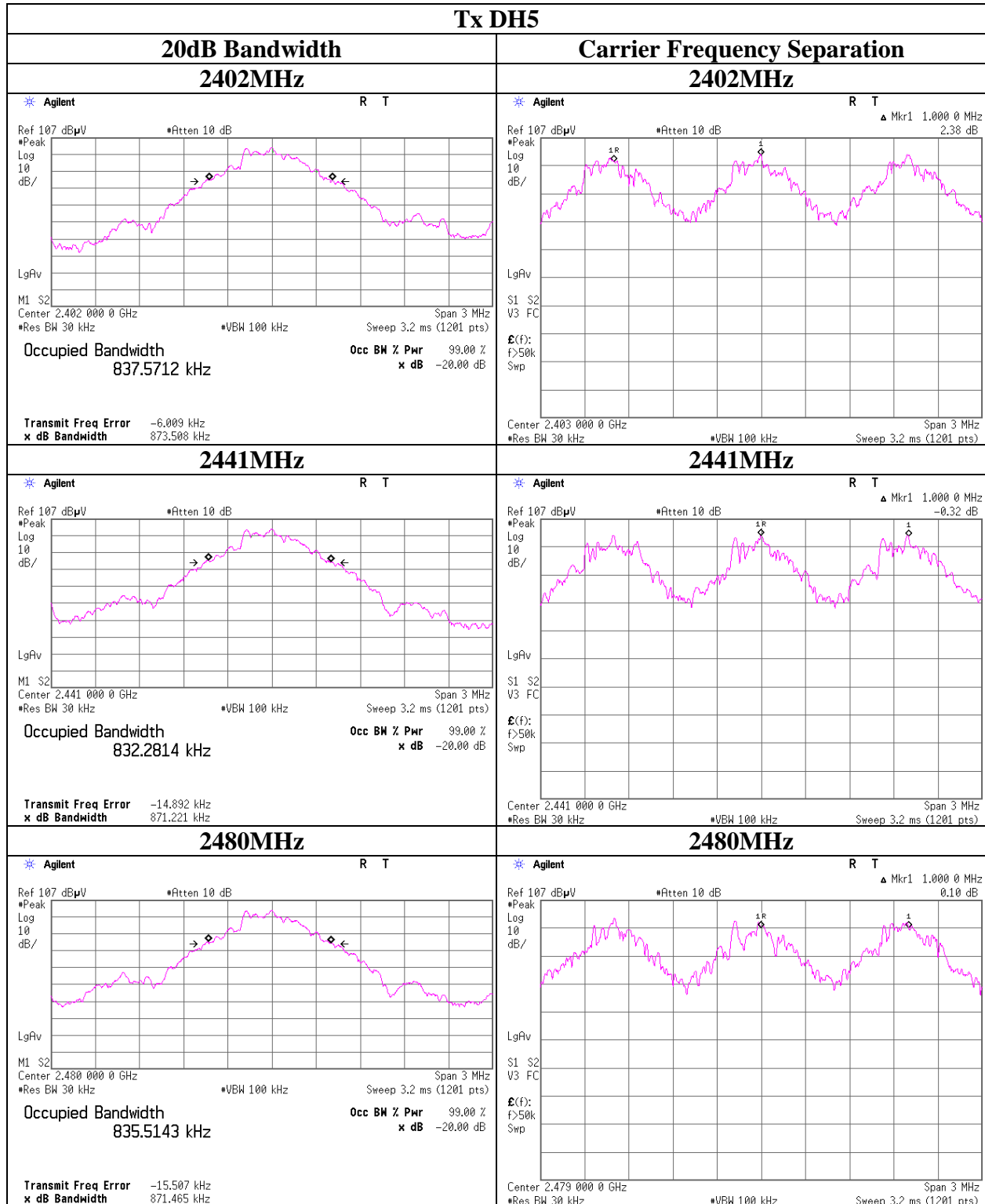
Test place Ise HQ EMC Lab. No.7 Shielded Room  
Report No. 10255750H  
Date 04/02/2014  
Temperature/ Humidity 24 deg. C / 40% RH  
Engineer Shinya Watanabe  
Mode Tx (Hopping on) DH5/3DH5/Inquiry

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.874	1.000	≧ 0.583
DH5	2441.0	0.871	1.000	≧ 0.581
DH5	2480.0	0.871	1.000	≧ 0.581
3DH5	2402.0	1.272	1.000	≧ 0.848
3DH5	2441.0	1.266	1.000	≧ 0.844
3DH5	2480.0	1.269	1.000	≧ 0.846
Inquiry	2441.0	0.830	2.000	≧ 0.553

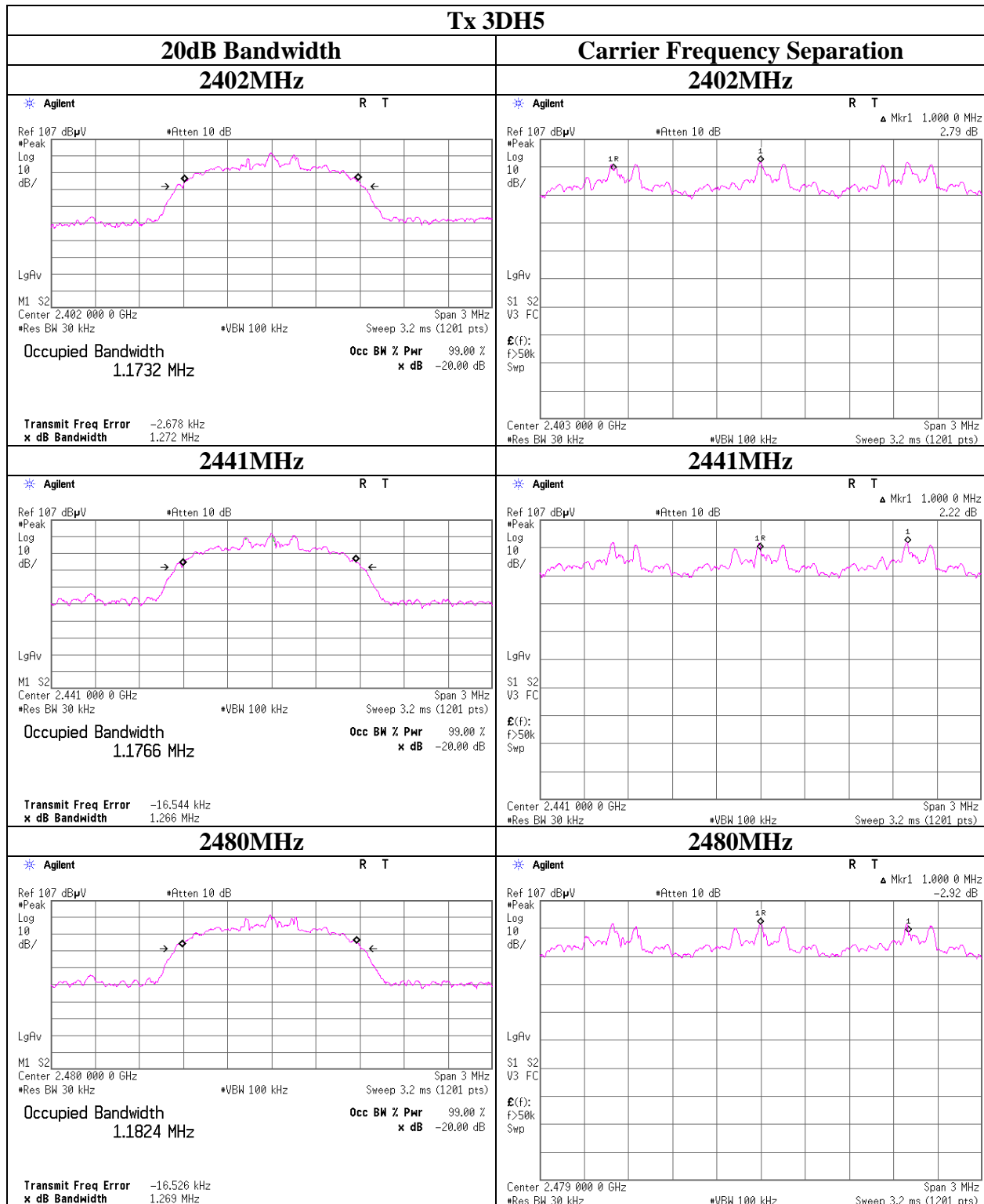
Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).  
No limit applies to 20dB Bandwidth.



**20dB Bandwidth and Carrier Frequency Separation**



## 20dB Bandwidth and Carrier Frequency Separation

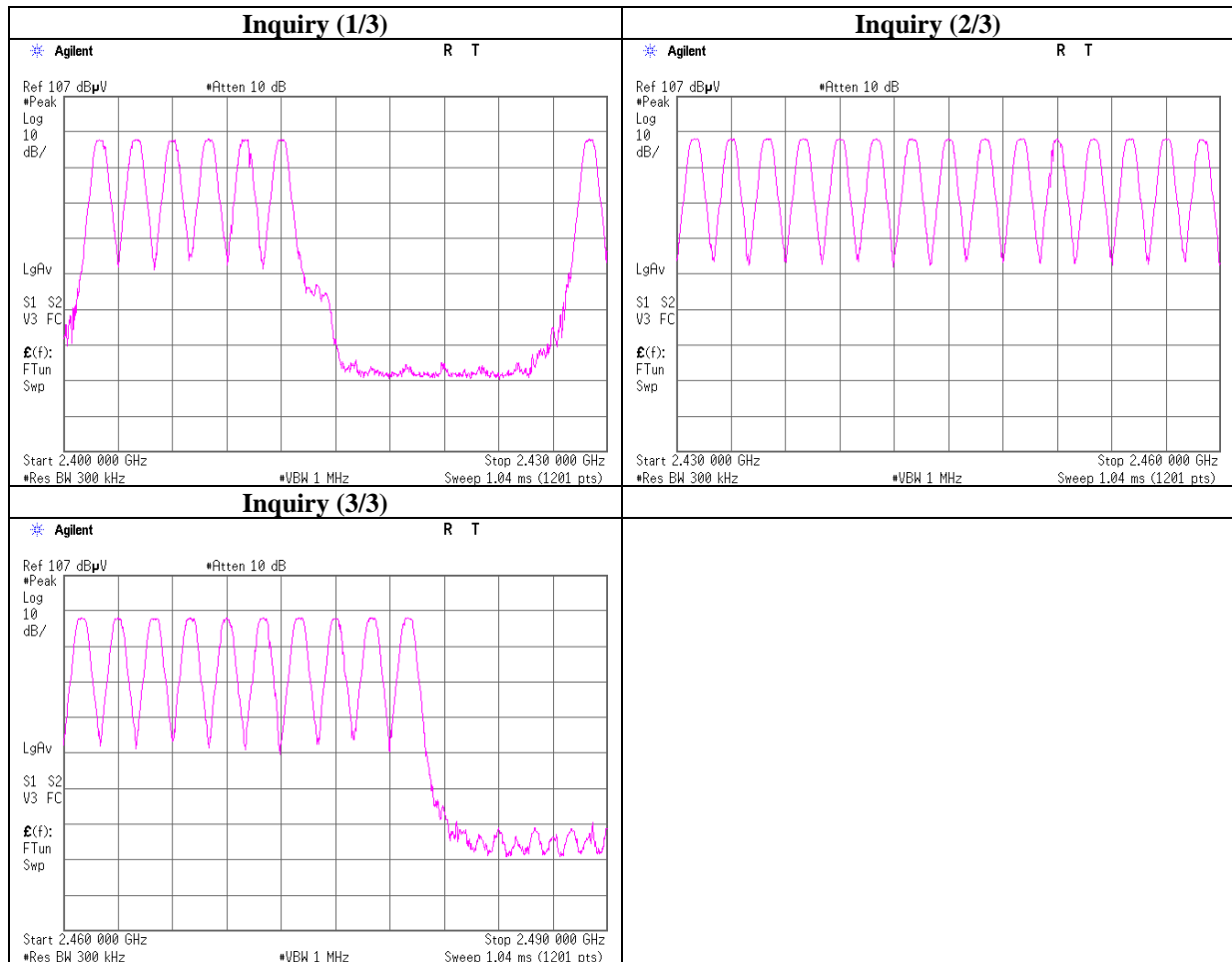


## Number of Hopping Frequency

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on) DH5/3DH5/Inquiry

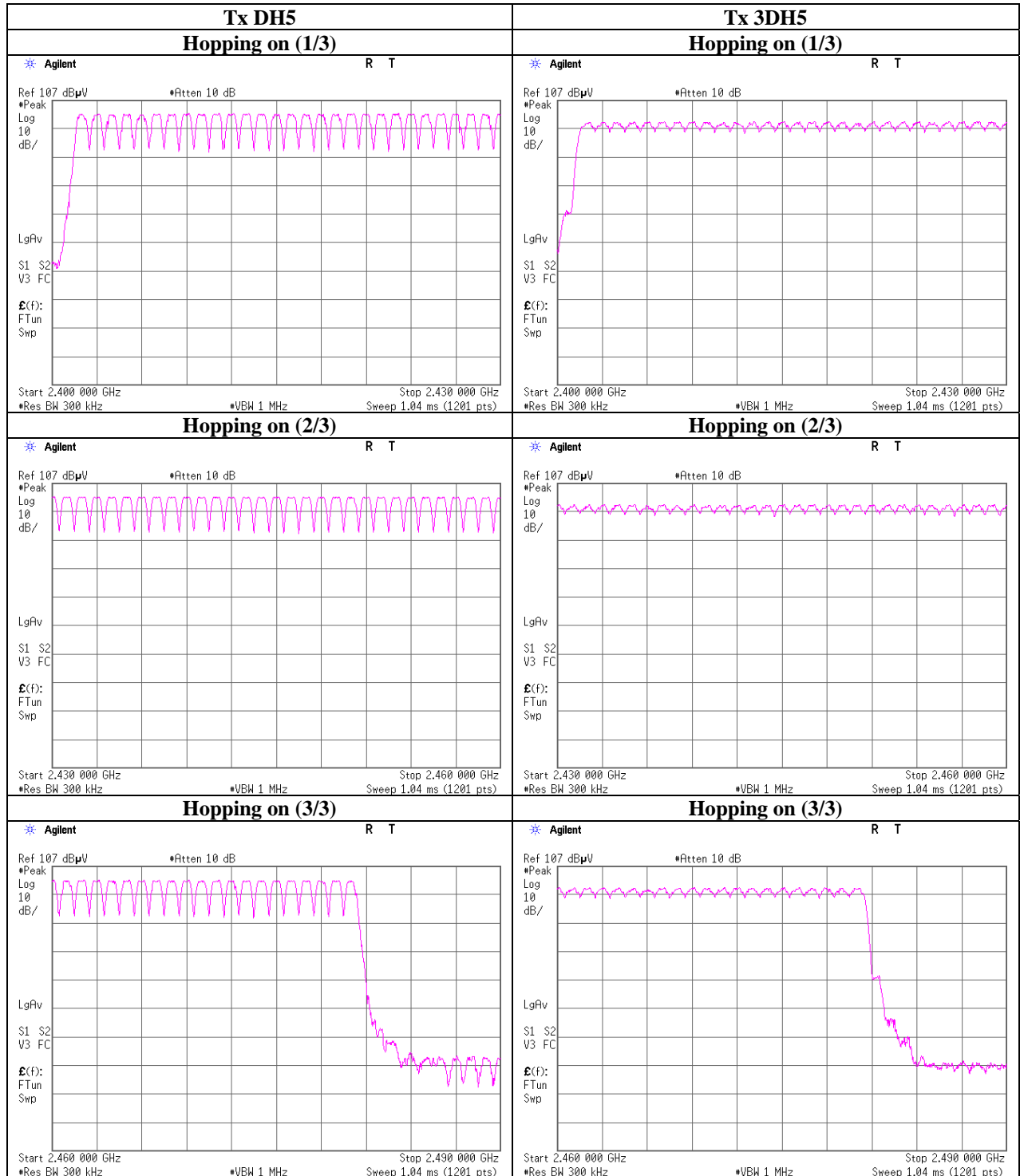
Mode	Number of channel [times]	Limit [times]
DH5	79	>= 15
3DH5	79	>= 15
Inquiry	32	>= 15

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



## Dwell time

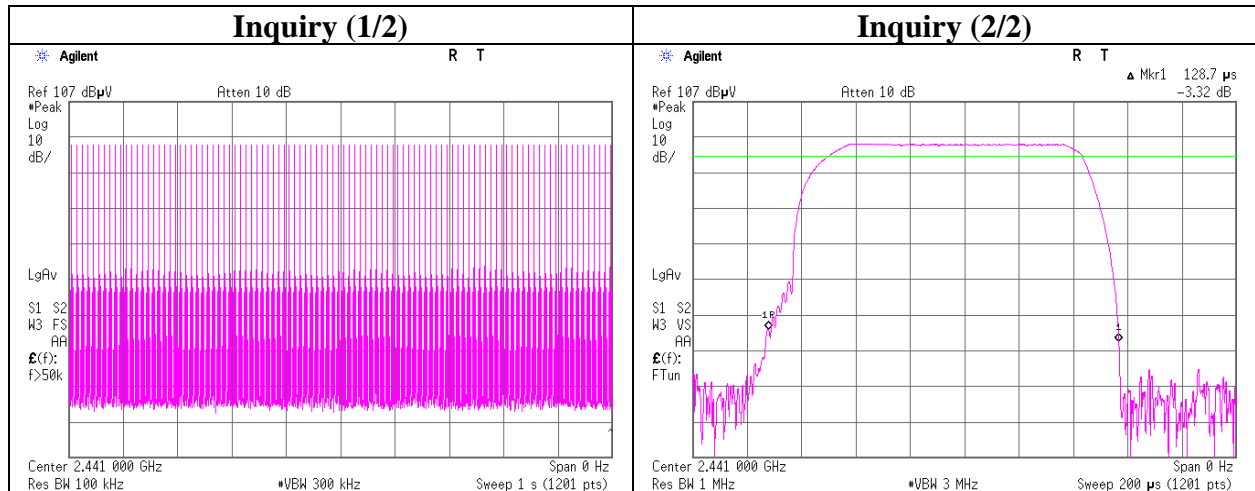
Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/03/2014
Temperature/ Humidity	23 deg. C / 46% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on) DH5/3DH5/Inquiry

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	51.0 times / 5 sec. x	31.6 sec. =	323 times	140	400
DH3	26.0 times / 5 sec. x	31.6 sec. =	165 times	279	400
DH5	17.0 times / 5 sec. x	31.6 sec. =	108 times	318	400
3DH1	51.0 times / 5 sec. x	31.6 sec. =	323 times	143	400
3DH3	26.0 times / 5 sec. x	31.6 sec. =	165 times	280	400
3DH5	17.0 times / 5 sec. x	31.6 sec. =	108 times	319	400
Inquiry	100.0 times / 1 sec. x	12.8 sec. =	1280 times	165	400

Sample Calculation

Result = Number of transmission x Length of transmission time

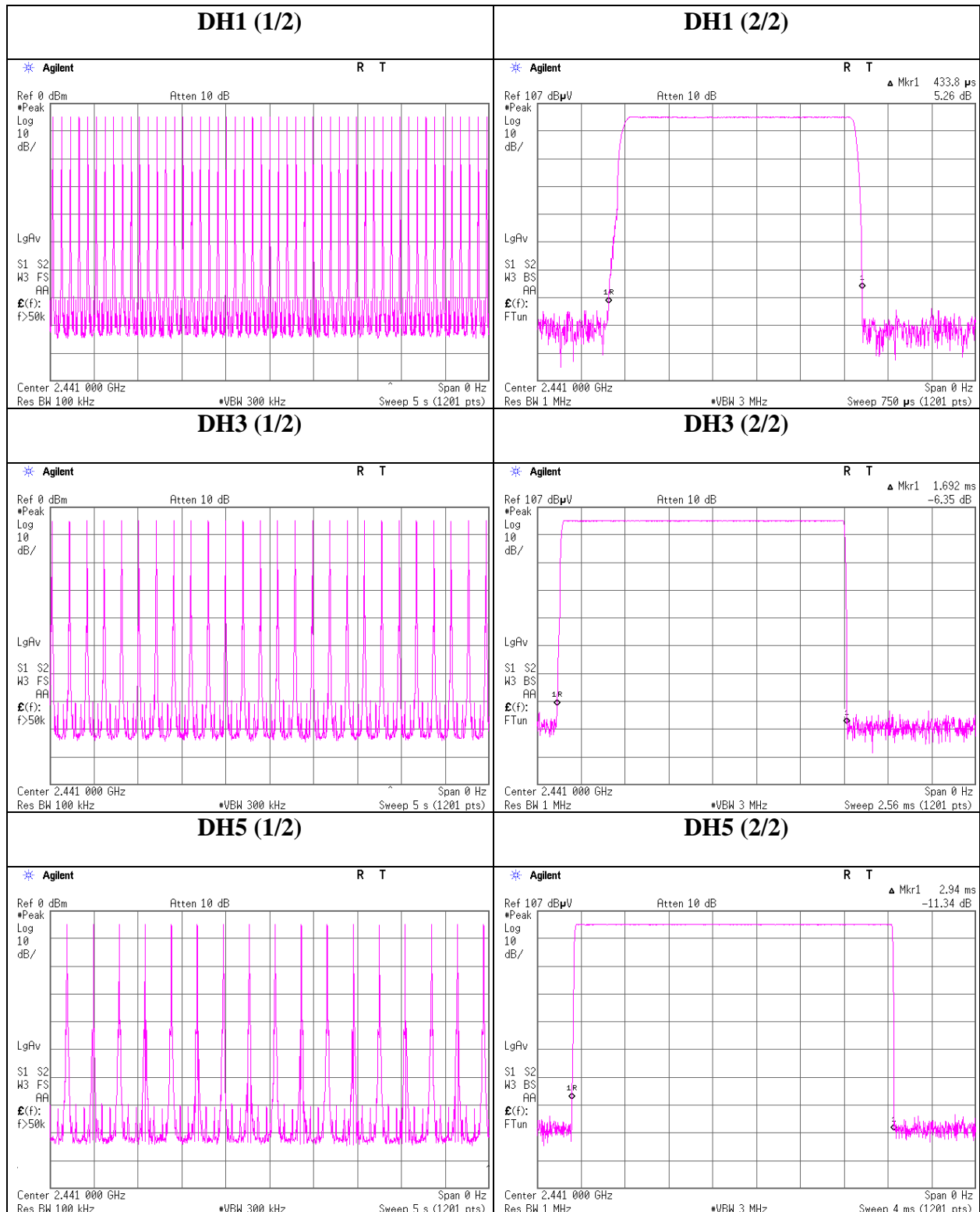
This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in  $N \times 0.4s$ , where  $N$  is the number of channels being used in the hopping sequence ( $20 \leq N \leq 79$ ), is always less than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



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**Dwell time**



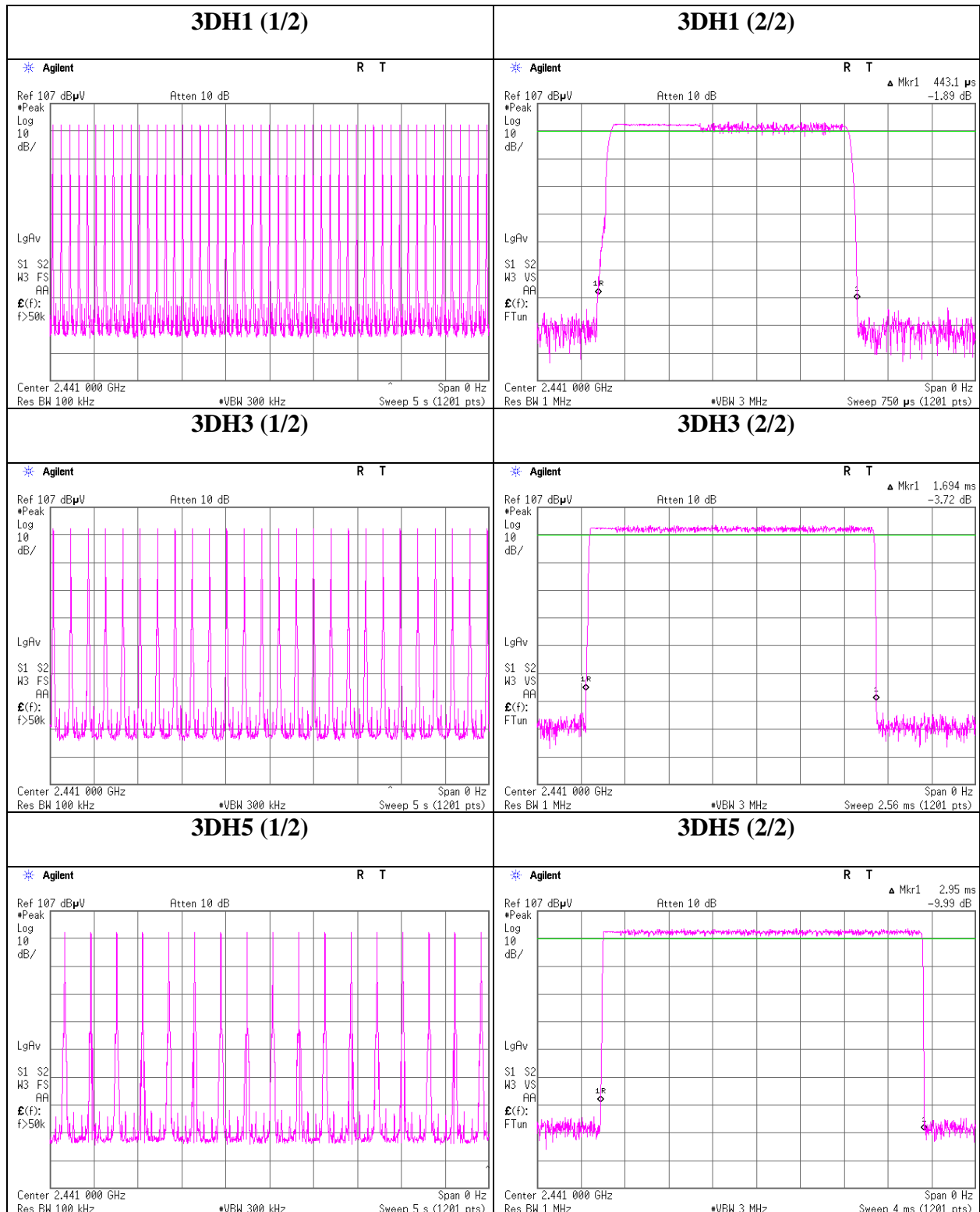
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**Dwell time**



## Maximum Peak Output Power

Test place : Ise HQ EMC Lab. No.7 Shielded Room  
Report No. : 10255750H  
Date : 04/03/2014  
Temperature/ Humidity : 23 deg. C / 46% RH  
Engineer : Shinya Watanabe  
Mode : Tx (Hopping off) DH5/3DH5/Inquiry

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
DH5	2402.0	-5.02	1.90	10.08	6.96	4.97	20.96	125	14.00
DH5	2441.0	-5.00	1.90	10.08	6.98	4.99	20.96	125	13.98
DH5	2480.0	-5.15	1.90	10.08	6.83	4.82	20.96	125	14.13
2DH5	2402.0	-6.84	1.90	10.08	5.14	3.27	20.96	125	15.82
2DH5	2441.0	-6.67	1.90	10.08	5.31	3.40	20.96	125	15.65
2DH5	2480.0	-6.79	1.90	10.08	5.19	3.30	20.96	125	15.77
3DH5	2402.0	-5.21	1.90	10.08	6.77	4.75	20.96	125	14.19
3DH5	2441.0	-5.19	1.90	10.08	6.79	4.78	20.96	125	14.17
3DH5	2480.0	-5.37	1.90	10.08	6.61	4.58	20.96	125	14.35
Inquiry	2441.0	-11.81	1.90	10.08	0.17	1.04	20.96	125	20.79

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 HQ EMC Lab. No.7 Shielded Room  
Report No.                    10255750H  
Date                            04/03/2014  
Temperature/ Humidity        23 deg. C / 46% RH  
Engineer                      Shinya Watanabe  
Mode                            Tx (Hopping off) DH5/2DH5/3DH5

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
					[dBm]	[mW]
DH5	2402.0	-6.37	1.90	10.08	5.61	3.64
DH5	2441.0	-6.37	1.90	10.08	5.61	3.64
DH5	2480.0	-6.54	1.90	10.08	5.44	3.50
2DH5	2402.0	-10.14	1.90	10.08	1.84	1.53
2DH5	2441.0	-9.97	1.90	10.08	2.01	1.59
2DH5	2480.0	-10.01	1.90	10.08	1.97	1.57
3DH5	2402.0	-6.61	1.90	10.08	5.37	3.44
3DH5	2441.0	-6.62	1.90	10.08	5.36	3.44
3DH5	2480.0	-6.73	1.90	10.08	5.25	3.35

Sample Calculation:

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

## Radiated Spurious Emission

Test place : Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. : 10255750H  
Date : 04/09/2014  
Temperature/ Humidity : 23 deg. C / 33% RH      24 deg. C / 41% RH  
Engineer : Masatoshi Nishiguchi      Satofumi Matsuyama  
(Above 1GHz)      (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	55.536	QP	39.1	9.2	7.4	32.2	23.5	40.0	16.5	
Hori	92.574	QP	40.3	8.6	7.9	32.1	24.7	43.5	18.8	
Hori	111.085	QP	38.0	11.7	8.2	32.1	25.8	43.5	17.7	
Hori	314.737	QP	35.4	14.7	10.0	31.9	28.2	46.0	17.8	
Hori	351.769	QP	32.6	16.0	10.2	31.9	26.9	46.0	19.1	
Hori	481.252	QP	30.5	18.0	11.1	32.0	27.6	46.0	18.4	
Hori	2390.000	PK	42.5	28.2	3.1	32.7	41.1	73.9	32.9	
Hori	4804.000	PK	48.3	30.5	5.3	31.8	52.3	73.9	21.6	
Hori	7206.000	PK	49.8	35.8	6.7	32.7	59.6	73.9	14.3	
Hori	9608.000	PK	41.7	39.0	7.3	33.3	54.7	73.9	19.2	
Hori	2390.000	AV	29.8	28.2	3.1	32.7	28.4	53.9	25.5	
Hori	4804.000	AV	41.9	30.5	5.3	31.8	45.9	53.9	8.0	
Hori	7206.000	AV	40.2	35.8	6.7	32.7	50.0	53.9	3.9	
Hori	9608.000	AV	30.4	39.0	7.3	33.3	43.4	53.9	10.5	
Vert	55.541	QP	47.8	9.2	7.4	32.2	32.2	40.0	7.8	
Vert	92.573	QP	44.4	8.6	7.9	32.1	28.8	43.5	14.7	
Vert	111.086	QP	43.3	11.7	8.2	32.1	31.1	43.5	12.4	
Vert	481.351	QP	29.3	18.0	11.1	32.0	26.4	46.0	19.6	
Vert	555.422	QP	28.1	18.9	11.5	32.0	26.5	46.0	19.5	
Vert	629.471	QP	28.7	19.7	11.9	32.0	28.3	46.0	17.7	
Vert	2390.000	PK	41.3	28.2	3.1	32.7	39.9	73.9	34.0	
Vert	4804.000	PK	46.3	30.5	5.3	31.8	50.3	73.9	23.6	
Vert	7206.000	PK	46.2	35.8	6.7	32.7	56.0	73.9	17.9	
Vert	9608.000	PK	43.8	39.0	7.3	33.3	56.8	73.9	17.1	
Vert	2390.000	AV	29.7	28.2	3.1	32.7	28.3	53.9	25.7	
Vert	4804.000	AV	39.0	30.5	5.3	31.8	43.0	53.9	10.9	
Vert	7206.000	AV	36.7	35.8	6.7	32.7	46.5	53.9	7.4	
Vert	9608.000	AV	30.7	39.0	7.3	33.3	43.7	53.9	10.2	

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	101.8	28.2	3.1	32.7	100.4	-	-	Carrier
Hori	2400.000	PK	53.0	28.2	3.1	32.7	51.6	80.4	28.8	
Vert	2402.000	PK	97.2	28.2	3.1	32.7	95.8	-	-	Carrier
Vert	2400.000	PK	50.0	28.2	3.1	32.7	48.6	75.8	27.2	

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

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## Radiated Spurious Emission

Test place Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 10255750H  
Date 04/09/2014 04/09/2014  
Temperature/ Humidity 23 deg. C / 33% RH 24 deg. C / 41% RH  
Engineer Masatoshi Nishiguchi 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	55.539	QP	39.2	9.2	7.4	32.2	23.6	40.0	16.4	
Hori	92.573	QP	36.1	8.6	7.9	32.1	20.5	43.5	23.0	
Hori	111.086	QP	38.1	11.7	8.2	32.1	25.9	43.5	17.6	
Hori	314.738	QP	35.2	14.7	10.0	31.9	28.0	46.0	18.0	
Hori	351.771	QP	32.5	16.0	10.2	31.9	26.8	46.0	19.2	
Hori	481.251	QP	30.0	18.0	11.1	32.0	27.1	46.0	18.9	
Hori	4882.000	PK	45.0	30.6	5.3	31.7	49.2	73.9	24.7	
Hori	7323.000	PK	46.6	36.0	6.8	32.7	56.7	73.9	17.2	
Hori	9764.000	PK	42.1	39.4	7.3	33.4	55.4	73.9	18.5	
Hori	4882.000	AV	37.1	30.6	5.3	31.7	41.3	53.9	12.6	
Hori	7323.000	AV	37.4	36.0	6.8	32.7	47.5	53.9	6.4	
Hori	9764.000	AV	30.6	39.4	7.3	33.4	43.9	53.9	10.0	
Vert	55.540	QP	47.6	9.2	7.4	32.2	32.0	40.0	8.0	
Vert	92.572	QP	44.2	8.6	7.9	32.1	28.6	43.5	14.9	
Vert	111.086	QP	43.1	11.7	8.2	32.1	30.9	43.5	12.6	
Vert	481.352	QP	29.2	18.0	11.1	32.0	26.3	46.0	19.7	
Vert	555.421	QP	28.0	18.9	11.5	32.0	26.4	46.0	19.6	
Vert	629.473	QP	28.5	19.7	11.9	32.0	28.1	46.0	17.9	
Vert	4882.000	PK	44.2	30.6	5.3	31.7	48.4	73.9	25.5	
Vert	7323.000	PK	44.0	36.0	6.8	32.7	54.1	73.9	19.8	
Vert	9764.000	PK	43.1	39.4	7.3	33.4	56.4	73.9	17.5	
Vert	4882.000	AV	36.0	30.6	5.3	31.7	40.2	53.9	13.7	
Vert	7323.000	AV	35.3	36.0	6.8	32.7	45.4	53.9	8.5	
Vert	9764.000	AV	31.6	39.4	7.3	33.4	44.9	53.9	9.0	

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

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

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

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### Radiated Spurious Emission

Test place Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 10255750H  
Date 04/09/2014 04/09/2014  
Temperature/ Humidity 23 deg. C / 33% RH 24 deg. C / 41% RH  
Engineer Masatoshi Nishiguchi 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	55.537	QP	38.9	9.2	7.4	32.2	23.3	40.0	16.7	
Hori	92.573	QP	34.3	8.6	7.9	32.1	18.7	43.5	24.8	
Hori	111.087	QP	38.1	11.7	8.2	32.1	25.9	43.5	17.6	
Hori	314.739	QP	35.3	14.7	10.0	31.9	28.1	46.0	17.9	
Hori	351.768	QP	32.3	16.0	10.2	31.9	26.6	46.0	19.4	
Hori	481.254	QP	30.2	18.0	11.1	32.0	27.3	46.0	18.7	
Hori	2483.500	PK	43.4	28.4	3.1	32.7	42.2	73.9	31.7	
Hori	4960.000	PK	45.3	30.7	5.4	31.7	49.7	73.9	24.2	
Hori	7440.000	PK	44.4	36.2	6.7	32.7	54.6	73.9	19.3	
Hori	9920.000	PK	41.1	39.8	7.4	33.5	54.8	73.9	19.1	
Hori	2483.500	AV	33.5	28.4	3.1	32.7	32.3	53.9	21.6	
Hori	4960.000	AV	37.7	30.7	5.4	31.7	42.1	53.9	11.8	
Hori	7440.000	AV	35.2	36.2	6.7	32.7	45.4	53.9	8.5	
Hori	9920.000	AV	30.2	39.8	7.4	33.5	43.9	53.9	10.0	
Vert	55.542	QP	47.8	9.2	7.4	32.2	32.2	40.0	7.8	
Vert	92.575	QP	44.3	8.6	7.9	32.1	28.7	43.5	14.8	
Vert	111.086	QP	43.5	11.7	8.2	32.1	31.3	43.5	12.2	
Vert	481.352	QP	29.2	18.0	11.1	32.0	26.3	46.0	19.7	
Vert	555.424	QP	28.1	18.9	11.5	32.0	26.5	46.0	19.5	
Vert	629.476	QP	28.8	19.7	11.9	32.0	28.4	46.0	17.6	
Vert	2483.500	PK	42.7	28.4	3.1	32.7	41.5	73.9	32.4	
Vert	4960.000	PK	47.4	30.7	5.4	31.7	51.8	73.9	22.1	
Vert	7440.000	PK	45.6	36.2	6.7	32.7	55.8	73.9	18.1	
Vert	9920.000	PK	41.7	39.8	7.4	33.5	55.4	73.9	18.5	
Vert	2483.500	AV	30.6	28.4	3.1	32.7	29.4	53.9	24.5	
Vert	4960.000	AV	41.5	30.7	5.4	31.7	45.9	53.9	8.0	
Vert	7440.000	AV	35.7	36.2	6.7	32.7	45.9	53.9	8.0	
Vert	9920.000	AV	30.3	39.8	7.4	33.5	44.0	53.9	9.9	

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

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

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

## Radiated Spurious Emission

Test place Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 10255750H  
Date 04/09/2014 04/09/2014  
Temperature/ Humidity 23 deg. C / 33% RH 24 deg. C / 41% RH  
Engineer Masatoshi Nishiguchi Satofumi Matsuyama  
(Above 1GHz) (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	55.543	QP	38.9	9.2	7.4	32.2	23.3	40.0	16.7	
Hori	111.082	QP	38.3	11.7	8.2	32.1	26.1	43.5	17.4	
Hori	314.741	QP	35.0	14.7	10.0	31.9	27.8	46.0	18.2	
Hori	351.768	QP	32.3	16.0	10.2	31.9	26.6	46.0	19.4	
Hori	481.257	QP	30.2	18.0	11.1	32.0	27.3	46.0	18.7	
Hori	2390.000	PK	42.2	28.2	3.1	32.7	40.8	73.9	33.1	
Hori	4804.000	PK	45.9	30.5	5.3	31.8	49.9	73.9	24.0	
Hori	7206.000	PK	44.9	35.8	6.7	32.7	54.7	73.9	19.2	
Hori	9608.000	PK	41.7	39.0	7.3	33.3	54.7	73.9	19.2	
Hori	2390.000	AV	29.9	28.2	3.1	32.7	28.5	53.9	25.5	
Hori	4804.000	AV	35.8	30.5	5.3	31.8	39.8	53.9	14.1	
Hori	7206.000	AV	33.9	35.8	6.7	32.7	43.7	53.9	10.2	
Hori	9608.000	AV	30.0	39.0	7.3	33.3	43.0	53.9	10.9	
Vert	55.545	QP	47.6	9.2	7.4	32.2	32.0	40.0	8.0	
Vert	92.575	QP	44.0	8.6	7.9	32.1	28.4	43.5	15.1	
Vert	111.086	QP	43.1	11.7	8.2	32.1	30.9	43.5	12.6	
Vert	481.355	QP	29.3	18.0	11.1	32.0	26.4	46.0	19.6	
Vert	555.421	QP	28.3	18.9	11.5	32.0	26.7	46.0	19.3	
Vert	629.474	QP	28.4	19.7	11.9	32.0	28.0	46.0	18.0	
Vert	2390.000	PK	42.3	28.2	3.1	32.7	40.9	73.9	33.0	
Vert	4804.000	PK	45.6	30.5	5.3	31.8	49.6	73.9	24.3	
Vert	7206.000	PK	44.5	35.8	6.7	32.7	54.3	73.9	19.6	
Vert	9608.000	PK	41.3	39.0	7.3	33.3	54.3	73.9	19.6	
Vert	2390.000	AV	29.6	28.2	3.1	32.7	28.2	53.9	25.7	
Vert	4804.000	AV	35.5	30.5	5.3	31.8	39.5	53.9	14.4	
Vert	7206.000	AV	32.4	35.8	6.7	32.7	42.2	53.9	11.7	
Vert	9608.000	AV	30.0	39.0	7.3	33.3	43.0	53.9	10.9	

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

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

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

### 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	99.7	28.2	3.1	32.7	98.3	-	-	Carrier
Hori	2400.000	PK	49.8	28.2	3.1	32.7	48.4	78.3	29.9	
Vert	2402.000	PK	93.7	28.2	3.1	32.7	92.3	-	-	Carrier
Vert	2400.000	PK	44.2	28.2	3.1	32.7	42.8	72.3	29.5	

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

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## Radiated Spurious Emission

Test place Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 10255750H  
Date 04/09/2014 04/09/2014  
Temperature/ Humidity 23 deg. C / 33% RH 24 deg. C / 41% RH  
Engineer Masatoshi Nishiguchi 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	55.544	QP	38.8	9.2	7.4	32.2	23.2	40.0	16.8	
Hori	111.083	QP	38.3	11.7	8.2	32.1	26.1	43.5	17.4	
Hori	314.736	QP	35.4	14.7	10.0	31.9	28.2	46.0	17.8	
Hori	351.774	QP	32.7	16.0	10.2	31.9	27.0	46.0	19.0	
Hori	481.256	QP	30.5	18.0	11.1	32.0	27.6	46.0	18.4	
Hori	4882.000	PK	42.9	30.6	5.3	31.7	47.1	73.9	26.8	
Hori	7323.000	PK	43.7	36.0	6.8	32.7	53.8	73.9	20.1	
Hori	9764.000	PK	42.5	39.4	7.3	33.4	55.8	73.9	18.1	
Hori	4882.000	AV	33.8	30.6	5.3	31.7	38.0	53.9	15.9	
Hori	7323.000	AV	32.9	36.0	6.8	32.7	43.0	53.9	10.9	
Hori	9764.000	AV	29.8	39.4	7.3	33.4	43.1	53.9	10.8	
Vert	55.541	QP	47.4	9.2	7.4	32.2	31.8	40.0	8.2	
Vert	92.576	QP	44.2	8.6	7.9	32.1	28.6	43.5	14.9	
Vert	111.082	QP	43.4	11.7	8.2	32.1	31.2	43.5	12.3	
Vert	481.351	QP	29.1	18.0	11.1	32.0	26.2	46.0	19.8	
Vert	555.423	QP	28.3	18.9	11.5	32.0	26.7	46.0	19.3	
Vert	629.473	QP	28.7	19.7	11.9	32.0	28.3	46.0	17.7	
Vert	4882.000	PK	43.0	30.6	5.3	31.7	47.2	73.9	26.7	
Vert	7323.000	PK	43.1	36.0	6.8	32.7	53.2	73.9	20.7	
Vert	9764.000	PK	41.7	39.4	7.3	33.4	55.0	73.9	18.9	
Vert	4882.000	AV	33.1	30.6	5.3	31.7	37.3	53.9	16.6	
Vert	7323.000	AV	31.0	36.0	6.8	32.7	41.1	53.9	12.8	
Vert	9764.000	AV	29.8	39.4	7.3	33.4	43.1	53.9	10.8	

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

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

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

## Radiated Spurious Emission

Test place Ise HQ EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 10255750H  
Date 04/09/2014 04/09/2014  
Temperature/ Humidity 23 deg. C / 33% RH 24 deg. C / 41% RH  
Engineer Masatoshi Nishiguchi Satofumi Matsuyama  
(Above 1GHz) (Below 1GHz)  
Mode Tx, 3DH5 2480MHz

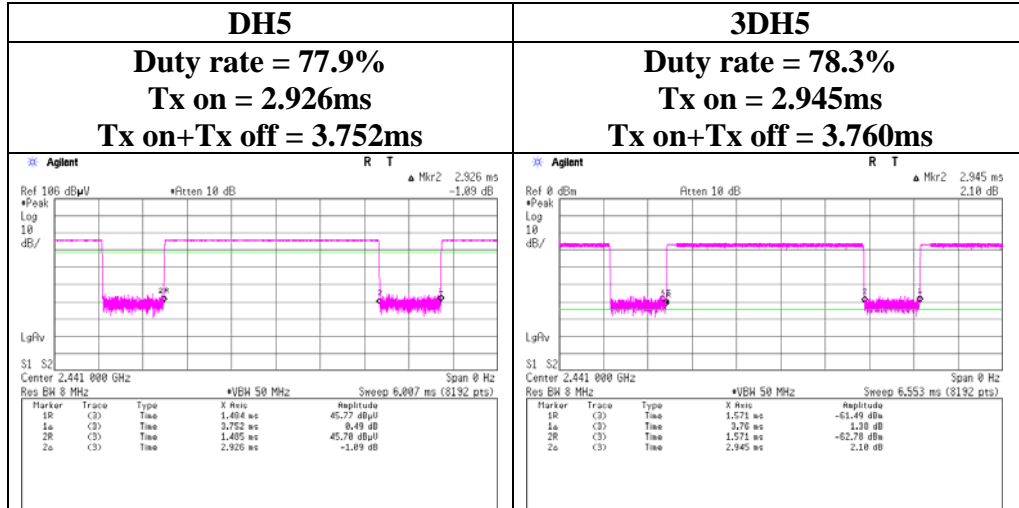
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	55.540	QP	39.0	9.2	7.4	32.2	23.4	40.0	16.6	
Hori	111.084	QP	38.1	11.7	8.2	32.1	25.9	43.5	17.6	
Hori	314.739	QP	35.3	14.7	10.0	31.9	28.1	46.0	17.9	
Hori	351.771	QP	32.8	16.0	10.2	31.9	27.1	46.0	18.9	
Hori	481.255	QP	30.4	18.0	11.1	32.0	27.5	46.0	18.5	
Hori	2483.500	PK	48.4	28.4	3.1	32.7	47.2	73.9	26.7	
Hori	4960.000	PK	45.0	30.7	5.4	31.7	49.4	73.9	24.5	
Hori	7440.000	PK	43.4	36.2	6.7	32.7	53.6	73.9	20.3	
Hori	9920.000	PK	41.5	39.8	7.4	33.5	55.2	73.9	18.8	
Hori	2483.500	AV	34.8	28.4	3.1	32.7	33.6	53.9	20.3	
Hori	4960.000	AV	35.7	30.7	5.4	31.7	40.1	53.9	13.8	
Hori	7440.000	AV	31.4	36.2	6.7	32.7	41.6	53.9	12.3	
Hori	9920.000	AV	29.8	39.8	7.4	33.5	43.5	53.9	10.4	
Vert	55.543	QP	47.7	9.2	7.4	32.2	32.1	40.0	7.9	
Vert	92.571	QP	44.5	8.6	7.9	32.1	28.9	43.5	14.6	
Vert	111.085	QP	43.2	11.7	8.2	32.1	31.0	43.5	12.5	
Vert	481.352	QP	29.3	18.0	11.1	32.0	26.4	46.0	19.6	
Vert	555.420	QP	28.0	18.9	11.5	32.0	26.4	46.0	19.6	
Vert	629.473	QP	28.6	19.7	11.9	32.0	28.2	46.0	17.8	
Vert	2483.500	PK	42.9	28.4	3.1	32.7	41.7	73.9	32.2	
Vert	4960.000	PK	46.0	30.7	5.4	31.7	50.4	73.9	23.5	
Vert	7440.000	PK	42.4	36.2	6.7	32.7	52.6	73.9	21.4	
Vert	9920.000	PK	41.3	39.8	7.4	33.5	55.0	73.9	18.9	
Vert	2483.500	AV	31.3	28.4	3.1	32.7	30.1	53.9	23.8	
Vert	4960.000	AV	37.2	30.7	5.4	31.7	41.6	53.9	12.3	
Vert	7440.000	AV	31.7	36.2	6.7	32.7	41.9	53.9	12.0	
Vert	9920.000	AV	29.8	39.8	7.4	33.5	43.5	53.9	10.4	

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

### Burst Rate Confirmation

Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10255750H
Date	04/07/2014
Temperature/ Humidity	17 deg. C / 29% RH
Engineer	Tsubasa Takayama
Mode	Tx (Hopping off) DH5/3DH5



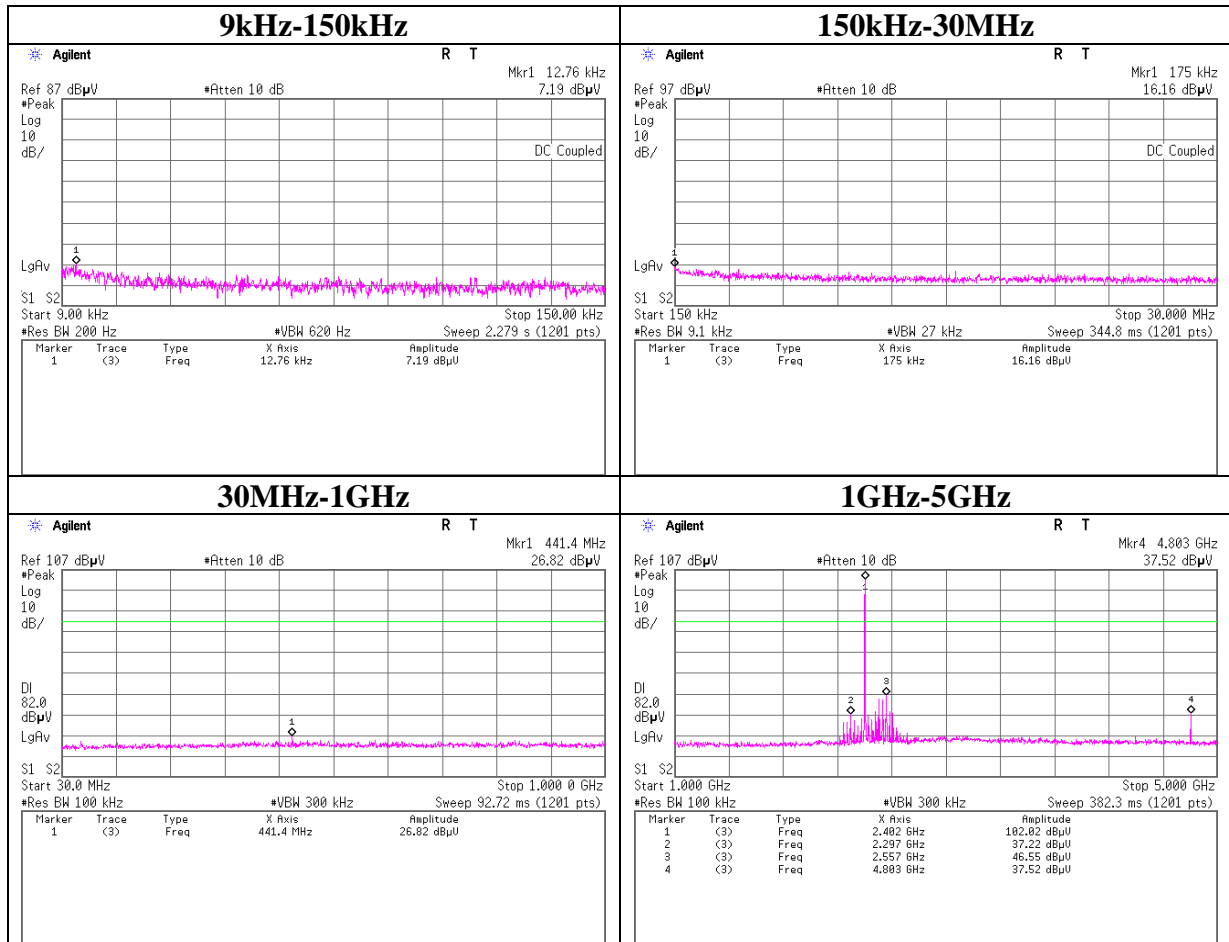
**UL Japan, Inc.**  
**Ise HQ EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
Telephone : +81 596 24 8999  
Facsimile : +81 596 24 8124

## Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

### Tx DH5 2402MHz



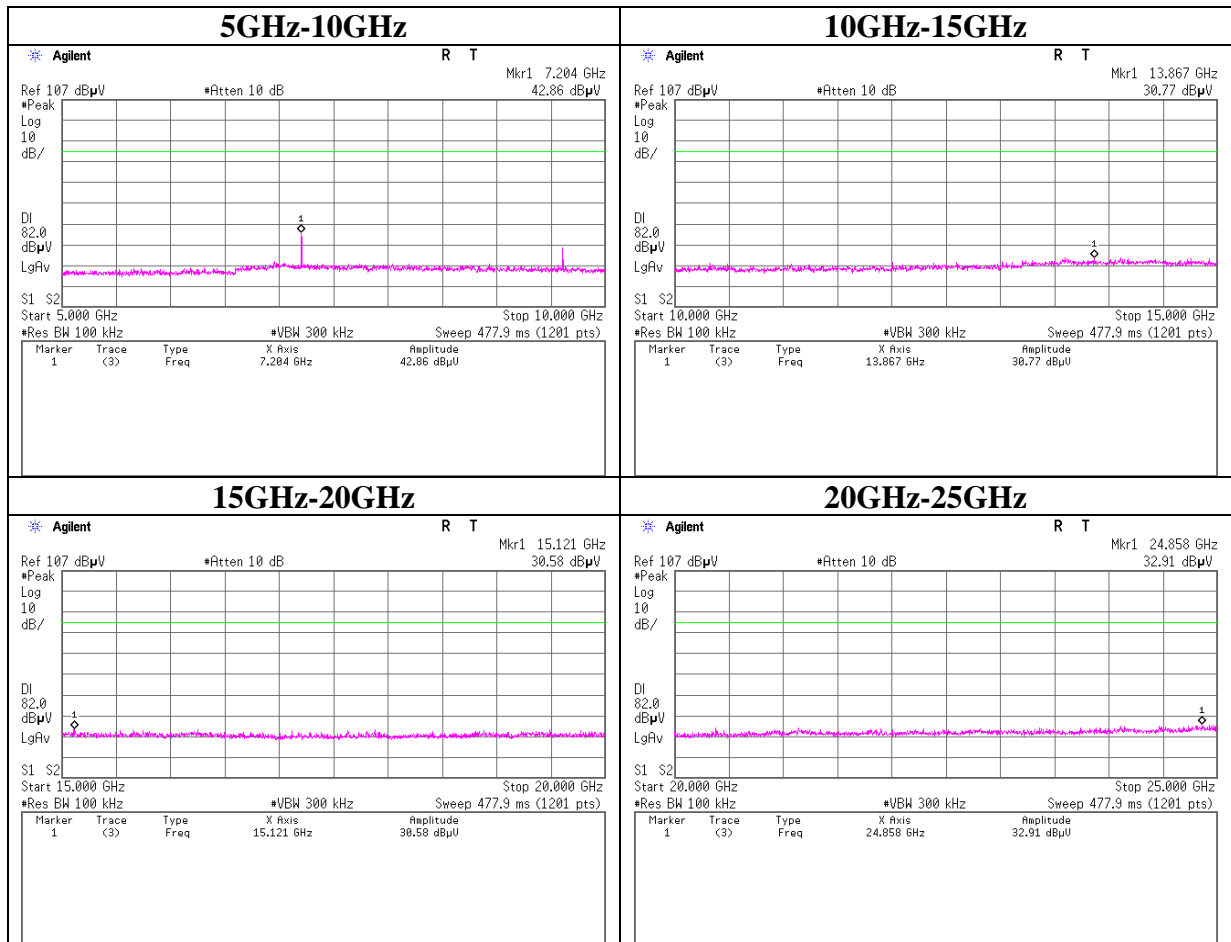
**UL Japan, Inc.**  
**Ise HQ EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
 Telephone : +81 596 24 8999  
 Facsimile : +81 596 24 8124

### Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

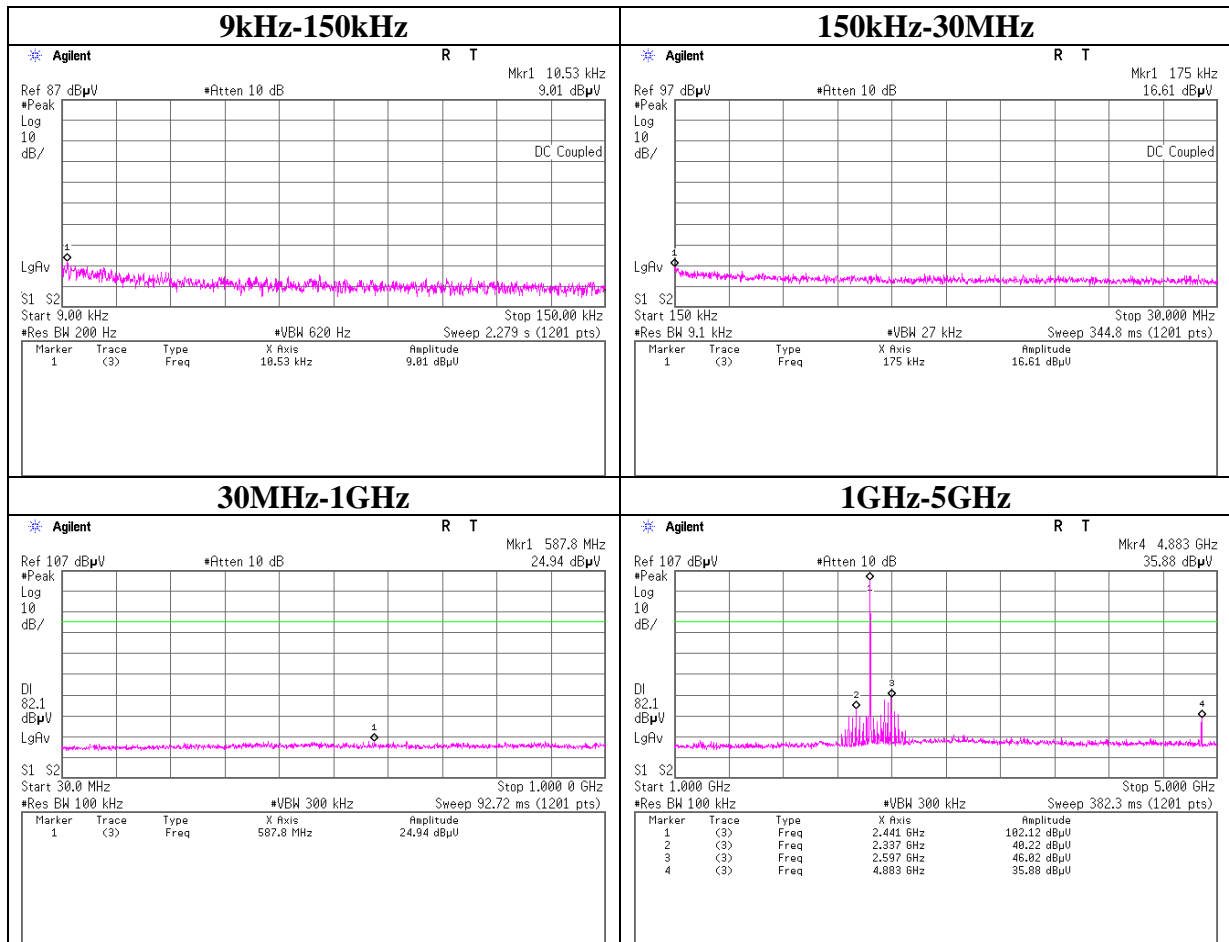
#### Tx DH5 2402MHz



## Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

### Tx DH5 2441MHz



**UL Japan, Inc.**  
**Ise HQ EMC Lab.**

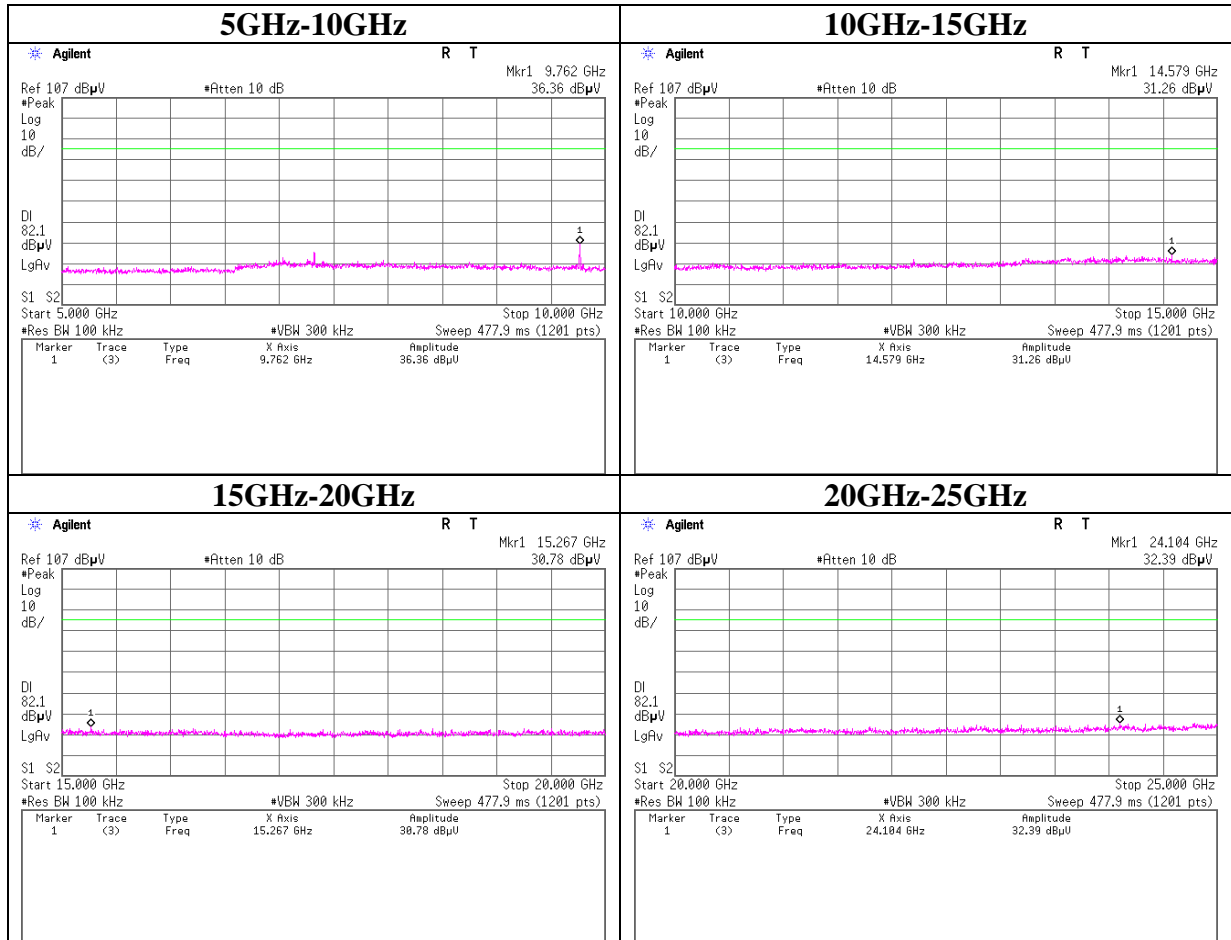
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
 Telephone : +81 596 24 8999  
 Facsimile : +81 596 24 8124



### Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

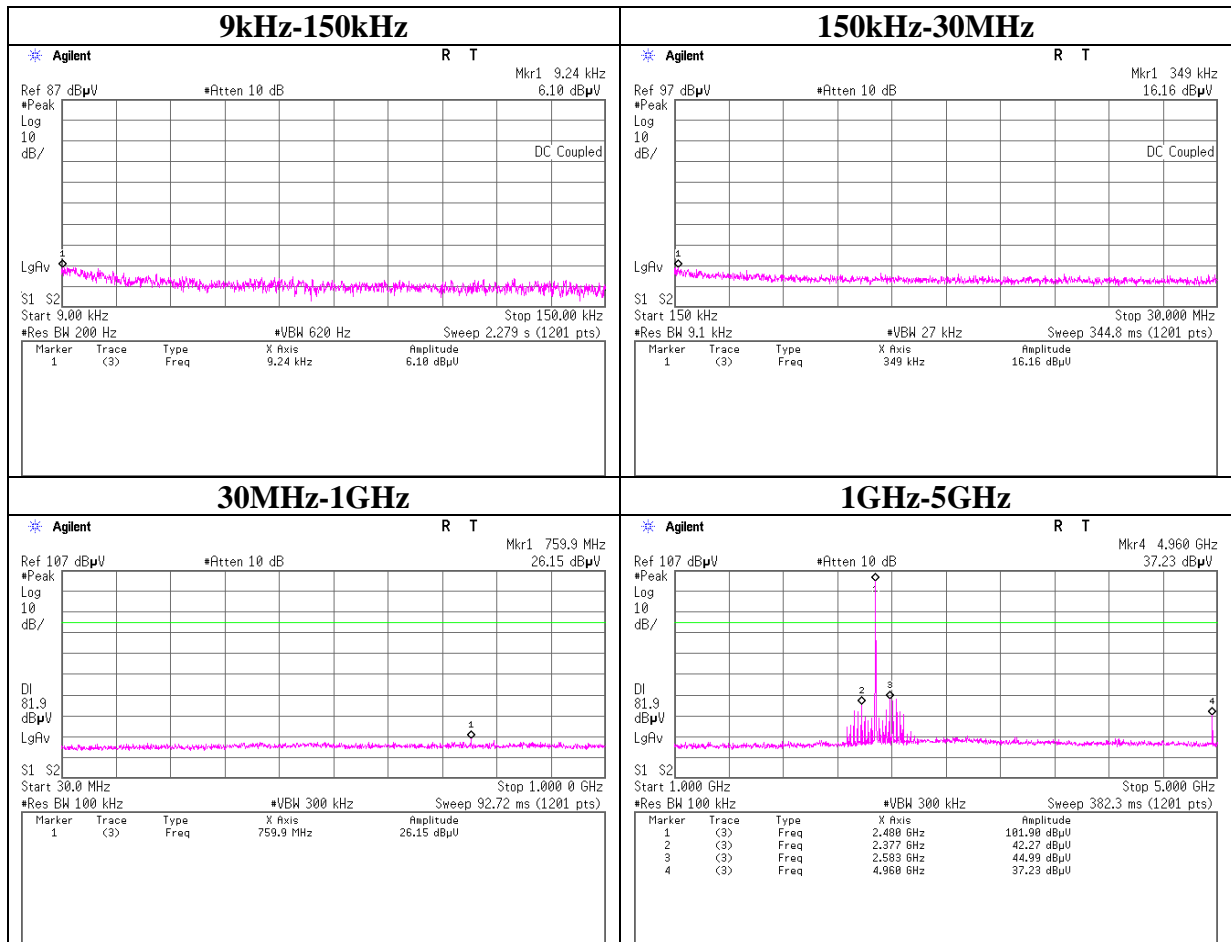
#### Tx DH5 2441MHz



### Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

#### Tx DH5 2480MHz



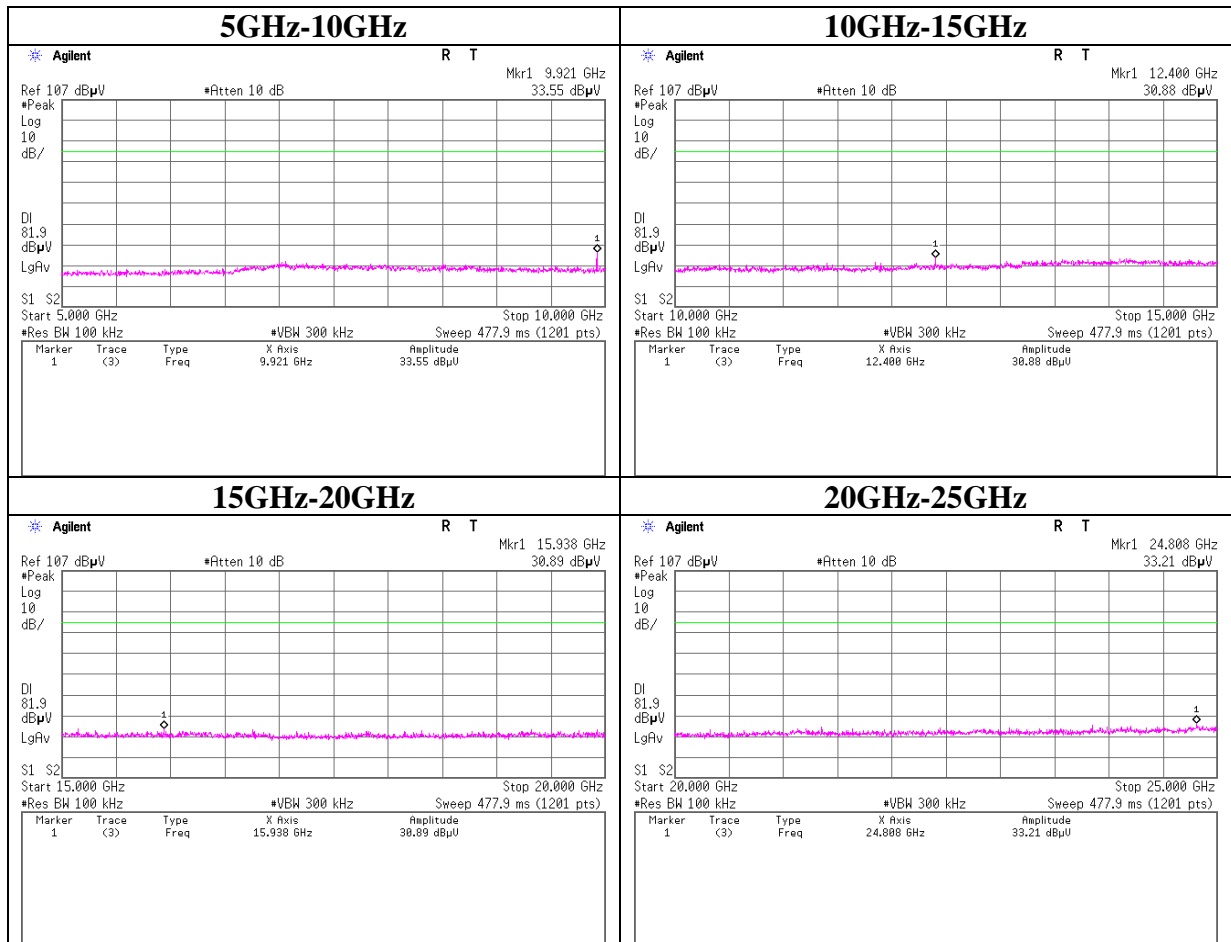
**UL Japan, Inc.**  
**Ise HQ EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
 Telephone : +81 596 24 8999  
 Facsimile : +81 596 24 8124

### Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

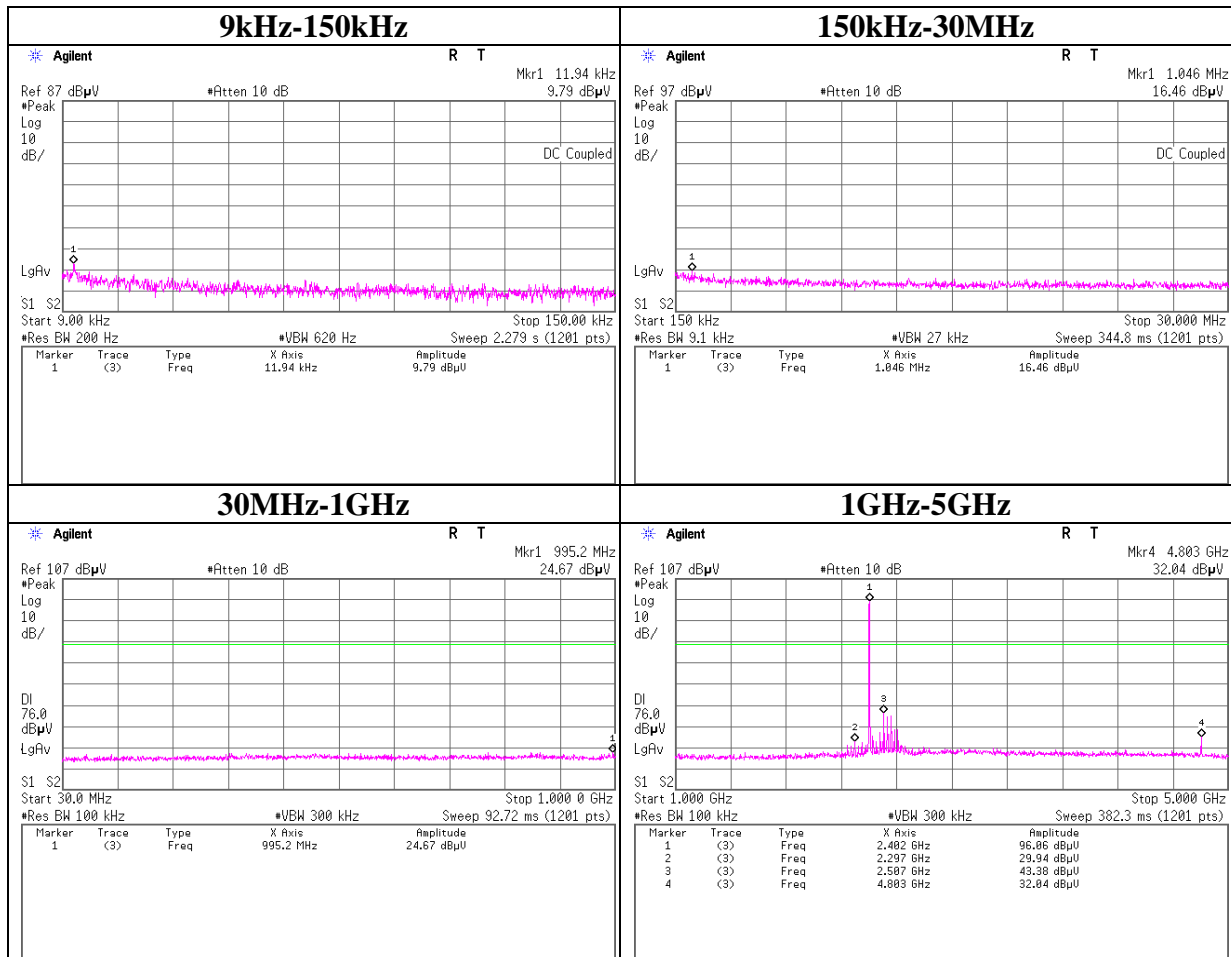
#### Tx DH5 2480MHz



### Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

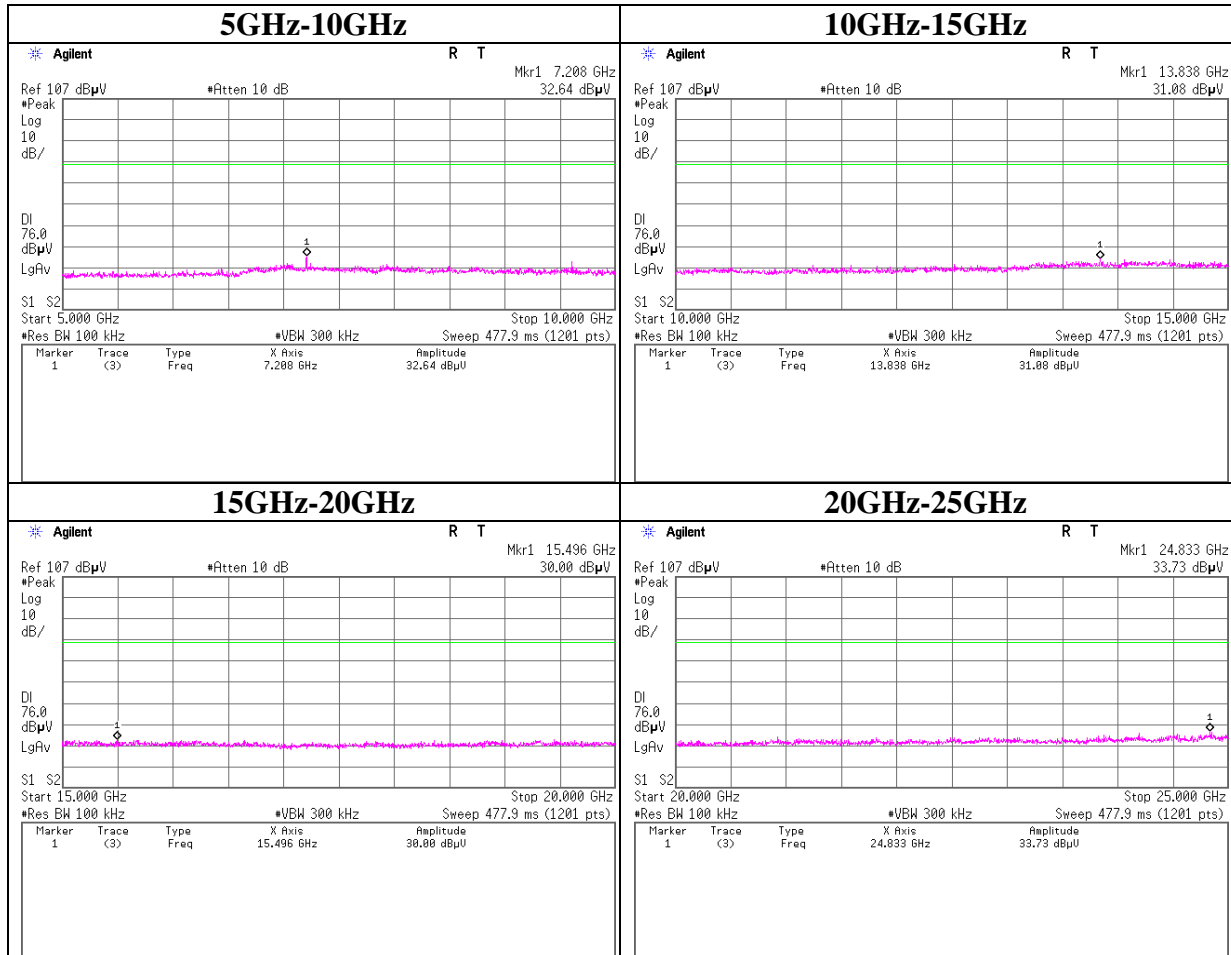
#### Tx 3DH5 2402MHz



### Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

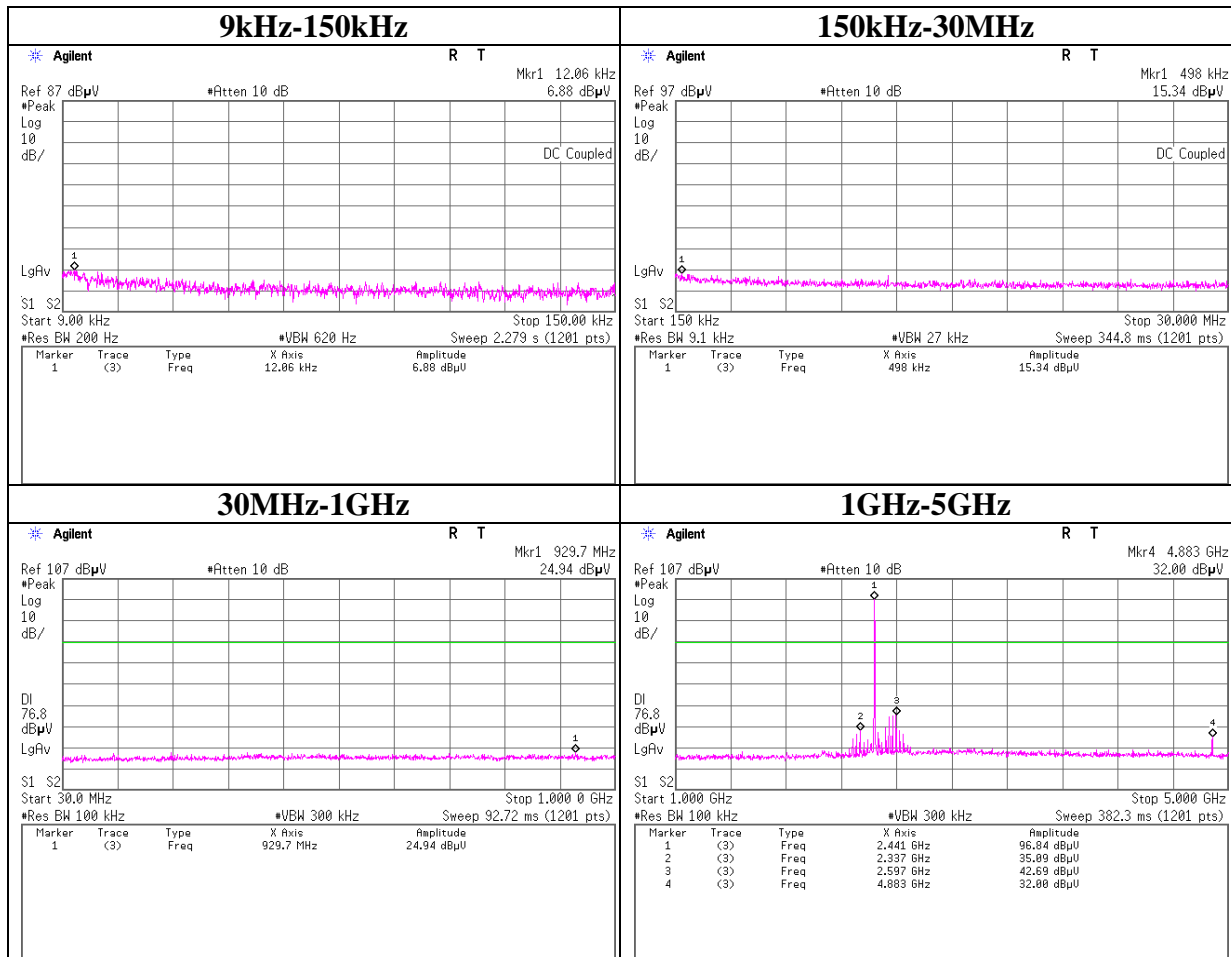
#### Tx 3DH5 2402MHz



## Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

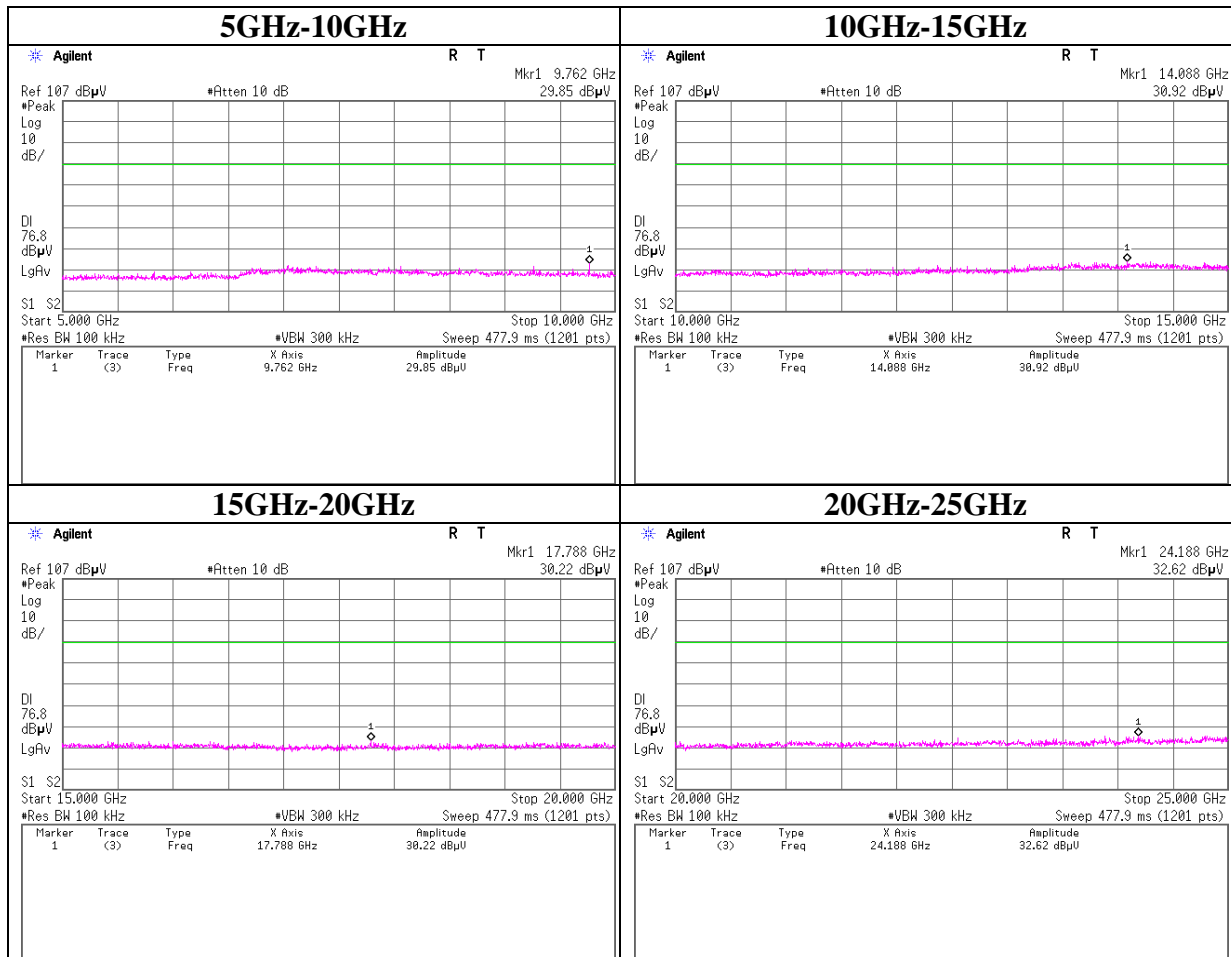
### Tx 3DH5 2441MHz



### Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

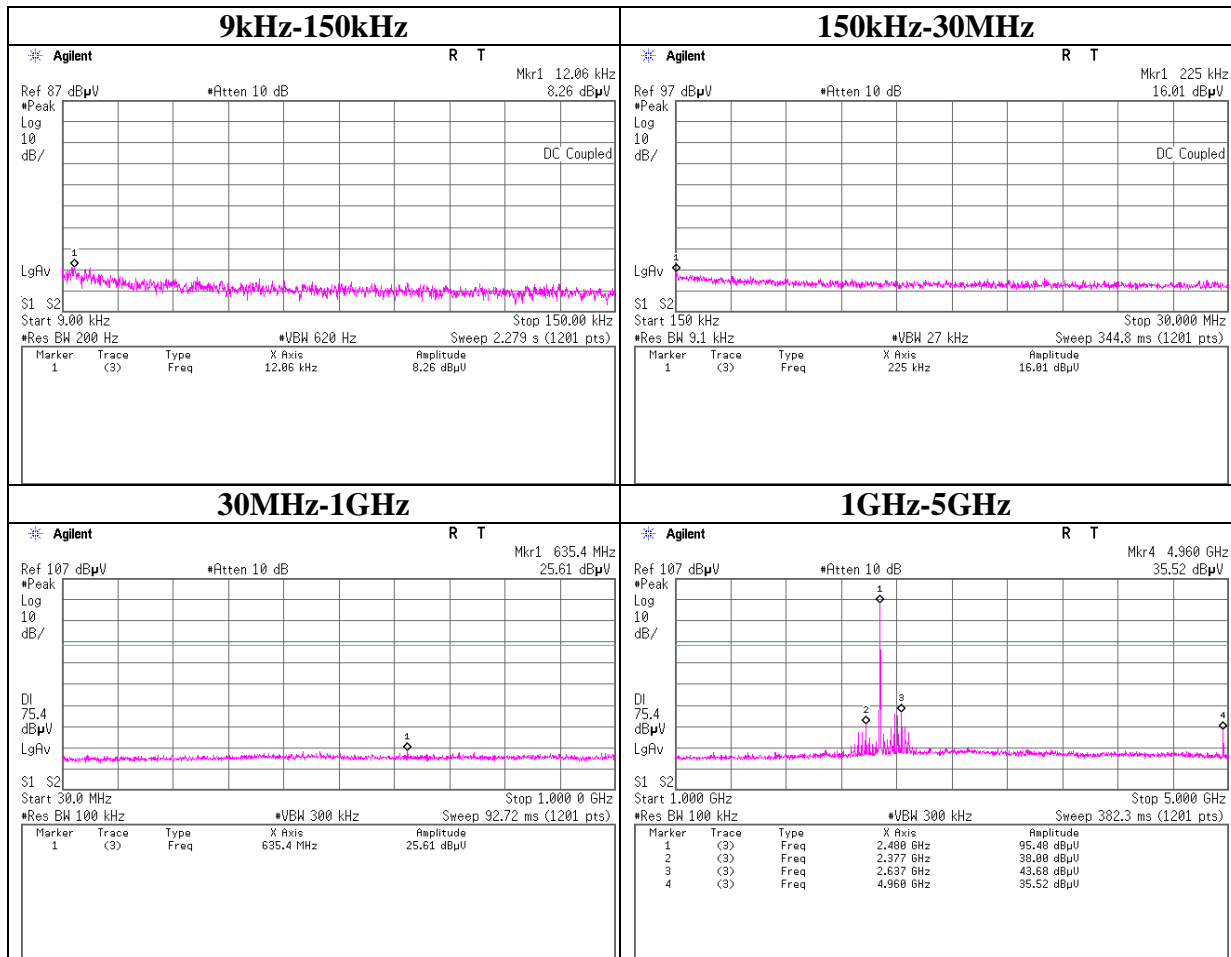
#### Tx 3DH5 2441MHz



### Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

#### Tx 3DH5 2480MHz

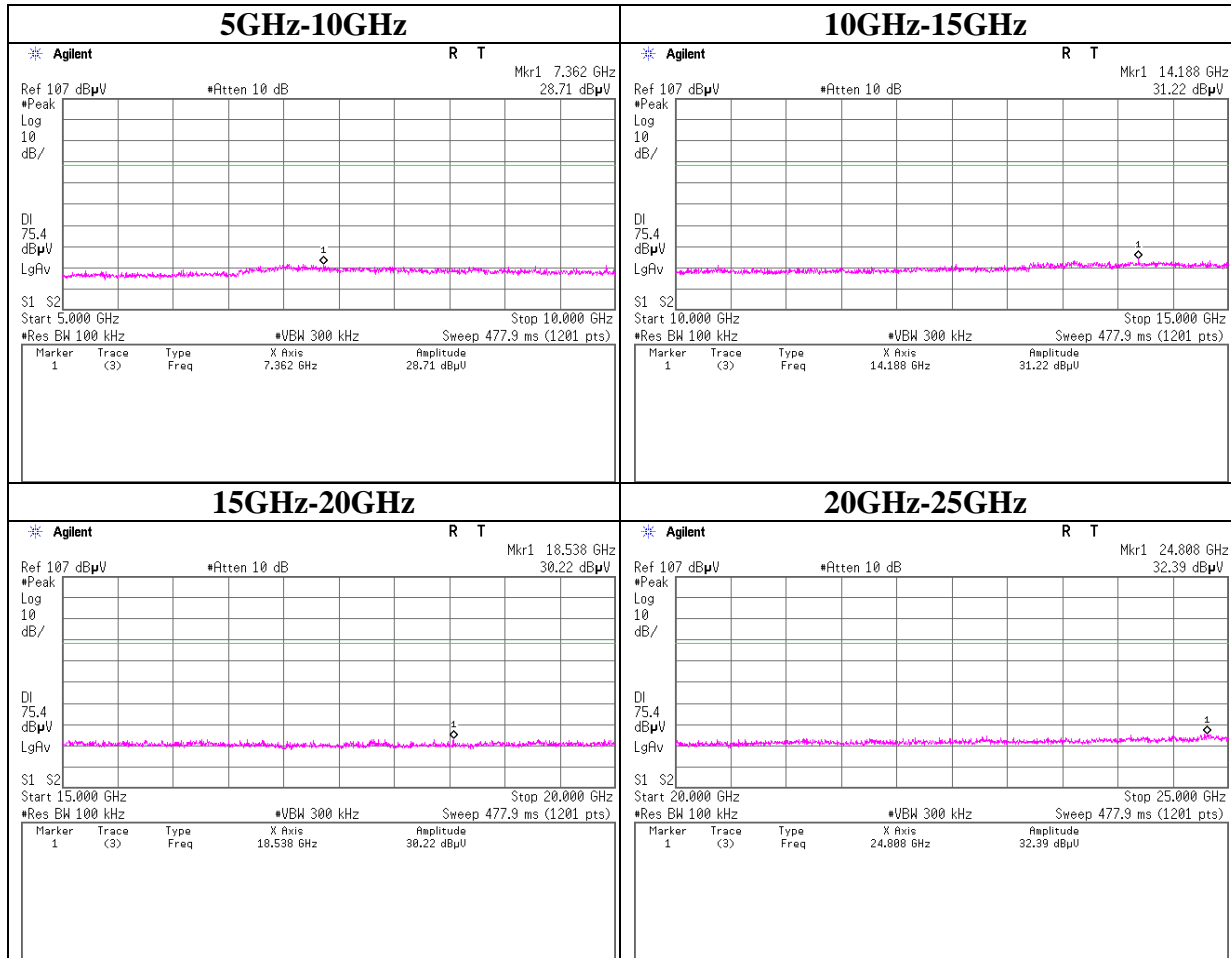




### Conducted Spurious Emission

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

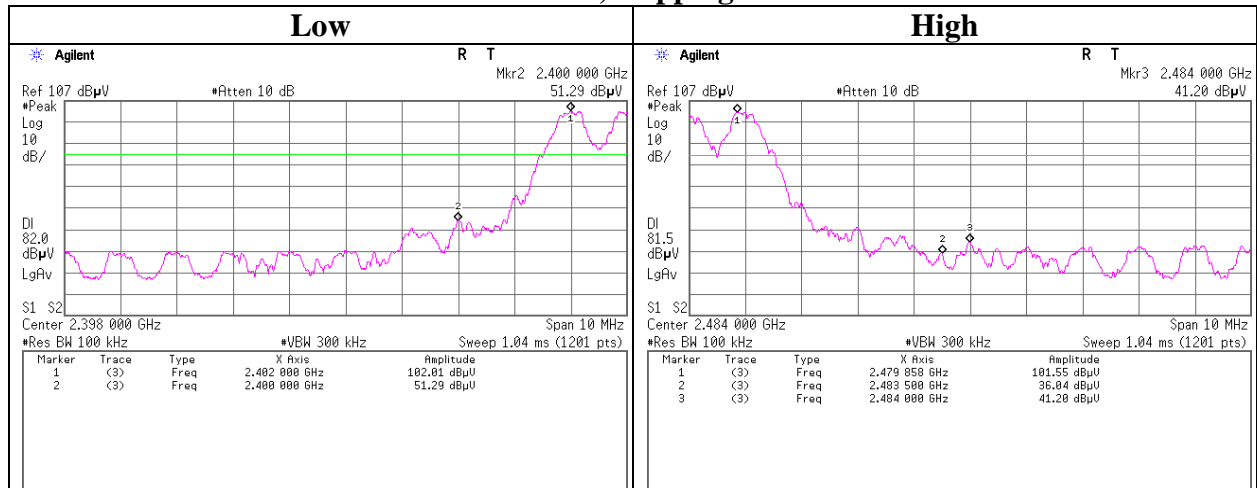
#### Tx 3DH5 2480MHz



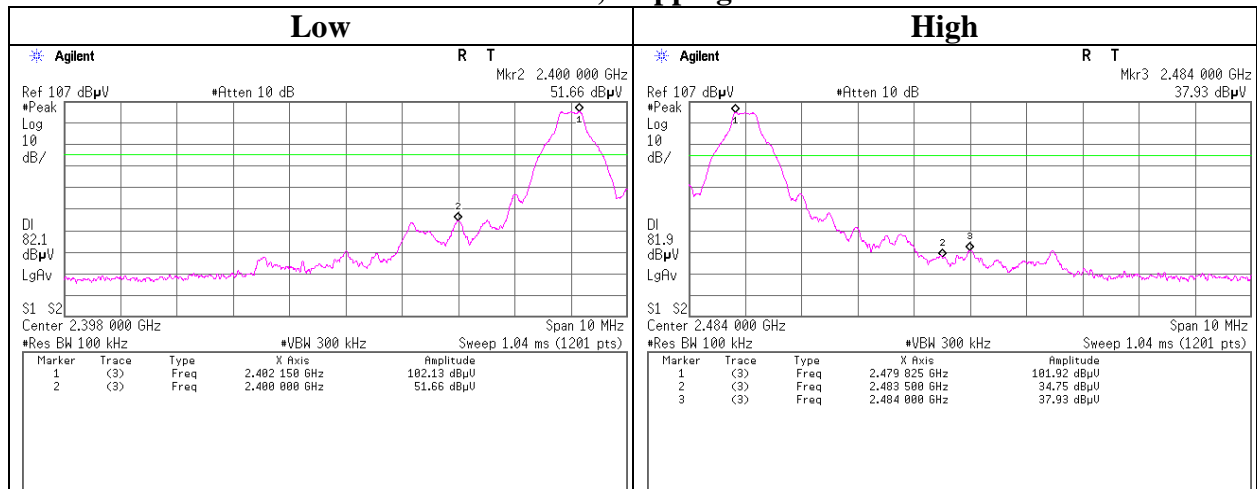
### Conducted Emission Band Edge compliance

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe

#### Tx DH5, Hopping on



#### Tx DH5, Hopping off



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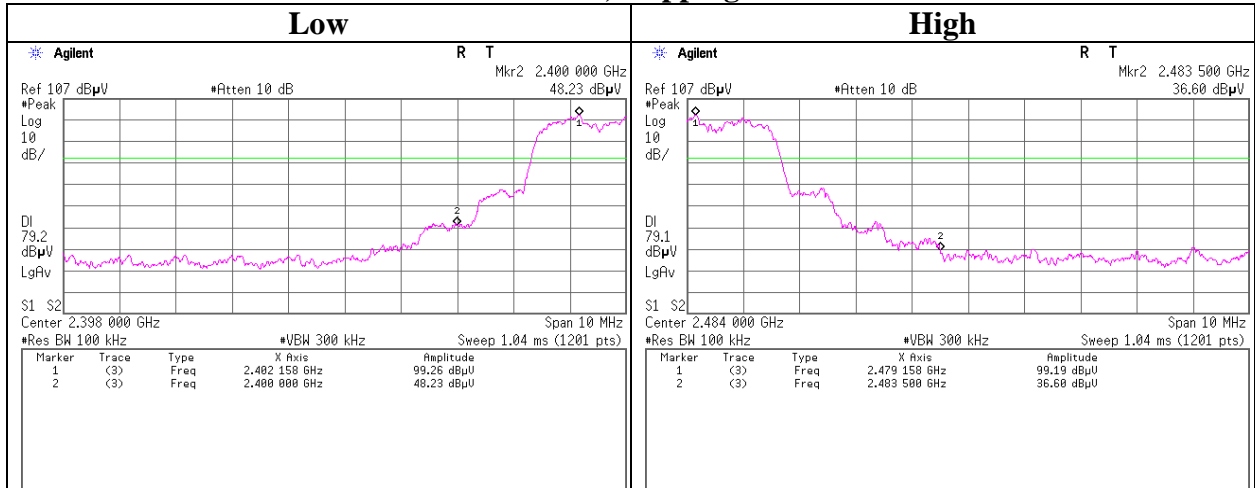
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

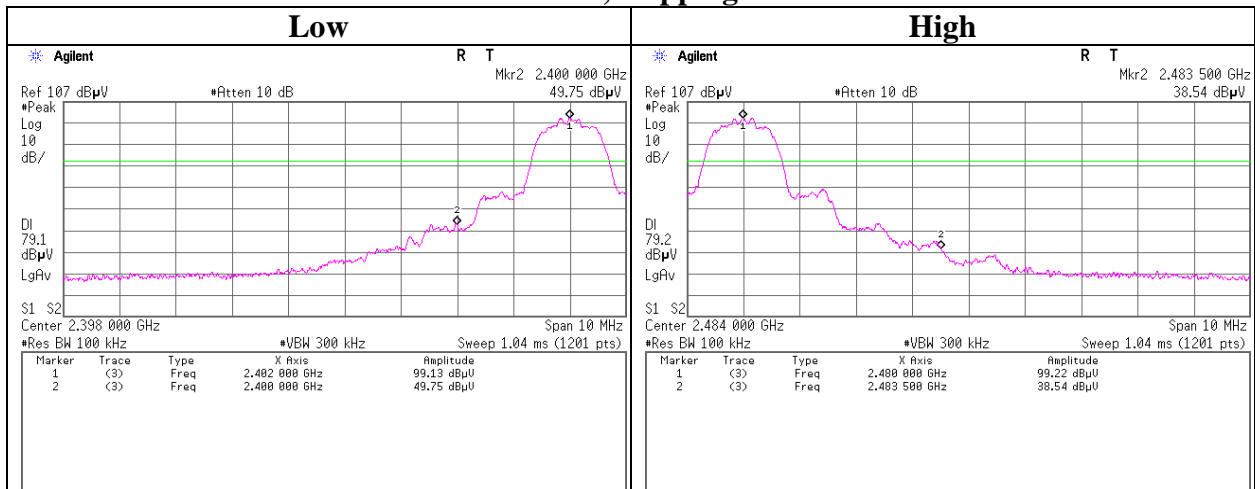
**Conducted Emission Band Edge compliance**

Test place : Ise HQ EMC Lab. No.7 Shielded Room  
 Report No. : 10255750H  
 Date : 04/02/2014  
 Temperature/ Humidity : 24 deg. C / 40% RH  
 Engineer : Shinya Watanabe

**Tx 3DH5, Hopping on**

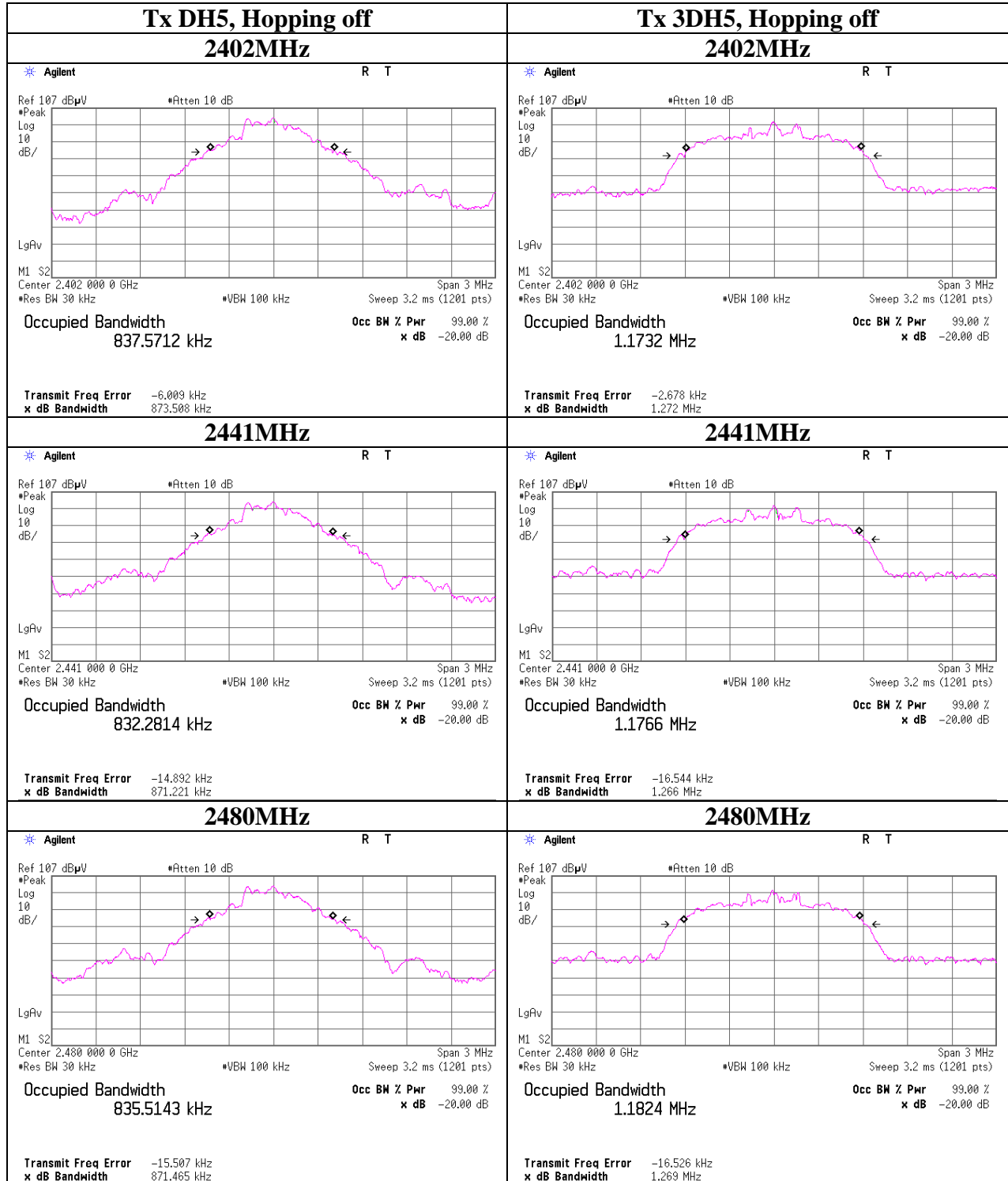


**Tx 3DH5, Hopping off**



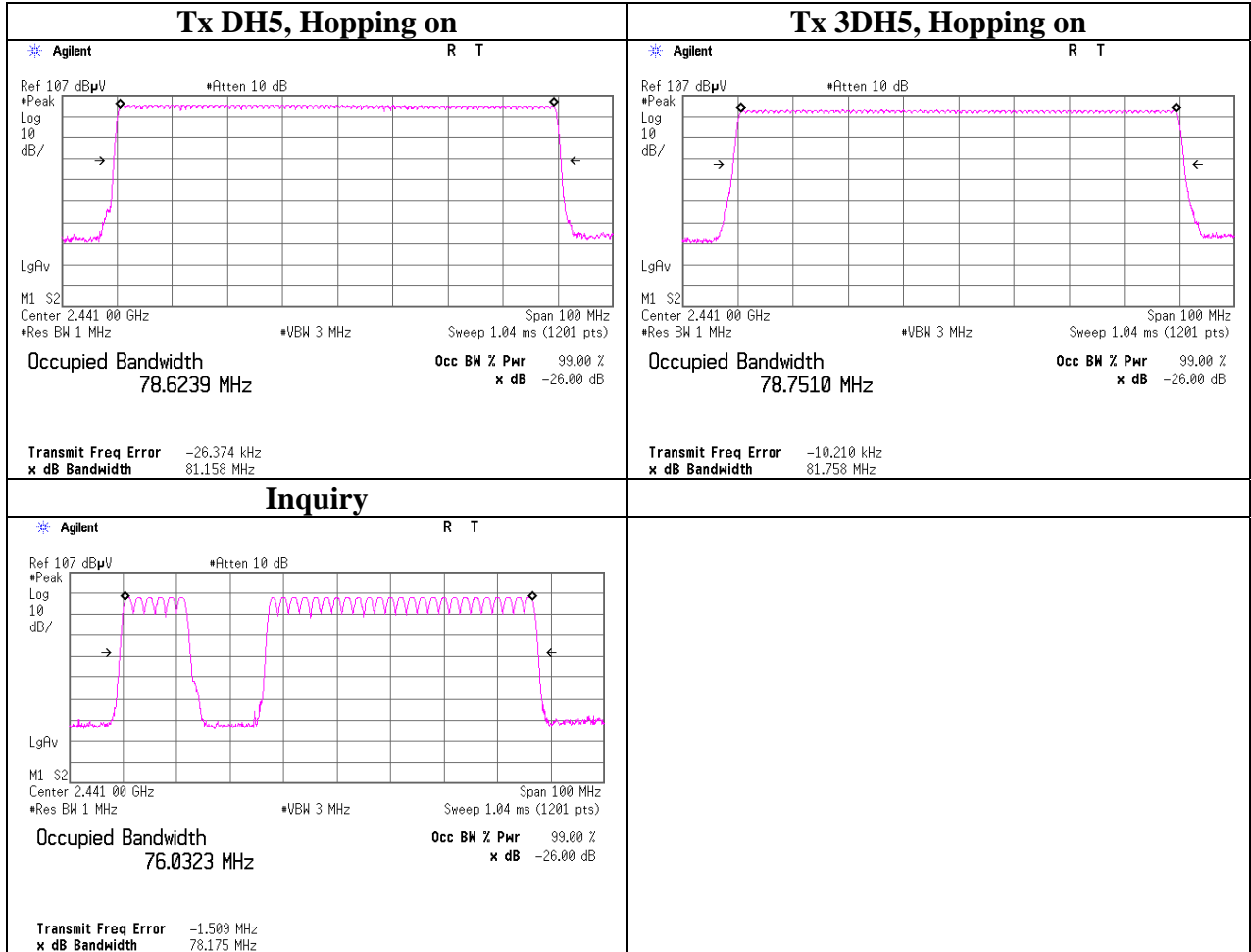
### 99%Occupied Bandwidth

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe



### 99% Occupied Bandwidth

Test place	Ise HQ EMC Lab. No.7 Shielded Room
Report No.	10255750H
Date	04/02/2014
Temperature/ Humidity	24 deg. C / 40% RH
Engineer	Shinya Watanabe



## **APPENDIX 2: Test instruments**

### **EMI test equipment**

<b>Control No.</b>	<b>Instrument</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Serial No</b>	<b>Test Item</b>	<b>Calibration Date * Interval(month)</b>
MOS-34	Thermo-Hygrometer	Custom	CTH-201	3401	AT	2014/02/20 * 12
MSA-13	Spectrum Analyzer	Agilent	E4440A	MY46185823	AT	2013/06/14 * 12
MAT-20	Attenuator(10dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	AT	2014/01/29 * 12
MPM-13	Power Meter	Anritsu	ML2495A	0824014	AT	2013/11/15 * 12
MPSE-18	Power sensor	Anritsu	MA2411B	0738174	AT	2013/11/15 * 12
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2014/02/27 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	1301	RE	2014/02/20 * 12
MJM-16	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2014/04/08 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2013/05/17 * 12
MCC-133	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336164/4(1m) / 340640(5m)	RE	2013/09/27 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2014/03/24 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2013/05/17 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2013/08/20 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2013/10/13 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2013/10/13 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2013/07/23 * 12
MAT-70	Attenuator(6dB)	Agilent	8491A-006	MY52460153	RE	2013/04/05 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2014/03/14 * 12

**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**

**AT: Antenna Terminal Conducted test**

**UL Japan, Inc.**

**Ise HQ EMC Lab.**

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Facsimile : +81 596 24 8124