

RADIO TEST REPORT

Test Report No. : 10519116S-A

Applicant : Sony Corporation
Type of Equipment : Bluetooth Audio System
Model No. : MEX-XB100BT
FCC ID : AK8MEXXB100BT
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.
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6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Kashima has been accredited.

Date of test: October 15, 17, 18, 2014

Representative test engineer: 
Akira Sato
Engineer
EMC Testing Sec.

Approved by: 
Go Ishiwata
Department Manager
Operation Dept.



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 There is no testing item of "Non-accreditation".

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REVISION HISTORY

Original Test Report No. 10519116S-A

Revision	Date	Page revised	Revision Description
00	November 10, 2014	-	Original
01	November 25, 2014	P. 3	Change of Clock frequency (ies)
02	November 27, 2014	P. 4 P. 20 P. 25	Deletion of description of the test specification Addition of mode Correction of calculation formula

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SECTION 1: Customer information

Company Name : Sony Corporation
Address : Sony City Osaki, 2-10-1 Osaki, Shinagawa-ku, Tokyo 141-8610 Japan
Telephone Number : +81- 50-3750-7634
Facsimile Number : +81- 50-3750-6574
Contact Person : Maeda Toshihiro

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

2.1 Identification of E.U.T.

Type of Equipment : Bluetooth Audio System
Model No. : MEX-XB100BT
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC 12.0 V, 15 A
Receipt Date of Sample : October 11, 2014
Country of Mass-production : Thailand
Condition of EUT : Engineering prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No Modification by the test lab

2.2 Product Description

Model: MEX-XB100BT (referred to as the EUT in this report) is a Bluetooth Audio System (Car CD Player equipped with a FM/AM tuner).

General Specification

Clock frequency(ies) in the system : 48.000 MHz, 26.000 MHz, 16.9344 MHz, 13.333 MHz, 12.000 MHz, 32.768 kHz

Radio Specification

Bluetooth specification:

Radio Type : Transceiver
Frequency of Operation : 2402-2480 MHz
Modulation : FHSS
Transmit power or power range : <2.5 mW
Antenna type : Meander Monopole
Antenna Gain : 0.929 dBi
Antenna Connector type : U-FL
Constantly Voltage : Few
Operating temperature range : -20 to +60 deg.C.
ITU code : F1D, G1D (BT)

FCC 15.31 (e)

The EUT provides stable voltage (DC3.3V) constantly to the wireless transmitter regardless of input voltage. Instead of a new battery, DC power supply was used for the test. That does not affect the test result; therefore the EUT complies with the requirement.

FCC 15.203

The equipment and its antenna comply with the requirement since the antenna is built in the equipment and it cannot be replaced by end users.

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart B(orC): 2014, , final revised on August 15, 2014 and effective October 14, 2014

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.209 Radiated emission limits, general requirements
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

The EUT has been tested for compliance with FCC Part 15 Subpart B. Refer to the test report 10519116S-C.

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: Section15.247(a)(1) ----- IC: RSS-210 A8.1 (b)	See data.	Complied	Conducted	
20dB Bandwidth	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1) ----- IC: RSS-210 A8.1 (a)		Complied	Conducted	
Number of Hopping Frequency	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1)(iii) ----- IC: RSS-210 A8.1 (d)		Complied	Conducted	
Dwell time	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1)(iii) ----- IC: RSS-210 A8.1 (d)		Complied	Conducted	
Maximum Peak Output Power	FCC: FCC Public Notice DA 00-705 IC: RSS-Gen 4.8	FCC: Section15.247(a)(b)(1) ----- IC: RSS-210 A8.4 (2)		Complied	Conducted	
Spurious Emission & Band Edge Compliance	FCC: FCC Public Notice DA 00-705 IC: RSS-Gen 4.9	FCC: Section15.247(d) ----- IC: RSS-210 A8.5 RSS-Gen 6 and 7.2.3		6.6 dB Freq.: 960.000 MHz Detection: QP Polarization: Horizontal Mode: Tx, 2441 MHz, Tx, Bluetooth, EDR, PRBS9	Complied	Conducted/ Radiated

Note: UL Kashima, 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.

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3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99%)	ANSI C63.4:2009 13. Measurement of intentional radiators, RSS-Gen 4.6.1	-	Conducted	-	-

Note: UL Kashima's Work Procedures No. 13-EM-W0420 and 13-EM-W0422

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

3.4 Confirmation

UL Kashima, Inc. hereby confirms the E.U.T., in the configuration tested, complies with the specifications FCC Part 15 Subpart C: 2014.

3.5 Uncertainty

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

Item	Frequency range	
Radiated emission	30 MHz-300 MHz	4.9 dB
	300 MHz-1 GHz	6.3 dB
	1 GHz-6 GHz	4.5 dB
	6 GHz-18 GHz	4.8 dB
	18 GHz-26.5 GHz	4.9 dB

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

Antenna port conducted test

Power measurement uncertainty above 1GHz for this test was: (±) 1.5dB
Spurious emission (Conducted) measurement (below 1GHz) uncertainty for this test was: (±) 1.6dB
Spurious emission (Conducted) measurement (1G-3GHz) uncertainty for this test was: (±) 1.4dB
Spurious emission (Conducted) measurement (3G-18GHz) uncertainty for this test was: (±) 2.8dB
Spurious emission (Conducted) measurement (18G-26.5GHz) uncertainty for this test was: (±) 2.5dB
Bandwidth measurement uncertainty for this test was: (±) 5.4%

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3.6 Test Location

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 A2LA Accreditation No. : 1266-01

	FCC Registration No.	Width x Depth x Height (m)	Size of reference ground plane/horizontal conducting plane (m)	Maximum measurement distance
No.1 Open site	90558	6.0 x 5.5 x 2.5	20 x 40	10 m
No.2 Open site	510504	4.4 x 4.4 x 2.15	18 x 20	10 m
No.5 Open site	99356	8.6 x 7.1 x 2.4	18 x 23	10 m
No.1 Shielded room	90558	5.4 x 4.5 x 2.3		-
No.2 Shielded room	510504	3.6 x 2.7 x 2.3		-
No.3 Shielded room	-	5.4 x 3.6 x 2.3		-
No.4 Shielded Room	-	6.1 x 6.1 x 3.1		-
No.5 Shielded Room	99356	4.2 x 3.1 x 2.5		-
No.1 Measurement room	-	5.0 x 3.7 x 2.6		-
No.3 Fully Anechoic Chamber	-	7.0 x 3.5 x 3.5		-
No.6 Semi-anechoic Chamber	372431	8.5 x 5.5 x 5.2		3 m
No.10 Semi-anechoic Chamber	682397	18.4 x 9.9 x 7.7		10 m
No.11 Semi-anechoic Chamber	718605	9.0 x 6.5 x 5.2		3 m

3.7 Data of EMI, Test instruments, and Test set up

Refer to APPENDIX.

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

4.1 Operating Mode(s)

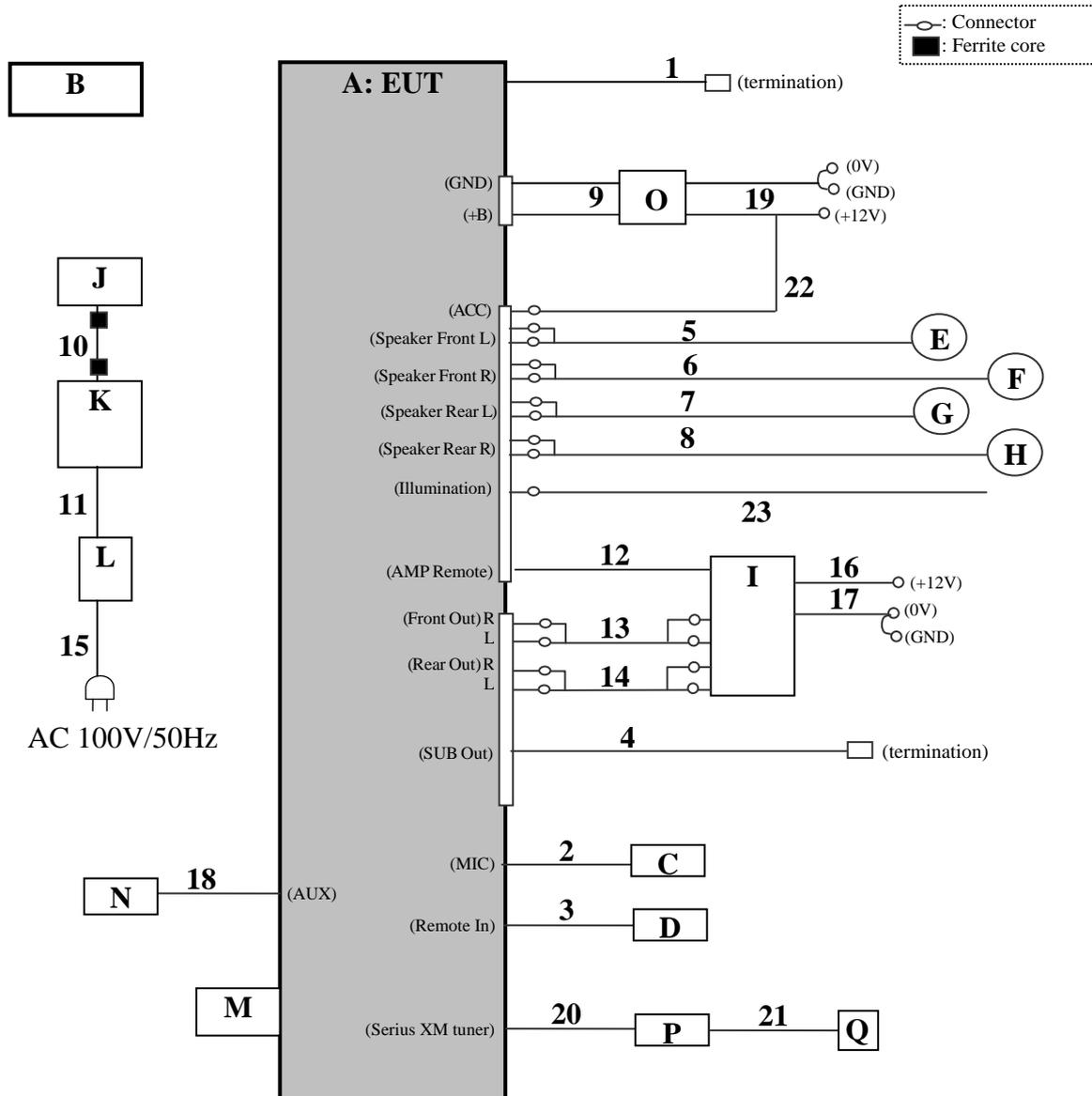
Details of Operating Mode(s)

Test Item	Mode	Tested frequency
Spurious Emission (Conducted/Radiated)	Tx, Bluetooth, BDR, EDR, PRBS9	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 2441MHz 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] Ext: 23, Int: 39/ [EDR] Ext:73, Int:48 Software: CSR BlueTest3 ver. 2.5.0.93/ [Inquiry] BTcli Ctrl ver. 2.5.0.93 *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.</p>		

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4.2 Configuration and peripherals



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Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Bluetooth Audio System	MEX-XB100BT	No.20 for RE* No. 24 for AT*	Sony	EUT
B	Remote Commander	RM-X231	-	Sony	-
C	MIC	-	-	Sony	-
D	Wired Remote Controller	RM-X2S	-	Sony	-
E	Speaker 1	XS-GTF1338	-	Sony	-
F	Speaker 2	XS-GTF1338	-	Sony	-
G	Speaker 3	XS-GTF1338	-	Sony	-
H	Speaker 4	XS-GTF1338	-	Sony	-
I	Stereo Power Amplifier	XM-4S	-	Sony	-
J	Contactless IC Card Reader/Writer	RC-S380	0100144	Sony	-
K	Personal Computer	PCG-4F2N	J00129D6	Sony	-
L	AC Adapter	VGP-AC16V11	0709 G	Sony	-
M	USB Memory	USM4GL	-	Sony	-
N	Digital Media Player	NW-A829	5017289	Sony	-
O	Fuse Box	-	-	Sony	-
P	Sirius XM tuner	SXV100	REG004RR	Sirius	-
Q	Antenna for Sirius XM tuner	XVANT1	1046	Sirius	-

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

List of cables used

No.	Name	Length (m)	Shield (Cable)		Remarks
			Shielded	Shielded	
1	FM antenna	1.2	Shielded	Shielded	-
2	MIC	4.0	Shielded	Shielded	-
3	REMOTE IN	1.9	Shielded	Shielded	-
4	Audio OUT(SUB)	2.0+0.45	Shielded	Shielded	-
5	Speaker (1)	0.15+2.3	Unshielded	Unshielded	-
6	Speaker (2)	0.15+2.3	Unshielded	Unshielded	-
7	Speaker (3)	0.15+2.3	Unshielded	Unshielded	-
8	Speaker (4)	0.15+2.3	Unshielded	Unshielded	-
9	DC Power	0.15	Unshielded	Unshielded	-
10	USB	1.0	Shielded	Shielded	-
11	DC	1.8	Unshielded	Unshielded	-
12	AMP Remote	0.15+1.6	Unshielded	Unshielded	-
13	RCA (Front Audio Out)	0.1+4.9	Shielded	Shielded	-
14	RCA (Rear Audio Out)	0.1+4.9	Shielded	Shielded	-
15	AC	0.7	Unshielded	Unshielded	-
16	DC Power (+)	1.3	Unshielded	Unshielded	-
17	DC Power (-)	1.3	Unshielded	Unshielded	-
18	Audio	2.0	Shielded	Shielded	-
19	DC	1.1	Unshielded	Unshielded	-
20	XM tuner	0.6	Shielded	Shielded	-
21	Antenna	7.0	Shielded	Shielded	-
22	ACC	1.2	Unshielded	Unshielded	-
23	Illumination	0.15+1.5	Unshielded	Unshielded	-

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SECTION 5: Radiated Spurious Emission

Test Procedure

EUT was placed on a urethane platform of nominal size, 1.0m by 2.0m, raised 0.8m above the conducting ground plane.

The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

The height of the measuring antenna varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

The test was made with the detector (RBW/VBW) in the following table.

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Test Antennas are used as below;

Frequency	30MHz to 300MHz	300MHz to 1GHz	Above 1GHz
Antenna Type	Logbicon	Logbicon	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 *No noise was detected above the 2th order harmonics.

Antenna polarization \ Test item	Carrier	Spurious emission (Below 1GHz)	Spurious emission (1-15GHz)	Spurious emission (Above 15GHz)
Horizontal	0 deg.	0 deg.	0 deg.	0 deg.
Vertical	0 deg.	0 deg.	0 deg.	0 deg.

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SECTION 6: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
20dB Bandwidth	3MHz	30kHz	100kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth	Enough width to display 20dB Bandwidth	1 to 3% of Span	Three times of RBW	Auto	Peak	Max Hold *1)	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak Average *3)	-	Power Meter
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**

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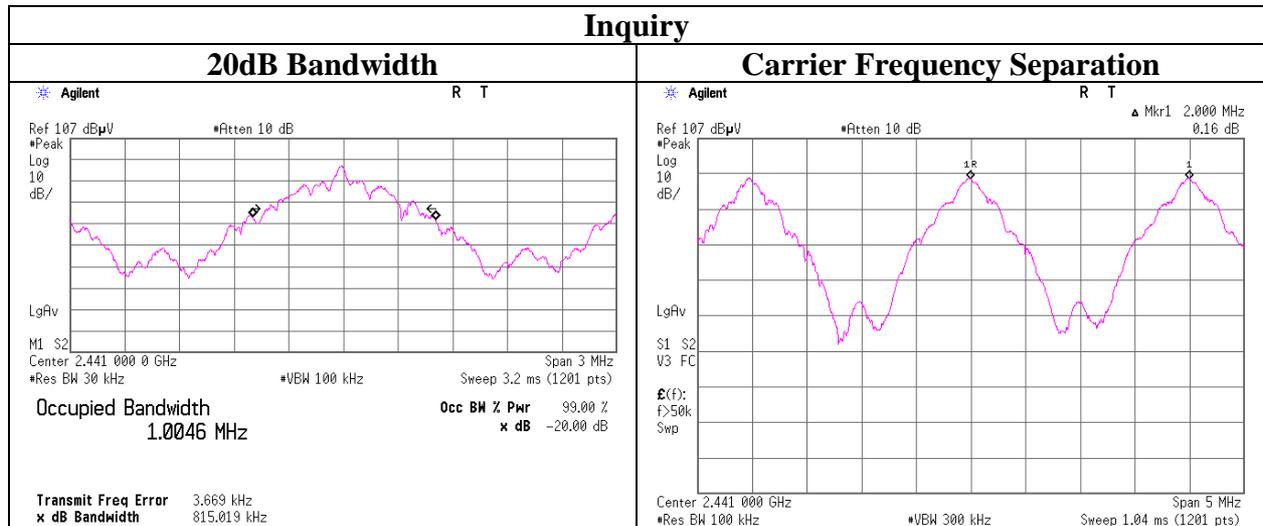
APPENDIX 1: Data of EMI test

20dB Bandwidth and Carrier Frequency Separation

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% 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	0.956	1.000	≥ 0.637
DH5	2441.0	0.964	1.000	≥ 0.643
DH5	2480.0	0.959	1.000	≥ 0.639
3DH5	2402.0	1.288	1.000	≥ 0.859
3DH5	2441.0	1.279	1.000	≥ 0.853
3DH5	2480.0	1.289	1.000	≥ 0.859
Inquiry	2441.0	0.815	2.000	≥ 0.543

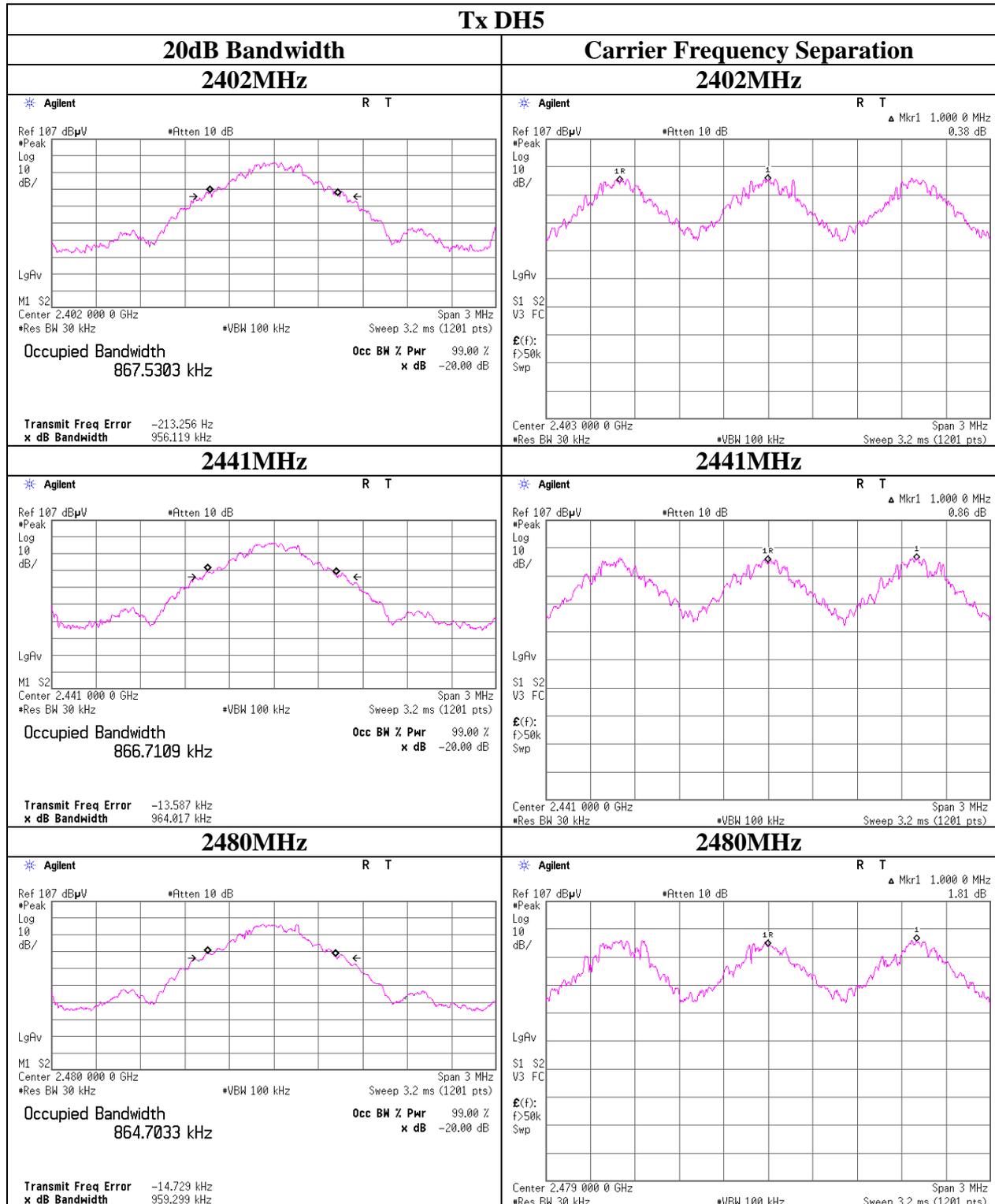
Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).
 No limit applies to 20dB Bandwidth.



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20dB Bandwidth and Carrier Frequency Separation



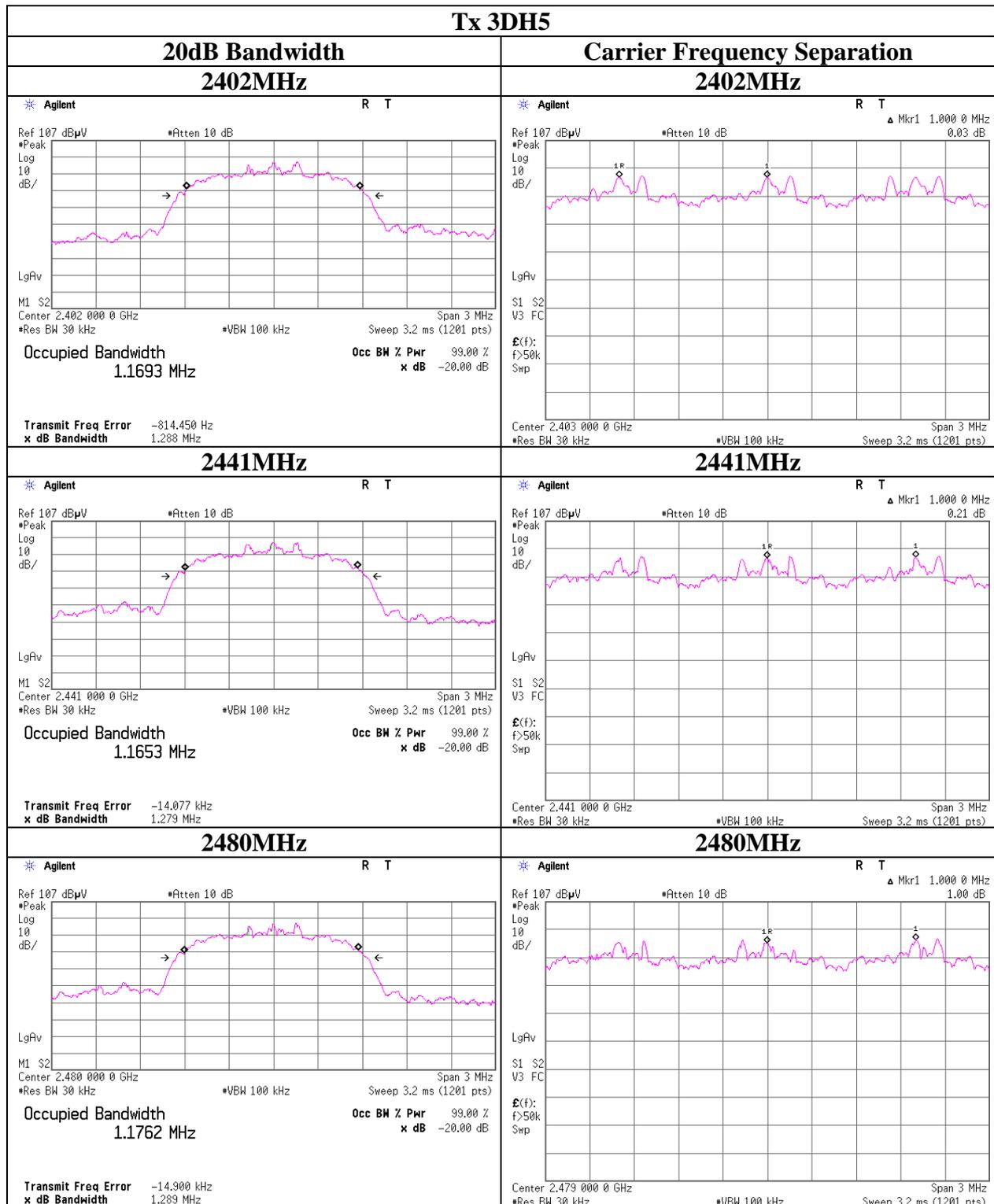
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20dB Bandwidth and Carrier Frequency Separation



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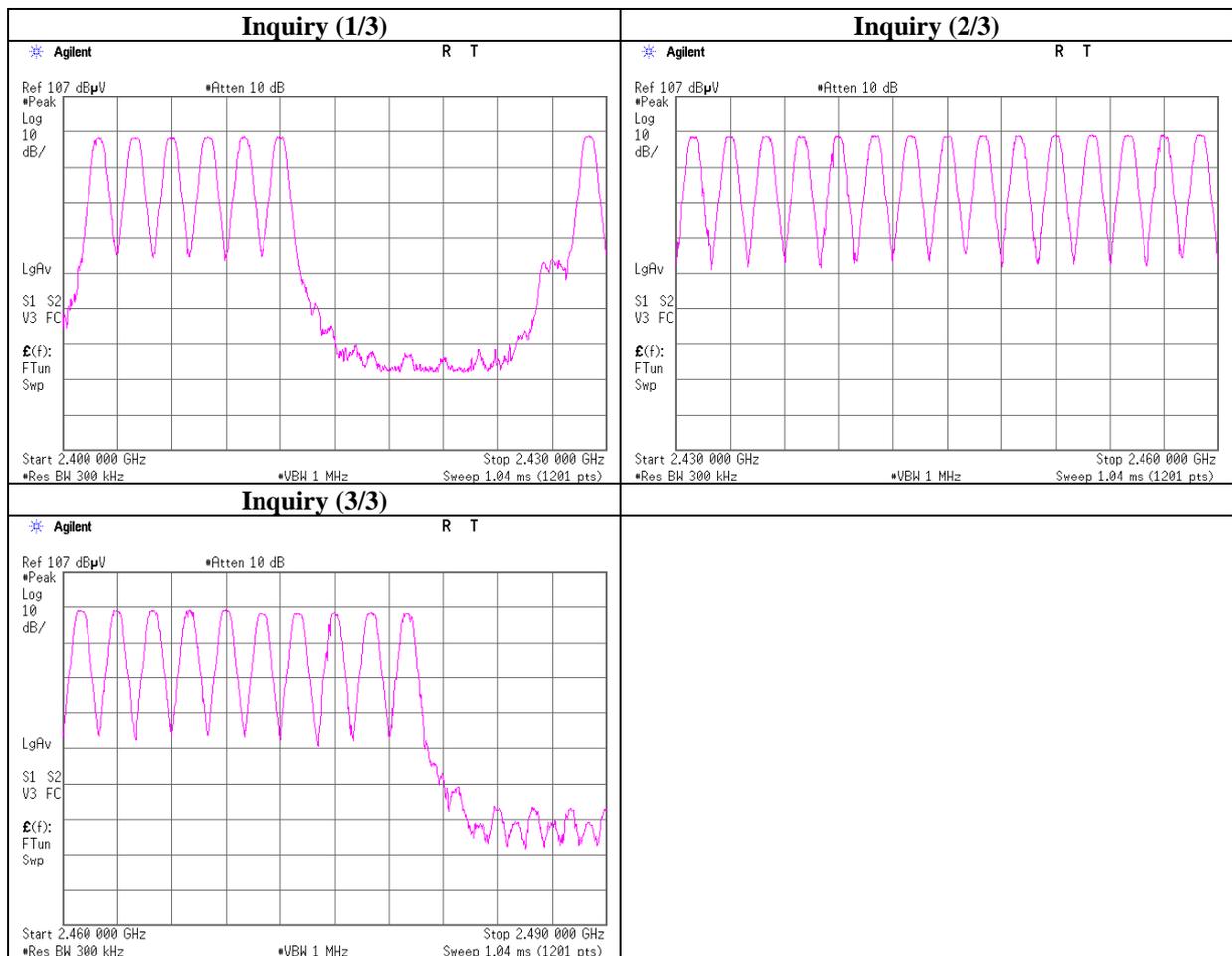
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Number of Hopping Frequency

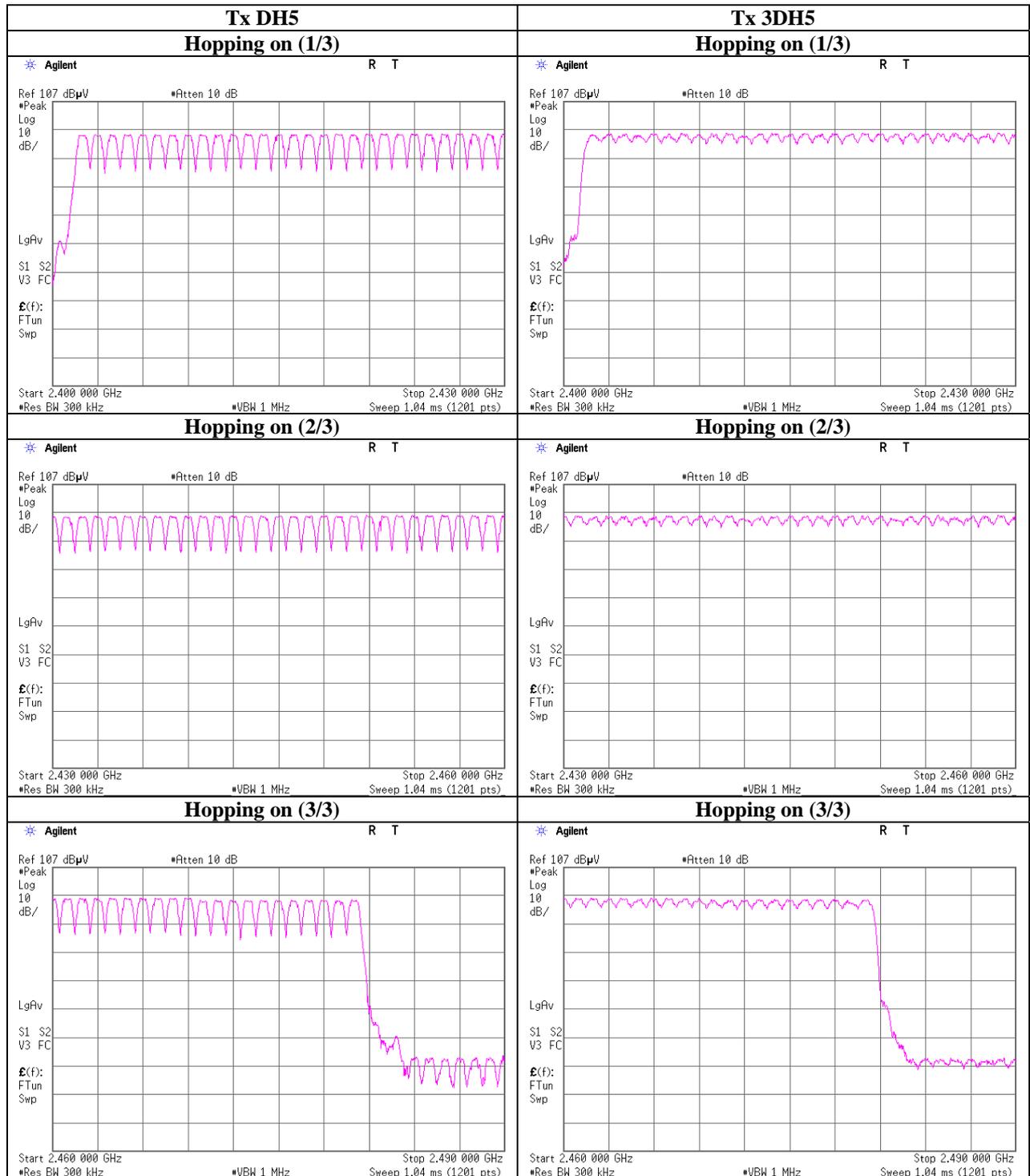
Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on) DH5/3DH5/Inquiry

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

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



Number of Hopping Frequency



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Dwell time

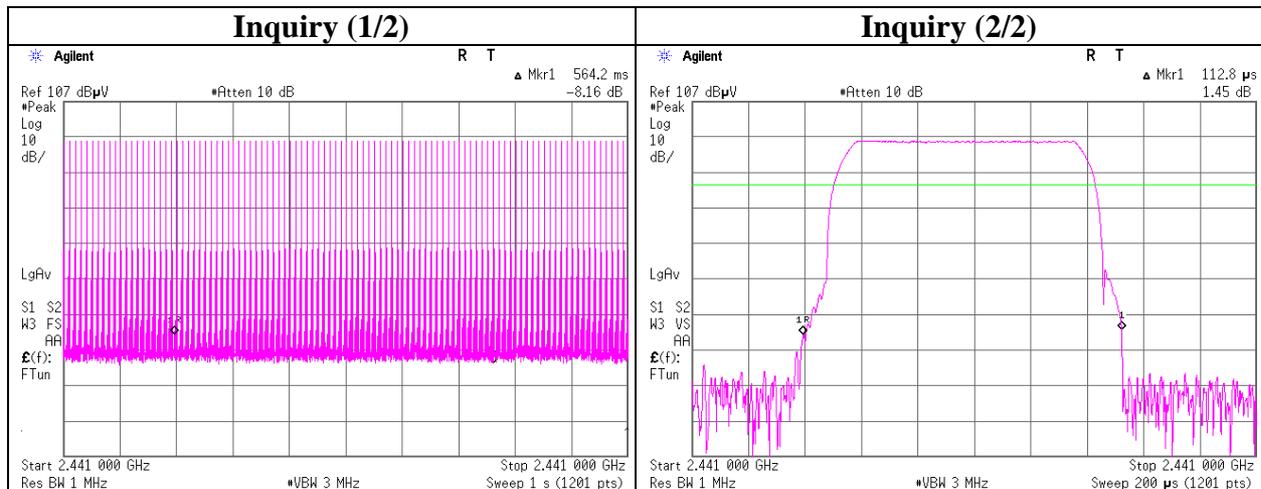
Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping on) DH5/3DH5/Inquiry

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	0.399	129	400
DH3	26.0 times / 5 sec. x 31.6 sec. = 165 times	1.655	273	400
DH5	17.0 times / 5 sec. x 31.6 sec. = 108 times	2.907	314	400
3DH1	51.0 times / 5 sec. x 31.6 sec. = 323 times	0.421	136	400
3DH3	26.0 times / 5 sec. x 31.6 sec. = 165 times	1.673	276	400
3DH5	17.0 times / 5 sec. x 31.6 sec. = 108 times	2.933	317	400
Inquiry	100.0 times / 1 sec. x 12.8 sec. = 1280 times	0.113	144	400

Sample Calculation

Result = Number of transmission x Length of transmission time

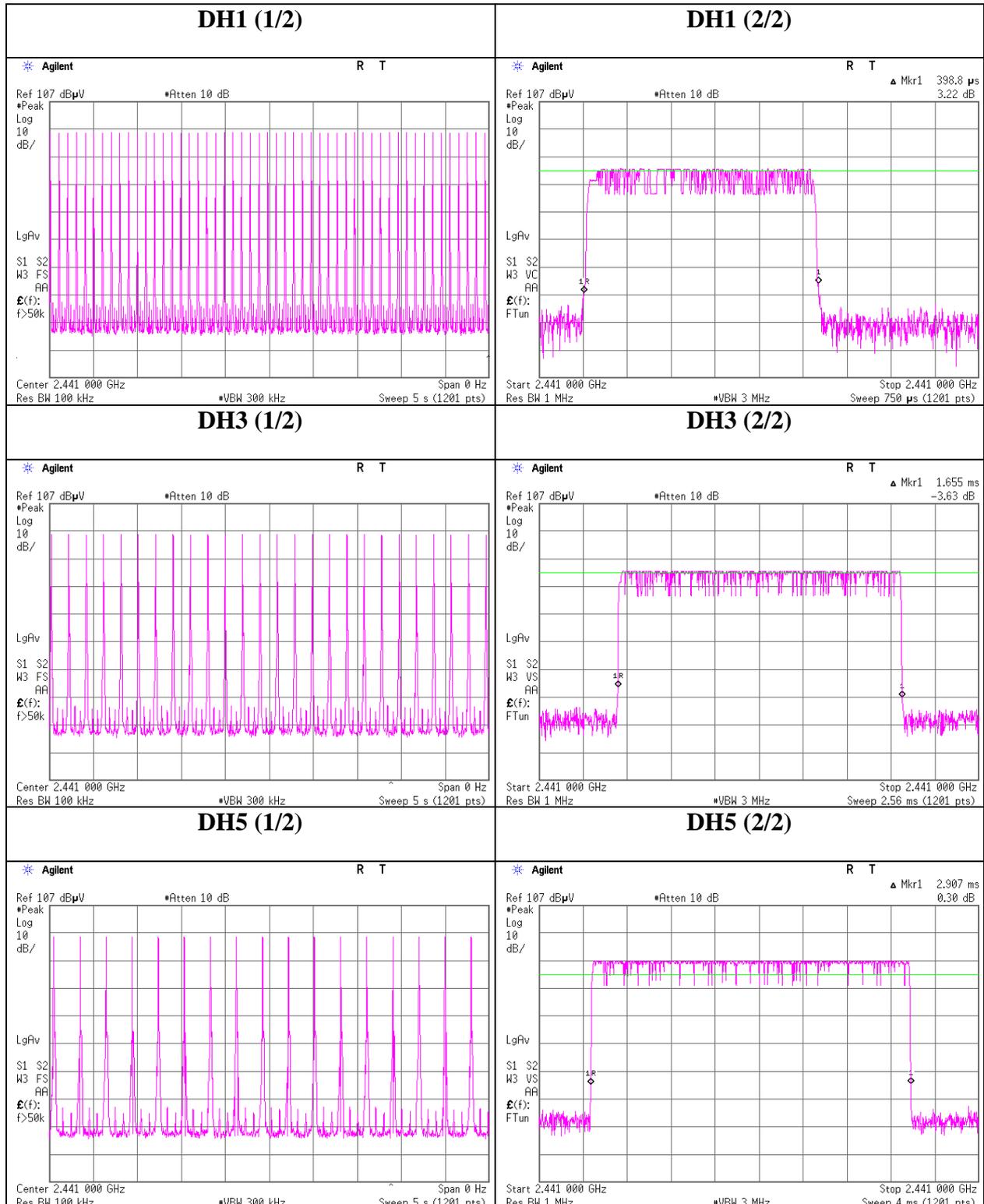
This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in $N \times 0.4s$, where N is the number of channels being used in the hopping sequence ($20 \leq N \leq 79$), is always less than 0.4s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



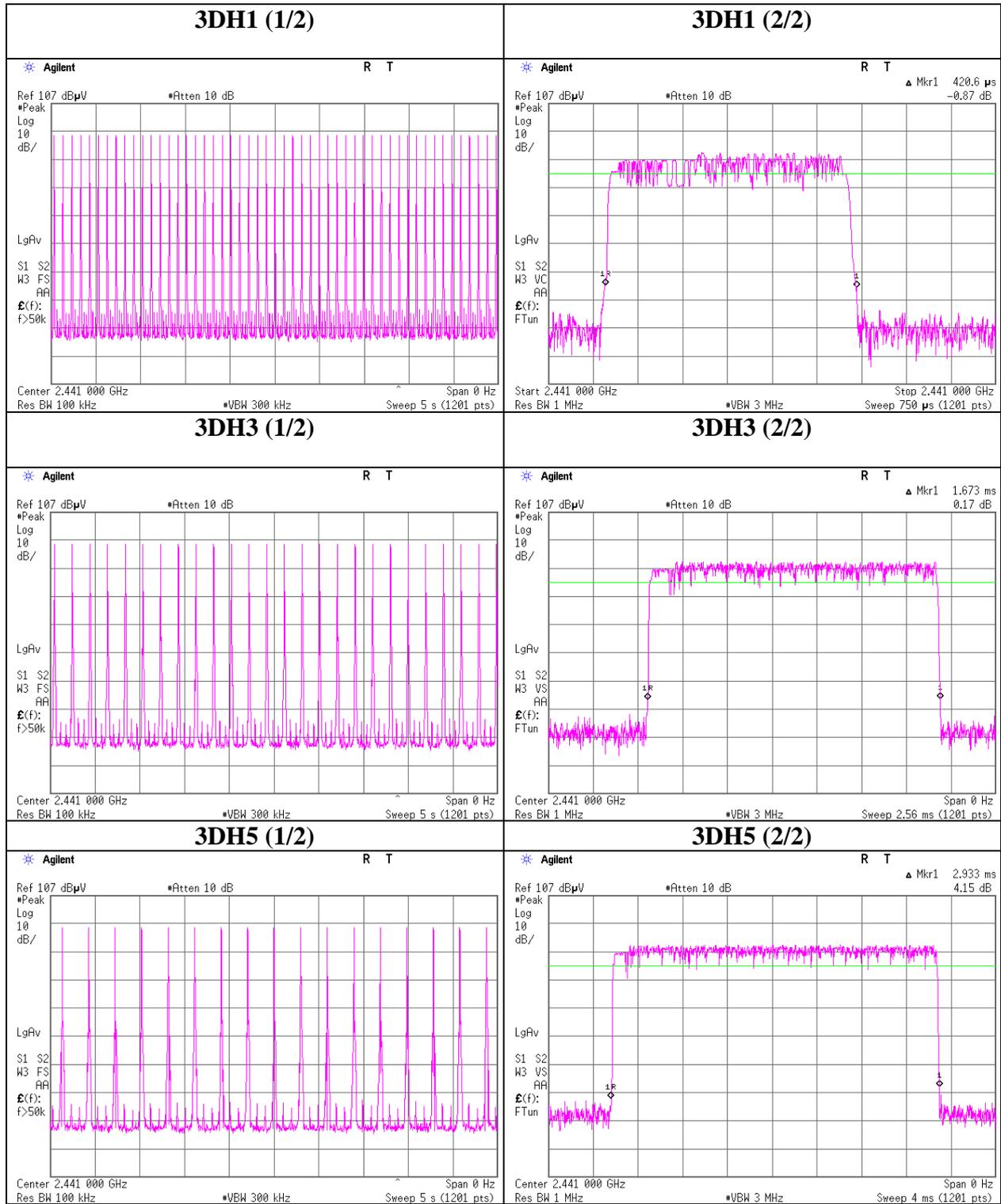
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Dwell time



Dwell time



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Maximum Peak Output Power

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) DH5/2DH5/3DH5/Inquiry

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
DH5	2402.0	-11.30	1.71	10.07	0.48	1.12	20.96	125	20.48
DH5	2441.0	-10.68	1.71	10.07	1.10	1.29	20.96	125	19.86
DH5	2480.0	-11.04	1.71	10.07	0.74	1.19	20.96	125	20.22
2DH5	2402.0	-9.82	1.71	10.07	1.96	1.57	20.96	125	19.00
2DH5	2441.0	-9.48	1.71	10.07	2.30	1.70	20.96	125	18.66
2DH5	2480.0	-9.82	1.71	10.07	1.96	1.57	20.96	125	19.00
3DH5	2402.0	-9.35	1.71	10.07	2.43	1.75	20.96	125	18.53
3DH5	2441.0	-9.00	1.71	10.07	2.78	1.90	20.96	125	18.18
3DH5	2480.0	-9.22	1.71	10.07	2.56	1.80	20.96	125	18.40
Inquiry	2441.0	-10.26	1.71	10.07	1.52	1.42	20.96	125	19.44

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 No.1 measurement room
 Report No. 10519116S
 Date 10/15/2014
 Temperature/ Humidity 24 deg. C / 52% 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	-13.36	1.71	10.07	-1.58	0.70
DH5	2441.0	-12.68	1.71	10.07	-0.90	0.81
DH5	2480.0	-13.08	1.71	10.07	-1.30	0.74
2DH5	2402.0	-13.91	1.71	10.07	-2.13	0.61
2DH5	2441.0	-13.64	1.71	10.07	-1.86	0.65
2DH5	2480.0	-13.93	1.71	10.07	-2.15	0.61
3DH5	2402.0	-13.94	1.71	10.07	-2.16	0.61
3DH5	2441.0	-13.66	1.71	10.07	-1.88	0.65
3DH5	2480.0	-13.95	1.71	10.07	-2.17	0.61

Sample Calculation:

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

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Radiated Emission

Test place No.11 Semi Anechoic Chamber
 Date October 17, 2014 October 18, 2014
 Temperature / Humidity 22 deg.C, 55 %RH 21 deg.C, 50 %RH
 Engineer Akira Sato Akira Sato
 Mode Tx, 2402 MHz
 Tx, Bluetooth, BDR, PRBS9

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	67.371	QP	34.6	11.9	6.9	32.2	21.2	40.0	18.8	400	99	
Hori.	159.645	QP	39.7	13.3	8.2	32.1	29.1	43.5	14.4	359	22	
Hori.	960.000	QP	34.5	23.6	11.8	30.9	39.0	46.0	7.0	100	305	
Hori.	2273.000	PK	43.3	28.0	13.8	38.4	46.7	73.9	27.2	107	38	
Hori.	2390.000	PK	41.7	27.6	14.0	38.5	44.8	73.9	29.1	107	38	
Hori.	2399.582	PK	44.8	27.5	14.0	38.5	47.8	73.9	26.1	107	38	
Hori.	2531.949	PK	45.8	27.5	14.1	38.6	48.8	73.9	25.1	143	64	
Hori.	2557.929	PK	43.8	27.5	14.1	38.6	46.8	73.9	27.1	128	182	
Hori.	4569.244	PK	47.8	30.8	5.9	39.5	45.0	73.9	28.9	100	0	
Hori.	4804.000	PK	45.9	31.3	6.0	39.6	43.6	73.9	30.3	100	0	
Hori.	2273.000	AV	32.1	28.0	13.8	38.4	35.5	53.9	18.4	107	38	
Hori.	2390.000	AV	31.5	27.6	14.0	38.5	34.6	53.9	19.3	107	38	
Hori.	2399.582	AV	32.3	27.5	14.0	38.5	35.3	53.9	18.6	107	38	
Hori.	2531.949	AV	34.9	27.5	14.1	38.6	37.9	53.9	16.0	143	64	
Hori.	2557.929	AV	33.3	27.5	14.1	38.6	36.3	53.9	17.6	128	182	
Hori.	4569.244	AV	35.6	30.8	5.9	39.5	32.8	53.9	21.1	100	0	
Hori.	4804.000	AV	34.8	31.3	6.0	39.6	32.5	53.9	21.4	100	0	
Vert.	30.645	QP	40.0	12.9	6.8	32.2	27.5	40.0	12.5	100	329	
Vert.	40.875	QP	38.3	12.9	6.9	32.2	25.9	40.0	14.1	100	71	
Vert.	67.875	QP	32.5	11.8	6.9	32.2	19.0	40.0	21.0	122	156	
Vert.	157.061	QP	41.6	13.3	8.2	32.1	31.0	43.5	12.5	100	294	
Vert.	960.000	QP	31.2	23.6	11.8	30.9	35.7	46.0	10.3	100	175	
Vert.	2272.052	PK	45.0	28.0	13.8	38.4	48.4	73.9	25.5	144	226	
Vert.	2390.000	PK	42.7	27.6	14.0	38.5	45.8	73.9	28.1	100	226	
Vert.	2399.687	PK	44.7	27.5	14.0	38.5	47.7	73.9	26.2	100	226	
Vert.	2532.007	PK	46.0	27.5	14.1	38.6	49.0	73.9	24.9	118	359	
Vert.	2558.123	PK	45.2	27.5	14.1	38.6	48.2	73.9	25.7	100	0	
Vert.	4570.666	PK	46.9	30.8	5.9	39.5	44.1	73.9	29.8	100	0	
Vert.	4804.000	PK	46.9	31.3	6.0	39.6	44.6	73.9	29.3	100	359	
Vert.	2272.052	AV	32.7	28.0	13.8	38.4	36.1	53.9	17.8	144	226	
Vert.	2390.000	AV	32.5	27.6	14.0	38.5	35.6	53.9	18.3	100	226	
Vert.	2399.687	AV	33.3	27.5	14.0	38.5	36.3	53.9	17.6	100	226	
Vert.	2532.007	AV	35.7	27.5	14.1	38.6	38.7	53.9	15.2	118	359	
Vert.	2558.123	AV	34.0	27.5	14.1	38.6	37.0	53.9	16.9	100	0	
Vert.	4570.666	AV	35.2	30.8	5.9	39.5	32.4	53.9	21.5	100	0	
Vert.	4804.000	AV	34.5	31.3	6.0	39.6	32.2	53.9	21.7	100	359	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)

Distance factor : 13GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	82.7	27.5	14.0	38.5	85.7	-	-	100k/300k
Hori.	2400.000	PK	33.7	27.5	14.0	38.5	36.7	65.7	29.0	100k/300k
Vert.	2402.000	PK	85.6	27.5	14.0	38.5	88.6	-	-	100k/300k
Vert.	2400.000	PK	33.2	27.5	14.0	38.5	36.2	68.6	32.4	100k/300k

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)

Distance factor : 13GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place No.11 Semi Anechoic Chamber
 Date October 17, 2014 October 18, 2014
 Temperature / Humidity 22 deg.C, 55 %RH 21 deg.C, 50 %RH
 Engineer Akira Sato Akira Sato
 Mode Tx, 2441 MHz
 Tx, Bluetooth, BDR, PRBS9

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	67.366	QP	34.7	11.9	6.9	32.2	21.3	40.0	18.7	400	92	
Hori.	159.589	QP	39.0	13.3	8.2	32.1	28.4	43.5	15.1	366	26	
Hori.	960.000	QP	34.5	23.6	11.8	30.9	39.0	46.0	7.0	100	311	
Hori.	2310.000	PK	43.6	28.0	13.8	38.4	47.0	73.9	26.9	100	252	
Hori.	2571.199	PK	45.9	27.5	14.1	38.6	48.9	73.9	25.0	139	164	
Hori.	4882.000	PK	47.0	31.2	6.0	39.6	44.6	73.9	29.3	100	213	
Hori.	2310.000	AV	32.5	28.0	13.8	38.4	35.9	53.9	18.0	100	252	
Hori.	2571.199	AV	33.1	27.5	14.1	38.6	36.1	53.9	17.8	139	164	
Hori.	4882.000	AV	35.7	31.2	6.0	39.6	33.3	53.9	20.6	100	213	
Vert.	30.629	QP	40.3	12.9	6.8	32.2	27.8	40.0	12.2	100	319	
Vert.	41.409	QP	39.0	13.0	7.0	32.2	26.8	40.0	13.2	100	81	
Vert.	67.249	QP	33.0	11.9	6.9	32.2	19.6	40.0	20.4	125	163	
Vert.	157.510	QP	41.7	13.3	8.2	32.1	31.1	43.5	12.4	100	298	
Vert.	960.000	QP	31.1	23.6	11.8	30.9	35.6	46.0	10.4	100	172	
Vert.	2310.977	PK	44.1	27.9	13.8	38.4	47.4	73.9	26.5	100	7	
Vert.	2570.964	PK	46.0	27.5	14.1	38.6	49.0	73.9	24.9	118	331	
Vert.	4882.000	PK	47.2	31.2	6.0	39.6	44.8	73.9	29.1	100	124	
Vert.	2310.977	AV	33.6	27.9	13.8	38.4	36.9	53.9	17.0	100	7	
Vert.	2570.964	AV	35.4	27.5	14.1	38.6	38.4	53.9	15.5	118	331	
Vert.	4882.000	AV	34.8	31.2	6.0	39.6	32.4	53.9	21.5	100	124	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)

Distance factor : 13GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place No.11 Semi Anechoic Chamber
 Date October 17, 2014 October 18, 2014
 Temperature / Humidity 22 deg.C, 55 %RH 21 deg.C, 50 %RH
 Engineer Akira Sato Akira Sato
 Mode Tx, 2480 MHz
 Tx, Bluetooth, BDR, PRBS9

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	67.107	QP	34.7	11.9	6.9	32.2	21.3	40.0	18.7	400	103	
Hori.	160.067	QP	39.0	13.3	8.2	32.1	28.4	43.5	15.1	348	27	
Hori.	960.000	QP	34.7	23.6	11.8	30.9	39.2	46.0	6.8	100	312	
Hori.	2349.785	PK	44.4	27.8	14.0	38.5	47.7	73.9	26.2	149	255	
Hori.	2483.500	PK	44.8	27.5	14.1	38.5	47.9	73.9	26.0	138	22	
Hori.	2484.900	PK	43.8	27.5	14.1	38.5	46.9	73.9	27.0	138	22	
Hori.	2583.985	PK	45.4	27.5	14.1	38.6	48.4	73.9	25.5	174	161	
Hori.	2349.785	AV	33.2	27.8	14.0	38.5	36.5	53.9	17.4	149	255	
Hori.	2483.500	AV	32.0	27.5	14.1	38.5	35.1	53.9	18.8	138	22	
Hori.	2484.900	AV	32.0	27.5	14.1	38.5	35.1	53.9	18.8	138	22	
Hori.	2583.985	AV	34.4	27.5	14.1	38.6	37.4	53.9	16.5	174	161	
Vert.	30.633	QP	39.7	12.9	6.8	32.2	27.2	40.0	12.8	100	330	
Vert.	41.110	QP	38.5	13.0	6.9	32.2	26.2	40.0	13.8	100	52	
Vert.	67.776	QP	32.3	11.8	6.9	32.2	18.8	40.0	21.2	120	147	
Vert.	157.512	QP	42.1	13.3	8.2	32.1	31.5	43.5	12.0	100	302	
Vert.	960.000	QP	31.1	23.6	11.8	30.9	35.6	46.0	10.4	100	172	
Vert.	2349.997	PK	46.0	27.8	14.0	38.5	49.3	73.9	24.6	155	213	
Vert.	2483.500	PK	45.2	27.5	14.1	38.5	48.3	73.9	25.6	127	343	
Vert.	2484.900	PK	43.7	27.5	14.1	38.5	46.8	73.9	27.1	127	343	
Vert.	2584.017	PK	46.0	27.5	14.1	38.6	49.0	73.9	24.9	125	147	
Vert.	4960.000	PK	47.8	31.5	6.1	39.6	45.8	73.9	28.1	100	0	
Vert.	4960.000	PK	47.5	31.5	6.1	39.6	45.5	73.9	28.4	100	114	
Vert.	2349.997	AV	34.3	27.8	14.0	38.5	37.6	53.9	16.3	155	213	
Vert.	2483.500	AV	32.3	27.5	14.1	38.5	35.4	53.9	18.5	127	343	
Vert.	2484.900	AV	32.0	27.5	14.1	38.5	35.1	53.9	18.8	127	343	
Vert.	2584.017	AV	34.7	27.5	14.1	38.6	37.7	53.9	16.2	125	147	
Vert.	4960.000	AV	35.8	31.5	6.1	39.6	33.8	53.9	20.1	100	0	
Vert.	4960.000	AV	36.5	31.5	6.1	39.6	34.5	53.9	19.4	100	114	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)
 Distance factor : 13GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place No.11 Semi Anechoic Chamber
 Date October 17, 2014 October 18, 2014
 Temperature / Humidity 22 deg.C, 55 %RH 21 deg.C, 50 %RH
 Engineer Akira Sato Akira Sato
 Mode Tx, 2402 MHz
 Tx, Bluetooth, EDR, PRBS9

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	67.465	QP	34.4	11.8	6.9	32.2	20.9	40.0	19.1	400	107	
Hori.	160.057	QP	38.7	13.3	8.2	32.1	28.1	43.5	15.4	345	20	
Hori.	960.000	QP	34.8	23.6	11.8	30.9	39.3	46.0	6.7	100	311	
Hori.	2273.000	PK	43.6	28.0	13.8	38.4	47.0	73.9	26.9	100	0	
Hori.	2390.000	PK	45.1	27.6	14.0	38.5	48.2	73.9	25.7	192	14	
Hori.	2505.922	PK	45.2	27.5	14.1	38.5	48.3	73.9	25.6	100	0	
Hori.	4804.000	PK	46.2	31.3	6.0	39.6	43.9	73.9	30.0	100	359	
Hori.	2273.000	AV	32.4	28.0	13.8	38.4	35.8	53.9	18.1	100	0	
Hori.	2390.000	AV	32.1	27.6	14.0	38.5	35.2	53.9	18.7	192	14	
Hori.	2505.922	AV	33.4	27.5	14.1	38.5	36.5	53.9	17.4	100	0	
Hori.	4804.000	AV	34.4	31.3	6.0	39.6	32.1	53.9	21.8	100	359	
Vert.	30.597	QP	40.1	12.9	6.8	32.2	27.6	40.0	12.4	100	331	
Vert.	40.480	QP	39.0	12.9	6.9	32.2	26.6	40.0	13.4	100	59	
Vert.	67.554	QP	32.5	11.8	6.9	32.2	19.0	40.0	21.0	123	151	
Vert.	158.526	QP	41.4	13.3	8.2	32.1	30.8	43.5	12.7	100	298	
Vert.	960.000	QP	31.0	23.6	11.8	30.9	35.5	46.0	10.5	100	175	
Vert.	2272.063	PK	44.5	28.0	13.8	38.4	47.9	73.9	26.0	134	359	
Vert.	2390.000	PK	44.3	27.6	14.0	38.5	47.4	73.9	26.5	137	0	
Vert.	2505.963	PK	44.6	27.5	14.1	38.5	47.7	73.9	26.2	116	51	
Vert.	2611.865	PK	44.9	27.5	14.1	38.6	47.9	73.9	26.0	100	0	
Vert.	4804.000	PK	46.9	31.3	6.0	39.6	44.6	73.9	29.3	100	359	
Vert.	2272.063	AV	32.6	28.0	13.8	38.4	36.0	53.9	17.9	134	359	
Vert.	2390.000	AV	32.0	27.6	14.0	38.5	35.1	53.9	18.8	137	0	
Vert.	2505.963	AV	33.9	27.5	14.1	38.5	37.0	53.9	16.9	116	51	
Vert.	2611.865	AV	32.6	27.5	14.1	38.6	35.6	53.9	18.3	100	0	
Vert.	4804.000	AV	34.5	31.3	6.0	39.6	32.2	53.9	21.7	100	359	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)

Distance factor : 13GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	83.2	27.5	14.0	38.5	86.2	-	-	100k/300k
Hori.	2400.000	PK	32.0	27.5	14.0	38.5	35.0	66.2	31.2	100k/300k
Vert.	2402.000	PK	87.1	27.5	14.0	38.5	90.1	-	-	100k/300k
Vert.	2400.000	PK	35.9	27.5	14.0	38.5	38.9	70.1	31.2	100k/300k

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)

Distance factor : 13GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place No.11 Semi Anechoic Chamber
 Date October 17, 2014 October 18, 2014
 Temperature / Humidity 22 deg.C, 55 %RH 21 deg.C, 50 %RH
 Engineer Akira Sato
 Mode Tx, 2441 MHz
 Tx, Bluetooth, EDR, PRBS9

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	67.101	QP	34.3	11.9	6.9	32.2	20.9	40.0	19.1	400	110	
Hori.	160.036	QP	38.9	13.3	8.2	32.1	28.3	43.5	15.2	356	27	
Hori.	960.000	QP	34.9	23.6	11.8	30.9	39.4	46.0	6.6	109	314	
Hori.	2310.826	PK	44.0	28.0	13.8	38.4	47.4	73.9	26.5	100	4	
Hori.	2570.000	PK	44.8	27.5	14.1	38.6	47.8	73.9	26.1	100	359	
Hori.	4882.000	PK	45.2	31.2	6.0	39.6	42.8	73.9	31.1	100	18	
Hori.	2310.826	AV	32.7	28.0	13.8	38.4	36.1	53.9	17.8	100	4	
Hori.	2570.000	AV	33.0	27.5	14.1	38.6	36.0	53.9	17.9	100	359	
Hori.	4882.000	AV	34.1	31.2	6.0	39.6	31.7	53.9	22.2	100	18	
Vert.	30.631	QP	39.8	12.9	6.8	32.2	27.3	40.0	12.7	100	338	
Vert.	41.483	QP	39.0	13.0	7.0	32.2	26.8	40.0	13.2	100	58	
Vert.	67.455	QP	32.3	11.8	6.9	32.2	18.8	40.0	21.2	115	156	
Vert.	157.459	QP	41.2	13.3	8.2	32.1	30.6	43.5	12.9	100	300	
Vert.	960.000	QP	31.1	23.6	11.8	30.9	35.6	46.0	10.4	100	174	
Vert.	2310.976	PK	44.6	27.9	13.8	38.4	47.9	73.9	26.0	145	359	
Vert.	2570.990	PK	45.2	27.5	14.1	38.6	48.2	73.9	25.7	114	355	
Vert.	4882.000	PK	45.3	31.2	6.0	39.6	42.9	73.9	31.0	100	350	
Vert.	2310.976	AV	32.9	27.9	13.8	38.4	36.2	53.9	17.7	145	359	
Vert.	2570.990	AV	34.1	27.5	14.1	38.6	37.1	53.9	16.8	114	355	
Vert.	4882.000	AV	34.1	31.2	6.0	39.6	31.7	53.9	22.2	100	350	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Ampriifier)

Distance factor : 13GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place No.11 Semi Anechoic Chamber
 Date October 17, 2014 October 18, 2014
 Temperature / Humidity 22 deg.C, 55 %RH 21 deg.C, 50 %RH
 Engineer Akira Sato Akira Sato
 Mode Tx, 2480 MHz
 Tx, Bluetooth, EDR, PRBS9

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	67.036	QP	34.4	11.9	6.9	32.2	21.0	40.0	19.0	400	101	
Hori.	159.519	QP	38.5	13.3	8.2	32.1	27.9	43.5	15.6	361	13	
Hori.	960.000	QP	34.8	23.6	11.8	30.9	39.3	46.0	6.7	108	314	
Hori.	2349.941	PK	44.7	27.8	14.0	38.5	48.0	73.9	25.9	170	122	
Hori.	2483.500	PK	44.4	27.5	14.1	38.5	47.5	73.9	26.4	145	191	
Hori.	2484.150	PK	45.8	27.5	14.1	38.5	48.9	73.9	25.0	145	191	
Hori.	2583.914	PK	45.3	27.5	14.1	38.6	48.3	73.9	25.6	119	165	
Hori.	4960.000	PK	48.2	31.5	6.1	39.6	46.2	73.9	27.7	114	0	
Hori.	2349.941	AV	33.2	27.8	14.0	38.5	36.5	53.9	17.4	170	122	
Hori.	2483.500	AV	32.0	27.5	14.1	38.5	35.1	53.9	18.8	145	191	
Hori.	2484.150	AV	32.0	27.5	14.1	38.5	35.1	53.9	18.8	145	191	
Hori.	2583.914	AV	33.7	27.5	14.1	38.6	36.7	53.9	17.2	119	165	
Hori.	4960.000	AV	35.7	31.5	6.1	39.6	33.7	53.9	20.2	114	0	
Vert.	30.623	QP	40.0	12.9	6.8	32.2	27.5	40.0	12.5	100	313	
Vert.	41.476	QP	39.0	13.0	7.0	32.2	26.8	40.0	13.2	100	54	
Vert.	67.458	QP	32.8	11.8	6.9	32.2	19.3	40.0	20.7	121	156	
Vert.	156.955	QP	41.2	13.3	8.2	32.1	30.6	43.5	12.9	100	292	
Vert.	960.000	QP	31.1	23.6	11.8	30.9	35.6	46.0	10.4	100	171	
Vert.	2349.998	PK	44.3	27.8	14.0	38.5	47.6	73.9	26.3	110	195	
Vert.	2483.500	PK	44.3	27.5	14.1	38.5	47.4	73.9	26.5	127	357	
Vert.	2484.150	PK	44.7	27.5	14.1	38.5	47.8	73.9	26.1	127	357	
Vert.	2583.962	PK	45.0	27.5	14.1	38.6	48.0	73.9	25.9	110	18	
Vert.	4960.000	PK	47.2	31.5	6.1	39.6	45.2	73.9	28.7	100	294	
Vert.	2349.998	AV	33.6	27.8	14.0	38.5	36.9	53.9	17.0	110	195	
Vert.	2483.500	AV	32.1	27.5	14.1	38.5	35.2	53.9	18.7	127	357	
Vert.	2484.150	AV	32.0	27.5	14.1	38.5	35.1	53.9	18.8	127	357	
Vert.	2583.962	AV	33.9	27.5	14.1	38.6	36.9	53.9	17.0	110	18	
Vert.	4960.000	AV	35.9	31.5	6.1	39.6	33.9	53.9	20.0	100	294	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)
 Distance factor : 13GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

UL Kashima, Inc.

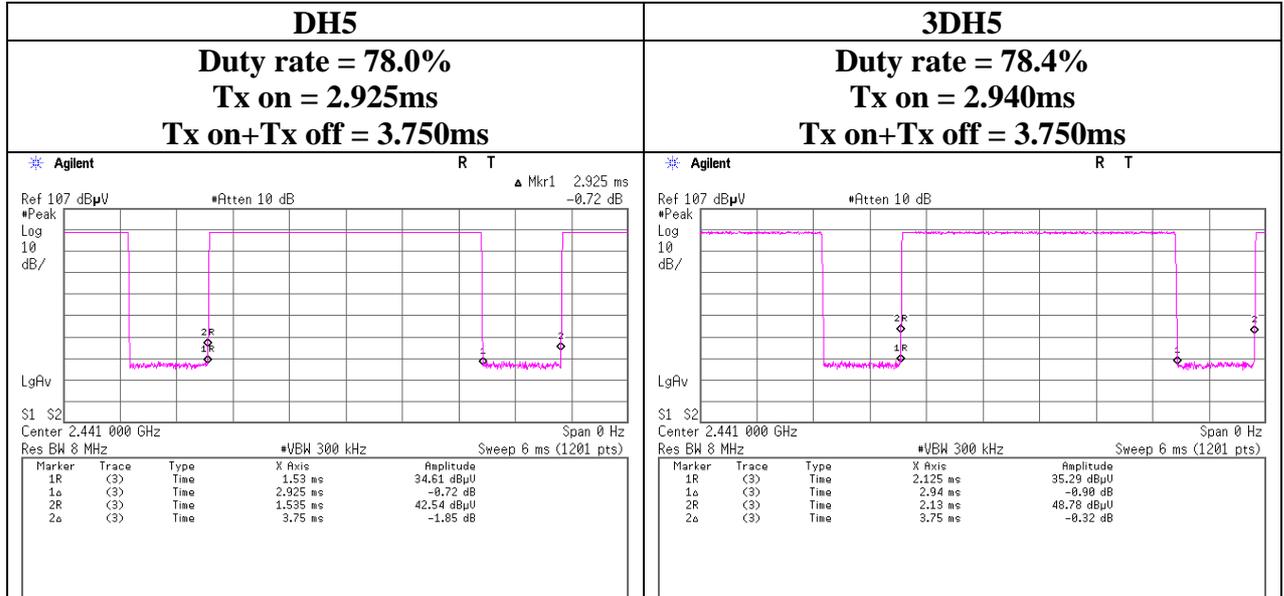
1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan

Telephone : +81-478-82-0963

Facsimile : +81-478-82-3373

Burst Rate Confirmation

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe
Mode	Tx (Hopping off) DH5/3DH5



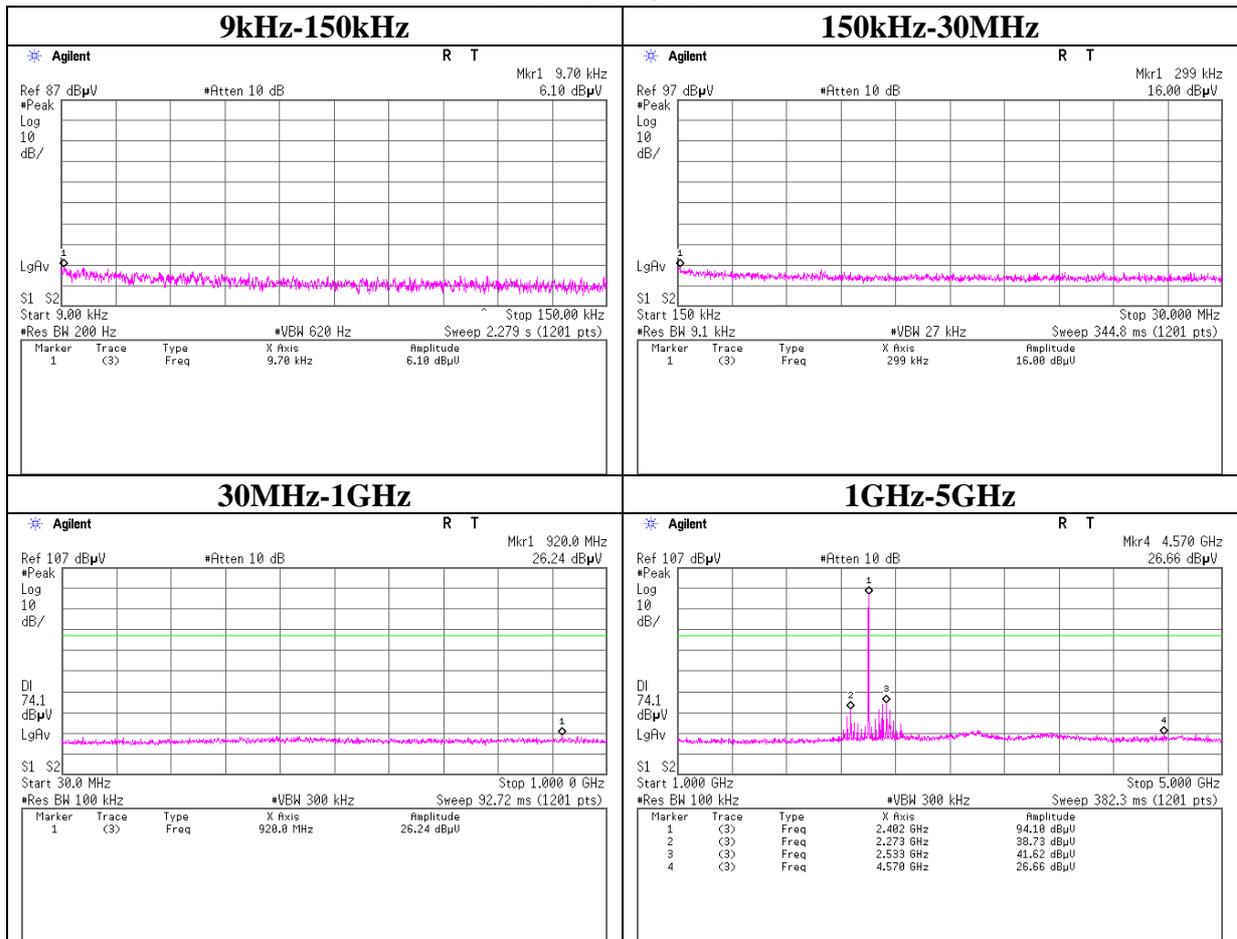
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 Telephone: +81-478-82-0963
 Facsimile: +81-478-82-3373

Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx DH5 2402MHz



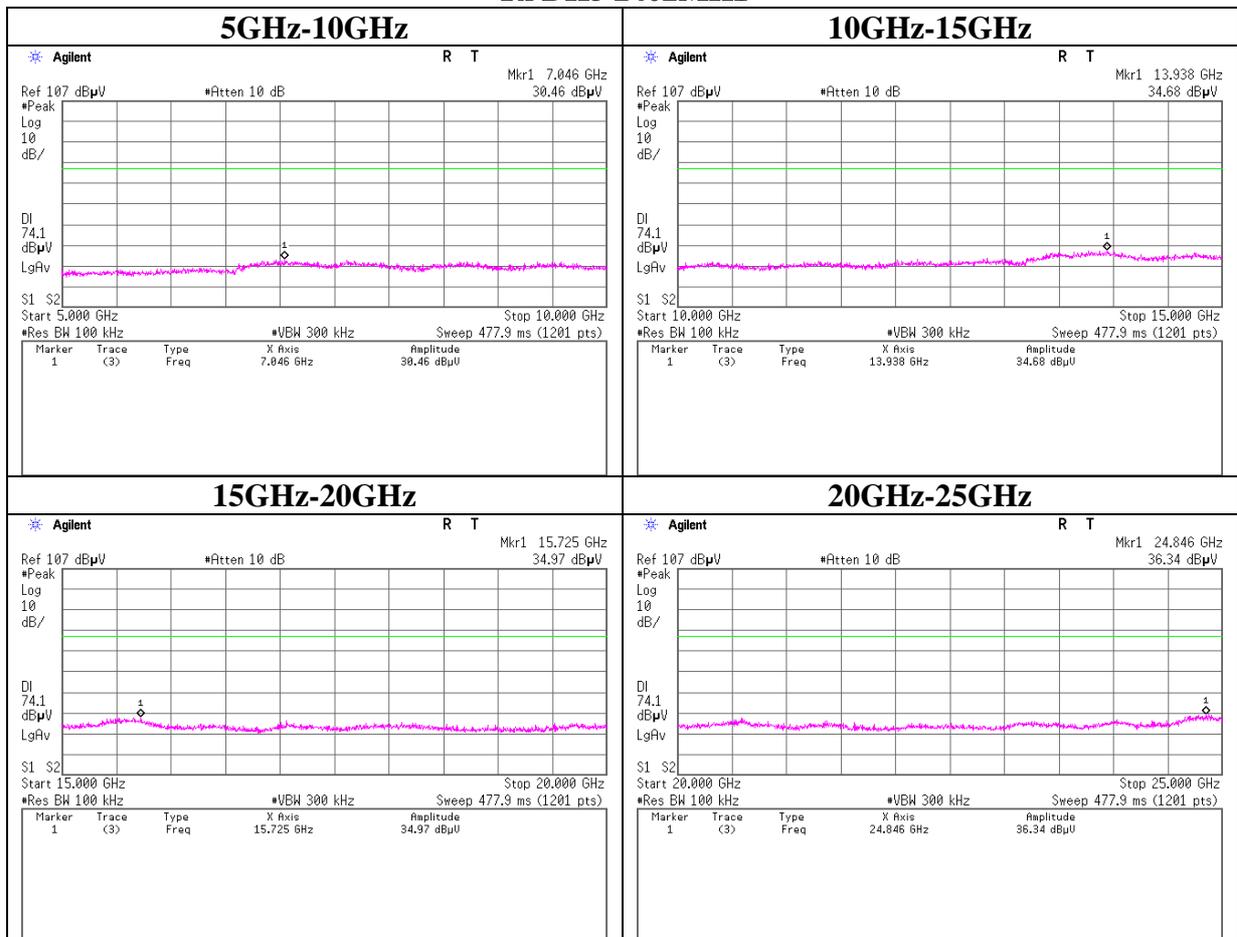
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Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx DH5 2402MHz



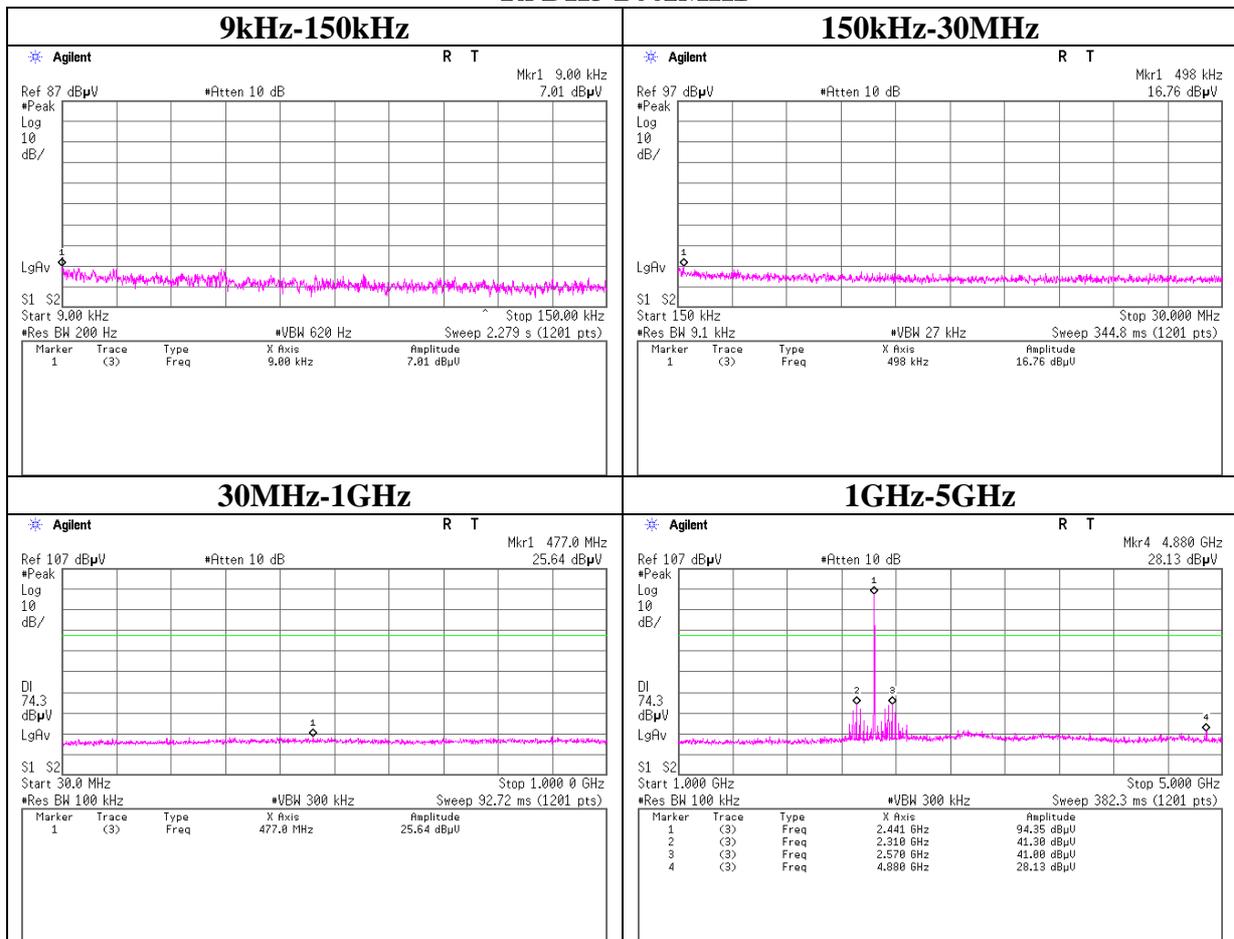
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Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx DH5 2441MHz



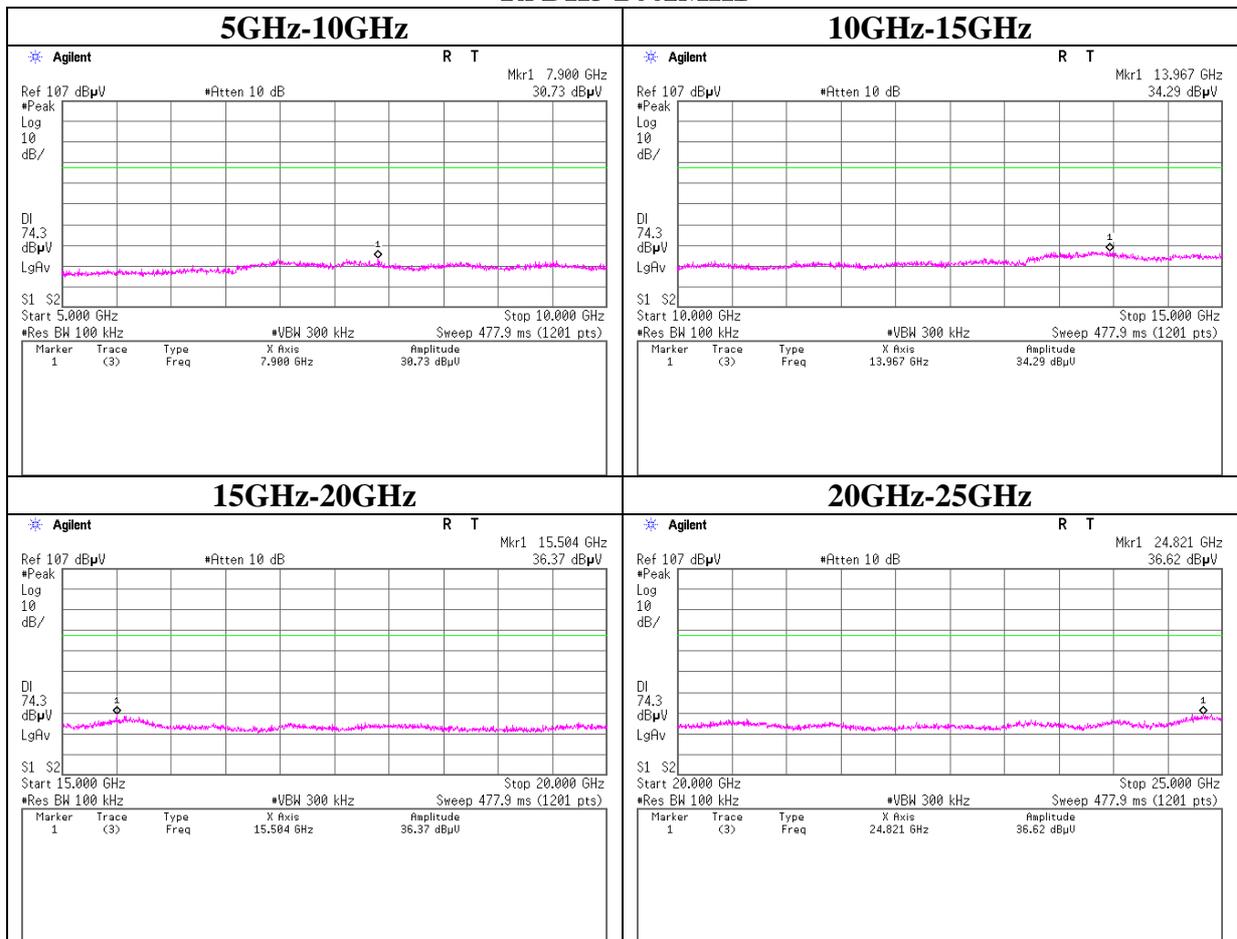
UL Kashima, Inc.

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 Telephone: +81-478-82-0963
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Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx DH5 2441MHz



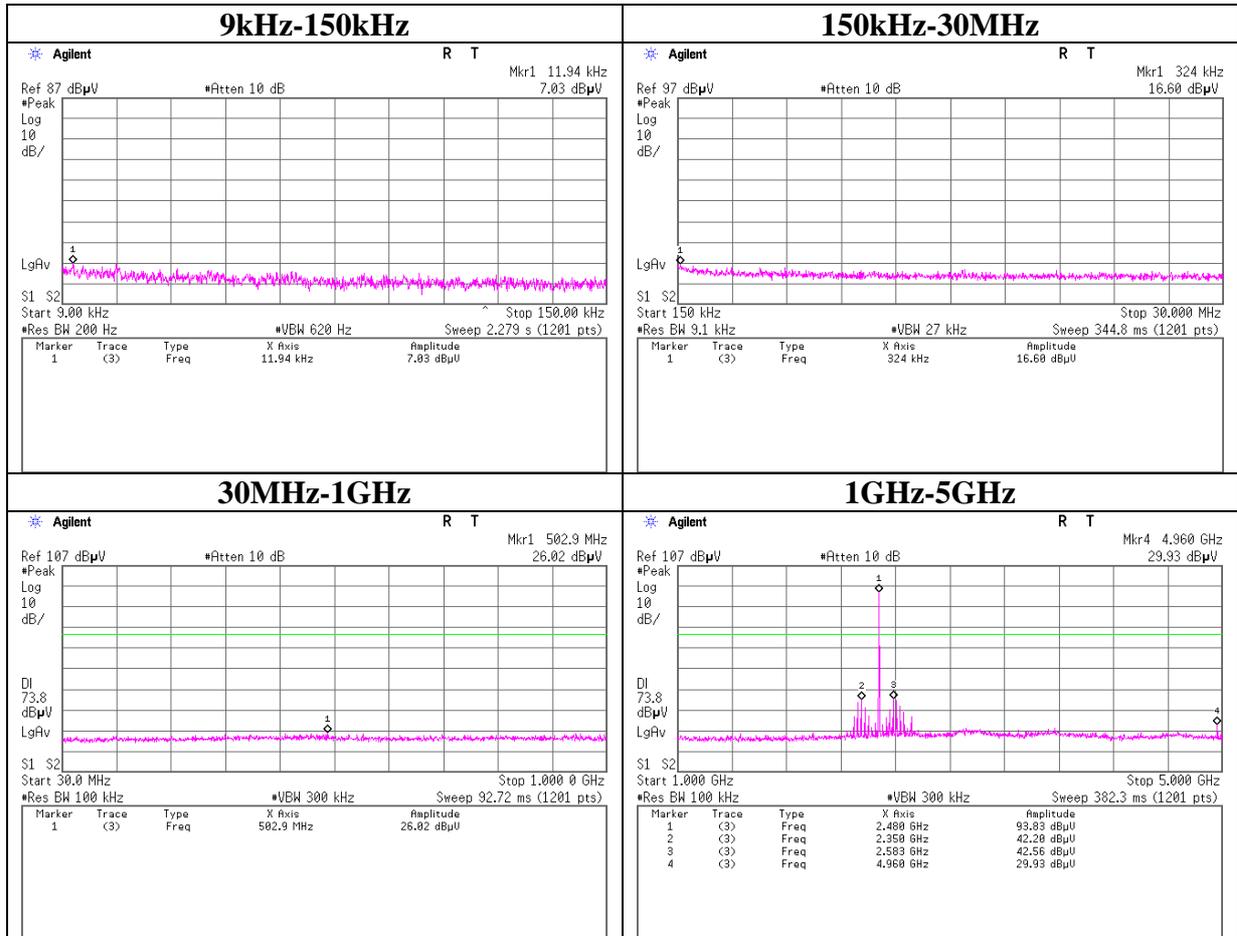
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 Facsimile: +81-478-82-3373

Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx DH5 2480MHz



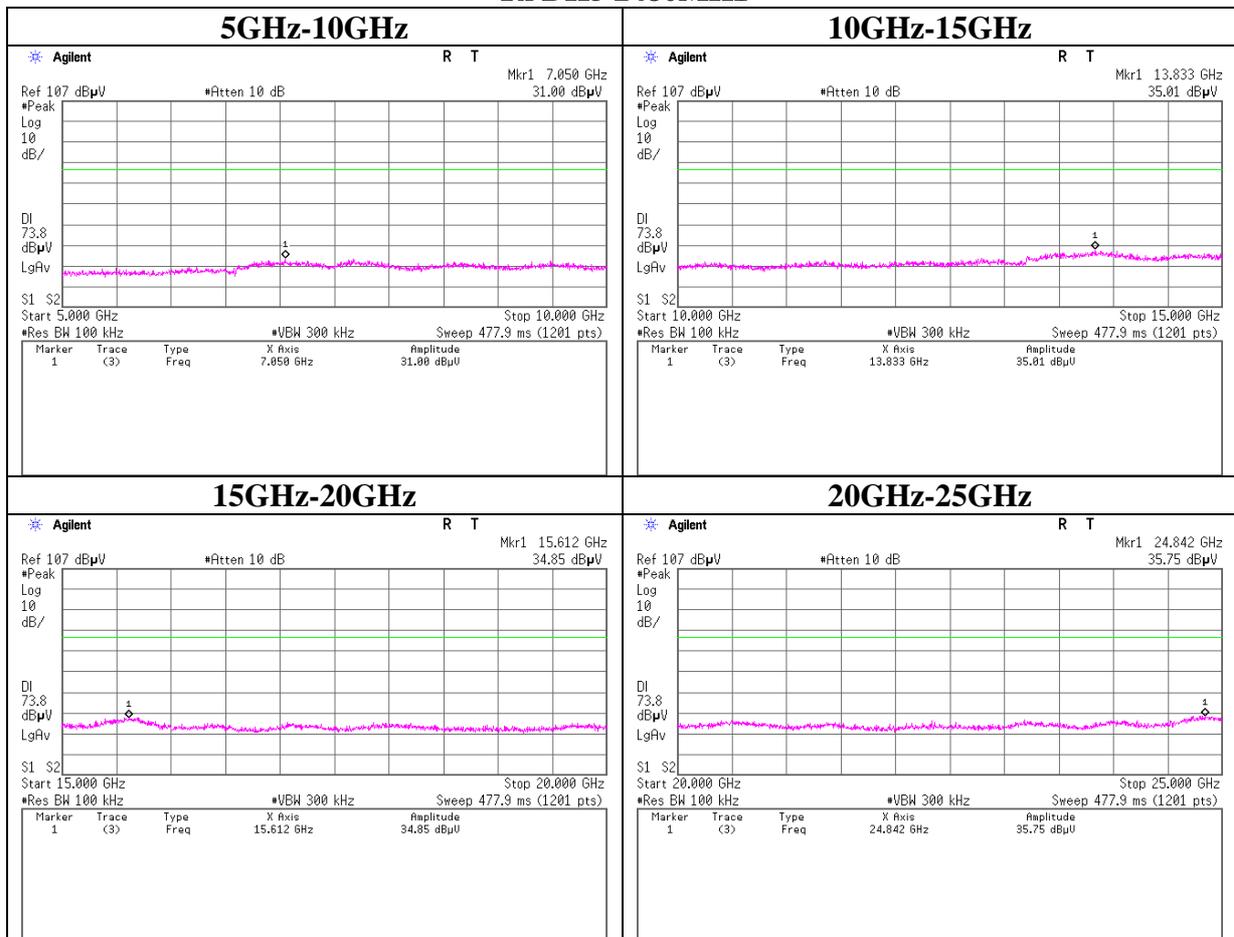
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 Telephone: +81-478-82-0963
 Facsimile: +81-478-82-3373

Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx DH5 2480MHz



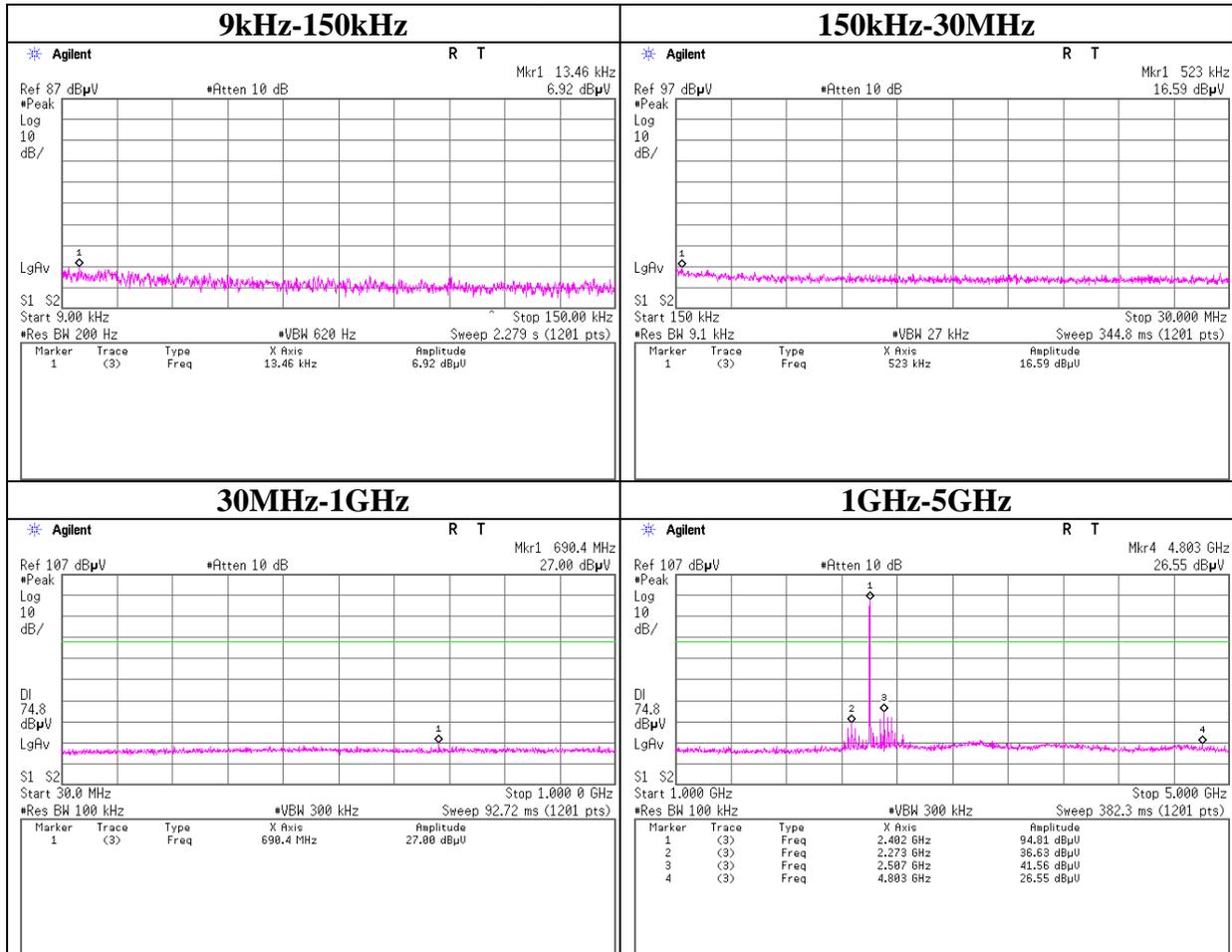
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Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx 3DH5 2402MHz



UL Kashima, Inc.

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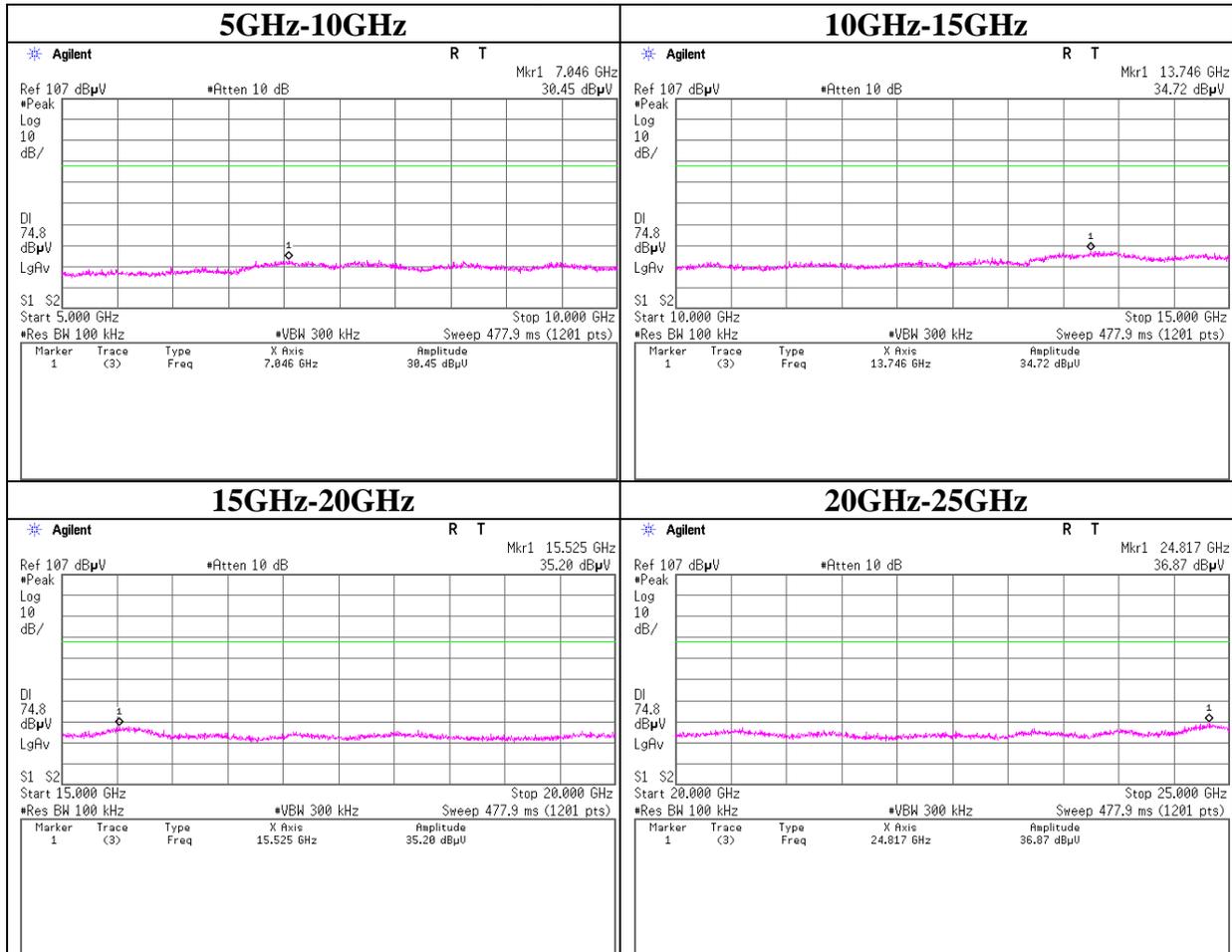
Telephone: +81-478-82-0963

Facsimile: +81-478-82-3373

Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx 3DH5 2402MHz



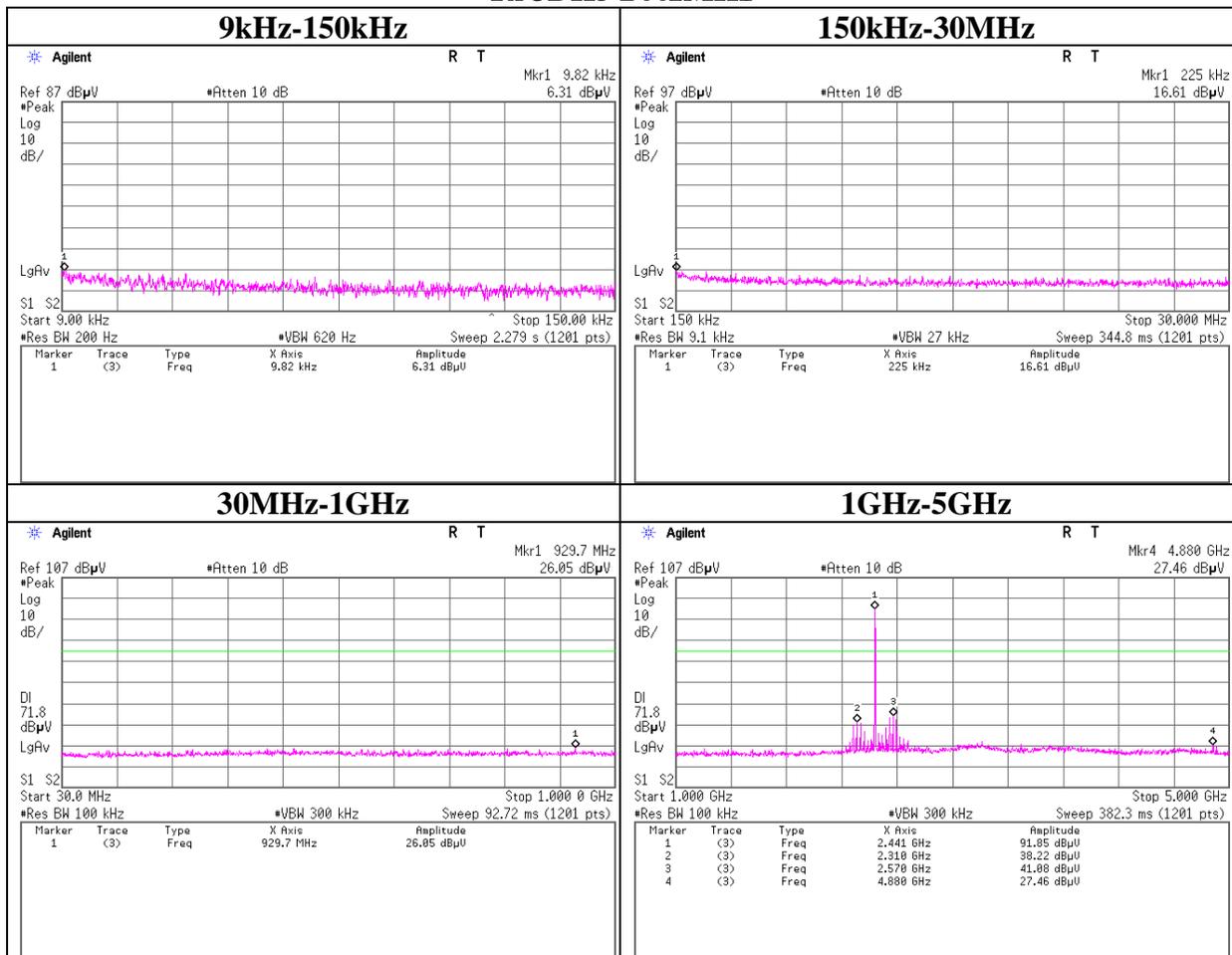
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Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx 3DH5 2441MHz



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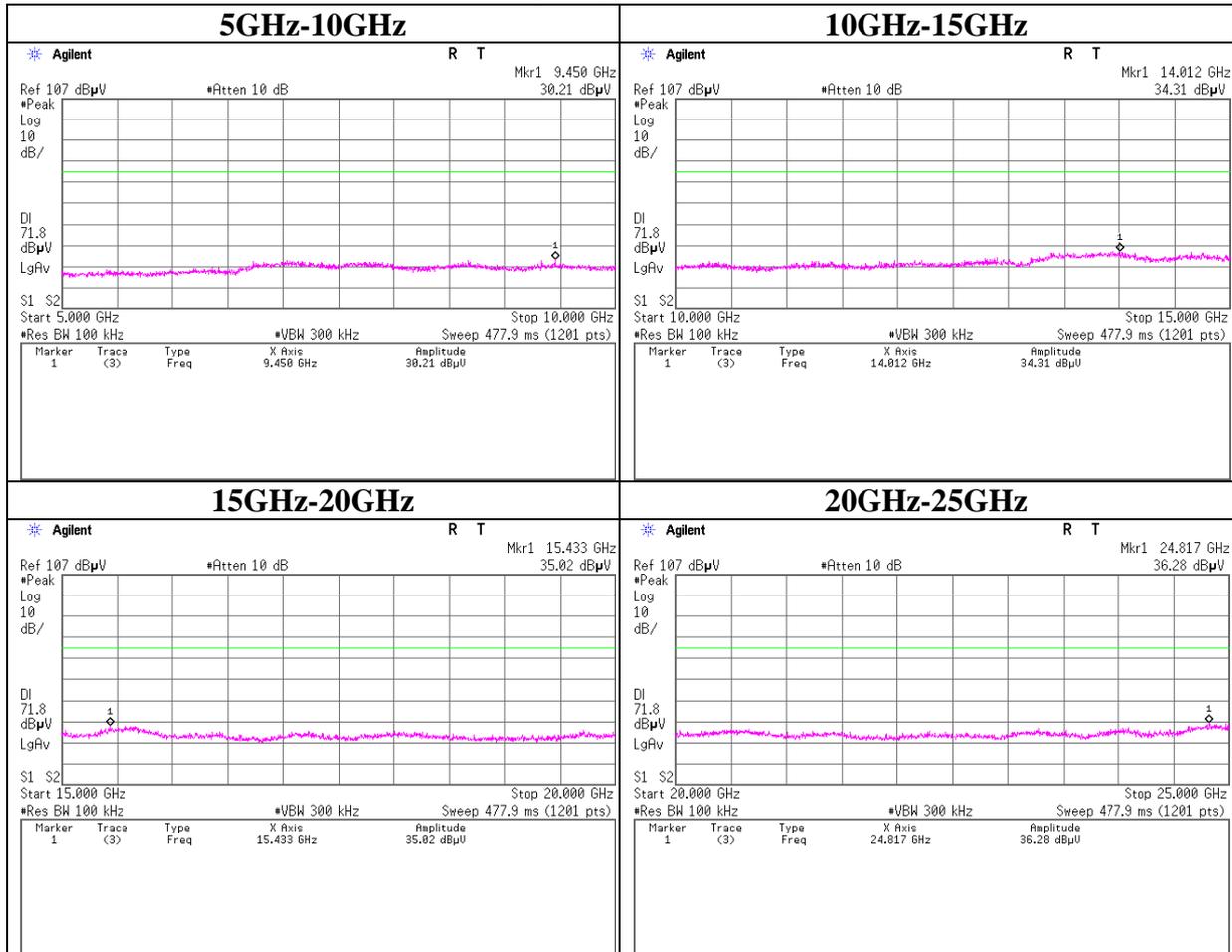
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Facsimile: +81-478-82-3373

Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx 3DH5 2441MHz



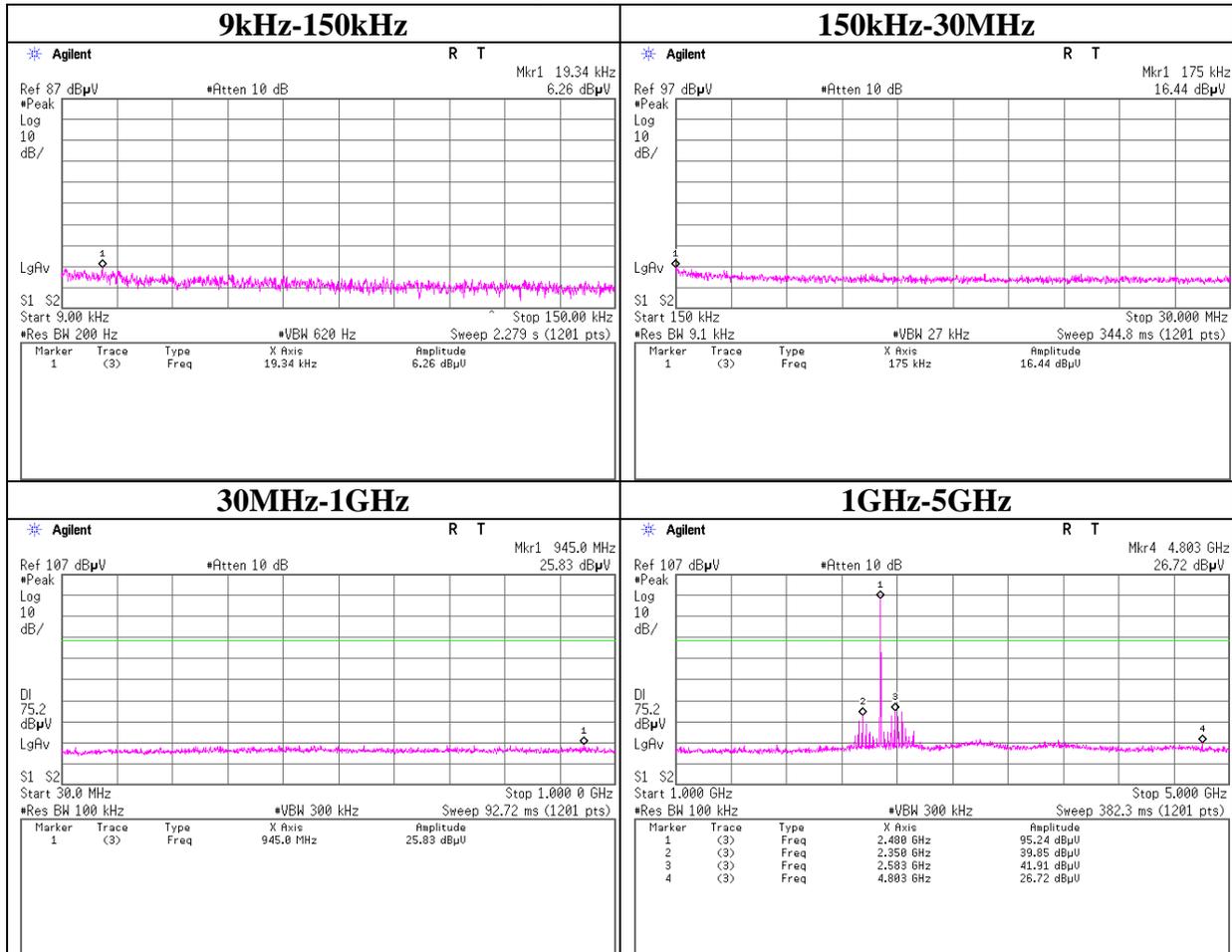
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 Telephone: +81-478-82-0963
 Facsimile: +81-478-82-3373

Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx 3DH5 2480MHz



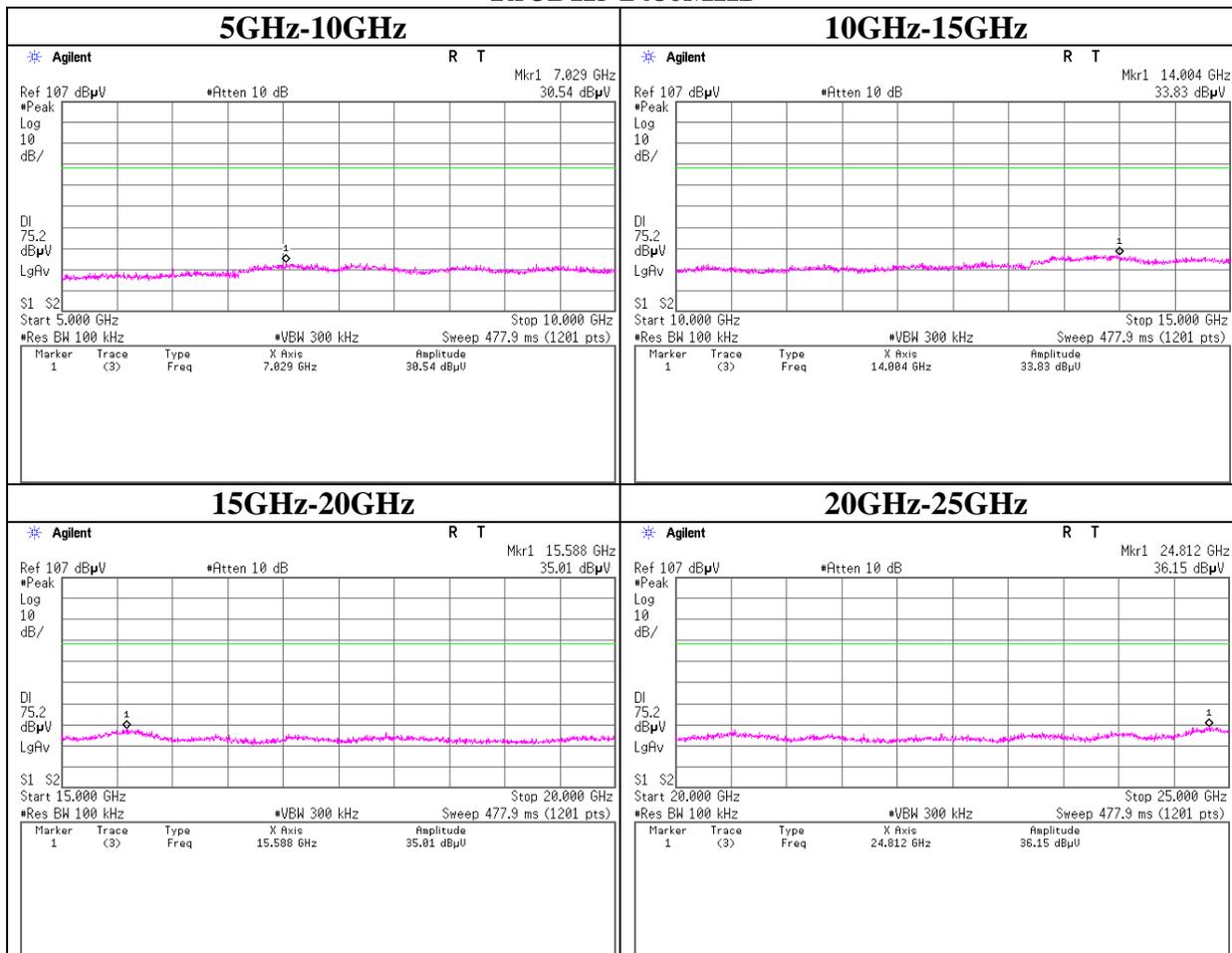
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 Facsimile: +81-478-82-3373

Conducted Spurious Emission

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx 3DH5 2480MHz



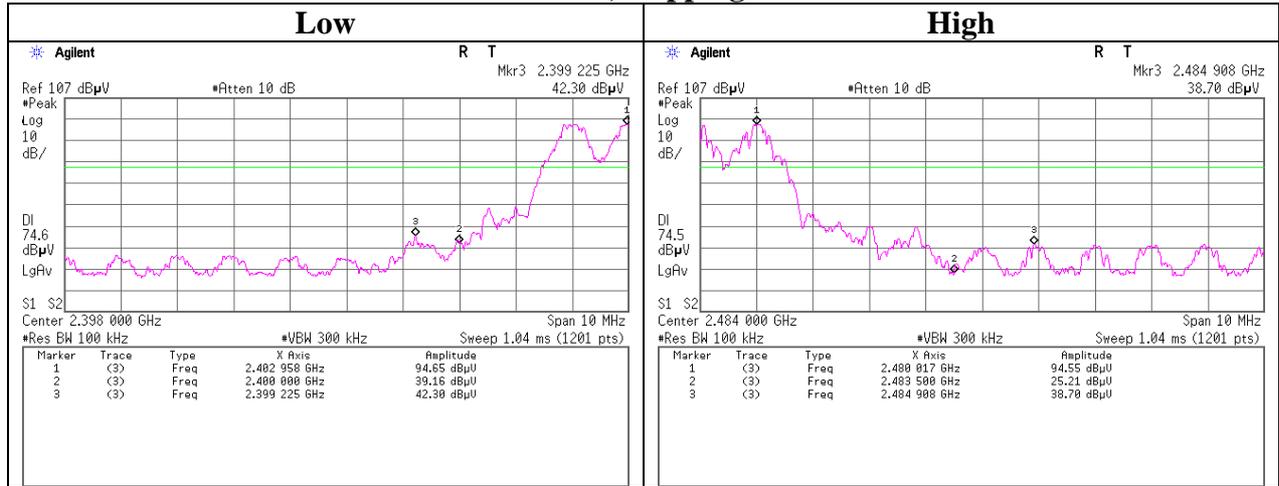
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 Telephone: +81-478-82-0963
 Facsimile: +81-478-82-3373

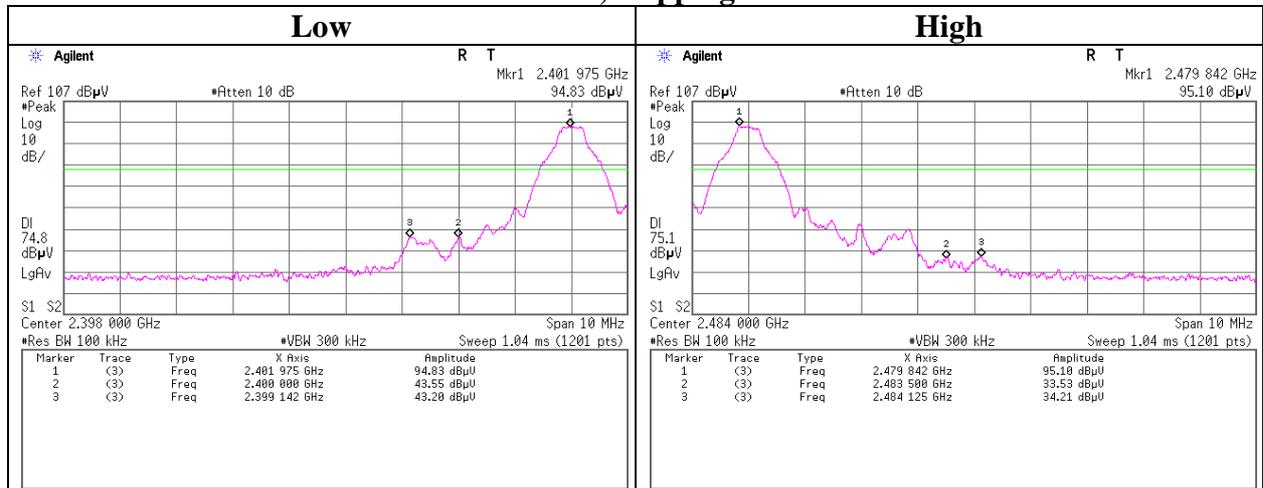
Conducted Emission Band Edge compliance

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx DH5, Hopping on



Tx DH5, Hopping off



UL Kashima, Inc.

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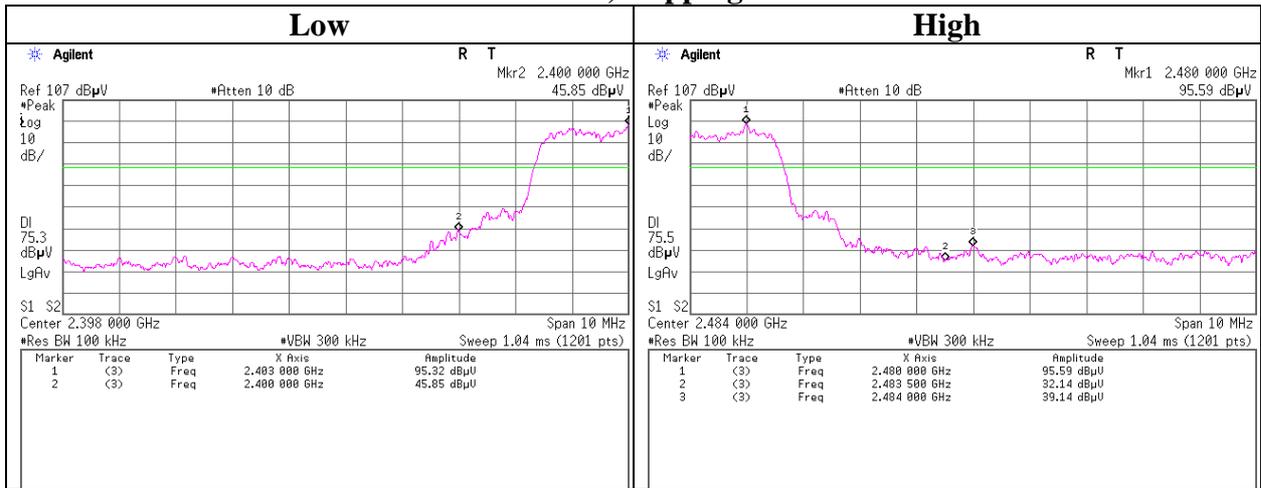
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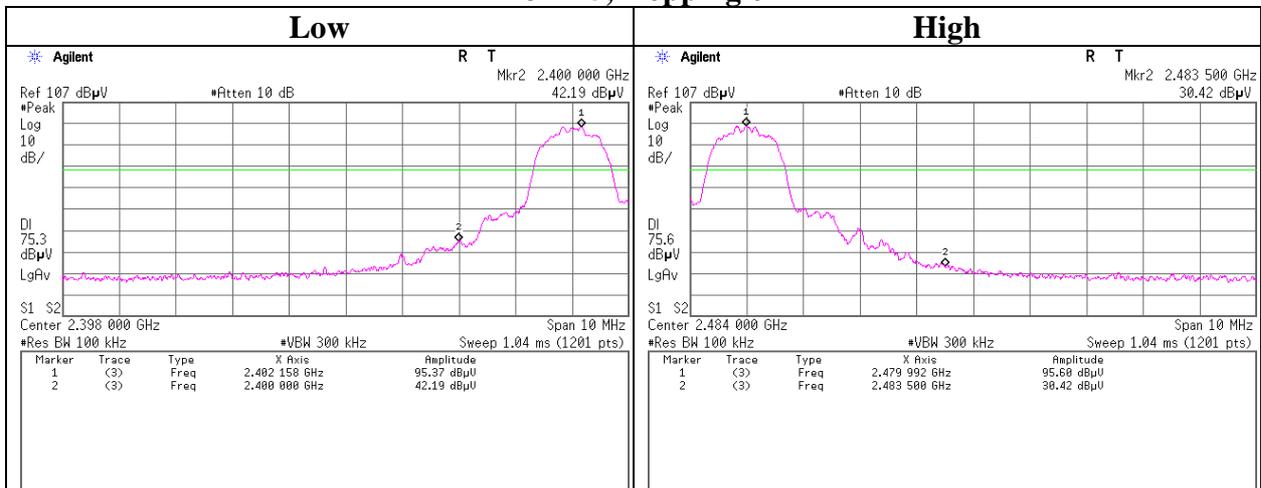
Conducted Emission Band Edge compliance

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe

Tx 3DH5, Hopping on



Tx 3DH5, Hopping off



UL Kashima, Inc.

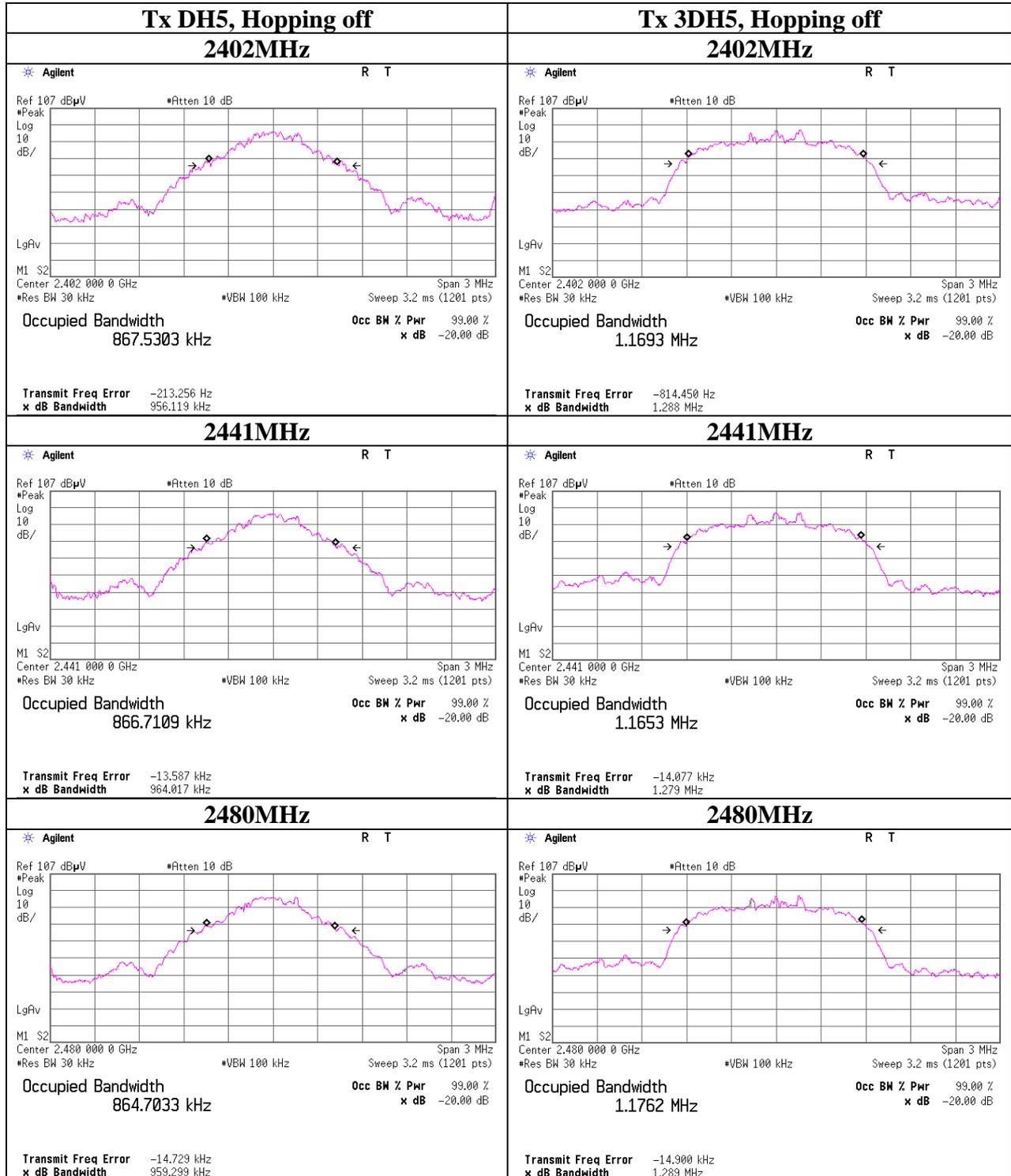
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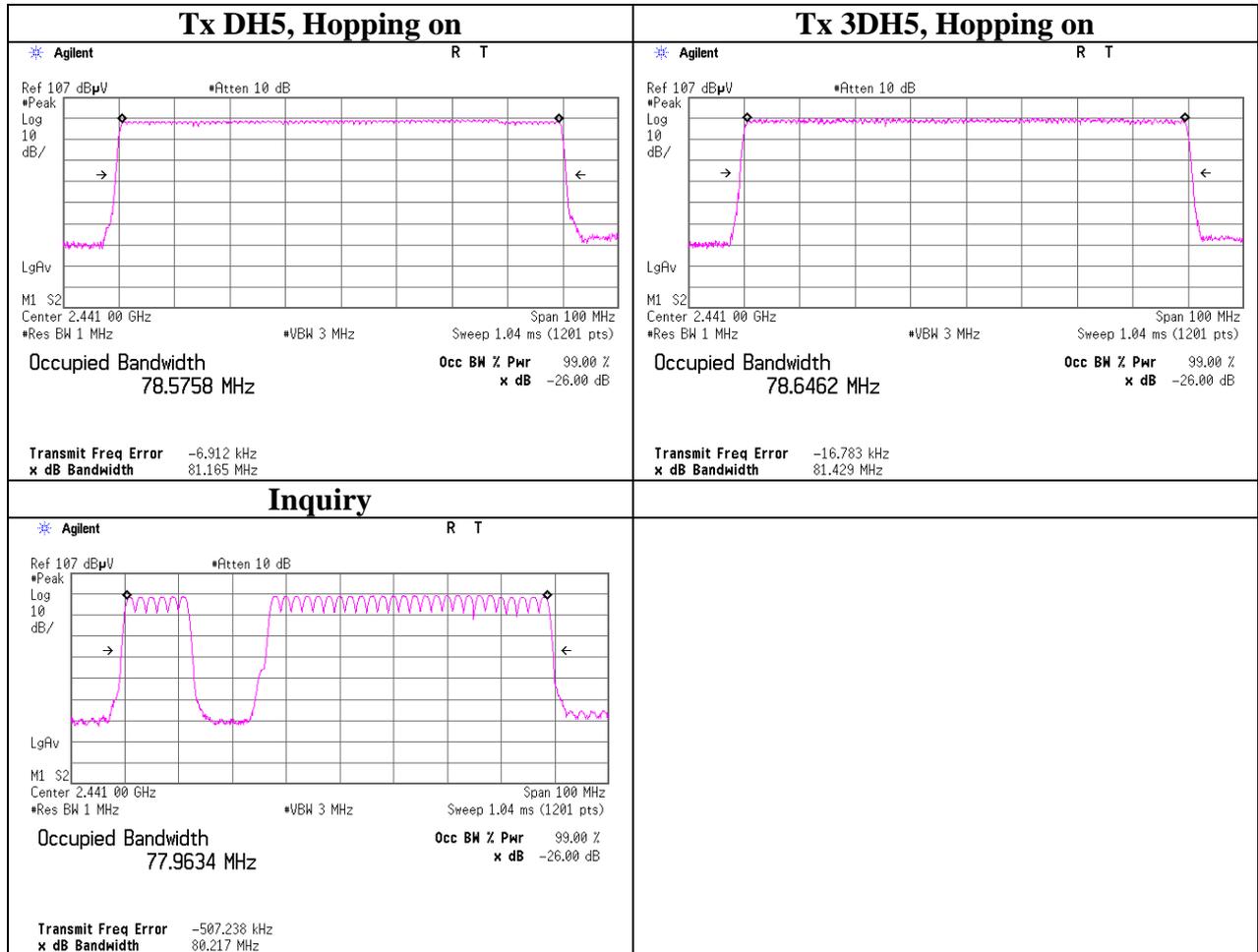
99% Occupied Bandwidth

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe



99% Occupied Bandwidth

Test place	No.1 measurement room
Report No.	10519116S
Date	10/15/2014
Temperature/ Humidity	24 deg. C / 52% RH
Engineer	Shinya Watanabe



UL Kashima, Inc.

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APPENDIX 2: Test instruments**No.11 Measurement Room (Antenna Terminal Conducted test)**

Instrument	Manufacturer	Model	Internal Code	Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4448A	SPR25	2014/05/19	2015/05/31
Power Meter	Agilent	8990B	PWM18	2014/05/14	2015/05/31
Power Sensor	Agilent	N1923A	PWS33	2014/06/26	2015/06/30
Attenuator	Weinschel	54A-10	FAT73	2014/05/23	2015/05/31
Coaxial Cable	Junkosha	MWX241	WLC06-1m	2014/05/23	2015/05/31
Temperature and Humidity Chamber	Espec	PL-1J	TMPC04	2014/06/03	2015/06/30
Thermo-Hygrometer	AND	AD-5681	COS-12	2014/07/01	2015/07/31

No.11 Test site (Radiated Emission)

Instrument	Manufacturer	Model	Internal Code	Cal. Date	Due Date
Test Receiver	Rohde & Schwarz	ESCI	RCV09	2014/09/03	2015/09/30
Logbicon Antenna	Schwarzbeck	VULB 9168	LGBC06	2014/04/25	2015/04/30
Horn Antenna	Schwarzbeck	BBHA9120D	MWH13	2014/07/12	2015/07/31
Horn Antenna / Pre-Amplifier	TOYO	HAP18-26W	DRH07	2014/06/26	2014/06/30
Spectrum Analyzer	Hewlett Packard	8567A	SPR22	2013/10/07	2014/10/31
Pre-Amplifier	Sonoma Instrument	310N	PRA16	2014/05/23	2015/05/31
Pre-Amplifier	Toyo	TPA0118-36	PRA18	2014/07/14	2015/07/31
Coaxial Cable	Fujikura	5D-2W	11R10m	2014/05/23	2015/05/31
Micro Wave Cable	Junkosha	MWX241	WLC05-1m	2014/05/23	2015/05/31
Micro Wave Cable	Junkosha	MWX221	WLC07-8m	2014/05/23	2015/05/31
Micro Wave Cable	Junkosha	MWX221	WLC09-5.5m	2014/07/17	2015/07/31
Attenuator	Weinschel	54A-10	FAT72	2014/05/23	2015/05/31
Highpass Filter	Micro-Tronics	HPM50111-02	HPF03	2014/05/23	2015/05/31
Test Software	UL Kashima	EK/RE	Ver.9.2.2.2	N/A	

UL Kashima, Inc.

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