



RADIO TEST REPORT

Test Report No. : 10709614H-A-R1

Applicant : FUJITSU TEN LIMITED
Type of Equipment : Car Audio
Model No. : FT0093A
FCC ID : BABFT0093A
Test regulation : FCC Part 15 Subpart C: 2015
Test Result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 10709614H-A. 10709614H-A is replaced with this report.

Date of test: March 31 to April 2, 2015

Representative test engineer:

Kazuya Yoshioka
Engineer
Consumer Technology Division

Approved by:

Takahiro Hatakeda
Leader
Consumer Technology Division



NVLAP LAB CODE: 200572-0

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13-EM-F0429

REVISION HISTORY

Original Test Report No.: 10709614H-A

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CONTENTS	PAGE
SECTION 1: Customer information.....	4
SECTION 2: Equipment under test (E.U.T.).....	4
SECTION 3: Test specification, procedures & results.....	5
SECTION 4: Operation of E.U.T. during testing.....	8
SECTION 5: Radiated Spurious Emission	10
SECTION 6: Antenna Terminal Conducted Tests.....	11
APPENDIX 1: Test data	12
20dB Bandwidth and Carrier Frequency Separation.....	12
Number of Hopping Frequency	15
Dwell time.....	17
Maximum Peak Output Power	20
Radiated Spurious Emission	22
Duty Cycle	29
Conducted Spurious Emission	30
Conducted Emission Band Edge compliance	42
99%Occupied Bandwidth	44
APPENDIX 2: Test instruments	46
APPENDIX 3: Photographs of test setup	47
Radiated Spurious Emission	47

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SECTION 1: Customer information

Company Name : FUJITSU TEN LIMITED
Address : 2-28, Gosho-dori 1-Chome, Hyogo-ku, Kobe, 652-8510 JAPAN
Telephone Number : +81-78-682-2159
Facsimile Number : +81-78-671-7160
Contact Person : YO SHOTATSU

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

2.1 Identification of E.U.T.

Type of Equipment : Car Audio
Model No. : FT0093A
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC 12.0 V
Receipt Date of Sample : March 27, 2015
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

General Specification

Clock frequency(ies) in the system : 26MHz

Radio Specification

[Bluetooth (Ver. 2.1 with EDR function)]

Radio Type : Transceiver
Frequency of Operation : 2402 MHz to 2480 MHz
Modulation : FHSS
Power Supply (radio part input) : DC 3.3 V
Antenna type : Inverted - F PCB antenna
Antenna Gain : -7.8 dBi

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C: 2015, final revised on June 12, 2015 and effective July 13, 2015

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

* The revision on June 12, 2015 does not affect the test specification applied to the EUT.

* The EUT complies with FCC Part 15 Subpart B: 2015, final revised on January 21, 2015.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.4-2009 7. AC powerline conducted emission measurements IC: RSS-Gen 8.8	FCC: Section 15.207 IC: RSS-Gen 8.8	-	N/A *1)	-
Carrier Frequency Separation	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1) IC: RSS-247 5.1 (2)	See data.	Complied	Conducted
20dB Bandwidth	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1) IC: RSS-247 5.1 (1)		Complied	Conducted
Number of Hopping Frequency	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1)(iii) IC: RSS-247 5.1 (4)		Complied	Conducted
Dwell time	FCC: FCC Public Notice DA 00-705 IC: -	FCC: Section15.247(a)(1)(iii) IC: RSS-247 5.1 (4)		Complied	Conducted
Maximum Peak Output Power	FCC: FCC Public Notice DA 00-705 IC: RSS-Gen 6.12	FCC: Section15.247(a)(b)(1) IC: RSS-247 5.4 (2)		Complied	Conducted
Spurious Emission & Band Edge Compliance	FCC: FCC Public Notice DA 00-705 IC: RSS-Gen 6.13	FCC: Section15.247(d) IC: RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10	2.3 dB 4882.00 MHz, AV. Vertical	Complied	Conducted/ Radiated

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

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

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

FCC Part 15.31 (e)

The EUT provides stable voltage (DC3.3 V) 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 Part 15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Bandwidth	IC: RSS-Gen 6.6	IC: -	N/A	-	Conducted

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

3.4 Uncertainty

EMI

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

Test room (semi-anechoic chamber)	Conducted emission (+dB)
	150 kHz-30 MHz
No.1	3.5 dB
No.2	3.5 dB
No.3	3.4 dB
No.4	3.5 dB

Test room (semi-anechoic chamber)	Radiated emission						
	(3m*)(+dB)				(1m*)(+dB)		(0.5m*)(+dB)
	9 kHz -30 MHz	30 MHz -300 MHz	300 MHz -1 GHz	1 GHz -10 GHz	10 GHz -18 GHz	18 GHz -26.5 GHz	26.5 GHz -40 GHz
No.1	4.3 dB	5.5 dB	6.3 dB	5.5 dB	5.8 dB	5.8 dB	4.3 dB
No.2	4.2 dB	5.4 dB	6.3 dB	5.4 dB	5.7 dB	5.9 dB	5.6 dB
No.3	4.4 dB	5.4 dB	6.4 dB	5.2 dB	5.5 dB	5.8 dB	5.5 dB
No.4	4.7 dB	5.6 dB	6.4 dB	5.3 dB	5.7 dB	5.9 dB	5.5 dB

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

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

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

Radiated emission test(3m)

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

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3.5 Test Location

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

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

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

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

4.1 Operating Mode(s)

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

Details of Operating Mode(s)

Test Item	Mode	Tested frequency
20dB Bandwidth, Spurious Emission (Conducted/Radiated)	Tx (Hopping off) DH5, 3DH5	2402 MHz 2441 MHz 2480 MHz
Carrier Frequency Separation	Tx (Hopping on) DH5, 3DH5	2402 MHz 2441 MHz 2480 MHz
Number of Hopping Frequency	Tx (Hopping on) DH5, 3DH5	-
Dwell time	Tx (Hopping on), -DH1, DH3, DH5 -3DH1, 3DH3, 3DH5	-
Maximum Peak Output Power	Tx (Hopping off) DH5, 2DH5, 3DH5	2402 MHz 2441 MHz 2480 MHz
Band Edge Compliance (Conducted)	Tx DH5, 3DH5 -Hopping on -Hopping off	2402 MHz 2480 MHz
99% Occupied Bandwidth	Tx DH5, 3DH5 -Hopping on -Hopping off	2402 MHz 2441 MHz 2480 MHz
*The EUT does not have Inquiry mode. *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.=255, Int.=50 EDR: Ext.=255, Int.=50 - Software: CSR BlueSuite BlueTest Version 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.		

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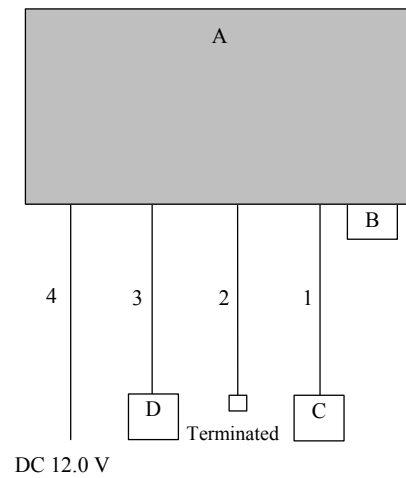
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4.2 Configuration and peripherals



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Car Audio	FT0093A	001 *1) 002 *2)	FUJITSU TEN	EUT
B	USB Memory	PD07-WH4GB	C090000000014303	KING MAX	-
C	iPod	A1367	C3RJ4SLADT75	Apple	-
D	Terminal resistance (4Ω x 4)	-	-	-	-

*1) Used for Radiated Emission test

*2) Used for Antenna Terminal test

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Audio Cable	1.5	Unshielded	Unshielded	-
2	BNC Cable	5.0	Shielded	Shielded	-
3	Speaker Cable	1.1	Unshielded	Unshielded	-
4	DC Cable	3.5	Unshielded	Unshielded	-

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SECTION 5: Radiated Spurious Emission

Test Procedure

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

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

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

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

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

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

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

Test Antennas are used as below;

Frequency	30MHz to 300MHz	300MHz to 1GHz	Above 1GHz
Antenna Type	Biconical	Logperiodic	Horn

In any 100kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20dBc was applied to the frequency over the limit of FCC 15.209 / Table 4 of RSS-Gen 8.9 (IC) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (IC).

Frequency	Below 1GHz	Above 1GHz		20dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV	PK
IF Bandwidth	BW 120 kHz	RBW: 1 MHz VBW: 3 MHz	RBW: 1 MHz VBW: 10 Hz *1)	RBW: 100 kHz VBW: 300 kHz
Test Distance	3 m	3 m (below 10 GHz), 1 m*2) (above 10 GHz)		3 m (below 10 GHz), 1 m*2) (above 10 GHz)

*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	: 30 MHz to 26.5 GHz
Test data	: APPENDIX
Test result	: Pass

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SECTION 6: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
20dB Bandwidth	3 MHz	30 kHz	100 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth *1)	Enough width to display emission skirts	1 to 5% of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak Average *3)	-	Power Meter (Sensor: 50MHz BW)
Carrier Frequency Separation	3MHz	30 kHz	100 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Number of Hopping Frequency	30MHz	300 kHz	1 MHz	Auto	Peak	Max Hold	Spectrum Analyzer
Dwell Time	Zero Span	100 kHz, 1 MHz	300 kHz, 3 MHz	As necessary capture the entire dwell time per hopping channel	Peak	Clear Write	Spectrum Analyzer
Conducted Spurious Emission *2)	9 kHz to 150 kHz	200 Hz	620 Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150 kHz to 30 MHz	9.1 kHz	27 kHz				
	30 MHz to 25 GHz (Less or equal to 5 GHz)	100 kHz	300 kHz				
Conducted Spurious Emission Band Edge compliance	10 MHz	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer

*1) Peak hold was applied as Worst-case measurement.
*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: Test data

20dB Bandwidth and Carrier Frequency Separation

Test place Ise EMC Lab. No.4 Shielded Room
Report No. 10709614H
Date 03/31/2015
Temperature/ Humidity 21 deg. C / 41 % RH
Engineer Tsubasa Takayama
Mode Tx (Hopping on/off) DH5/3DH5

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.932	1.000	≥ 0.621
DH5	2441.0	0.925	1.000	≥ 0.617
DH5	2480.0	0.931	1.000	≥ 0.620
3DH5	2402.0	1.281	1.000	≥ 0.854
3DH5	2441.0	1.274	1.000	≥ 0.849
3DH5	2480.0	1.267	1.000	≥ 0.845

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

No limit applies to 20dB Bandwidth.

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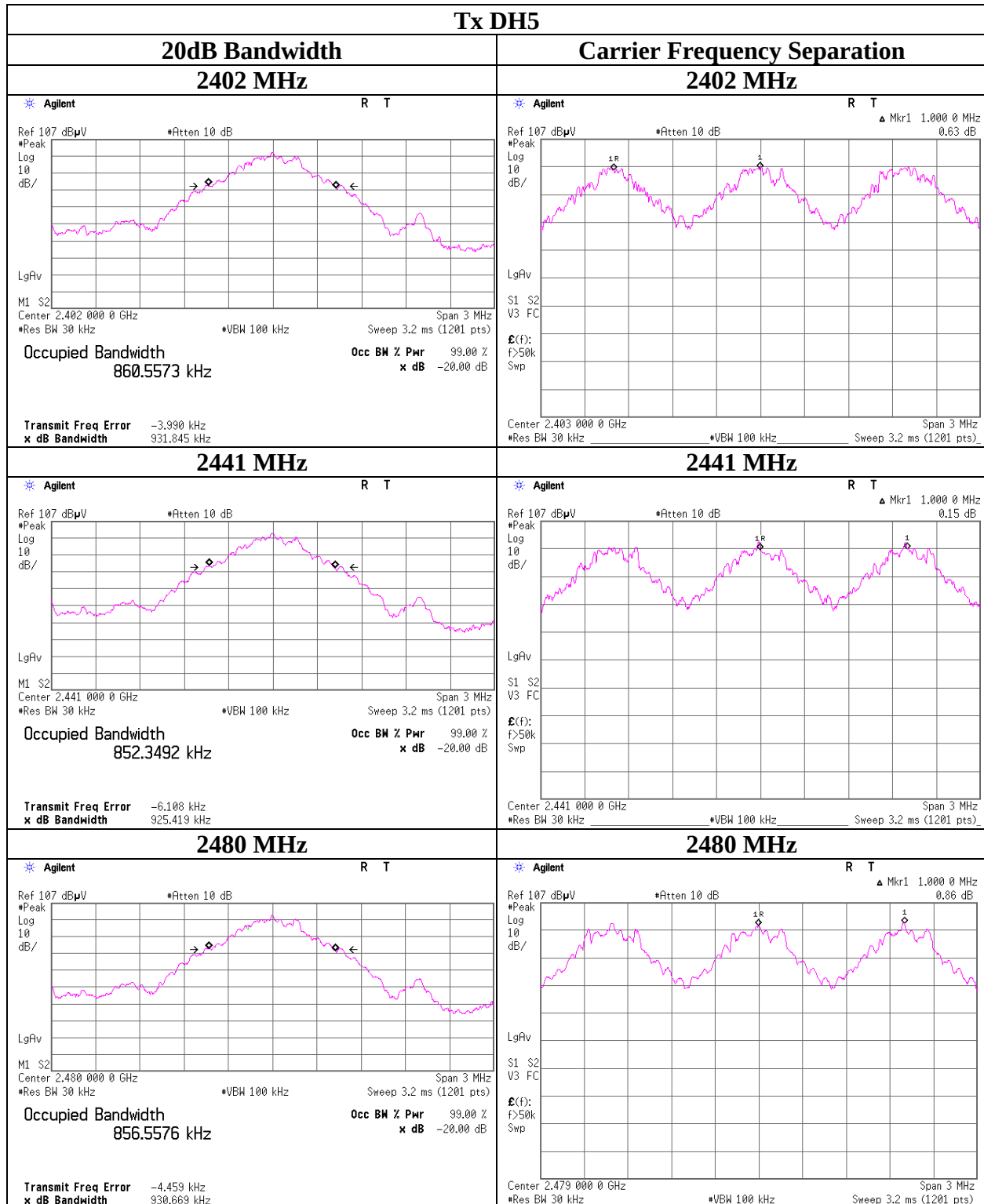
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20dB Bandwidth and Carrier Frequency Separation



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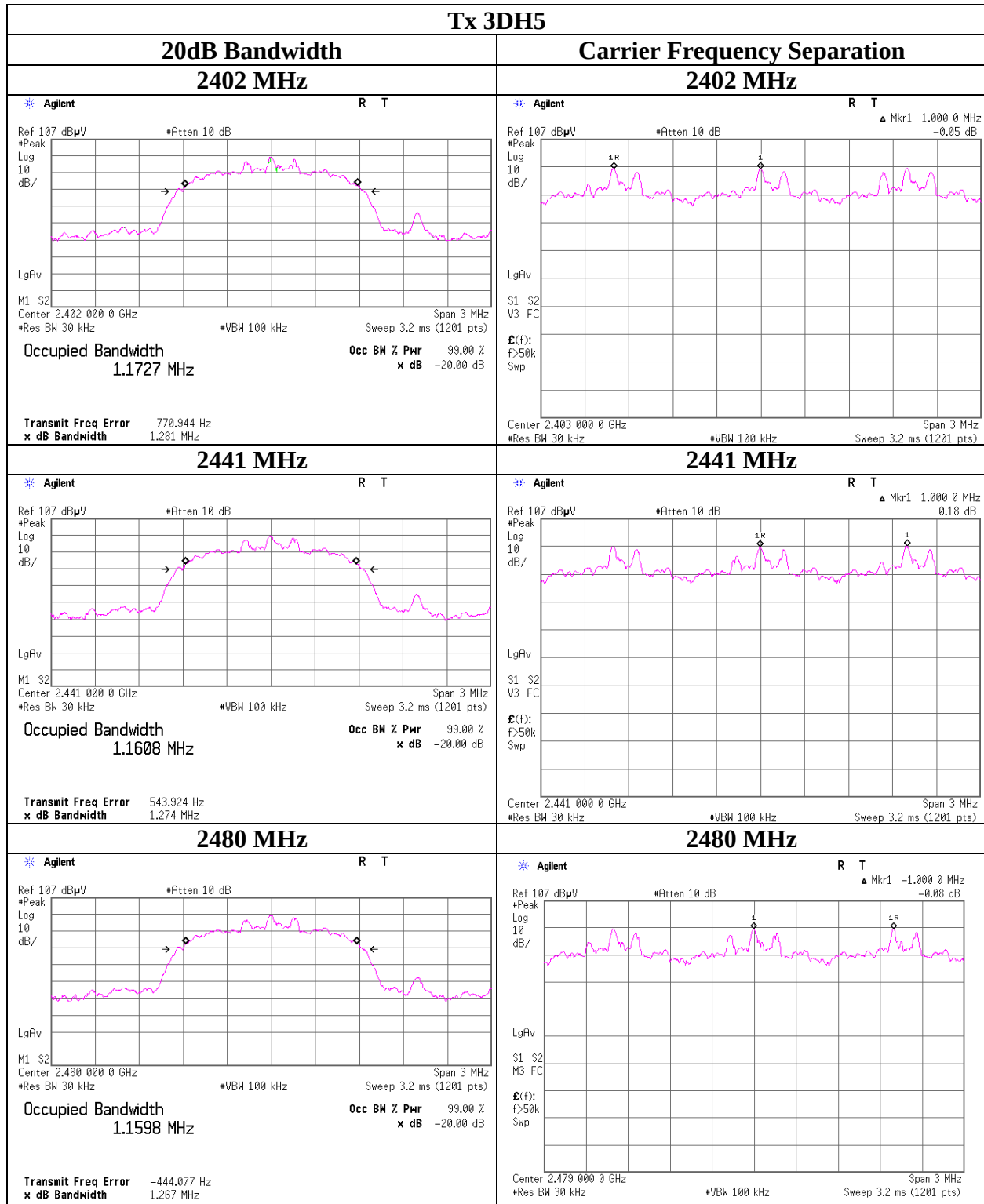
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20dB Bandwidth and Carrier Frequency Separation



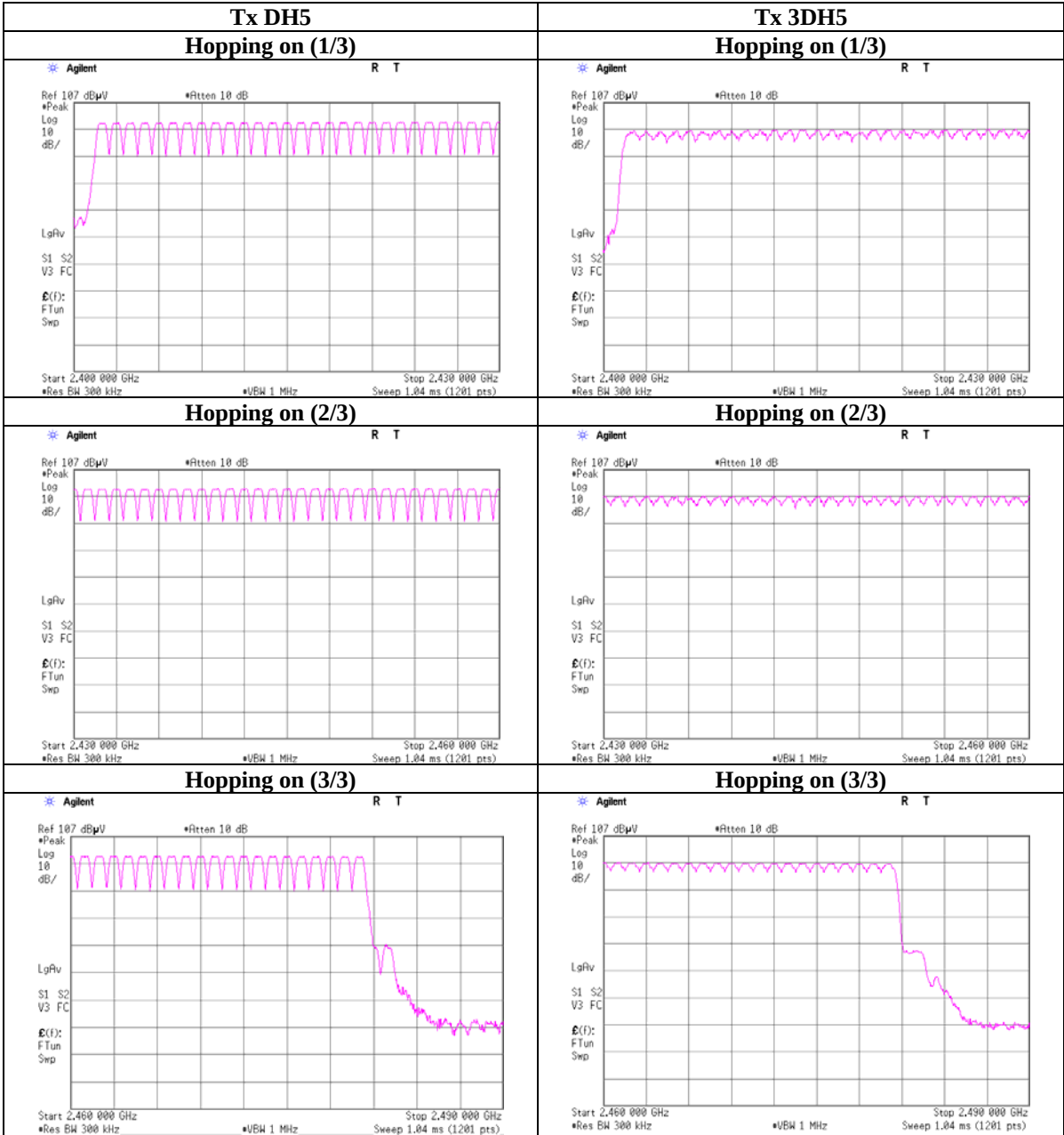
Number of Hopping Frequency

Test place Ise EMC Lab. No.4 Shielded Room
Report No. 10709614H
Date 03/31/2015
Temperature/ Humidity 21 deg. C / 41 % RH
Engineer Tsubasa Takayama
Mode Tx (Hopping on) DH5/3DH5

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

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

Number of Hopping Frequency



Dwell time

Test place Ise EMC Lab. No.4 Shielded Room
Report No. 10709614H
Date 03/31/2015
Temperature/ Humidity 21 deg. C / 41 % RH
Engineer Tsubasa Takayama
Mode Tx (Hopping on) DH5/3DH5

Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	50.6 times / 5 sec. x 31.6 sec. = 320 times	0.525	168	400
DH3	24.8 times / 5 sec. x 31.6 sec. = 157 times	1.806	284	400
DH5	16.6 times / 5 sec. x 31.6 sec. = 105 times	3.034	319	400
3DH1	51.0 times / 5 sec. x 31.6 sec. = 323 times	0.540	174	400
3DH3	24.6 times / 5 sec. x 31.6 sec. = 156 times	1.791	279	400
3DH5	16.8 times / 5 sec. x 31.6 sec. = 107 times	3.058	327	400

Sample Calculation

Result = Number of transmission x Length of transmission time

*Average data of 5 tests.

Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	51	51	50	51	50	50.6
DH3	25	24	25	25	25	24.8
DH5	16	16	17	17	17	16.6
3DH1	51	51	51	51	51	51
3DH3	25	25	24	24	25	24.6
3DH5	17	16	17	17	17	16.8

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

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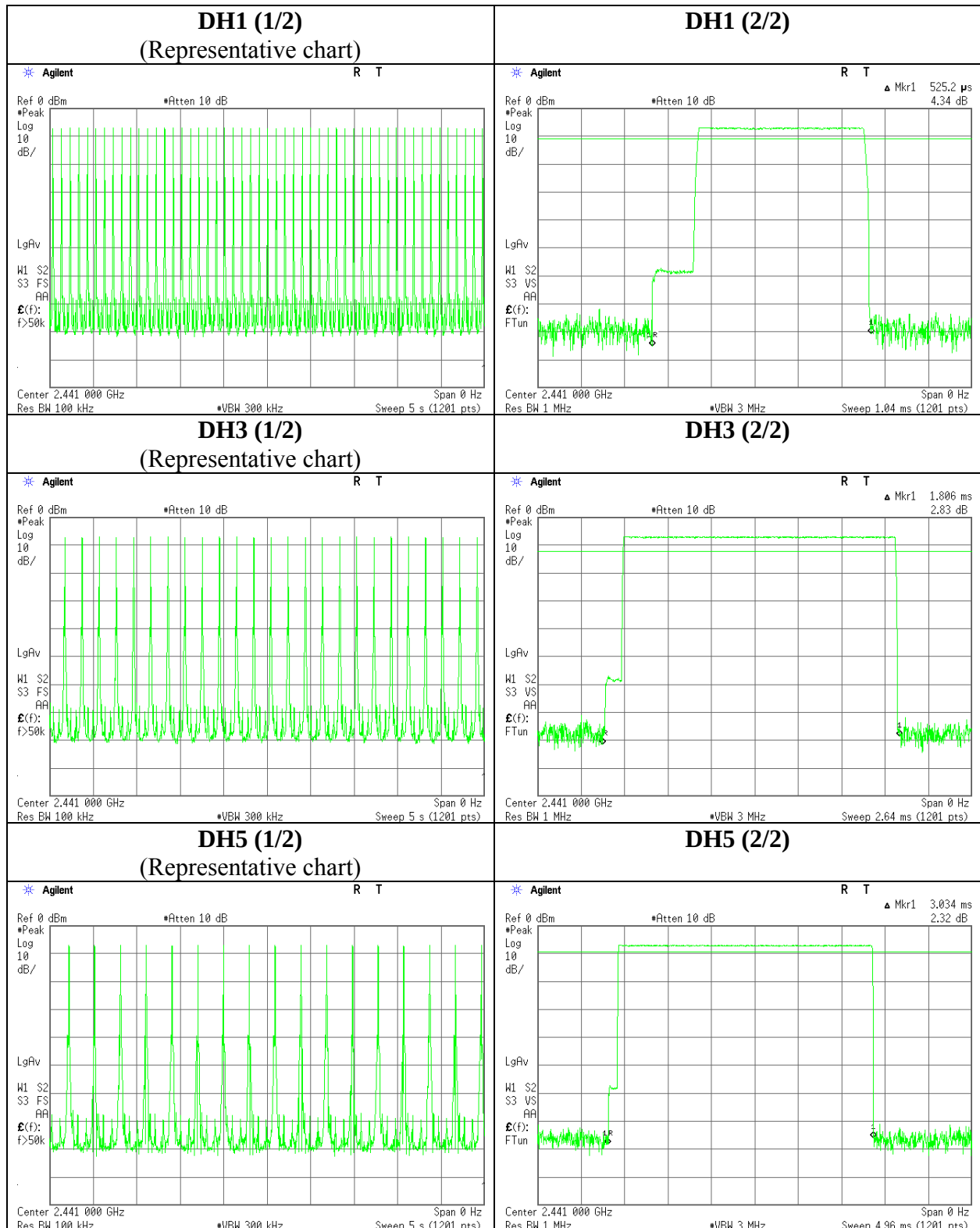
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Dwell time



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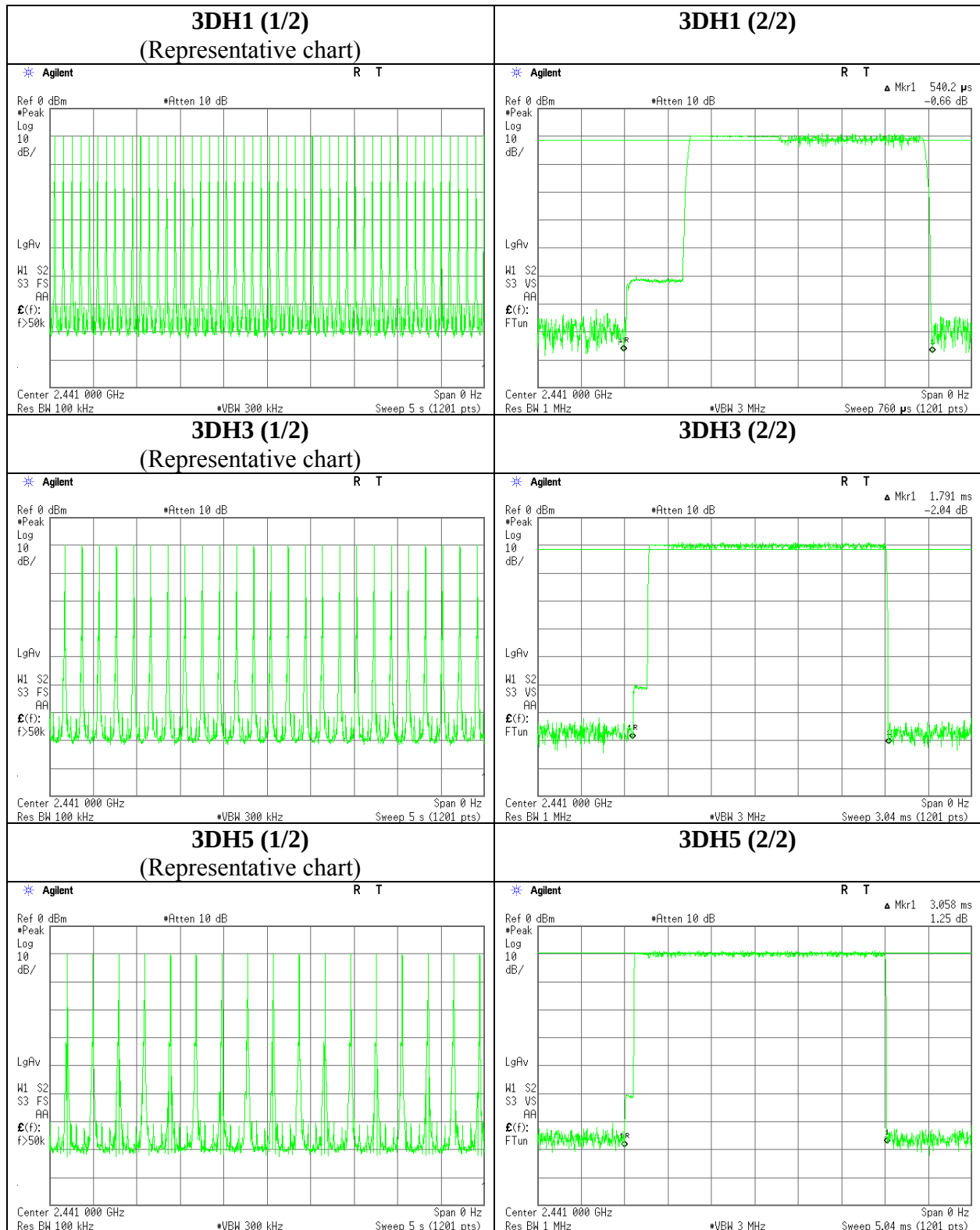
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Maximum Peak Output Power

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) DH5/2DH5/3DH5

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
DH5	2402.0	-7.21	1.54	9.96	4.29	2.69	20.96	125	16.67
DH5	2441.0	-7.01	1.54	9.96	4.49	2.81	20.96	125	16.47
DH5	2480.0	-7.28	1.55	9.96	4.23	2.65	20.96	125	16.73
2DH5	2402.0	-8.98	1.54	9.96	2.52	1.79	20.96	125	18.44
2DH5	2441.0	-8.54	1.54	9.96	2.96	1.98	20.96	125	18.00
2DH5	2480.0	-8.99	1.55	9.96	2.52	1.79	20.96	125	18.44
3DH5	2402.0	-8.84	1.54	9.96	2.66	1.85	20.96	125	18.30
3DH5	2441.0	-8.46	1.54	9.96	3.04	2.01	20.96	125	17.92
3DH5	2480.0	-8.81	1.55	9.96	2.70	1.86	20.96	125	18.26

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.

UL Japan, Inc.

Ise EMC Lab.

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Facsimile : +81 596 24 8124

Average Output Power
(Reference data for SAR testing)

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) DH5/2DH5/3DH5

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
					[dBm]	[mW]
DH5	2402.0	-7.45	1.54	9.96	4.05	2.54
DH5	2441.0	-7.22	1.54	9.96	4.28	2.68
DH5	2480.0	-7.49	1.55	9.96	4.02	2.52
2DH5	2402.0	-11.48	1.54	9.96	0.02	1.00
2DH5	2441.0	-11.04	1.54	9.96	0.46	1.11
2DH5	2480.0	-11.51	1.55	9.96	0.00	1.00
3DH5	2402.0	-11.47	1.54	9.96	0.03	1.01
3DH5	2441.0	-11.02	1.54	9.96	0.48	1.12
3DH5	2480.0	-11.50	1.55	9.96	0.01	1.00

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No. : 10709614H
Date : 04/01/2015 04/02/2015
Temperature/ Humidity : 23 deg. C / 59 % RH 23 deg. C / 53 % RH
Engineer : Kazuya Yoshioka Kazuya Yoshioka
(1-26.5 GHz) (30-1000 MHz)
Mode : Tx, DH5 2402 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.971	QP	30.2	6.2	7.8	32.0	12.2	40.0	27.8	
Hori	120.348	QP	28.8	12.7	8.4	32.0	17.9	43.5	25.6	
Hori	135.452	QP	29.7	14.0	8.5	32.0	20.2	43.5	23.3	
Hori	159.982	QP	29.0	15.5	8.8	31.9	21.4	43.5	22.1	
Hori	319.985	QP	34.7	17.4	10.0	31.8	30.3	46.0	15.7	
Hori	479.974	QP	27.2	19.2	11.1	31.9	25.6	46.0	20.4	
Hori	1919.970	PK	49.8	26.5	2.9	32.6	46.6	73.9	27.3	
Hori	2390.000	PK	41.7	27.4	3.2	32.3	40.0	73.9	33.9	
Hori	4804.000	PK	50.4	31.5	5.4	31.6	55.7	73.9	18.2	
Hori	7206.000	PK	42.6	36.8	6.6	32.8	53.2	73.9	20.7	
Hori	9608.000	PK	44.1	38.8	7.3	33.2	57.0	73.9	16.9	
Hori	1919.970	AV	45.5	26.5	2.9	32.6	42.3	53.9	11.6	
Hori	2390.000	AV	29.9	27.4	3.2	32.3	28.2	53.9	25.7	
Hori	4804.000	AV	44.3	31.5	5.4	31.6	49.6	53.9	4.3	
Hori	7206.000	AV	30.8	36.8	6.6	32.8	41.4	53.9	12.5	
Hori	9608.000	AV	31.6	38.8	7.3	33.2	44.5	53.9	9.4	
Vert	71.957	QP	26.0	6.2	7.8	32.0	8.0	40.0	32.0	
Vert	120.344	QP	28.7	12.7	8.4	32.0	17.8	43.5	25.7	
Vert	135.449	QP	27.1	14.0	8.5	32.0	17.6	43.5	25.9	
Vert	159.975	QP	28.7	15.5	8.8	31.9	21.1	43.5	22.4	
Vert	319.986	QP	26.4	17.4	10.0	31.8	22.0	46.0	24.0	
Vert	479.978	QP	25.9	19.2	11.1	31.9	24.3	46.0	21.7	
Vert	1919.822	PK	47.0	26.5	2.9	32.6	43.8	73.9	30.1	
Vert	2390.000	PK	42.8	27.4	3.2	32.3	41.1	73.9	32.8	
Vert	4804.000	PK	49.6	31.5	5.4	31.6	54.9	73.9	19.0	
Vert	7206.000	PK	42.8	36.8	6.6	32.8	53.4	73.9	20.5	
Vert	9608.000	PK	44.2	38.8	7.3	33.2	57.1	73.9	16.8	
Vert	1919.822	AV	39.9	26.5	2.9	32.6	36.7	53.9	17.2	
Vert	2390.000	AV	30.1	27.4	3.2	32.3	28.4	53.9	25.5	
Vert	4804.000	AV	42.7	31.5	5.4	31.6	48.0	53.9	5.9	
Vert	7206.000	AV	30.8	36.8	6.6	32.8	41.4	53.9	12.5	
Vert	9608.000	AV	31.6	38.8	7.3	33.2	44.5	53.9	9.4	

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

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

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

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	91.6	27.4	3.2	32.3	89.9	-	-	Carrier
Hori	2400.000	PK	53.8	27.4	3.2	32.3	52.1	69.9	17.8	
Vert	2402.000	PK	94.3	27.4	3.2	32.3	92.6	-	-	Carrier
Vert	2400.000	PK	54.0	27.4	3.2	32.3	52.3	72.6	20.3	

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

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No. : 10709614H
Date : 04/01/2015 04/02/2015
Temperature/ Humidity : 23 deg. C / 59 % RH 23 deg. C / 53 % RH
Engineer : Kazuya Yoshioka Kazuya Yoshioka
(1-26.5 GHz) (30-1000 MHz)
Mode : Tx, DH5 2441 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.981	QP	31.0	6.2	7.8	32.0	13.0	40.0	27.0	
Hori	121.448	QP	28.2	12.8	8.4	32.0	17.4	43.5	26.1	
Hori	135.454	QP	31.4	14.0	8.5	32.0	21.9	43.5	21.6	
Hori	159.963	QP	33.1	15.5	8.8	31.9	25.5	43.5	18.0	
Hori	319.984	QP	37.8	17.4	10.0	31.8	33.4	46.0	12.6	
Hori	359.979	QP	30.1	17.8	10.3	31.8	26.4	46.0	19.6	
Hori	1919.830	PK	48.6	26.5	2.9	32.6	45.4	73.9	28.5	
Hori	4882.000	PK	52.2	31.8	5.5	31.6	57.9	73.9	16.0	
Hori	7323.000	PK	41.9	37.0	6.5	32.8	52.6	73.9	21.3	
Hori	9764.000	PK	42.6	38.9	7.4	33.3	55.6	73.9	18.3	
Hori	1919.830	AV	44.7	26.5	2.9	32.6	41.5	53.9	12.4	
Hori	4882.000	AV	45.7	31.8	5.5	31.6	51.4	53.9	2.5	
Hori	7323.000	AV	30.3	37.0	6.5	32.8	41.0	53.9	12.9	
Hori	9764.000	AV	31.6	38.9	7.4	33.3	44.6	53.9	9.3	
Vert	71.980	QP	26.4	6.2	7.8	32.0	8.4	40.0	31.6	
Vert	121.445	QP	25.3	12.8	8.4	32.0	14.5	43.5	29.0	
Vert	135.455	QP	28.4	14.0	8.5	32.0	18.9	43.5	24.6	
Vert	159.963	QP	31.2	15.5	8.8	31.9	23.6	43.5	19.9	
Vert	319.968	QP	28.1	17.4	10.0	31.8	23.7	46.0	22.3	
Vert	359.972	QP	24.0	17.8	10.3	31.8	20.3	46.0	25.7	
Vert	1920.025	PK	46.2	26.5	2.9	32.6	43.0	73.9	30.9	
Vert	4882.000	PK	51.3	31.8	5.5	31.6	57.0	73.9	16.9	
Vert	7323.000	PK	42.2	37.0	6.5	32.8	52.9	73.9	21.0	
Vert	9764.000	PK	42.8	38.9	7.4	33.3	55.8	73.9	18.1	
Vert	1920.025	AV	40.5	26.5	2.9	32.6	37.3	53.9	16.6	
Vert	4882.000	AV	45.9	31.8	5.5	31.6	51.6	53.9	2.3	
Vert	7323.000	AV	30.3	37.0	6.5	32.8	41.0	53.9	12.9	
Vert	9764.000	AV	31.6	38.9	7.4	33.3	44.6	53.9	9.3	

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

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

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

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Ise EMC Lab.

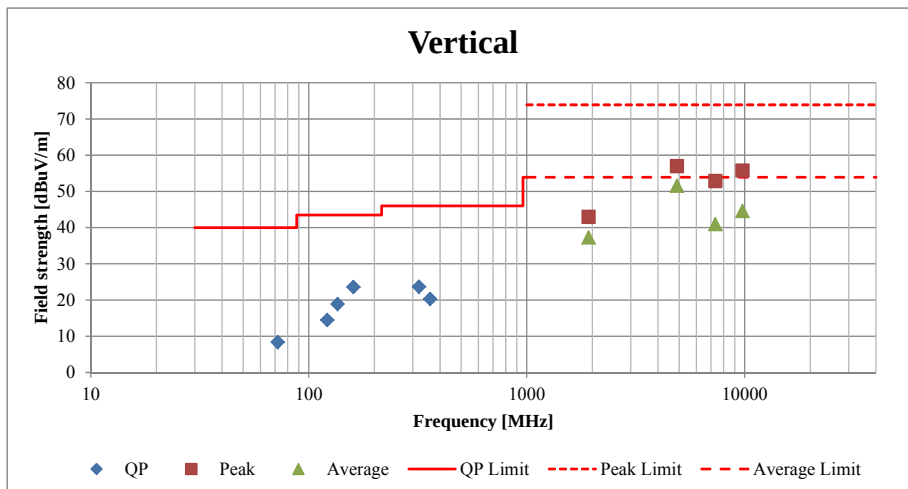
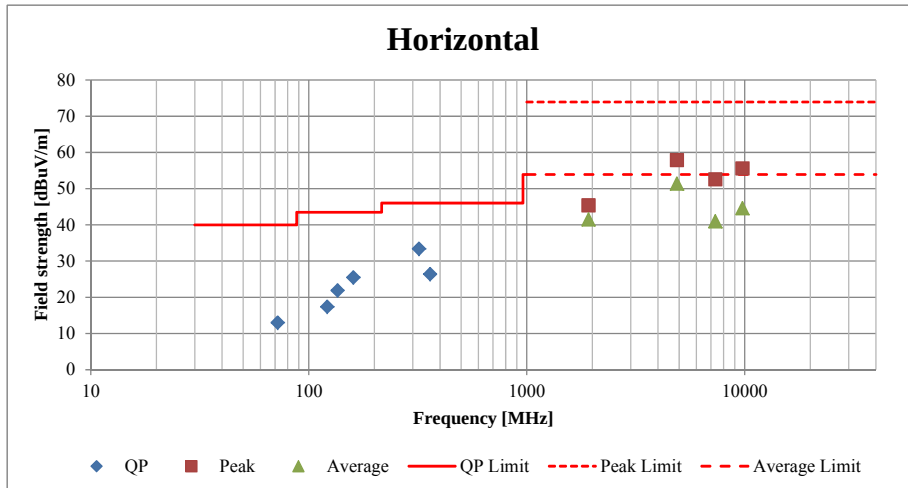
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Radiated Spurious Emission (Plot data, Worst case)

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber	
Report No.	10709614H	
Date	04/01/2015	04/01/2015
Temperature / Humidity	23 deg. C / 59 % RH	23 deg. C / 59 % RH
Engineer	Kazuya Yoshioka	Kazuya Yoshioka
	(1-26.5 GHz)	(1-26.5 GHz)
Mode	Tx, DH5 2441 MHz	



*These plots data contains sufficient number to show the trend of characteristic features for EUT.

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No. : 10709614H
Date : 04/01/2015 04/02/2015
Temperature/ Humidity : 23 deg. C / 59 % RH 23 deg. C / 53 % RH
Engineer : Kazuya Yoshioka Kazuya Yoshioka
(1-26.5 GHz) (30-1000 MHz)
Mode : Tx, DH5 2480 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.988	QP	29.8	6.2	7.8	32.0	11.8	40.0	28.2	
Hori	120.619	QP	27.7	12.7	8.4	32.0	16.8	43.5	26.7	
Hori	143.973	QP	25.7	14.6	8.6	32.0	16.9	43.5	26.6	
Hori	159.951	QP	34.9	15.5	8.8	31.9	27.3	43.5	16.2	
Hori	319.978	QP	35.9	17.4	10.0	31.8	31.5	46.0	14.5	
Hori	479.981	QP	27.1	19.2	11.1	31.9	25.5	46.0	20.5	
Hori	1654.121	PK	47.2	26.1	2.7	33.1	42.9	73.9	31.0	
Hori	2483.500	PK	50.0	27.6	3.3	32.3	48.6	73.9	25.3	
Hori	4960.000	PK	47.8	32.0	5.5	31.6	53.7	73.9	20.2	
Hori	7440.000	PK	42.5	37.2	6.5	32.9	53.3	73.9	20.6	
Hori	9920.000	PK	43.0	39.0	7.4	33.3	56.1	73.9	17.8	
Hori	1654.121	AV	44.5	26.1	2.7	33.1	40.2	53.9	13.7	
Hori	2483.500	AV	40.0	27.6	3.3	32.3	38.6	53.9	15.3	
Hori	4960.000	AV	38.6	32.0	5.5	31.6	44.5	53.9	9.4	
Hori	7440.000	AV	30.2	37.2	6.5	32.9	41.0	53.9	12.9	
Hori	9920.000	AV	31.6	39.0	7.4	33.3	44.7	53.9	9.2	
Vert	71.986	QP	26.3	6.2	7.8	32.0	8.3	40.0	31.7	
Vert	120.611	QP	24.8	12.7	8.4	32.0	13.9	43.5	29.6	
Vert	143.971	QP	24.0	14.6	8.6	32.0	15.2	43.5	28.3	
Vert	159.985	QP	35.1	15.5	8.8	31.9	27.5	43.5	16.0	
Vert	319.981	QP	27.3	17.4	10.0	31.8	22.9	46.0	23.1	
Vert	480.012	QP	26.7	19.2	11.1	31.9	25.1	46.0	20.9	
Vert	1653.976	PK	48.6	26.1	2.7	33.1	44.3	73.9	29.6	
Vert	2483.500	PK	47.2	27.6	3.3	32.3	45.8	73.9	28.1	
Vert	4960.000	PK	51.8	32.0	5.5	31.6	57.7	73.9	16.2	
Vert	7440.000	PK	42.6	37.2	6.5	32.9	53.4	73.9	20.5	
Vert	9920.000	PK	43.2	39.0	7.4	33.3	56.3	73.9	17.6	
Vert	1653.976	AV	45.0	26.1	2.7	33.1	40.7	53.9	13.2	
Vert	2483.500	AV	37.2	27.6	3.3	32.3	35.8	53.9	18.1	
Vert	4960.000	AV	42.7	32.0	5.5	31.6	48.6	53.9	5.3	
Vert	7440.000	AV	30.2	37.2	6.5	32.9	41.0	53.9	12.9	
Vert	9920.000	AV	31.6	39.0	7.4	33.3	44.7	53.9	9.2	

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

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

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

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No. : 10709614H
Date : 04/01/2015 04/02/2015
Temperature/ Humidity : 23 deg. C / 59 % RH 23 deg. C / 53 % RH
Engineer : Kazuya Yoshioka Kazuya Yoshioka
(1-26.5 GHz) (30-1000 MHz)
Mode : Tx, 3DH5 2402 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.988	QP	30.5	6.2	7.8	32.0	12.5	40.0	27.5	
Hori	120.620	QP	28.4	12.7	8.4	32.0	17.5	43.5	26.0	
Hori	135.460	QP	30.1	14.0	8.5	32.0	20.6	43.5	22.9	
Hori	319.981	QP	39.6	17.4	10.0	31.8	35.2	46.0	10.8	
Hori	359.980	QP	32.1	17.8	10.3	31.8	28.4	46.0	17.6	
Hori	479.953	QP	24.8	19.2	11.1	31.9	23.2	46.0	22.8	
Hori	1920.045	PK	48.8	26.5	2.9	32.6	45.6	73.9	28.3	
Hori	2390.000	PK	42.6	27.4	3.2	32.3	40.9	73.9	33.0	
Hori	4804.000	PK	43.8	31.5	5.4	31.6	49.1	73.9	24.8	
Hori	7206.000	PK	42.1	36.8	6.6	32.8	52.7	73.9	21.2	
Hori	9608.000	PK	44.1	38.8	7.3	33.2	57.0	73.9	16.9	
Hori	1920.045	AV	44.9	26.5	2.9	32.6	41.7	53.9	12.2	
Hori	2390.000	AV	29.8	27.4	3.2	32.3	28.1	53.9	25.8	
Hori	4804.000	AV	31.1	31.5	5.4	31.6	36.4	53.9	17.5	
Hori	7206.000	AV	30.8	36.8	6.6	32.8	41.4	53.9	12.5	
Hori	9608.000	AV	31.7	38.8	7.3	33.2	44.6	53.9	9.3	
Vert	71.966	QP	26.4	6.2	7.8	32.0	8.4	40.0	31.6	
Vert	120.345	QP	29.6	12.7	8.4	32.0	18.7	43.5	24.8	
Vert	135.454	QP	28.1	14.0	8.5	32.0	18.6	43.5	24.9	
Vert	319.988	QP	32.1	17.4	10.0	31.8	27.7	46.0	18.3	
Vert	360.046	QP	23.3	17.8	10.3	31.8	19.6	46.0	26.4	
Vert	480.031	QP	25.8	19.2	11.1	31.9	24.2	46.0	21.8	
Vert	1920.125	PK	46.0	26.5	2.9	32.6	42.8	73.9	31.1	
Vert	2390.000	PK	41.9	27.4	3.2	32.3	40.2	73.9	33.7	
Vert	4804.000	PK	43.8	31.5	5.4	31.6	49.1	73.9	24.8	
Vert	7206.000	PK	42.2	36.8	6.6	32.8	52.8	73.9	21.1	
Vert	9608.000	PK	43.8	38.8	7.3	33.2	56.7	73.9	17.2	
Vert	1920.125	AV	39.7	26.5	2.9	32.6	36.5	53.9	17.4	
Vert	2390.000	AV	30.0	27.4	3.2	32.3	28.3	53.9	25.6	
Vert	4804.000	AV	32.5	31.5	5.4	31.6	37.8	53.9	16.1	
Vert	7206.000	AV	30.8	36.8	6.6	32.8	41.4	53.9	12.5	
Vert	9608.000	AV	31.7	38.8	7.3	33.2	44.6	53.9	9.3	

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

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

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

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2402.000	PK	87.7	27.4	3.2	32.3	86.0	-	-	Carrier
Hori	2400.000	PK	39.4	27.4	3.2	32.3	37.7	66.0	28.3	
Vert	2402.000	PK	91.0	27.4	3.2	32.3	89.3	-	-	Carrier
Vert	2400.000	PK	42.9	27.4	3.2	32.3	41.2	69.3	28.1	

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

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No. : 10709614H
Date : 04/01/2015 04/02/2015
Temperature/ Humidity : 23 deg. C / 59 % RH 23 deg. C / 53 % RH
Engineer : Kazuya Yoshioka Kazuya Yoshioka
(1-26.5 GHz) (30-1000 MHz)
Mode : Tx, 3DH5 2441 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.986	QP	31.6	6.2	7.8	32.0	13.6	40.0	26.4	
Hori	120.348	QP	36.2	12.7	8.4	32.0	25.3	43.5	18.2	
Hori	159.940	QP	42.9	15.5	8.8	31.9	35.3	43.5	8.2	
Hori	167.967	QP	37.7	15.8	8.8	31.9	30.4	43.5	13.1	
Hori	319.979	QP	39.9	17.4	10.0	31.8	35.5	46.0	10.5	
Hori	436.784	QP	27.4	18.7	10.8	31.9	25.0	46.0	21.0	
Hori	1920.103	PK	48.9	26.5	2.9	32.6	45.7	73.9	28.2	
Hori	4882.000	PK	44.4	31.8	5.5	31.6	50.1	73.9	23.8	
Hori	7323.000	PK	42.3	37.0	6.5	32.8	53.0	73.9	20.9	
Hori	9764.000	PK	43.6	38.9	7.4	33.3	56.6	73.9	17.3	
Hori	1920.103	AV	45.0	26.5	2.9	32.6	41.8	53.9	12.1	
Hori	4882.000	AV	34.2	31.8	5.5	31.6	39.9	53.9	14.0	
Hori	7323.000	AV	30.3	37.0	6.5	32.8	41.0	53.9	12.9	
Hori	9764.000	AV	31.6	38.9	7.4	33.3	44.6	53.9	9.3	
Vert	71.989	QP	27.7	6.2	7.8	32.0	9.7	40.0	30.3	
Vert	120.343	QP	31.4	12.7	8.4	32.0	20.5	43.5	23.0	
Vert	159.958	QP	39.4	15.5	8.8	31.9	31.8	43.5	11.7	
Vert	167.961	QP	34.2	15.8	8.8	31.9	26.9	43.5	16.6	
Vert	320.168	QP	22.8	17.4	10.0	31.8	18.4	46.0	27.6	
Vert	437.026	QP	22.1	18.7	10.8	31.9	19.7	46.0	26.3	
Vert	1920.218	PK	45.7	26.5	2.9	32.6	42.5	73.9	31.4	
Vert	4882.000	PK	45.6	31.8	5.5	31.6	51.3	73.9	22.6	
Vert	7323.000	PK	42.5	37.0	6.5	32.8	53.2	73.9	20.7	
Vert	9764.000	PK	43.8	38.9	7.4	33.3	56.8	73.9	17.1	
Vert	1920.218	AV	39.9	26.5	2.9	32.6	36.7	53.9	17.2	
Vert	4882.000	AV	34.5	31.8	5.5	31.6	40.2	53.9	13.7	
Vert	7323.000	AV	30.3	37.0	6.5	32.8	41.0	53.9	12.9	
Vert	9764.000	AV	31.6	38.9	7.4	33.3	44.6	53.9	9.3	

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

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

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

UL Japan, Inc.

Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No. : 10709614H
Date : 04/01/2015 04/02/2015
Temperature/ Humidity : 23 deg. C / 59 % RH 23 deg. C / 53 % RH
Engineer : Kazuya Yoshioka Kazuya Yoshioka
(1-26.5 GHz) (30-1000 MHz)
Mode : Tx, 3DH5 2480 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	53.864	QP	30.3	9.3	7.5	32.0	15.1	40.0	24.9	
Hori	119.516	QP	33.3	12.6	8.4	32.0	22.3	43.5	21.2	
Hori	159.956	QP	45.4	15.5	8.8	31.9	37.8	43.5	5.7	
Hori	180.625	QP	30.1	16.1	9.0	31.9	23.3	43.5	20.2	
Hori	192.510	QP	23.0	16.3	9.0	31.8	16.5	43.5	27.0	
Hori	383.974	QP	39.9	18.1	10.5	31.9	36.6	46.0	9.4	
Hori	1653.965	PK	48.0	26.1	2.7	33.1	43.7	73.9	30.2	
Hori	2483.500	PK	53.9	27.6	3.3	32.3	52.5	73.9	21.4	
Hori	4960.000	PK	42.7	32.0	5.5	31.6	48.6	73.9	25.3	
Hori	7440.000	PK	41.0	37.2	6.5	32.9	51.8	73.9	22.1	
Hori	9920.000	PK	43.2	39.0	7.4	33.3	56.3	73.9	17.6	
Hori	1653.965	AV	44.3	26.1	2.7	33.1	40.0	53.9	13.9	
Hori	2483.500	AV	41.5	27.6	3.3	32.3	40.1	53.9	13.8	
Hori	4960.000	AV	31.0	32.0	5.5	31.6	36.9	53.9	17.0	
Hori	7440.000	AV	30.2	37.2	6.5	32.9	41.0	53.9	12.9	
Hori	9920.000	AV	31.6	39.0	7.4	33.3	44.7	53.9	9.2	
Vert	53.850	QP	30.5	9.3	7.5	32.0	15.3	40.0	24.7	
Vert	120.630	QP	29.9	12.7	8.4	32.0	19.0	43.5	24.5	
Vert	160.000	QP	42.0	15.5	8.8	31.9	34.4	43.5	9.1	
Vert	183.887	QP	30.1	16.2	9.0	31.8	23.5	43.5	20.0	
Vert	191.983	QP	36.7	16.3	9.0	31.8	30.2	43.5	13.3	
Vert	384.152	QP	25.0	18.1	10.5	31.9	21.7	46.0	24.3	
Vert	1654.120	PK	49.2	26.1	2.7	33.1	44.9	73.9	29.0	
Vert	2483.500	PK	51.6	27.6	3.3	32.3	50.2	73.9	23.7	
Vert	4960.000	PK	46.3	32.0	5.5	31.6	52.2	73.9	21.7	
Vert	7440.000	PK	41.2	37.2	6.5	32.9	52.0	73.9	21.9	
Vert	9920.000	PK	43.4	39.0	7.4	33.3	56.5	73.9	17.4	
Vert	1654.120	AV	45.3	26.1	2.7	33.1	41.0	53.9	12.9	
Vert	2483.500	AV	38.9	27.6	3.3	32.3	37.5	53.9	16.4	
Vert	4960.000	AV	33.2	32.0	5.5	31.6	39.1	53.9	14.8	
Vert	7440.000	AV	30.2	37.2	6.5	32.9	41.0	53.9	12.9	
Vert	9920.000	AV	31.6	39.0	7.4	33.3	44.7	53.9	9.2	

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

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

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

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Duty Cycle

Test place

Report No.

Date

Temperature/ Humidity

Engineer

Mode

Ise EMC Lab. No.4 Semi Anechoic Chamber

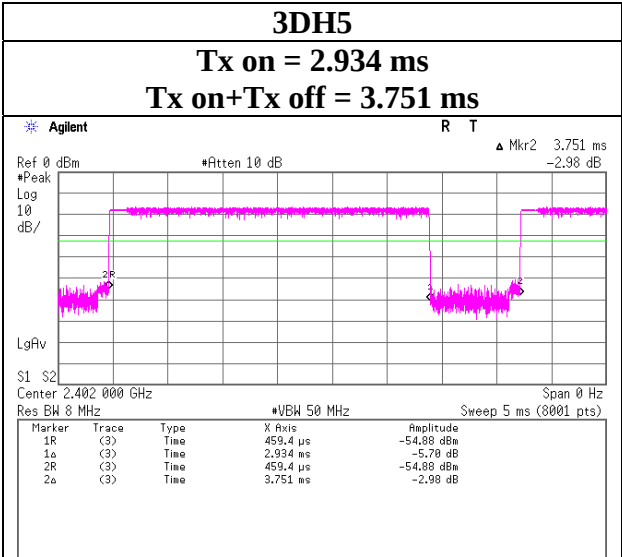
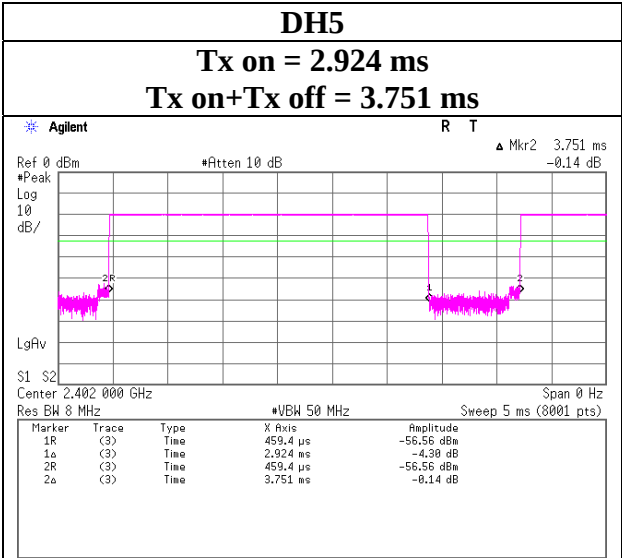
10709614H

04/01/2015

23 deg. C / 59 % RH

Kazuya Yoshioka

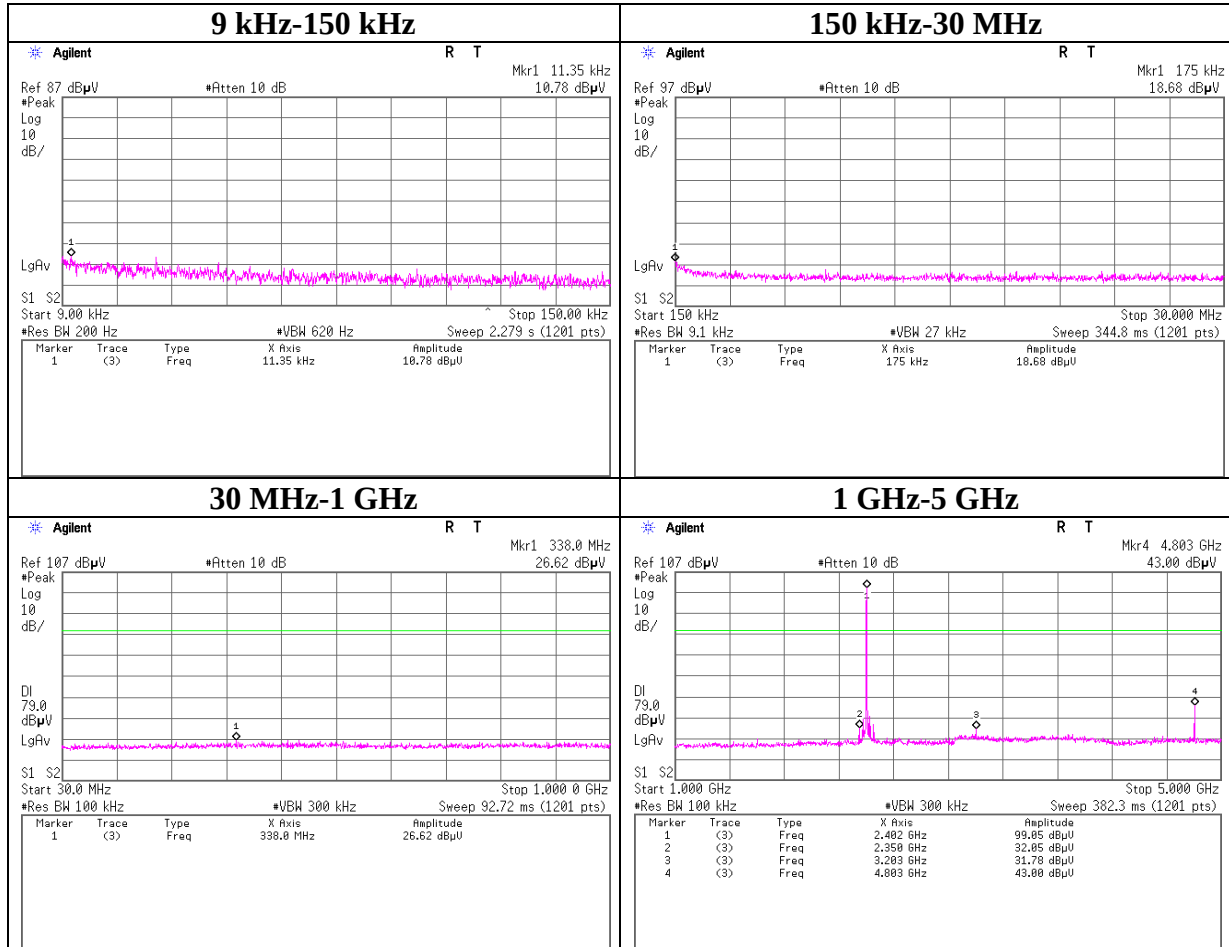
Tx (Hopping off) DH5 / 3DH5



Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) DH5

Tx DH5 2402 MHz



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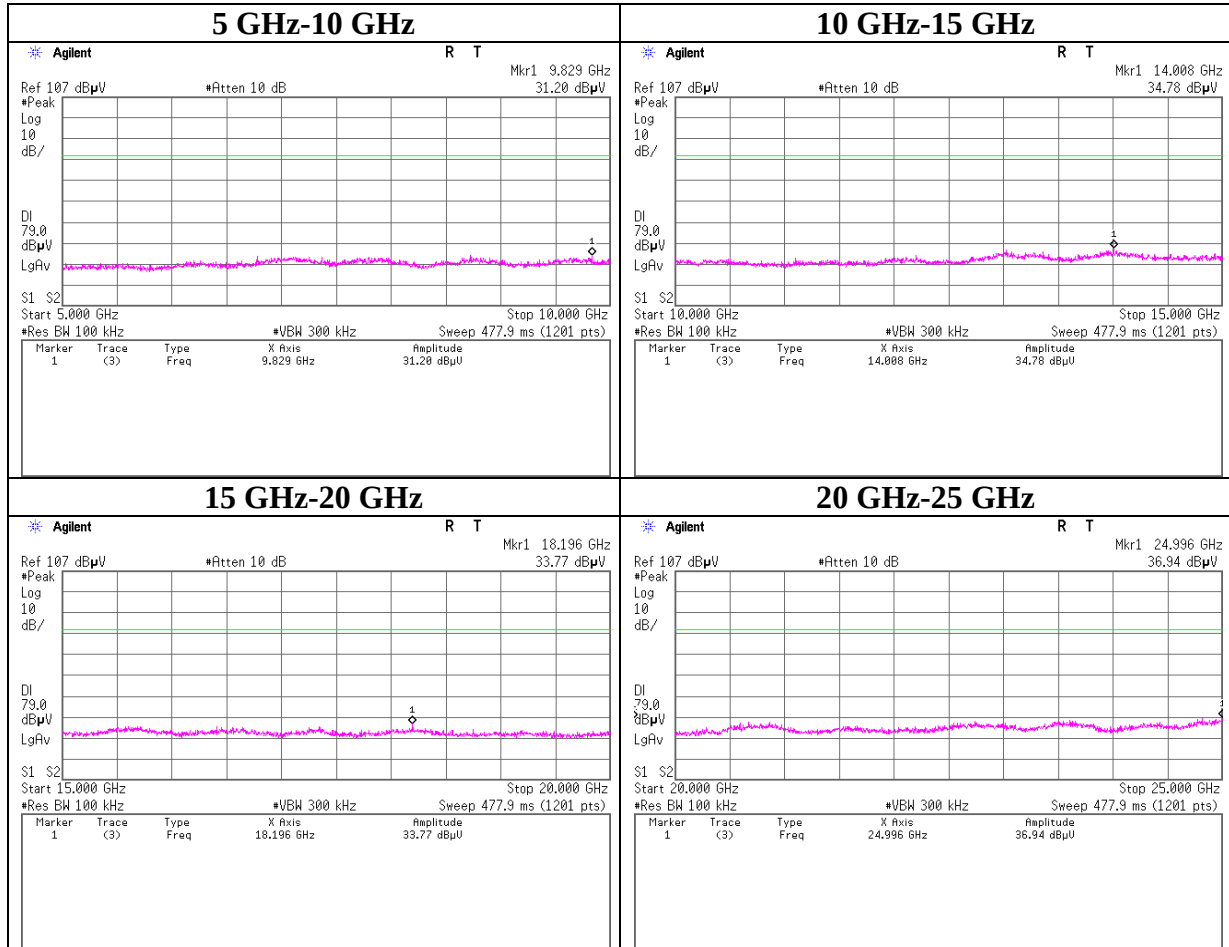
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) DH5

Tx DH5 2402 MHz



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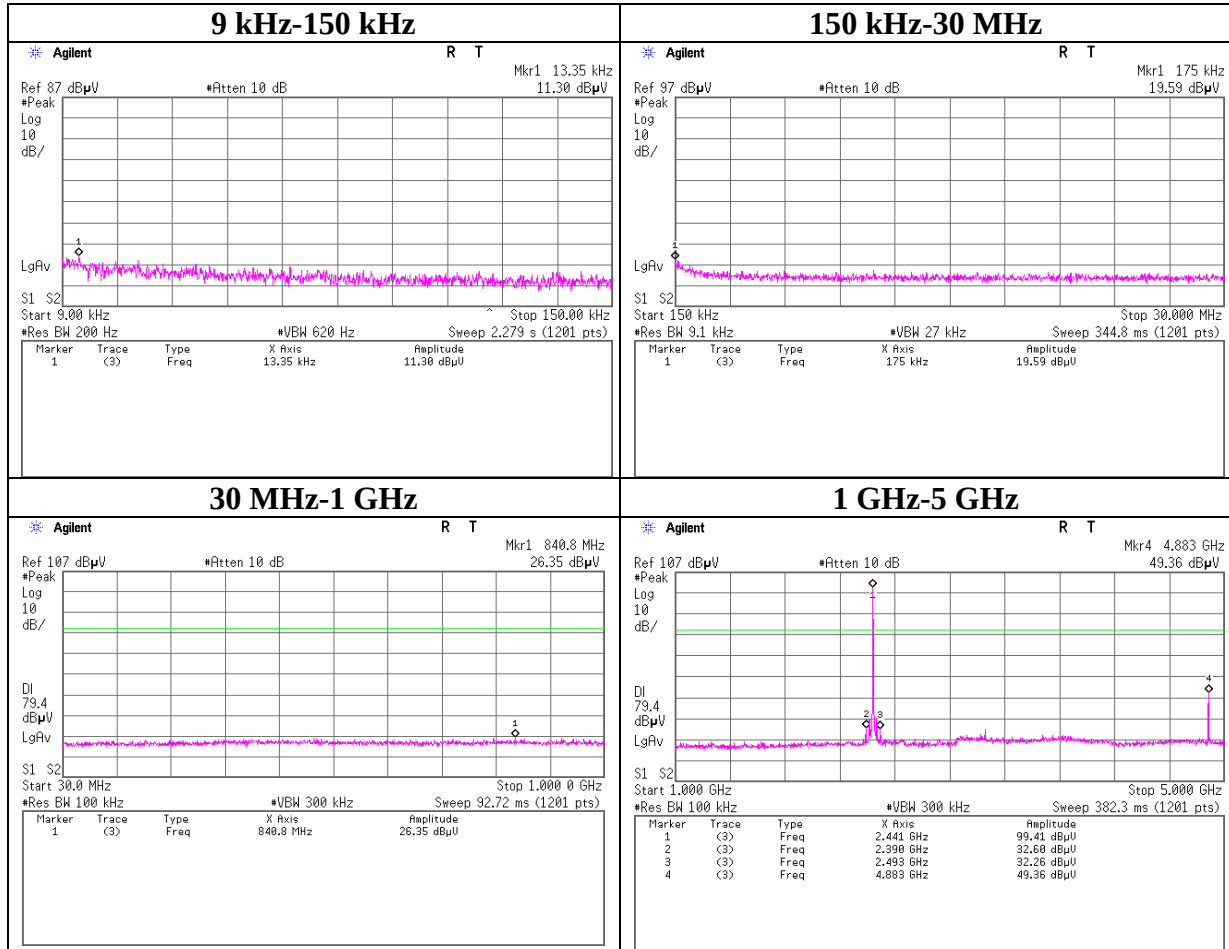
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place	Ise EMC Lab. No.4 Shielded Room
Report No.	10709614H
Date	03/31/2015
Temperature/ Humidity	21 deg. C / 41 % RH
Engineer	Tsubasa Takayama
Mode	Tx (Hopping off) DH5

Tx DH5 2441 MHz



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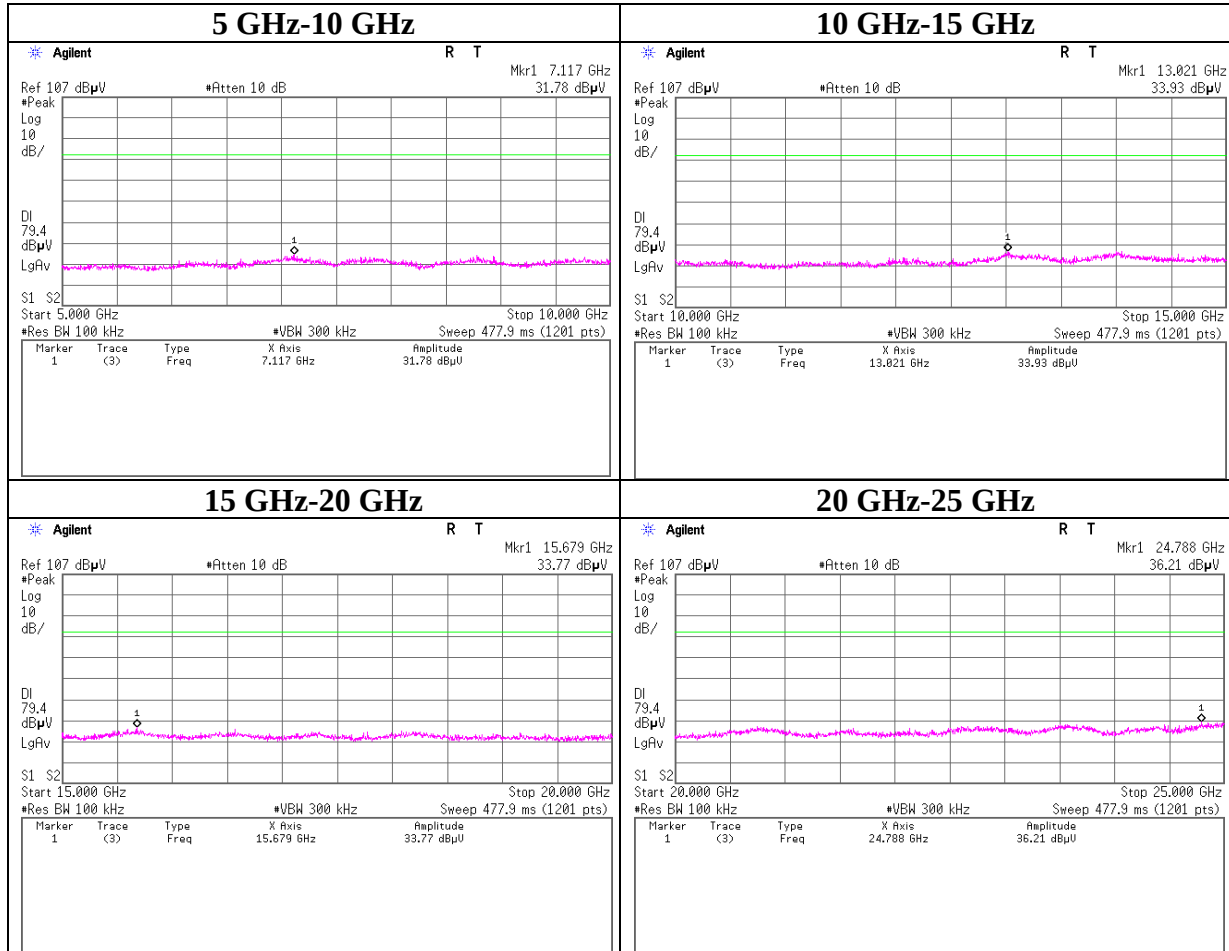
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) DH5

Tx DH5 2441 MHz



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Telephone : +81 596 24 8999

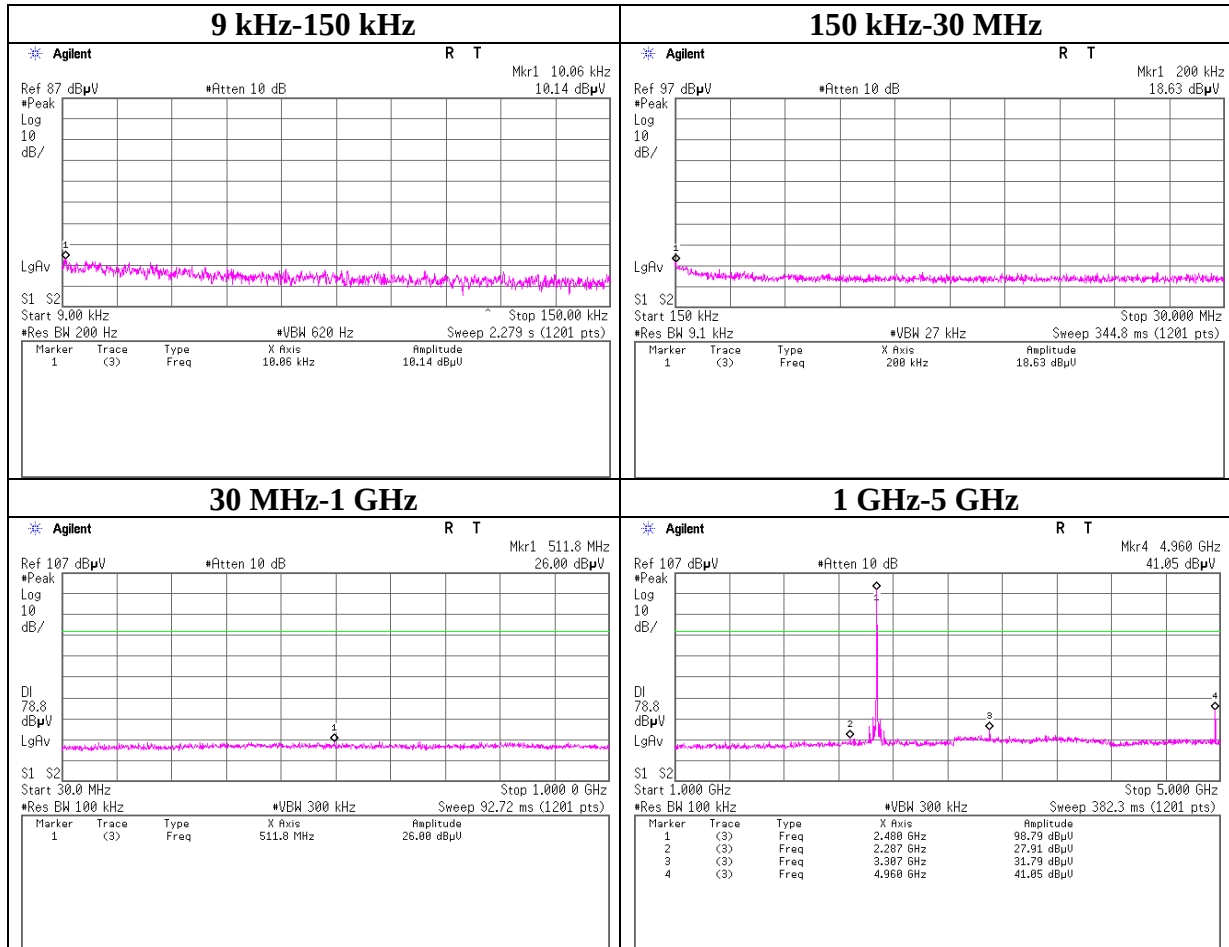
Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place
Report No.
Date
Temperature/ Humidity
Engineer
Mode

Ise EMC Lab. No.4 Shielded Room
10709614H
03/31/2015
21 deg. C / 41 % RH
Tsubasa Takayama
Tx (Hopping off) DH5

Tx DH5 2480 MHz



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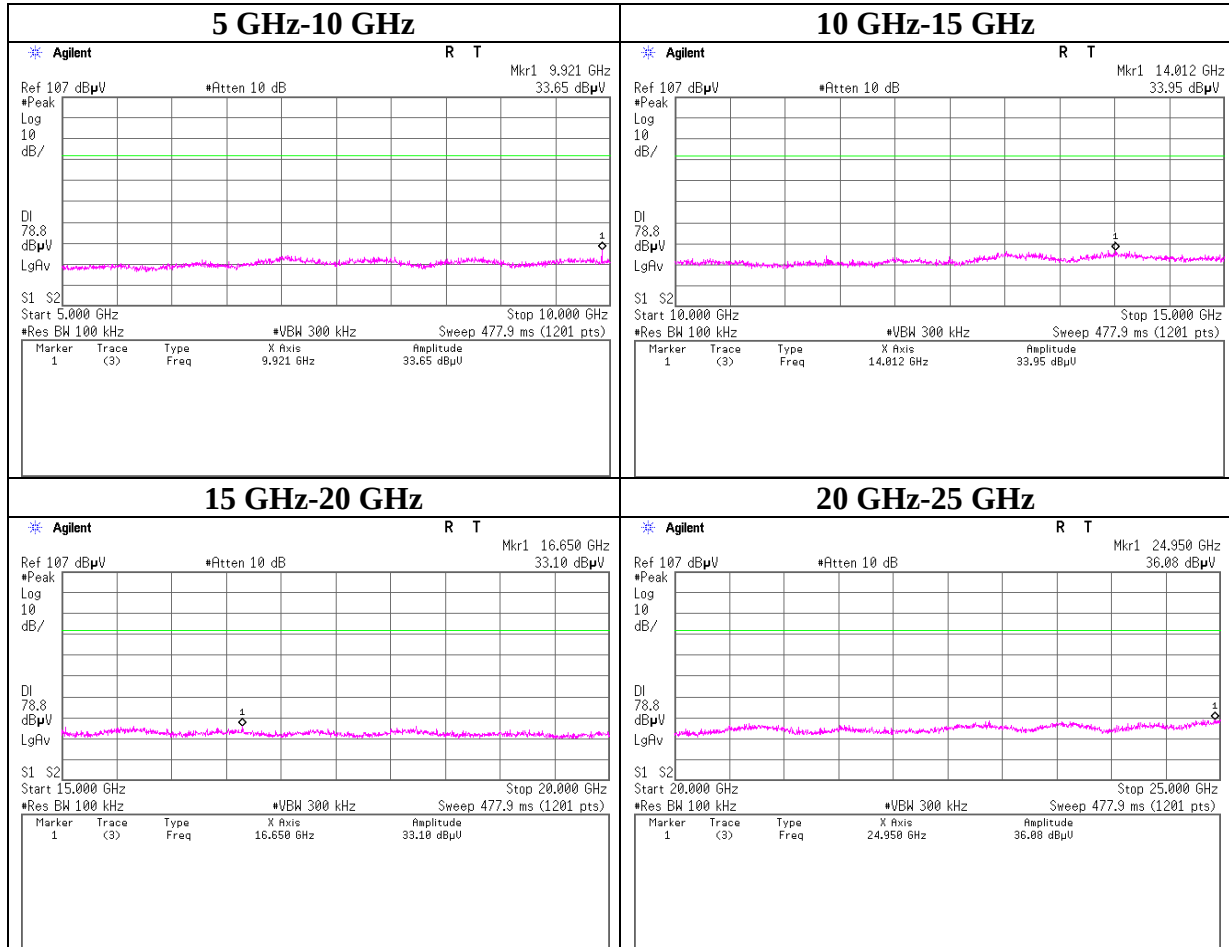
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
 Report No. : 10709614H
 Date : 03/31/2015
 Temperature/ Humidity : 21 deg. C / 41 % RH
 Engineer : Tsubasa Takayama
 Mode : Tx (Hopping off) DH5

Tx DH5 2480 MHz



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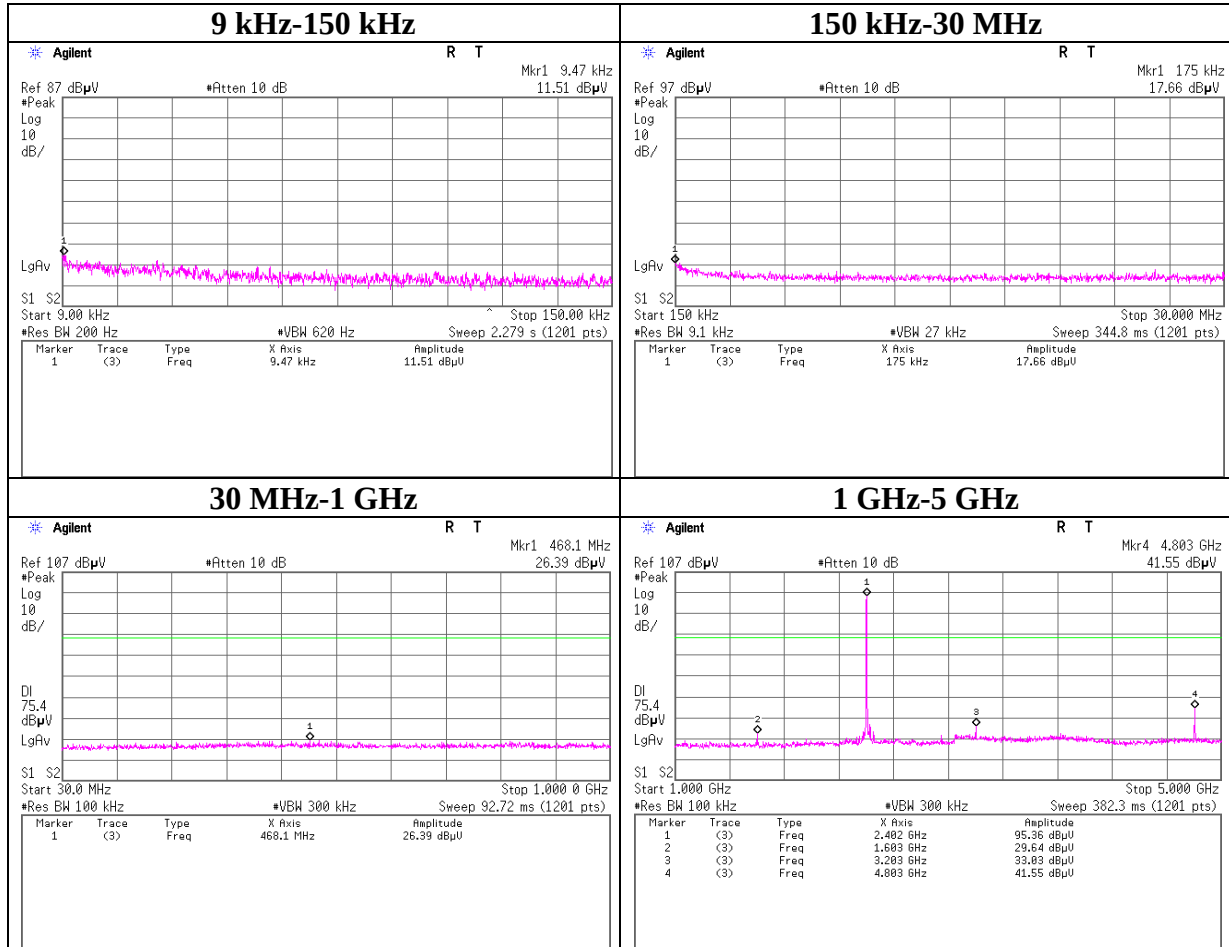
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
 Report No. : 10709614H
 Date : 03/31/2015
 Temperature/ Humidity : 21 deg. C / 41 % RH
 Engineer : Tsubasa Takayama
 Mode : Tx (Hopping off) 3DH5

Tx 3DH5 2402 MHz



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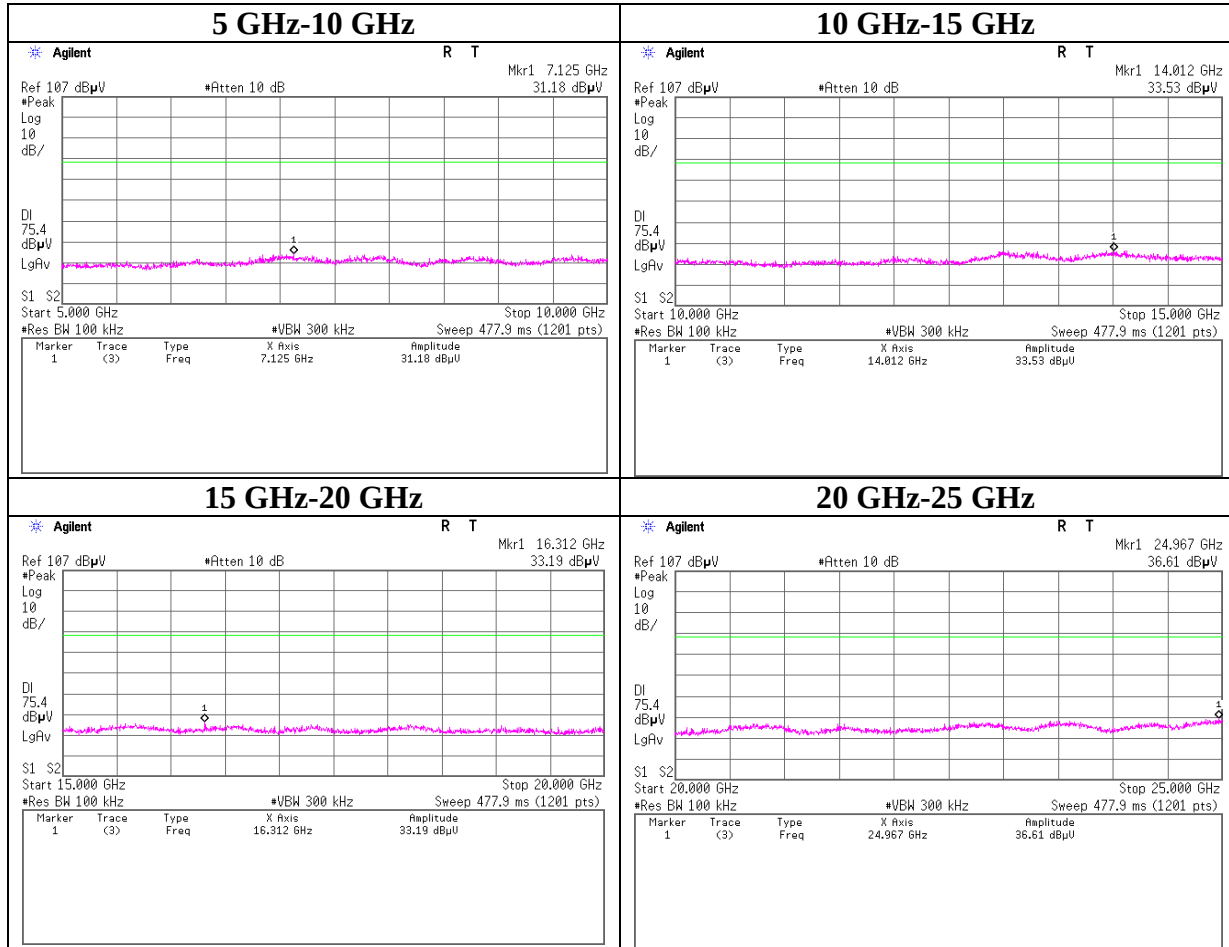
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) 3DH5

Tx 3DH5 2402 MHz



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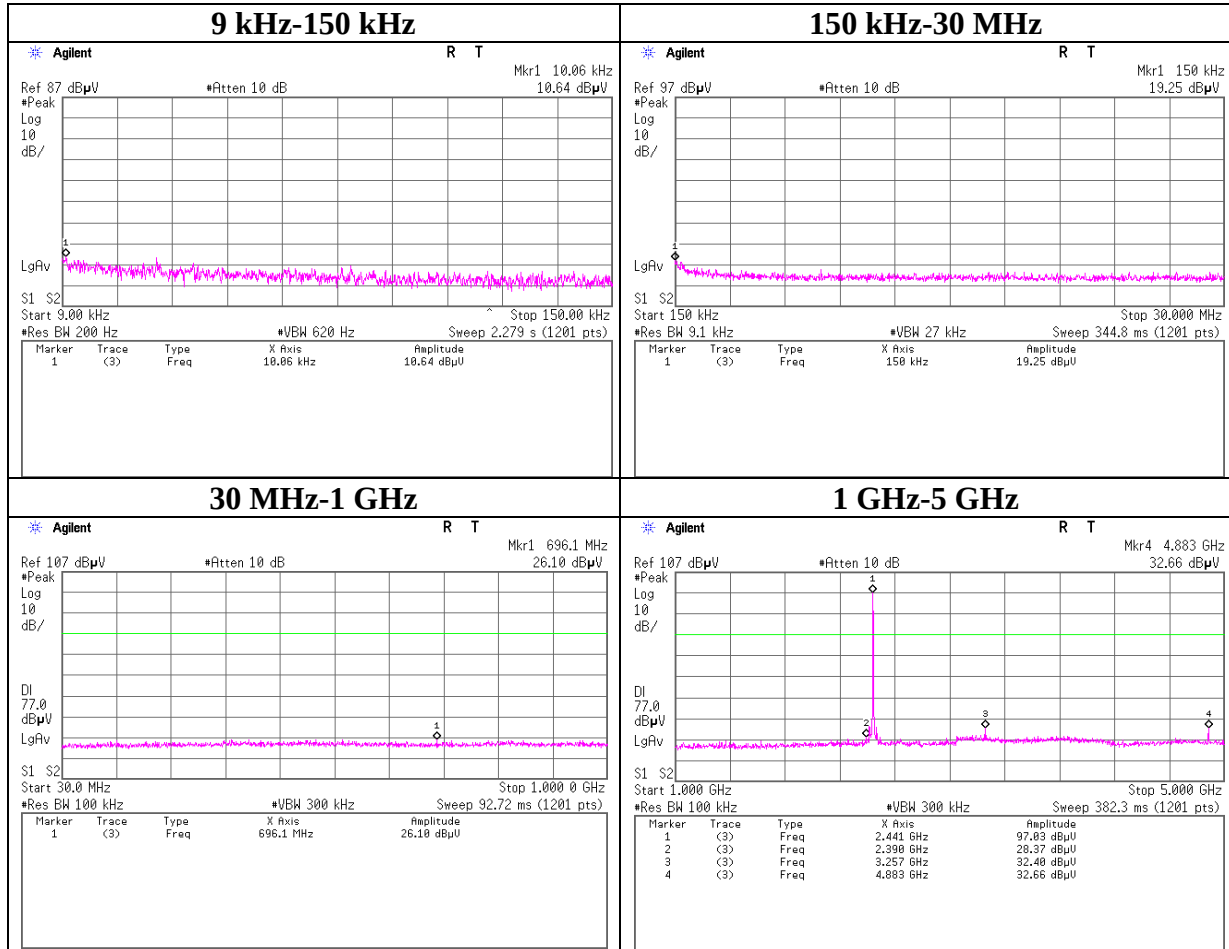
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) 3DH5

Tx 3DH5 2441 MHz



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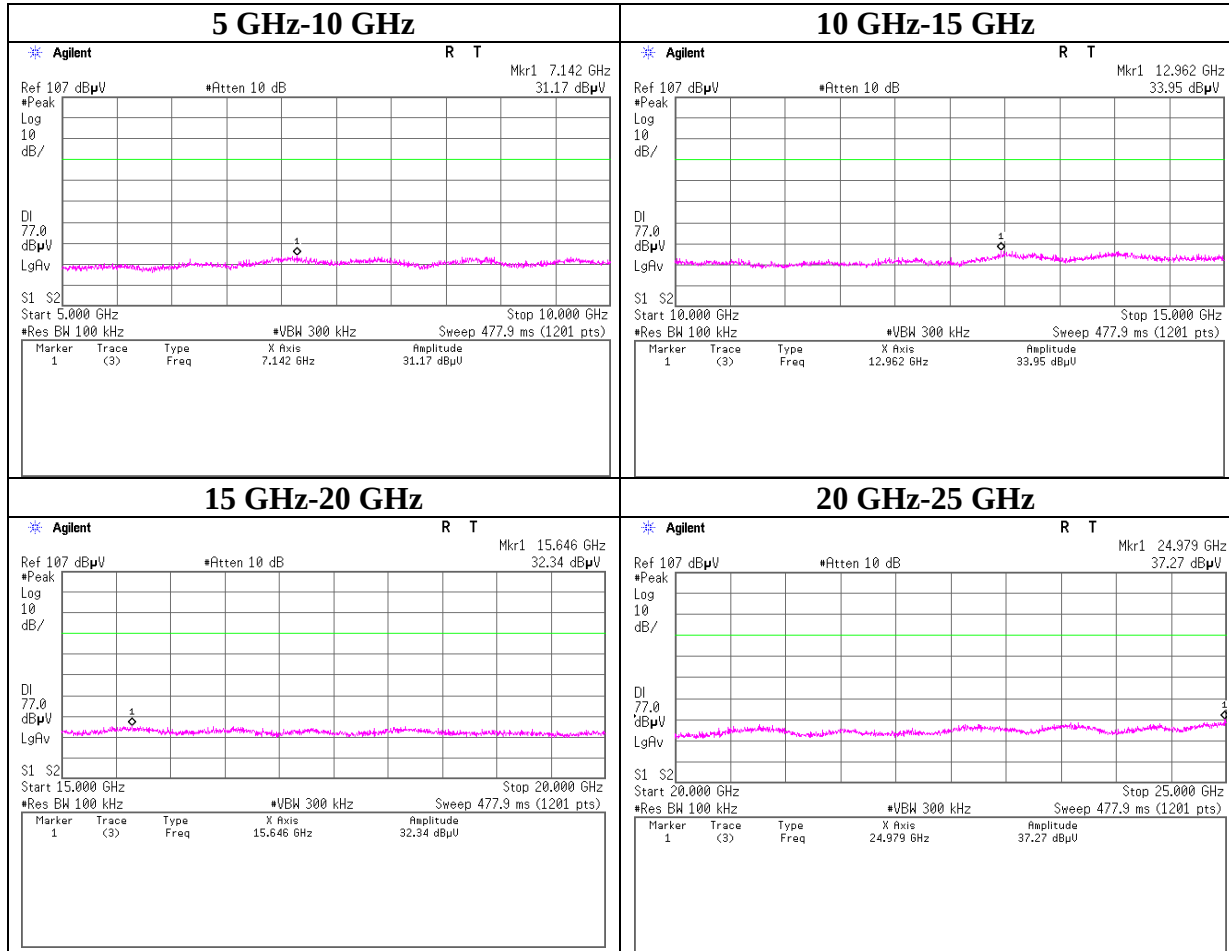
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) 3DH5

Tx 3DH5 2441 MHz



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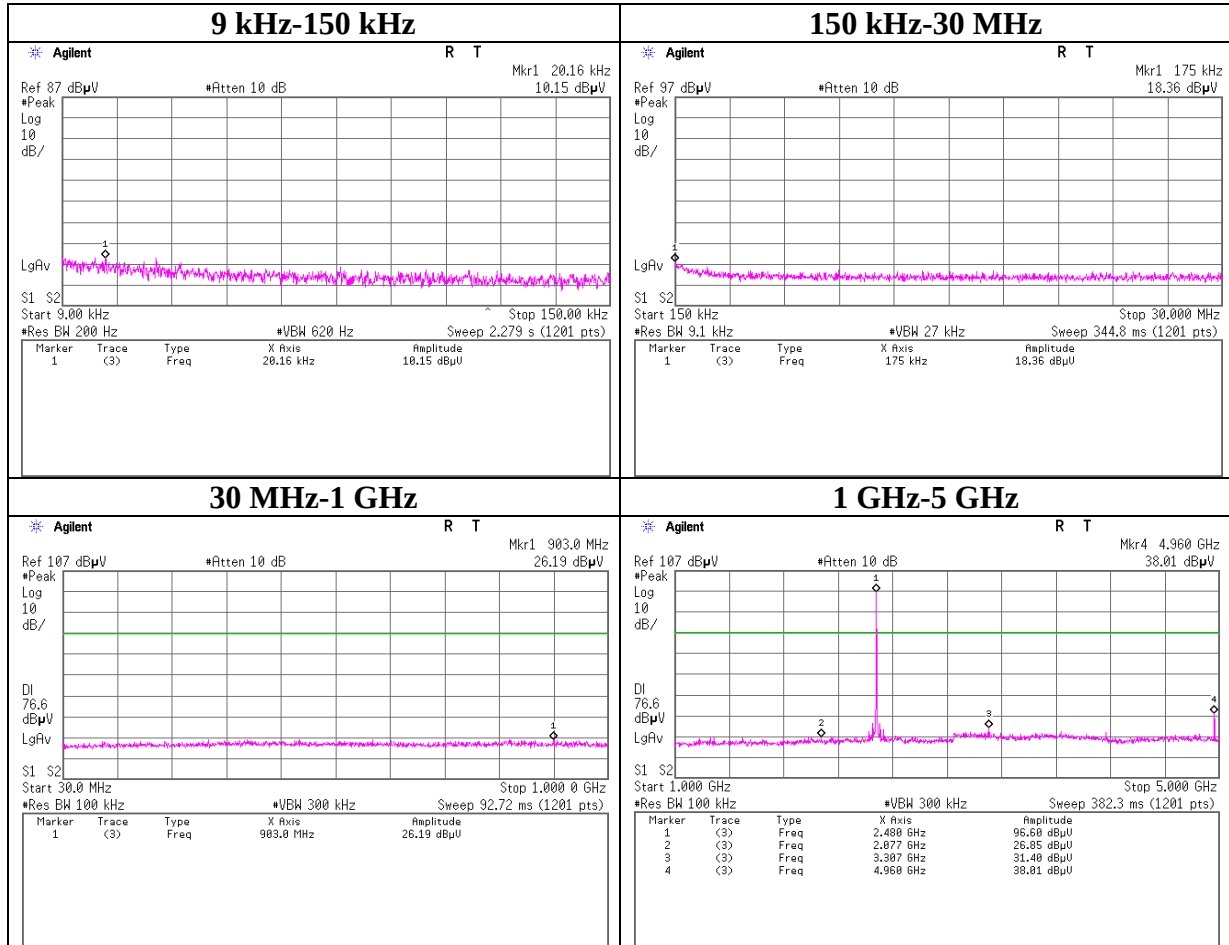
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) 3DH5

Tx 3DH5 2480 MHz



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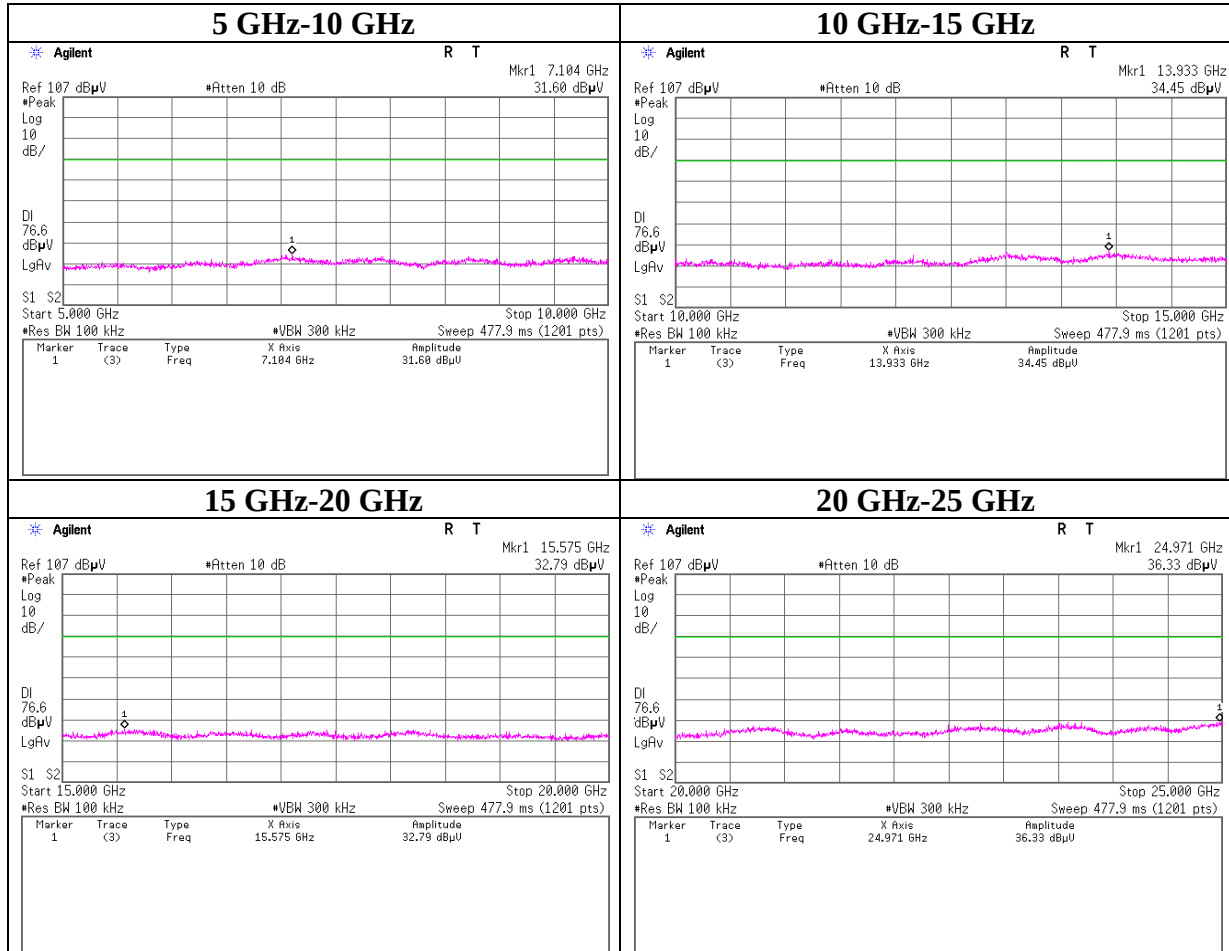
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) 3DH5

Tx 3DH5 2480 MHz



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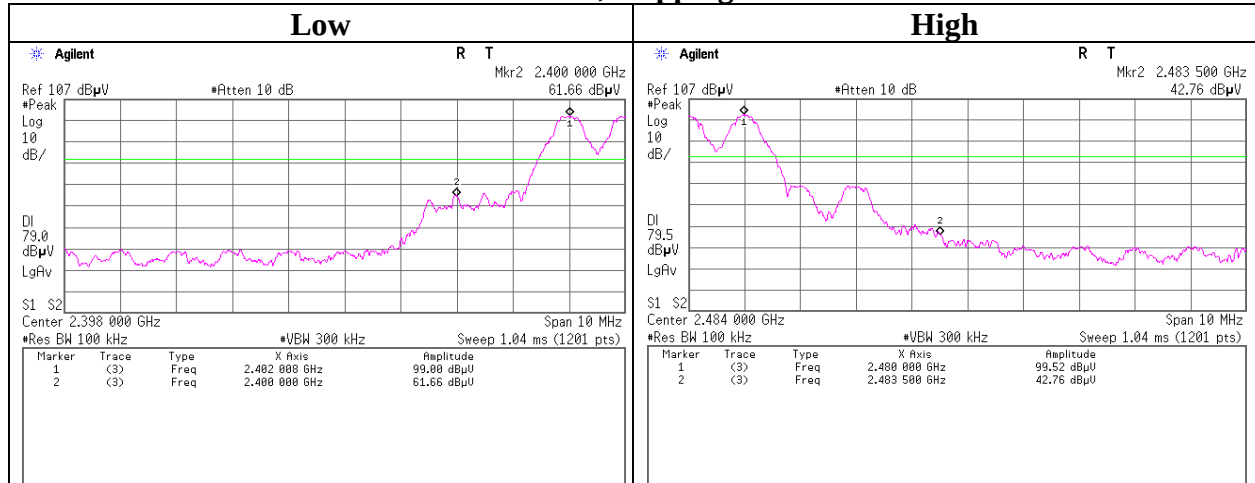
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

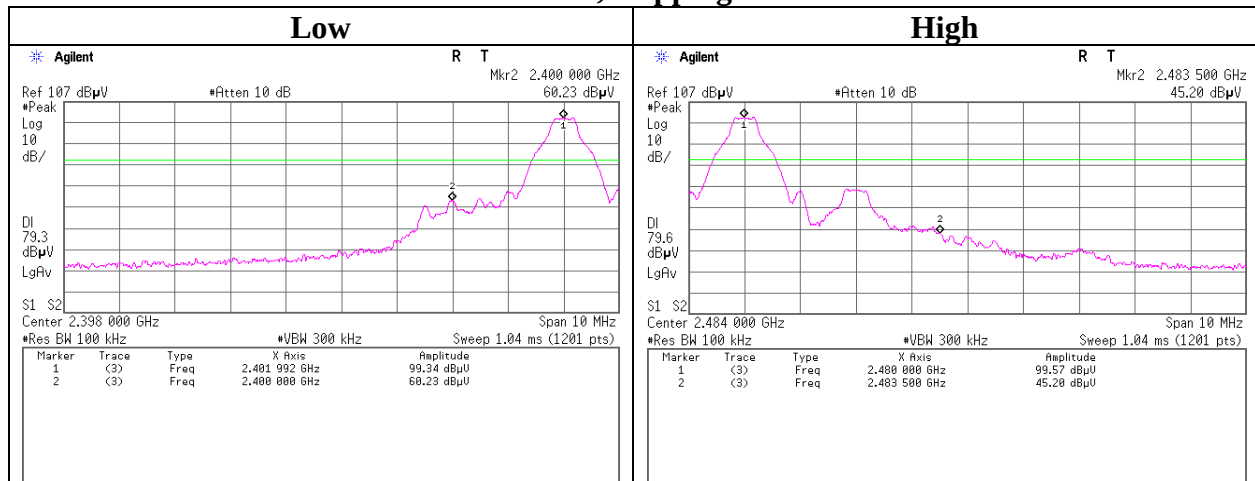
Conducted Emission Band Edge compliance

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping on/off) DH5

Tx DH5, Hopping on



Tx DH5, Hopping off



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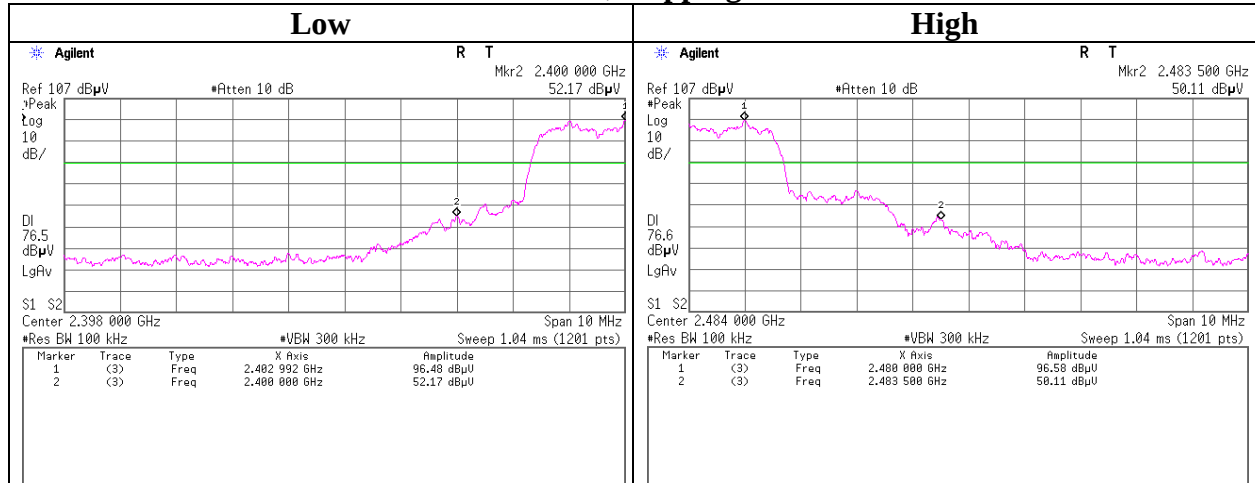
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

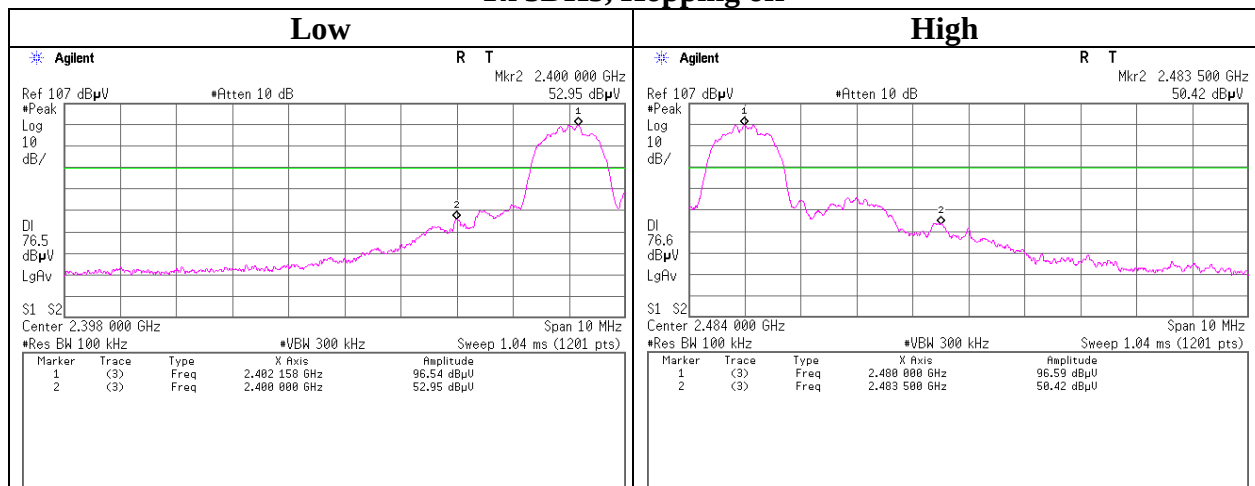
Conducted Emission Band Edge compliance

Test place Ise EMC Lab. No.4 Shielded Room
Report No. 10709614H
Date 03/31/2015
Temperature/ Humidity 21 deg. C / 41 % RH
Engineer Tsubasa Takayama
Mode Tx (Hopping on/off) 3DH5

Tx 3DH5, Hopping on



Tx 3DH5, Hopping off



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Telephone : +81 596 24 8999

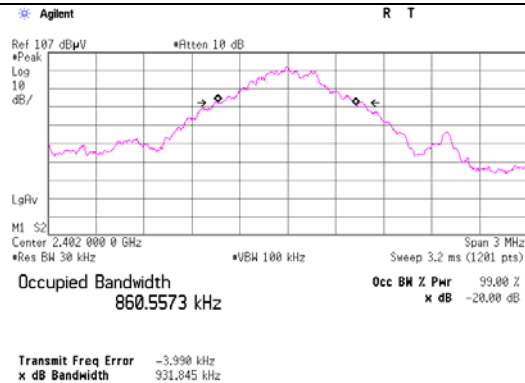
Facsimile : +81 596 24 8124

99% Occupied Bandwidth

Test place : Ise EMC Lab. No.4 Shielded Room
Report No. : 10709614H
Date : 03/31/2015
Temperature/ Humidity : 21 deg. C / 41 % RH
Engineer : Tsubasa Takayama
Mode : Tx (Hopping off) DH5/3DH5

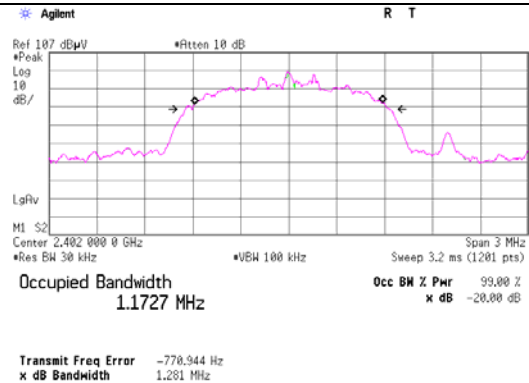
Tx DH5, Hopping off

2402 MHz

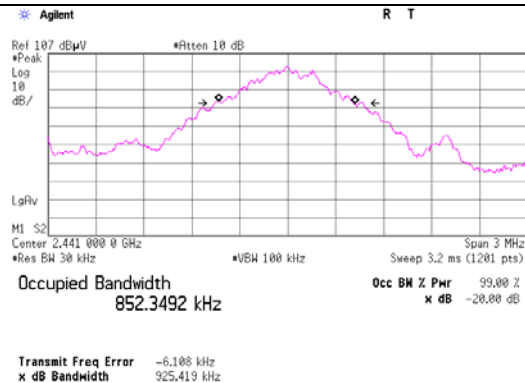


Tx 3DH5, Hopping off

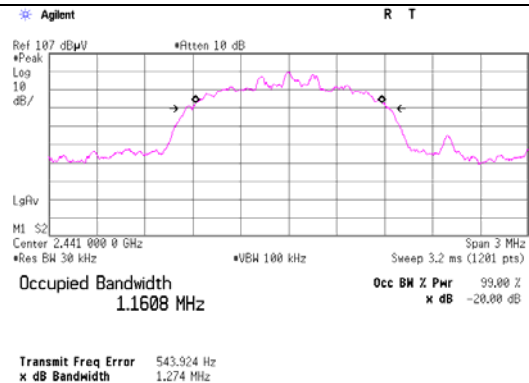
2402 MHz



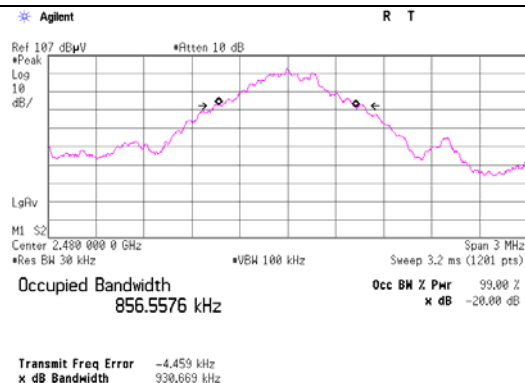
2441 MHz



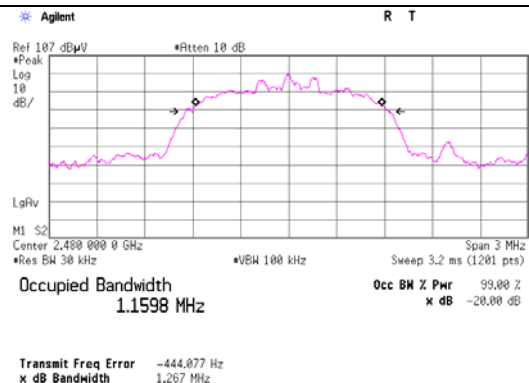
2441 MHz



2480 MHz



2480 MHz



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Telephone : +81 596 24 8999

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APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-23	Thermo-Hygrometer	Custom	CTH-201	0004	AT	2014/12/22 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	AT/RE	2014/11/12 * 12
MPM-13	Power Meter	Anritsu	ML2495A	0824014	AT	2014/11/11 * 12
MPSE-18	Power sensor	Anritsu	MA2411B	0738174	AT	2014/11/11 * 12
MCC-171	Microwave Cable	Junkosha	MWX221	1409S494	AT	2015/03/04 * 12
MAT-10	Attenuator(10dB)	Weinschel Corp	2	BL1173	AT	2014/11/19 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2015/02/26 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	1501	RE	2015/01/13 * 12
MJM-23	Measure	ASKUL	-	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2014/08/12 * 12
MCC-141	Microwave Cable	Junkosha	MWX221	1305S002R(1m) / 1405S146(5m)	RE	2014/06/11 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2015/03/12 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2014/06/11 * 12
MHF-26	High Pass Filter 3.5-18.0GHz	UL Japan	HPF SELECTOR	002	RE	2014/09/24 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ES140	100084	RE	2014/11/10 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2014/11/22 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2014/11/22 * 12
MCC-50	Coaxial Cable	UL Japan	-	-	RE	2014/06/02 * 12
MAT-68	Attenuator	Anritsu	MP721B	6200961025	RE	2014/11/11 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2015/03/09 * 12

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

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