



RADIO TEST REPORT

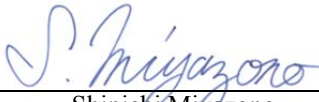
Test Report No. : 11245604H-C-R1

Applicant : FUJITSU TEN LIMITED
Type of Equipment : Car Audio
Model No. : FT0108A
FCC ID : BABFT0108A
Test regulation : FCC Part 15 Subpart C: 2016
*Bluetooth part
Test Result : Complied

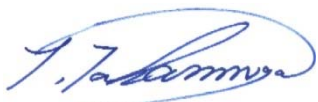
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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
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 11245604H-C. 11245604H-C is replaced with this report.

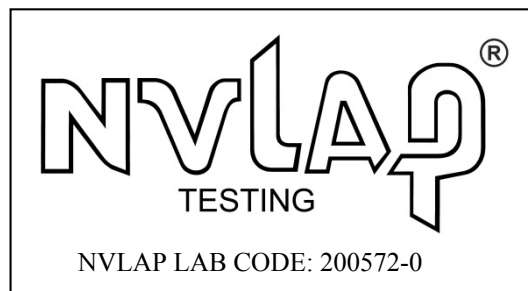
Date of test: April 24 to June 10, 2016

Representative test engineer:


Shinichi Miyazono
Engineer
Consumer Technology Division

Approved by:


Tsubasa Takayama
Engineer
Consumer Technology Division



This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
http://japan.ul.com/resources/emc_accredited/

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Ise EMC Lab.

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13-EM-F0429

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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 : FUKII DAISUKE

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

2.1 Identification of E.U.T.

Type of Equipment : Car Audio
Model No. : FT0108A
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC 12.0 V
Receipt Date of Sample : March 31, 2016
Country of Mass-production : Mexico
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No Modification by the test lab

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2.2 Product Description

Model: FT0108A (referred to as the EUT in this report) is a Car Audio.

Radio Specification

Radio Type : Transceiver
Power Supply (inner) : DC 1.8 V, 3.3 V
Clock frequency (Crystal) : 48 MHz

	IEEE802.11b	IEEE802.11g/n (20 M band)	IEEE802.11a/n/ac (20 M band)	IEEE802.11n/ac (40 M band)	IEEE802.11ac (80 M band)
Frequency of operation	2412 MHz - 2462 MHz	2412 MHz - 2462 MHz	5180 MHz - 5240 MHz 5260 MHz - 5320 MHz 5500 MHz - 5700 MHz 5745 MHz - 5825 MHz	5190 MHz - 5230 MHz 5270 MHz - 5310 MHz 5510 MHz - 5670 MHz 5755 MHz - 5795 MHz	5210 MHz 5290 MHz 5530 MHz - 5610 MHz 5775 MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK, 256QAM(IEEE802.11ac only))		
Channel spacing	5MHz		20MHz	40MHz	80MHz
Antenna type	Inverted F Antenna				
Antenna Connector type	U.FL-LP-066				
Antenna Gain	4.7 dBi (2.4 GHz Band), 5.7 dBi (5 GHz Band)				

	Bluetooth Ver.4.1 with EDR function *1)
Frequency of operation	2402 MHz - 2480 MHz
Type of modulation	BT: FHSS (GFSK, $\pi/4$ -DQPSK, 8-DPSK) LE: GFSK
Channel spacing	BT: 1 MHz LE: 2 MHz
Antenna type	Inverted F Antenna
Antenna Connector type	U.FL-LP-066
Antenna Gain	4.7 dBi

*1) This test report applies to Bluetooth Ver.4.1 with EDR function (2402 MHz - 2480 MHz).
(Wireless LAN and Bluetooth do not transmit simultaneously.)

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C
FCC part 15 final revised on April 6, 2016.

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

* Also the EUT complies with FCC Part 15 Subpart B.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.10-2013 6. Standard test methods 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	0.2 dB 959.980 MHz, QP, Horizontal, 959.981 MHz, QP, Horizontal.	Complied	Conducted/ Radiated (above 30 MHz) *2)

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.

*2) Radiated test was selected over 30 MHz based on section 15.247(d).

* In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred.

FCC Part 15.31 (e)

This EUT provides stable voltage(DC 1.8 V, 3.3 V) constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

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

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3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Bandwidth	IC: RSS-Gen 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 $k = 2$.

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Antenna terminal test Uncertainty (+/-)							
Power meter		Conducted emission and Power density			Conducted emission		Channel power
Below 1 GHz	Above 1 GHz	Below 1 GHz	1 GHz - 3 GHz	3 GHz - 18 GHz	18 GHz - 26.5 GHz	26.5 GHz - 40 GHz	
0.9 dB	1.0 dB	1.4 dB	1.7 dB	2.8 dB	2.8 dB	2.9 dB	

Test distance	Radiated emission (+dB) 9 kHz - 30 MHz
3m	3.8 dB
10m	3.7 dB

Polarity	Radiated emission (Below 1GHz)			
	(3 m*)(+dB)		(10 m*)(+dB)	
	30 - 200 MHz	200 - 1000MHz	30 - 200 MHz	200 - 1000MHz
Horizontal	4.9 dB	5.2 dB	4.9 dB	5.0 dB
Vertical	4.6 dB	5.9 dB	5.0 dB	5.0 dB

Radiated emission				
(3 m*)(+dB)		(1 m*)(+dB)		(10 m*)(+dB)
1 - 6GHz	6 - 18GHz	10 - 26.5 GHz	26.5 - 40GHz	1 -18 GHz
5.1 dB	5.3 dB	5.1 dB	5.1 dB	5.3 dB

*Measurement distance

Radiated emission test

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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Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	2973C-1	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	2973C-2	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	2973C-3	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	-	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	2973C-4	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	-	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	-	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.6 shielded room	-	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	-	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	-	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	-	3.1 x 5.0 x 2.7	N/A	-	-
No.9 measurement room	-	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.11 measurement room	-	6.2 x 4.7 x 3.0	4.8 x 4.6	-	-

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

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

4.1 Operating Mode(s)

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

Details of Operating Mode(s)

Test Item	Mode	Tested frequency
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
20dB Bandwidth	Tx (Hopping Off) 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
<p>*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload length (except Dwell time test)</p> <p>*2DH mode (2Mb/s EDR: pi/4DQPSK) was excluded for other tests than power measurement by using 3DH mode (3 Mb/s EDR: 8DPSK) as a representative.</p> <p>* It is considered that the non-tested packet type (e.g. inquiry) can be omitted as it is complied with above all test items based on Bluetooth Core specification.</p> <p>*EUT has the power settings by the software as follows; Power settings: 0 dBm Software: BSDT Ver 1.5.0.2.6 *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.</p>		

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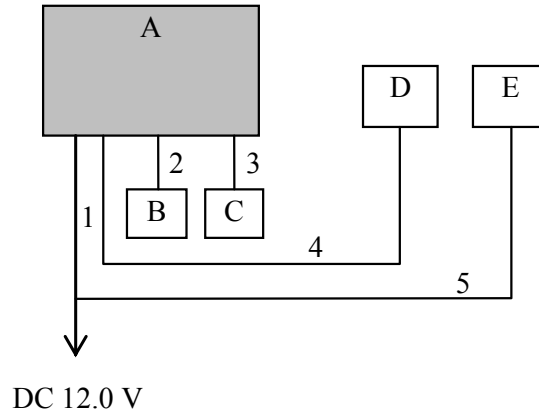
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4.2 Configuration and peripherals

Spurious Emission tests



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

Description of EUT

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Car Audio	FT0108A	100056506-0001	FUJITSU TEN LIMITED	EUT
B	USB Memory	PD-07 WH8GB	-	KING MAX	-
C	Termination	-	-	-	-
D	Speaker Dummy	-	-	-	-
E	Jig board	-	-	-	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC and Signal Cable	4.8	Unshielded	Unshielded	-
2	USB Cable	1.4	Shielded	Shielded	-
3	AM / FM Cable	2.4	Shielded	Shielded	-
4	Signal Cable	2.6	Unshielded	Unshielded	-
5	Signal Cable	2.9	Unshielded	Unshielded	-

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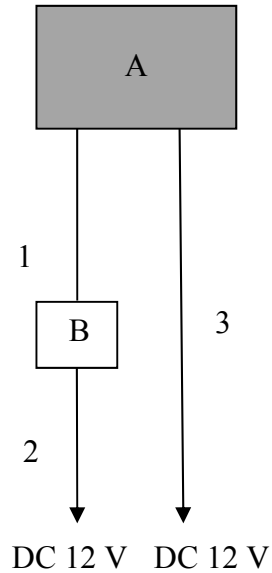
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Except for Spurious Emission tests



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

Description of EUT

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Car Audio	FT0108A	100056686-0006	FUJITSU TEN LIMITED	EUT
B	Jig board	-	-	-	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal Cable	2.9	Unshielded	Unshielded	-
2	DC Cable	0.5	Unshielded	Unshielded	-
3	DC Cable	2.3	Unshielded	Unshielded	-

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SECTION 5: Radiated Spurious Emission

Test Procedure

[For below 1GHz]

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.

[For above 1GHz]

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane.

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

The height of the measuring antenna varied between 1 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	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20 dBc 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 1 GHz	Above 1 GHz		20 dBc
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	3.9 m*2) (1 GHz – 10 GHz), 1 m*3) (10 GHz – 26.5 GHz),		3.9 m*2) (1 GHz – 10 GHz), 1 m*3) (10 GHz – 26.5 GHz),

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

*2) Distance Factor: $20 \times \log(3.9 \text{ m}/3.0 \text{ m}) = 2.28 \text{ dB}$

*3) Distance Factor: $20 \times \log(1.0 \text{ m}/3.0 \text{ m}) = -9.5 \text{ dB}$

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 - 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	3 MHz	30 kHz	100 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Number of Hopping Frequency	30 MHz	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	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 low enough as shown in the chart.

(9 kHz - 150 kHz: RBW = 200Hz, 150 kHz - 30 MHz: RBW = 9.1 kHz).

*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.11 Measurement Room
Report No. 11245604H
Date May 19, 2016
Temperature / Humidity 25 deg. C / 31 % RH
Engineer Takafumi Noguchi
Mode Tx, Hopping On and Off, DH5,3DH5

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.957	1.000	≥ 0.638
DH5	2441.0	0.949	1.000	≥ 0.632
DH5	2480.0	0.952	1.000	≥ 0.635
3DH5	2402.0	1.287	1.000	≥ 0.858
3DH5	2441.0	1.290	1.000	≥ 0.860
3DH5	2480.0	1.287	1.000	≥ 0.858

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

No limit applies to 20dB Bandwidth.

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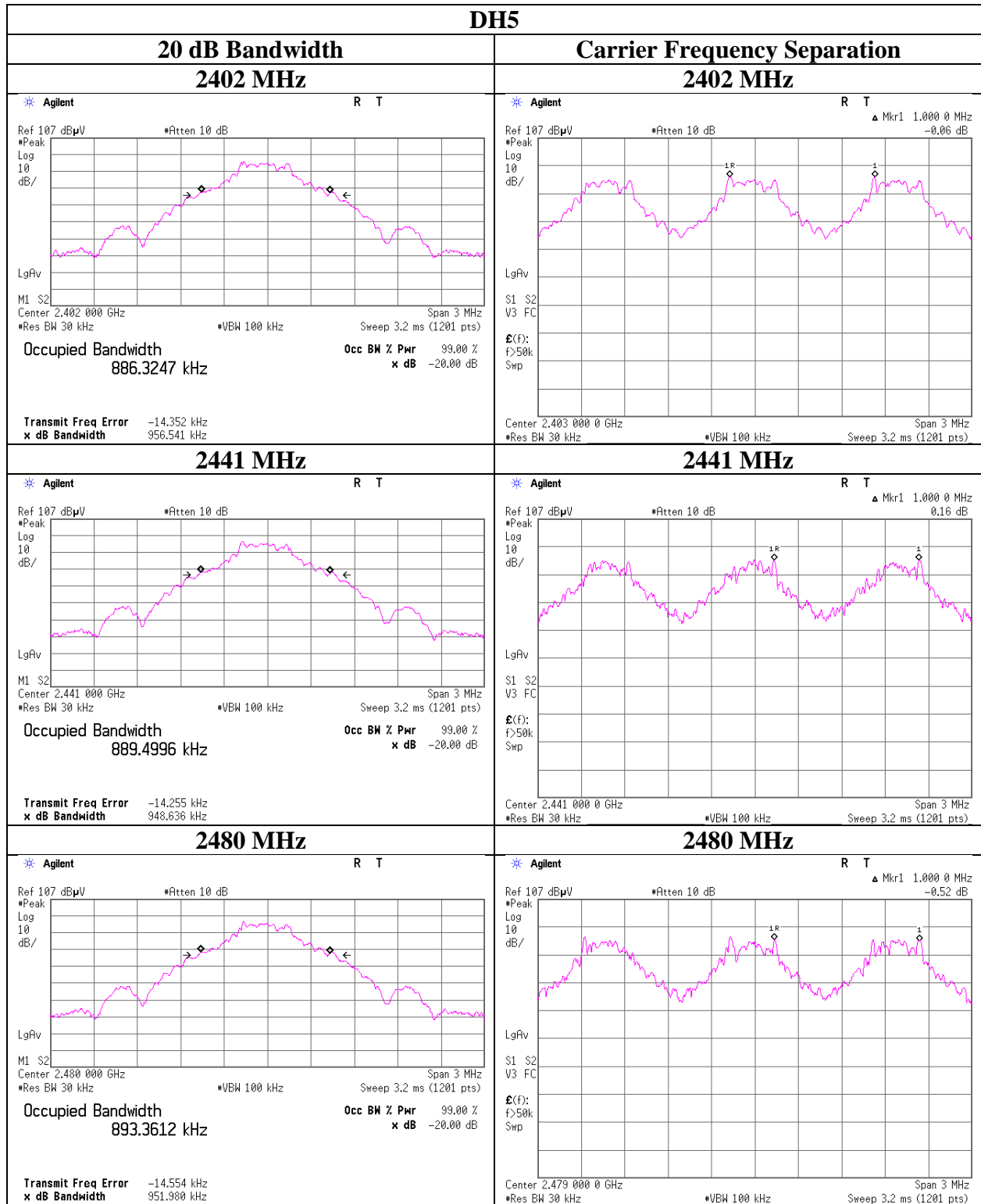
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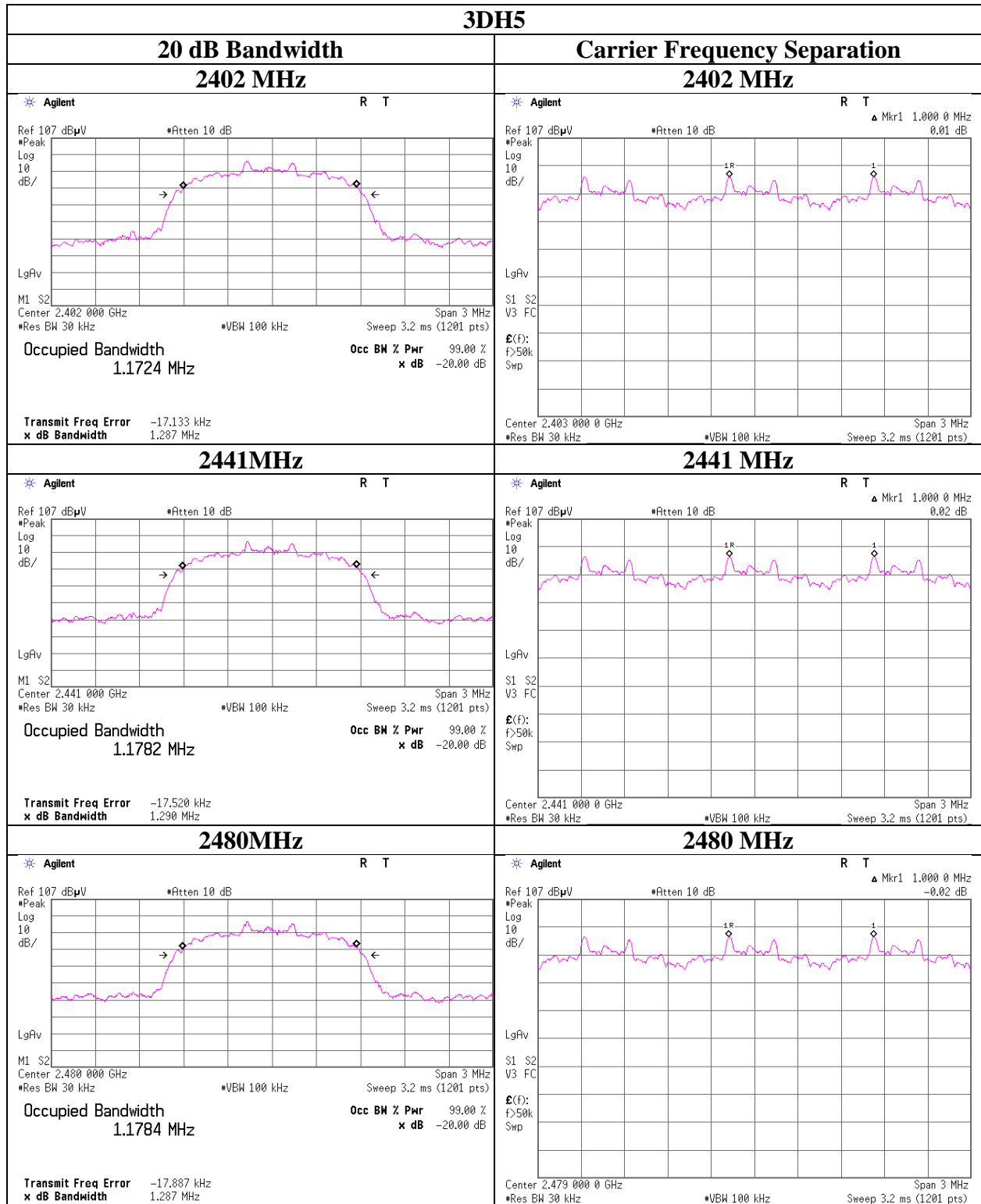
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20dB Bandwidth and Carrier Frequency Separation



20dB Bandwidth and Carrier Frequency Separation



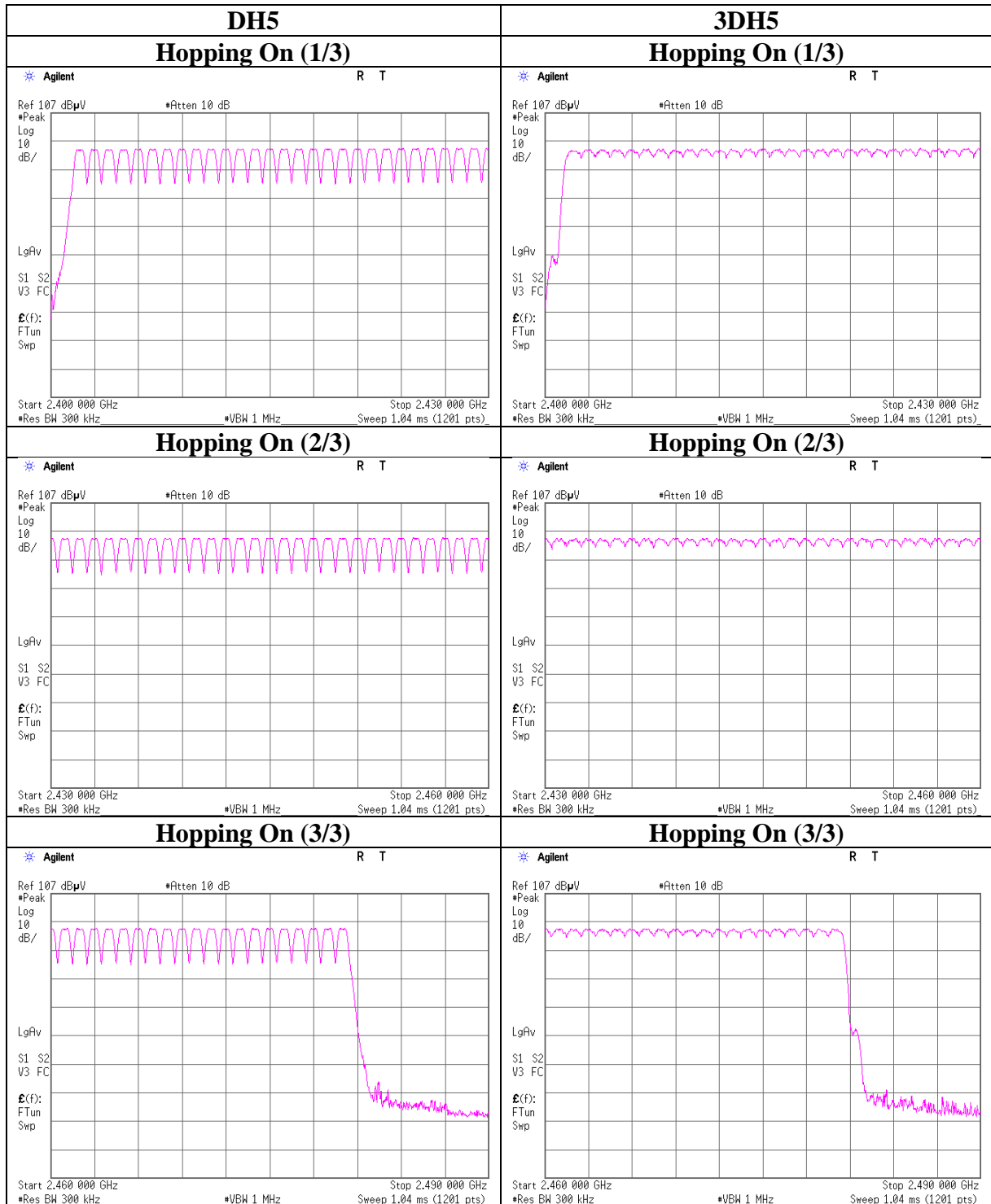
Number of Hopping Frequency

Test place Ise EMC Lab. No.11 Measurement Room
Report No. 11245604H
Date May 19, 2016
Temperature / Humidity 25 deg. C / 31 % RH
Engineer Takafumi Noguchi
Mode Tx, Hopping On

Mode	Number of channel [channels]	Limit [channels]
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.11 Measurement Room
Report No. : 11245604H
Date : May 19, 2016
Temperature / Humidity : 25 deg. C / 31 % RH
Engineer : Takafumi Noguchi
Mode : Tx, Hopping On

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 [msec]	Result [msec]	Limit [msec]	
DH1	49.2 times	/	5 sec.	x 31.6 sec. =	311 times	0.400	124	400
DH3	26.0 times	/	5 sec.	x 31.6 sec. =	165 times	1.658	274	400
DH5	20.2 times	/	5 sec.	x 31.6 sec. =	128 times	2.907	372	400
3DH1	48.8 times	/	5 sec.	x 31.6 sec. =	309 times	0.406	125	400
3DH3	28.0 times	/	5 sec.	x 31.6 sec. =	177 times	1.660	294	400
3DH5	19.4 times	/	5 sec.	x 31.6 sec. =	123 times	2.913	358	400

Sample Calculation

Result = Number of transmission x Length of transmission

*Average data of 5 tests.(except Inquiry)

Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	50	49	49	48	50	49.2
DH3	25	25	26	26	28	26.0
DH5	21	19	20	21	20	20.2
3DH1	50	46	49	49	50	48.8
3DH3	28	31	28	27	26	28.0
3DH5	19	16	23	18	21	19.4

Sample Calculation

Average = Summation (Sampling 1 to 5) / 5

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

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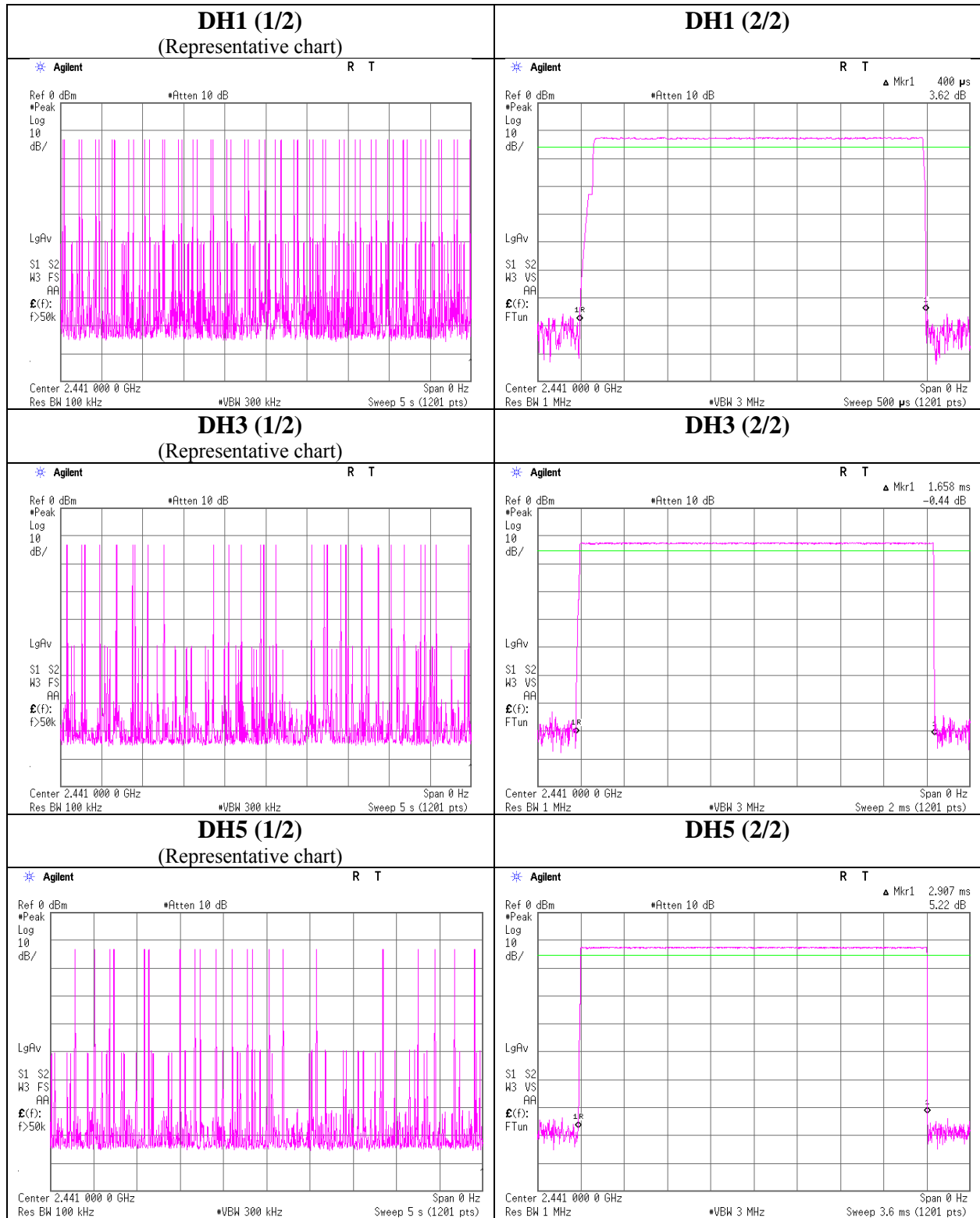
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Dwell time



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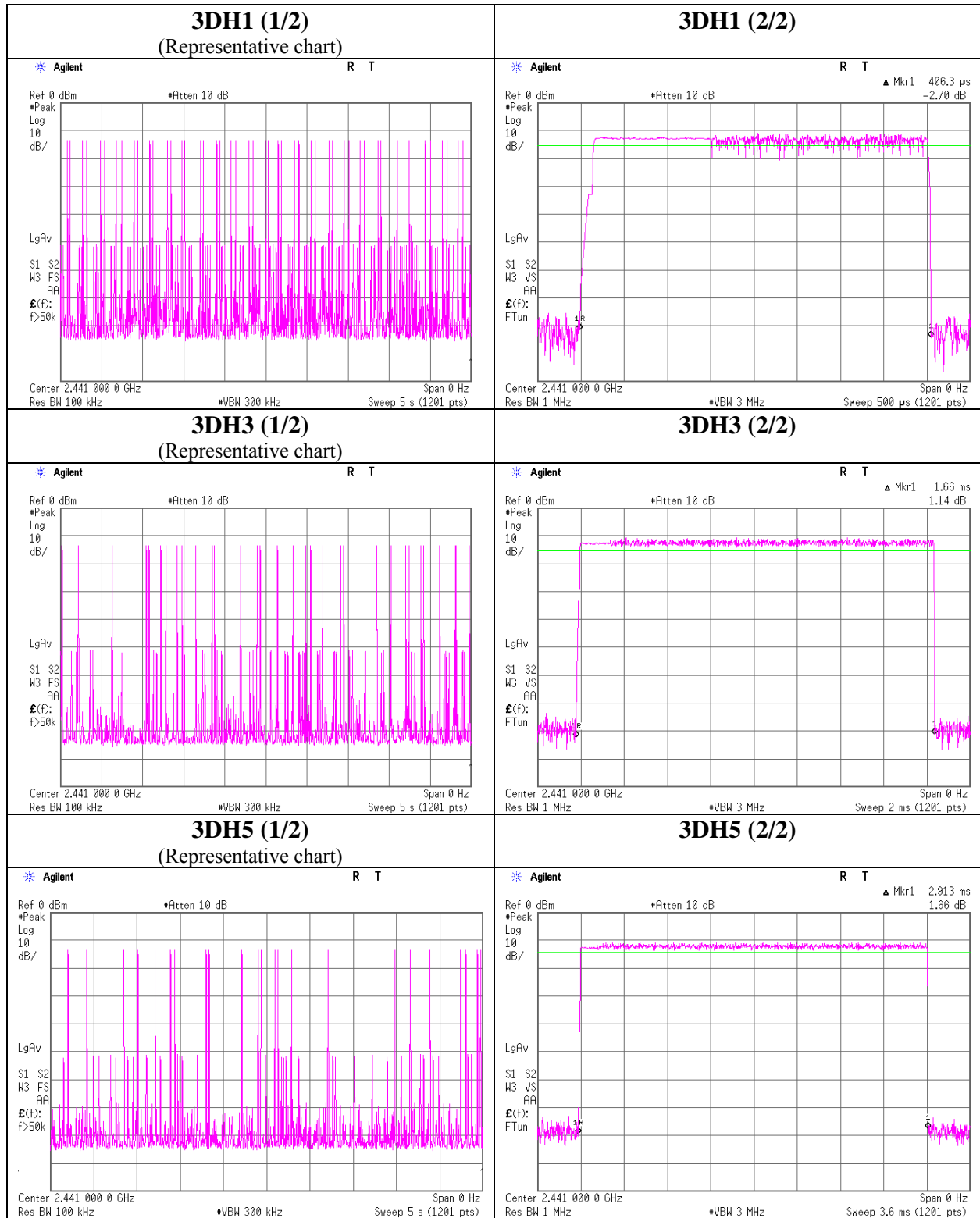
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Dwell time



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Maximum Peak Output Power

Test place Ise EMC Lab. No.11 Measurement Room
Report No. 11245604H
Date May 19, 2016
Temperature / Humidity 25 deg. C / 31 % RH
Engineer Takafumi Noguchi
Mode Tx, Hopping Off

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
DH5	2402.0	-12.37	1.51	9.53	-1.33	0.74	20.96	125	22.29
DH5	2441.0	-11.89	1.53	9.54	-0.82	0.83	20.96	125	21.78
DH5	2480.0	-11.80	1.54	9.54	-0.72	0.85	20.96	125	21.68
2DH5	2402.0	-10.71	1.51	9.53	0.33	1.08	20.96	125	20.63
2DH5	2441.0	-10.40	1.53	9.54	0.67	1.17	20.96	125	20.29
2DH5	2480.0	-10.30	1.54	9.54	0.78	1.20	20.96	125	20.18
3DH5	2402.0	-10.37	1.51	9.53	0.67	1.17	20.96	125	20.29
3DH5	2441.0	-10.04	1.53	9.54	1.03	1.27	20.96	125	19.93
3DH5	2480.0	-9.94	1.54	9.54	1.14	1.30	20.96	125	19.82

Sample Calculation:
Result = Reading + Cable Loss + Attenuator Loss

Average Output Power
(Reference data for RF Exposure / SAR testing)

Test place : Ise EMC Lab. No.11 Measurement Room
Report No. : 11245604H
Date : May 19, 2016
Temperature / Humidity : 25 deg. C / 31 % RH
Engineer : Takafumi Noguchi
Mode : Tx, Hopping Off

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed AV power)	
					[dBm]	[mW]
DH5	2402.0	-14.16	1.51	9.53	-3.12	0.49
DH5	2441.0	-13.67	1.53	9.54	-2.60	0.55
DH5	2480.0	-13.60	1.54	9.54	-2.52	0.56
2DH5	2402.0	-14.69	1.51	9.53	-3.65	0.43
2DH5	2441.0	-14.21	1.53	9.54	-3.14	0.49
2DH5	2480.0	-14.12	1.54	9.54	-3.04	0.50
3DH5	2402.0	-14.66	1.51	9.53	-3.62	0.43
3DH5	2441.0	-14.16	1.53	9.54	-3.09	0.49
3DH5	2480.0	-14.02	1.54	9.54	-2.94	0.51

Sample Calculation:

Result (Timed AV power) = Reading + Cable Loss + Attenuator Loss

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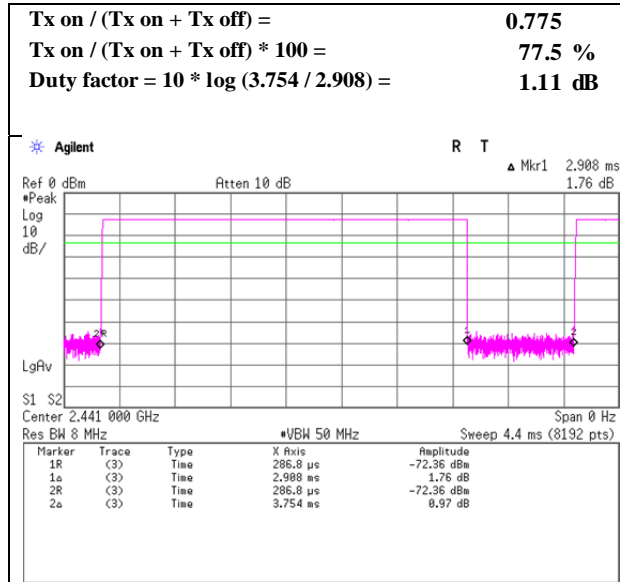
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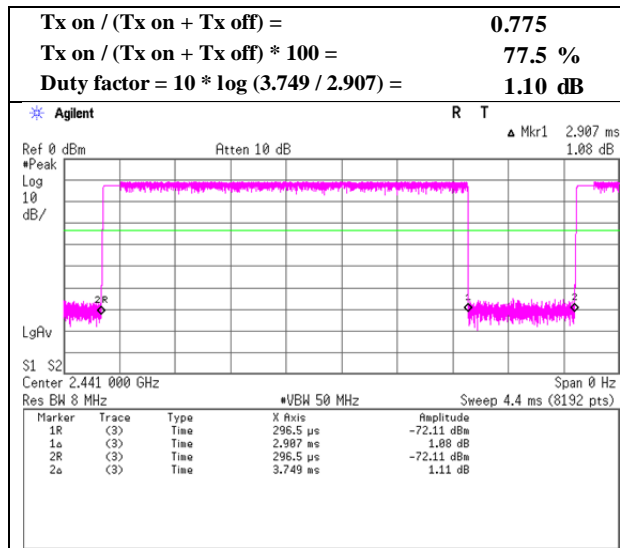
Burst Rate Confirmation

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11245604H
Date	May 19, 2016
Temperature / Humidity	25 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx, Hopping Off

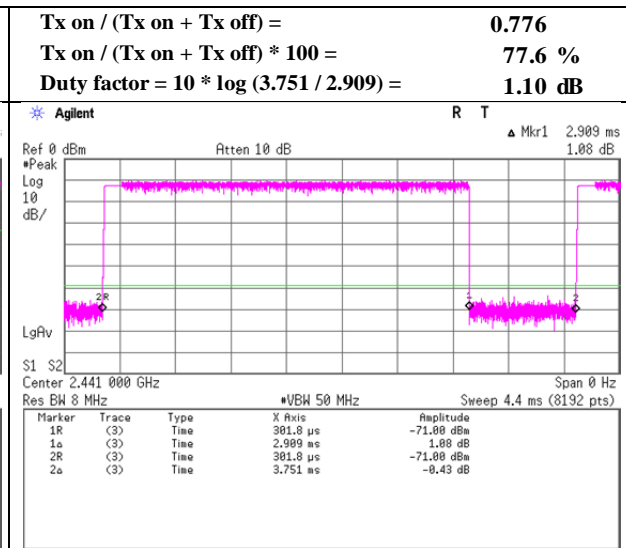
DH5



2DH5



3DH5



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Radiated Spurious Emission

Test place	Ise EMC Lab.		
Report No.	11245604H		
Semi Anechoic Chamber	No.1	No.4	No.4
Date	April 24, 2016	June 9, 2016	June 10, 2016
Temperature / Humidity	21 deg. C / 57 % RH	22 deg. C / 70 % RH	22 deg. C / 72 % RH
Engineer	Keisuke Kawamura (1 GHz - 10 GHz)	Tomoki Matsui (Above 10 GHz)	Shinichi Miyazono (Below 1 GHz)
Mode	Tx, Hopping Off, 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	259.071	QP	53.4	12.6	9.6	31.9	43.7	46.0	2.3	
Hori	407.101	QP	50.9	15.8	10.6	32.1	45.2	46.0	0.8	
Hori	777.189	QP	38.0	20.5	12.7	31.8	39.4	46.0	6.6	
Hori	828.738	QP	37.2	21.1	13.0	31.5	39.8	46.0	6.2	
Hori	926.241	QP	33.1	22.0	13.4	31.0	37.5	46.0	8.5	
Hori	959.981	QP	40.9	22.2	13.6	30.9	45.8	46.0	0.2	
Hori	2390.000	PK	45.4	26.8	5.0	36.3	40.9	73.9	33.0	
Hori	4804.000	PK	43.6	31.8	7.0	35.6	46.8	73.9	27.1	Floor noise
Hori	7206.000	PK	43.3	36.1	7.7	35.8	51.3	73.9	22.6	Floor noise
Hori	9608.000	PK	44.7	38.6	8.5	36.2	55.6	73.9	18.3	Floor noise
Hori	2390.000	AV	36.5	26.8	5.0	36.3	32.0	53.9	21.9	
Hori	4804.000	AV	30.6	31.8	7.0	35.6	33.8	53.9	20.1	Floor noise
Hori	7206.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Hori	9608.000	AV	31.6	38.6	8.5	36.2	42.5	53.9	11.4	Floor noise
Vert	407.098	QP	49.5	15.8	10.6	32.1	43.8	46.0	2.2	
Vert	592.145	QP	42.0	18.9	11.7	32.2	40.4	46.0	5.6	
Vert	828.736	QP	38.4	21.1	13.0	31.5	41.0	46.0	5.0	
Vert	877.492	QP	34.5	21.6	13.2	31.2	38.1	46.0	7.9	
Vert	926.240	QP	35.8	22.0	13.4	31.0	40.2	46.0	5.8	
Vert	959.981	QP	40.8	22.2	13.6	30.9	45.7	46.0	0.3	
Vert	2390.000	PK	45.5	26.8	5.0	36.3	41.0	73.9	32.9	
Vert	4804.000	PK	44.1	31.8	7.0	35.6	47.3	73.9	26.7	Floor noise
Vert	7206.000	PK	43.0	36.1	7.7	35.8	51.0	73.9	22.9	Floor noise
Vert	9608.000	PK	44.4	38.6	8.5	36.2	55.3	73.9	18.6	Floor noise
Vert	2390.000	AV	36.3	26.8	5.0	36.3	31.8	53.9	22.1	
Vert	4804.000	AV	30.6	31.8	7.0	35.6	33.8	53.9	20.1	Floor noise
Vert	7206.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Vert	9608.000	AV	31.7	38.6	8.5	36.2	42.6	53.9	11.4	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
 10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

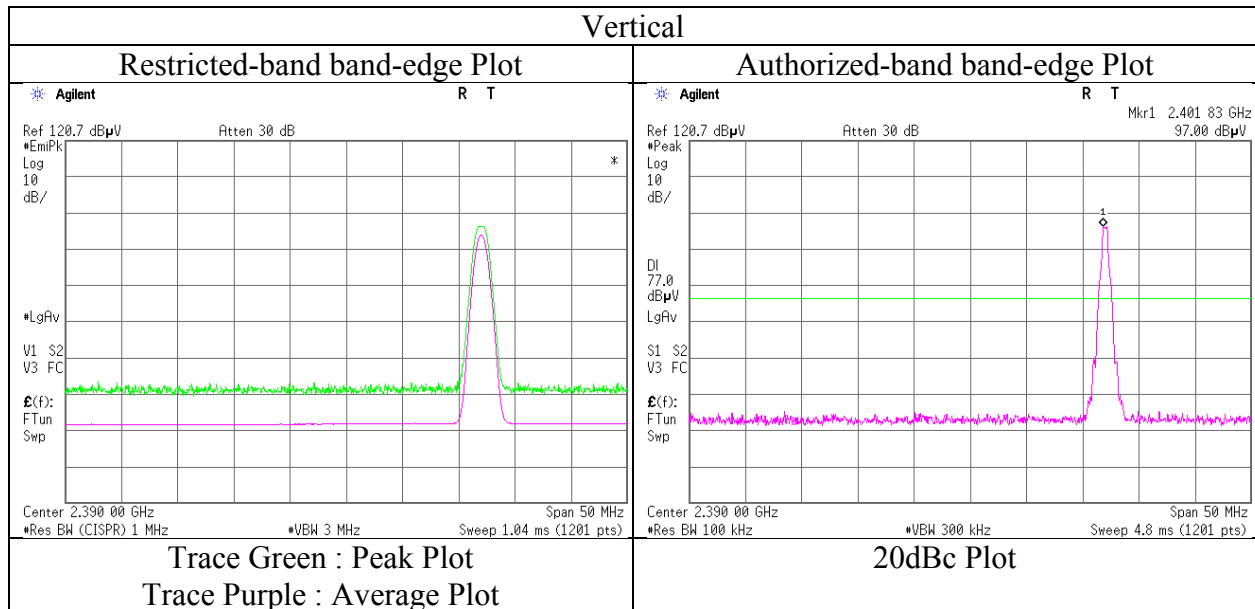
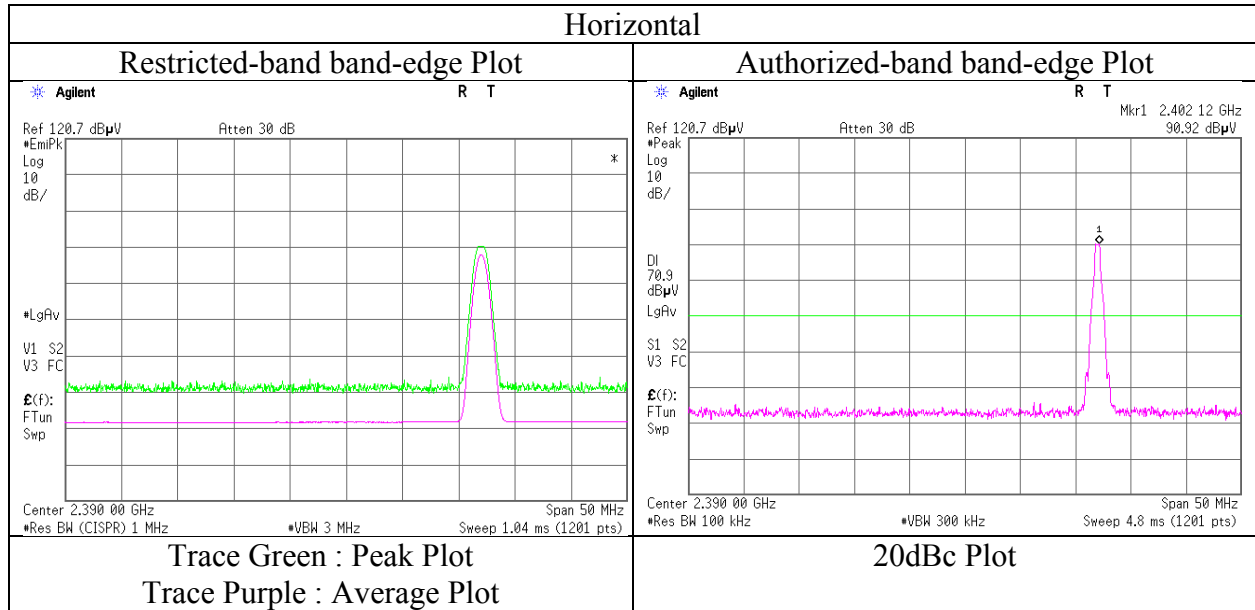
20dBc Data Sheet

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	90.9	26.8	5.0	36.3	86.4	-	-	Carrier
Hori	2400.000	PK	36.6	26.8	5.0	36.3	32.1	66.4	34.3	
Vert	2402.000	PK	97.0	26.8	5.0	36.3	92.5	-	-	Carrier
Vert	2400.000	PK	40.1	26.8	5.0	36.3	35.6	72.5	36.9	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place : Ise EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11245604H
Date : April 24, 2016
Temperature / Humidity : 21 deg. C / 57 % RH
Engineer : Keisuke Kawamura
(1 GHz - 10 GHz)
Mode : Tx, Hopping Off, DH5 2402 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.		
Report No.	11245604H		
Semi Anechoic Chamber	No.1	No.4	
Date	April 24, 2016	June 9, 2016	June 10, 2016
Temperature / Humidity	21 deg. C / 57 % RH	22 deg. C / 70 % RH	22 deg. C / 72 % RH
Engineer	Keisuke Kawamura (1 GHz - 10 GHz)	Tomoki Matsui (Above 10 GHz)	Shinichi Miyazono (Below 1 GHz)
Mode	Tx, Hopping Off, 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	259.080	QP	53.2	12.6	9.6	31.9	43.5	46.0	2.5	
Hori	407.091	QP	51.0	15.8	10.6	32.1	45.3	46.0	0.7	
Hori	777.192	QP	38.1	20.5	12.7	31.8	39.5	46.0	6.5	
Hori	828.740	QP	37.2	21.1	13.0	31.5	39.8	46.0	6.2	
Hori	926.239	QP	33.0	22.0	13.4	31.0	37.4	46.0	8.6	
Hori	959.980	QP	40.9	22.2	13.6	30.9	45.8	46.0	0.2	
Hori	4882.000	PK	43.6	32.0	7.0	35.5	47.1	73.9	26.8	Floor noise
Hori	7323.000	PK	43.3	36.1	7.7	35.8	51.3	73.9	22.6	Floor noise
Hori	9764.000	PK	44.7	38.6	8.6	36.3	55.6	73.9	18.3	Floor noise
Hori	4882.000	AV	30.6	32.0	7.0	35.5	34.1	53.9	19.8	Floor noise
Hori	7323.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Hori	9764.000	AV	31.6	38.6	8.6	36.3	42.5	53.9	11.4	Floor noise
Vert	407.093	QP	49.6	15.8	10.6	32.1	43.9	46.0	2.1	
Vert	592.144	QP	42.0	18.9	11.7	32.2	40.4	46.0	5.6	
Vert	828.734	QP	38.4	21.1	13.0	31.5	41.0	46.0	5.0	
Vert	877.490	QP	34.6	21.6	13.2	31.2	38.2	46.0	7.8	
Vert	926.242	QP	35.9	22.0	13.4	31.0	40.3	46.0	5.7	
Vert	959.981	QP	40.7	22.2	13.6	30.9	45.6	46.0	0.4	
Vert	4882.000	PK	44.1	32.0	7.0	35.5	47.6	73.9	26.4	Floor noise
Vert	7323.000	PK	43.0	36.1	7.7	35.8	51.0	73.9	22.9	Floor noise
Vert	9764.000	PK	44.4	38.6	8.6	36.3	55.3	73.9	18.6	Floor noise
Vert	4882.000	AV	30.6	32.0	7.0	35.5	34.1	53.9	19.8	Floor noise
Vert	7323.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Vert	9764.000	AV	31.7	38.6	8.6	36.3	42.6	53.9	11.4	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
 10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

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Radiated Spurious Emission

Test place	Ise EMC Lab.		
Report No.	11245604H		
Semi Anechoic Chamber	No.1	No.4	No.4
Date	April 24, 2016	June 9, 2016	June 10, 2016
Temperature / Humidity	21 deg. C / 57 % RH	22 deg. C / 70 % RH	22 deg. C / 72 % RH
Engineer	Keisuke Kawamura (1 GHz - 10 GHz)	Tomoki Matsui (Above 10 GHz)	Shinichi Miyazono (Below 1 GHz)
Mode	Tx, Hopping Off, 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	259.065	QP	53.2	12.6	9.6	31.9	43.5	46.0	2.5	
Hori	407.100	QP	51.0	15.8	10.6	32.1	45.3	46.0	0.7	
Hori	777.190	QP	37.9	20.5	12.7	31.8	39.3	46.0	6.7	
Hori	828.736	QP	37.1	21.1	13.0	31.5	39.7	46.0	6.3	
Hori	926.241	QP	33.3	22.0	13.4	31.0	37.7	46.0	8.3	
Hori	959.981	QP	40.9	22.2	13.6	30.9	45.8	46.0	0.2	
Hori	2483.500	PK	48.3	26.9	5.0	36.3	43.9	73.9	30.0	
Hori	4960.000	PK	43.6	32.1	6.9	35.5	47.1	73.9	26.8	Floor noise
Hori	7440.000	PK	43.3	36.1	7.7	35.8	51.3	73.9	22.6	Floor noise
Hori	9920.000	PK	44.7	38.6	8.5	36.3	55.5	73.9	18.4	Floor noise
Hori	2483.500	AV	36.7	26.9	5.0	36.3	32.3	53.9	21.6	
Hori	4960.000	AV	30.6	32.1	6.9	35.5	34.1	53.9	19.8	Floor noise
Hori	7440.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Hori	9920.000	AV	31.6	38.6	8.5	36.3	42.4	53.9	11.5	Floor noise
Vert	407.101	QP	49.3	15.8	10.6	32.1	43.6	46.0	2.4	
Vert	592.144	QP	42.1	18.9	11.7	32.2	40.5	46.0	5.5	
Vert	828.738	QP	38.3	21.1	13.0	31.5	40.9	46.0	5.1	
Vert	877.498	QP	34.6	21.6	13.2	31.2	38.2	46.0	7.8	
Vert	926.233	QP	35.9	22.0	13.4	31.0	40.3	46.0	5.7	
Vert	959.982	QP	40.7	22.2	13.6	30.9	45.6	46.0	0.4	
Vert	2483.500	PK	49.7	26.9	5.0	36.3	45.3	73.9	28.6	
Vert	4960.000	PK	44.1	32.1	6.9	35.5	47.6	73.9	26.4	Floor noise
Vert	7440.000	PK	43.0	36.1	7.7	35.8	51.0	73.9	22.9	Floor noise
Vert	9920.000	PK	44.4	38.6	8.5	36.3	55.2	73.9	18.7	Floor noise
Vert	2483.500	AV	37.8	26.9	5.0	36.3	33.4	53.9	20.5	
Vert	4960.000	AV	30.6	32.1	6.9	35.5	34.1	53.9	19.8	Floor noise
Vert	7440.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Vert	9920.000	AV	31.7	38.6	8.5	36.3	42.5	53.9	11.5	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
 10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

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Ise EMC Lab.

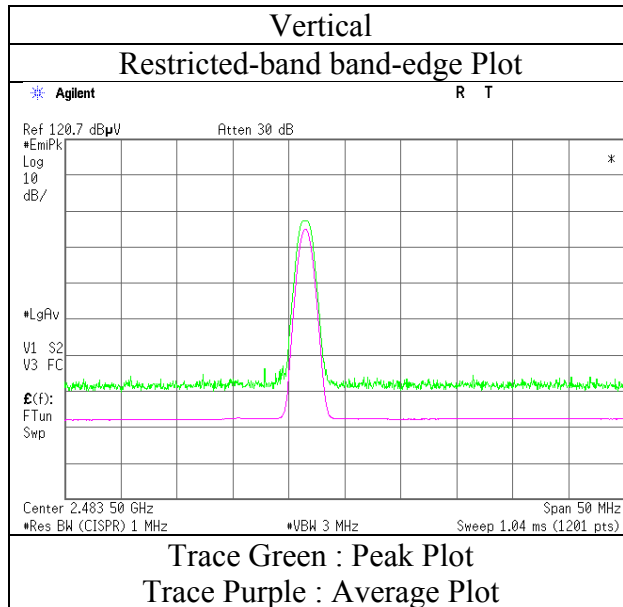
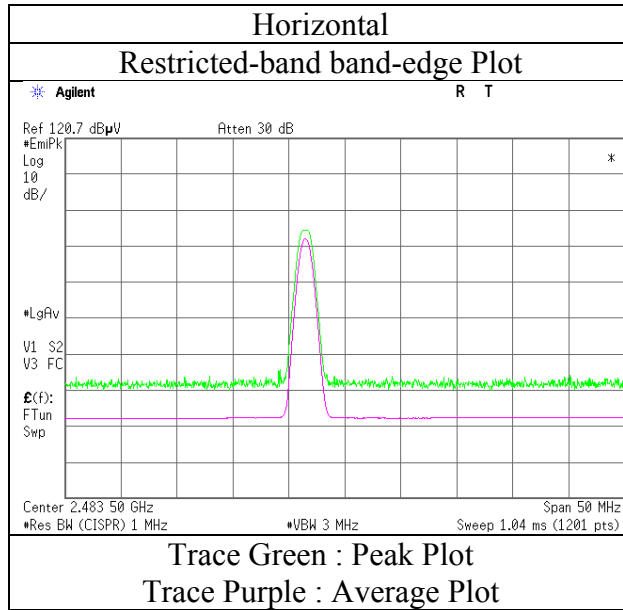
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Radiated Spurious Emission
(Reference Plot for band-edge)

Test place Ise EMC Lab. No.1 Semi Anechoic Chamber
Report No. 11245604H
Date April 24, 2016
Temperature / Humidity 21 deg. C / 57 % RH
Engineer Keisuke Kawamura
(1 GHz - 10 GHz)
Mode Tx, Hopping Off, DH5 2480 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.		
Report No.	11245604H		
Semi Anechoic Chamber	No.1	No.4	No.4
Date	April 24, 2016	June 9, 2016	June 10, 2016
Temperature / Humidity	21 deg. C / 57 % RH	22 deg. C / 70 % RH	22 deg. C / 72 % RH
Engineer	Keisuke Kawamura (1 GHz - 10 GHz)	Tomoki Matsui (Above 10GHz)	Shinichi Miyazono (Below 1 GHz)
Mode	Tx, Hopping Off, 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	259.066	QP	53.1	12.6	9.6	31.9	43.4	46.0	2.6	
Hori	407.102	QP	51.1	15.8	10.6	32.1	45.4	46.0	0.6	
Hori	777.193	QP	37.6	20.5	12.7	31.8	39.0	46.0	7.0	
Hori	828.741	QP	37.0	21.1	13.0	31.5	39.6	46.0	6.4	
Hori	926.240	QP	33.2	22.0	13.4	31.0	37.6	46.0	8.4	
Hori	959.981	QP	40.9	22.2	13.6	30.9	45.8	46.0	0.2	
Hori	2390.000	PK	45.2	26.8	5.0	36.3	40.7	73.9	33.2	
Hori	4804.000	PK	43.6	31.8	7.0	35.6	46.8	73.9	27.1	Floor noise
Hori	7206.000	PK	43.3	36.1	7.7	35.8	51.3	73.9	22.6	Floor noise
Hori	9608.000	PK	44.7	38.6	8.5	36.2	55.6	73.9	18.3	Floor noise
Hori	2390.000	AV	32.4	26.8	5.0	36.3	27.9	53.9	26.0	
Hori	4804.000	AV	30.6	31.8	7.0	35.6	33.8	53.9	20.1	Floor noise
Hori	7206.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Hori	9608.000	AV	31.6	38.6	8.5	36.2	42.5	53.9	11.4	Floor noise
Vert	407.100	QP	49.4	15.8	10.6	32.1	43.7	46.0	2.3	
Vert	592.144	QP	42.0	18.9	11.7	32.2	40.4	46.0	5.6	
Vert	828.738	QP	38.1	21.1	13.0	31.5	40.7	46.0	5.3	
Vert	877.498	QP	34.5	21.6	13.2	31.2	38.1	46.0	7.9	
Vert	926.233	QP	36.0	22.0	13.4	31.0	40.4	46.0	5.6	
Vert	959.982	QP	40.8	22.2	13.6	30.9	45.7	46.0	0.3	
Vert	2390.000	PK	47.8	26.8	5.0	36.3	43.3	73.9	30.6	
Vert	4804.000	PK	44.1	31.8	7.0	35.6	47.3	73.9	26.7	Floor noise
Vert	7206.000	PK	43.0	36.1	7.7	35.8	51.0	73.9	22.9	Floor noise
Vert	9608.000	PK	44.4	38.6	8.5	36.2	55.3	73.9	18.6	Floor noise
Vert	2390.000	AV	31.4	26.8	5.0	36.3	26.9	53.9	27.0	
Vert	4804.000	AV	30.6	31.8	7.0	35.6	33.8	53.9	20.1	Floor noise
Vert	7206.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Vert	9608.000	AV	31.7	38.6	8.5	36.2	42.6	53.9	11.4	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz $20\log(3.9\text{ m} / 3.0\text{ m}) = 2.28\text{ dB}$
10 GHz - 26.5 GHz $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

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	89.9	26.8	5.0	36.3	85.4	-	-	Carrier
Hori	2400.000	PK	36.9	26.8	5.0	36.3	32.4	65.4	33.0	
Vert	2402.000	PK	96.6	26.8	5.0	36.3	92.1	-	-	Carrier
Vert	2400.000	PK	42.5	26.8	5.0	36.3	38.0	72.1	34.1	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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Ise EMC Lab.

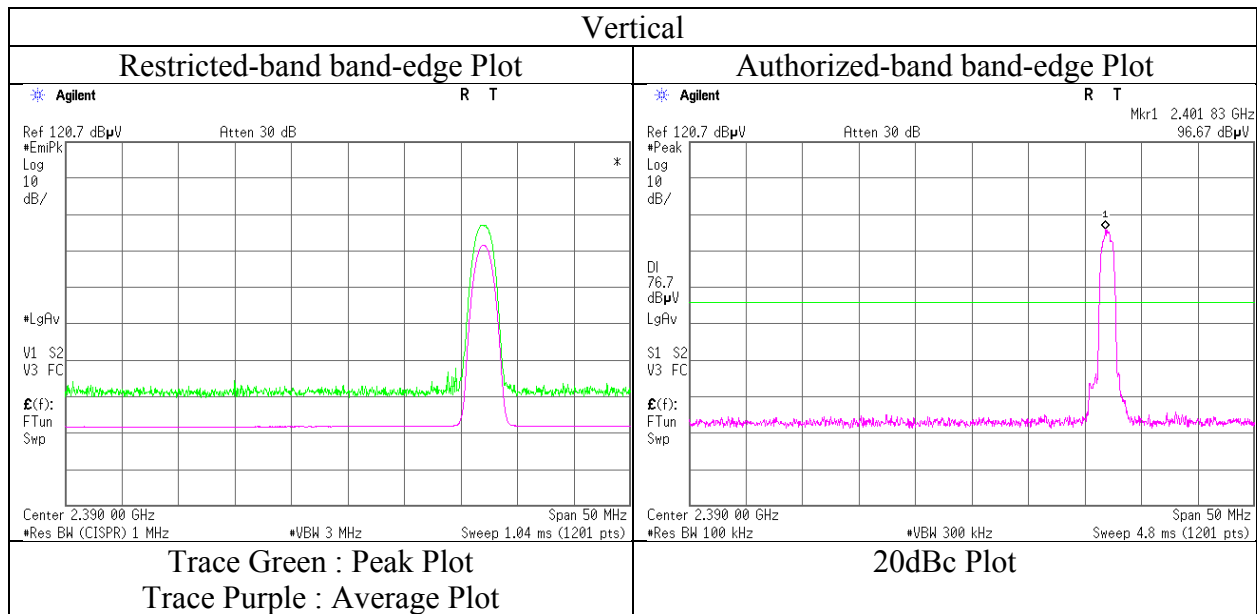
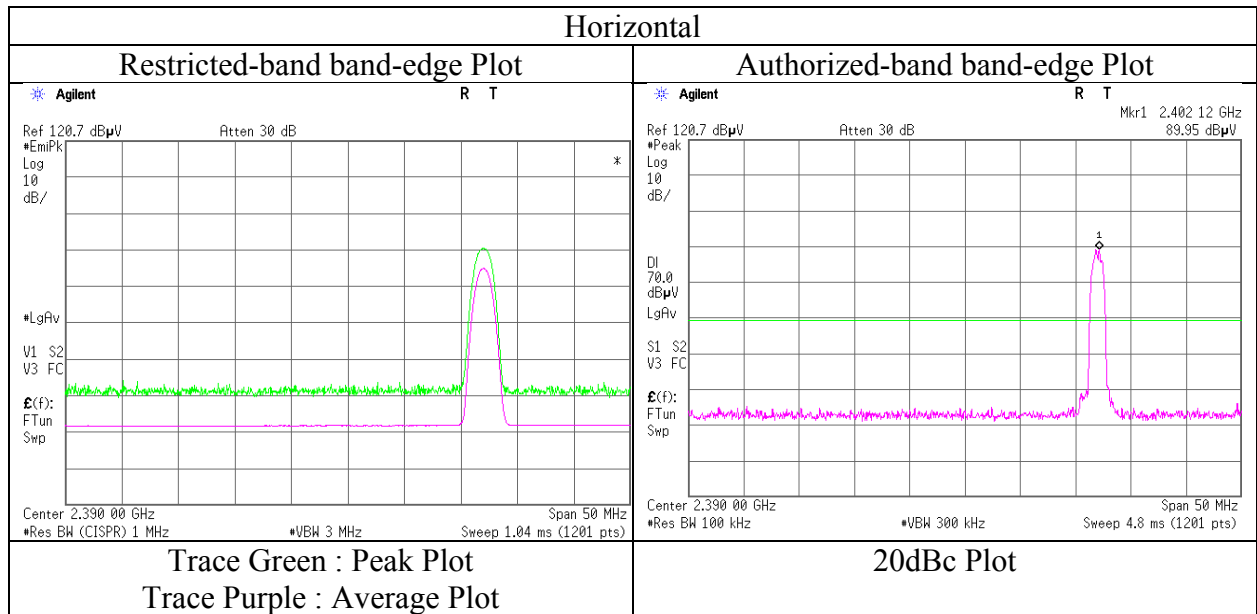
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Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11245604H
Date	April 24, 2016
Temperature / Humidity	21 deg. C / 57 % RH
Engineer	Keisuke Kawamura (1 GHz - 10 GHz)
Mode	Tx, Hopping Off, 3DH5 2402 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Ise EMC Lab.		
Report No.	11245604H		
Semi Anechoic Chamber	No.1	No.4	No.4
Date	April 24, 2016	June 9, 2016	June 10, 2016
Temperature / Humidity	21 deg. C / 57 % RH	22 deg. C / 70 % RH	22 deg. C / 72 % RH
Engineer	Keisuke Kawamura (1 GHz - 10 GHz)	Tomoki Matsui (Above 10GHz)	Shinichi Miyazono (Below 1 GHz)
Mode	Tx, Hopping Off, 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	259.061	QP	53.0	12.6	9.6	31.9	43.3	46.0	2.7	
Hori	407.100	QP	51.0	15.8	10.6	32.1	45.3	46.0	0.7	
Hori	777.193	QP	37.7	20.5	12.7	31.8	39.1	46.0	6.9	
Hori	828.743	QP	37.2	21.1	13.0	31.5	39.8	46.0	6.2	
Hori	926.238	QP	33.1	22.0	13.4	31.0	37.5	46.0	8.5	
Hori	959.980	QP	40.9	22.2	13.6	30.9	45.8	46.0	0.2	
Hori	4882.000	PK	43.6	32.0	7.0	35.5	47.1	73.9	26.8	Floor noise
Hori	7323.000	PK	43.3	36.1	7.7	35.8	51.3	73.9	22.6	Floor noise
Hori	9764.000	PK	44.7	38.6	8.6	36.3	55.6	73.9	18.3	Floor noise
Hori	4882.000	AV	30.6	32.0	7.0	35.5	34.1	53.9	19.8	Floor noise
Hori	7323.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Hori	9764.000	AV	31.6	38.6	8.6	36.3	42.5	53.9	11.4	Floor noise
Vert	407.100	QP	49.3	15.8	10.6	32.1	43.6	46.0	2.4	
Vert	592.146	QP	42.1	18.9	11.7	32.2	40.5	46.0	5.5	
Vert	828.743	QP	37.9	21.1	13.0	31.5	40.5	46.0	5.5	
Vert	877.486	QP	34.6	21.6	13.2	31.2	38.2	46.0	7.8	
Vert	926.233	QP	36.1	22.0	13.4	31.0	40.5	46.0	5.5	
Vert	959.981	QP	40.7	22.2	13.6	30.9	45.6	46.0	0.4	
Vert	4882.000	PK	44.1	32.0	7.0	35.5	47.6	73.9	26.4	Floor noise
Vert	7323.000	PK	43.0	36.1	7.7	35.8	51.0	73.9	22.9	Floor noise
Vert	9764.000	PK	44.4	38.6	8.6	36.3	55.3	73.9	18.6	Floor noise
Vert	4882.000	AV	30.6	32.0	7.0	35.5	34.1	53.9	19.8	Floor noise
Vert	7323.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Vert	9764.000	AV	31.7	38.6	8.6	36.3	42.6	53.9	11.4	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
 10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

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Ise EMC Lab.

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Radiated Spurious Emission

Test place	Ise EMC Lab.		
Report No.	11245604H		
Semi Anechoic Chamber	No.1	No.4	No.4
Date	April 24, 2016	June 9, 2016	June 10, 2016
Temperature / Humidity	21 deg. C / 57 % RH	22 deg. C / 70 % RH	22 deg. C / 72 % RH
Engineer	Keisuke Kawamura	Tomoki Matsui	Shinichi Miyazono
	(1 GHz - 10 GHz)	(Above 10GHz)	(Below 1 GHz)
Mode	Tx, Hopping Off, 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	259.062	QP	53.1	12.6	9.6	31.9	43.4	46.0	2.6	
Hori	407.100	QP	51.3	15.8	10.6	32.1	45.6	46.0	0.4	
Hori	777.191	QP	37.5	20.5	12.7	31.8	38.9	46.0	7.1	
Hori	828.742	QP	37.1	21.1	13.0	31.5	39.7	46.0	6.3	
Hori	926.237	QP	33.3	22.0	13.4	31.0	37.7	46.0	8.3	
Hori	959.980	QP	40.9	22.2	13.6	30.9	45.8	46.0	0.2	
Hori	2483.500	PK	48.6	26.9	5.0	36.3	44.2	73.9	29.8	
Hori	4960.000	PK	43.6	32.1	6.9	35.5	47.1	73.9	26.8	Floor noise
Hori	7440.000	PK	43.3	36.1	7.7	35.8	51.3	73.9	22.6	Floor noise
Hori	9920.000	PK	44.7	38.6	8.5	36.3	55.5	73.9	18.4	Floor noise
Hori	2483.500	AV	33.0	26.9	5.0	36.3	28.6	53.9	25.3	
Hori	4960.000	AV	30.6	32.1	6.9	35.5	34.1	53.9	19.8	Floor noise
Hori	7440.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Hori	9920.000	AV	31.6	38.6	8.5	36.3	42.4	53.9	11.5	Floor noise
Vert	407.100	QP	49.5	15.8	10.6	32.1	43.8	46.0	2.2	
Vert	592.145	QP	42.2	18.9	11.7	32.2	40.6	46.0	5.4	
Vert	828.742	QP	38.0	21.1	13.0	31.5	40.6	46.0	5.4	
Vert	877.487	QP	34.5	21.6	13.2	31.2	38.1	46.0	7.9	
Vert	926.231	QP	36.0	22.0	13.4	31.0	40.4	46.0	5.6	
Vert	959.980	QP	40.8	22.2	13.6	30.9	45.7	46.0	0.3	
Vert	2483.500	PK	50.5	26.9	5.0	36.3	46.1	73.9	27.8	
Vert	4960.000	PK	44.1	32.1	6.9	35.5	47.6	73.9	26.4	Floor noise
Vert	7440.000	PK	43.0	36.1	7.7	35.8	51.0	73.9	22.9	Floor noise
Vert	9920.000	PK	44.4	38.6	8.5	36.3	55.2	73.9	18.7	Floor noise
Vert	2483.500	AV	33.7	26.9	5.0	36.3	29.3	53.9	24.6	
Vert	4960.000	AV	30.6	32.1	6.9	35.5	34.1	53.9	19.8	Floor noise
Vert	7440.000	AV	30.6	36.1	7.7	35.8	38.6	53.9	15.3	Floor noise
Vert	9920.000	AV	31.7	38.6	8.5	36.3	42.5	53.9	11.5	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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

Distance factor: 1 GHz - 10 GHz 20log (3.9 m / 3.0 m) = 2.28 dB
 10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

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Ise EMC Lab.

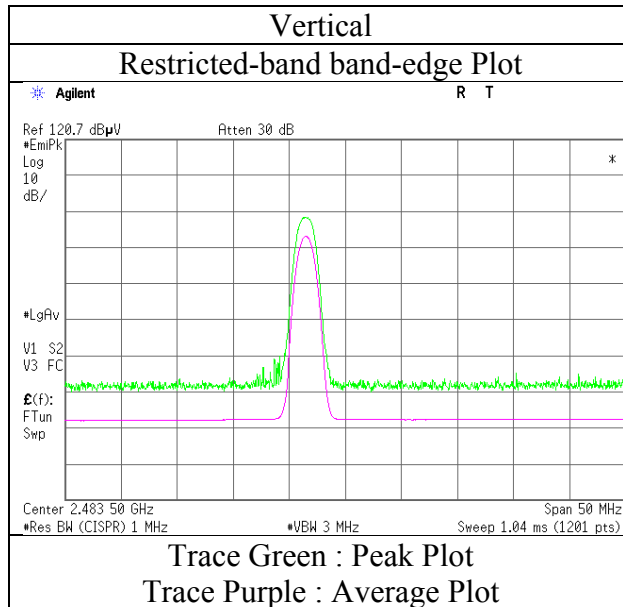
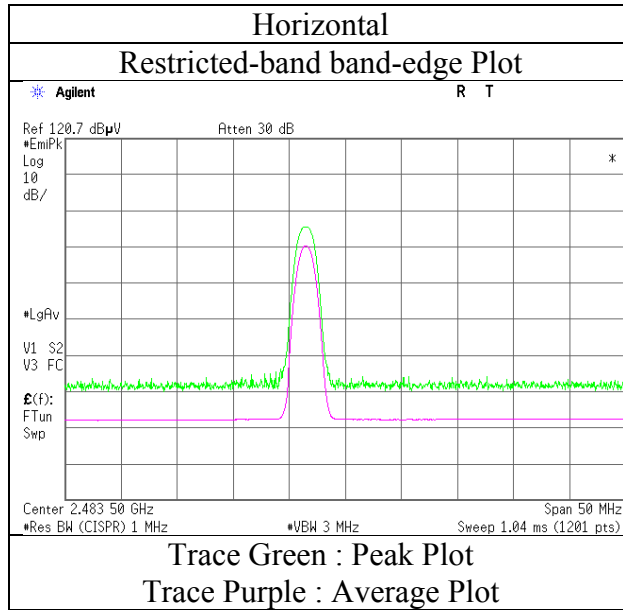
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Radiated Spurious Emission
(Reference Plot for band-edge)

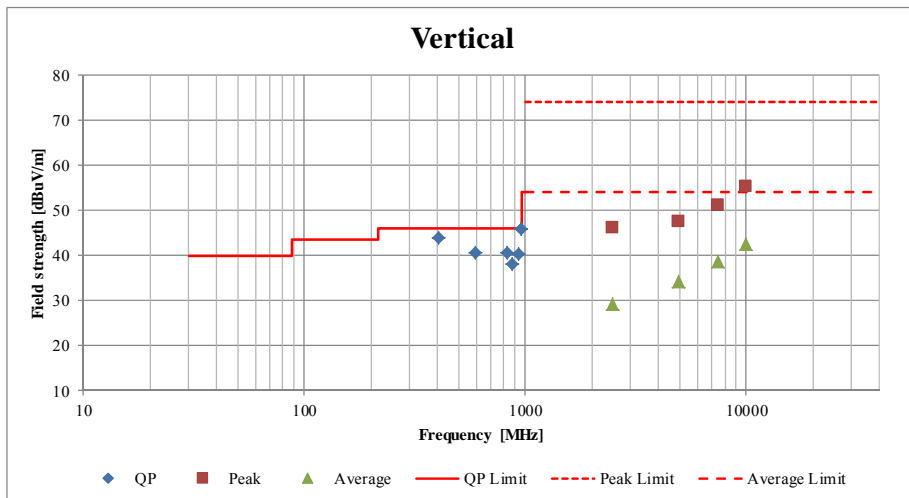
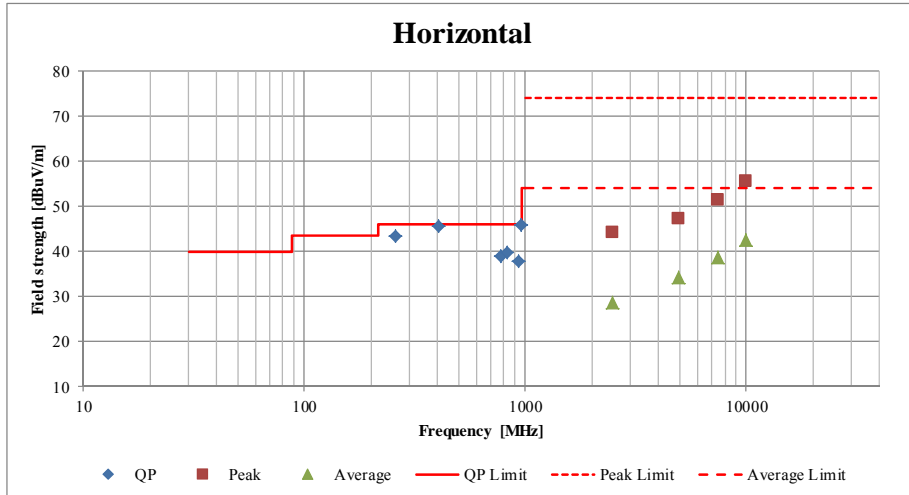
Test place : Ise EMC Lab. No.1 Semi Anechoic Chamber
Report No. : 11245604H
Date : April 24, 2016
Temperature / Humidity : 21 deg. C / 57 % RH
Engineer : Keisuke Kawamura
(1 GHz - 10 GHz)
Mode : Tx, Hopping Off, 3DH5 2480 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(Plot data, Worst case)

Test place	Ise EMC Lab.		
Report No.	11245604H		
Semi Anechoic Chamber	No.1	No.4	No.4
Date	April 24, 2016	June 9, 2016	June 10, 2016
Temperature / Humidity	21 deg. C / 57 % RH	22 deg. C / 70 % RH	22 deg. C / 72 % RH
Engineer	Keisuke Kawamura (1 GHz - 10 GHz)	Tomoki Matsui (Above 10GHz)	Shinichi Miyazono (Below 1 GHz)
Mode	Tx, Hopping Off, 3DH5 2480 MHz		

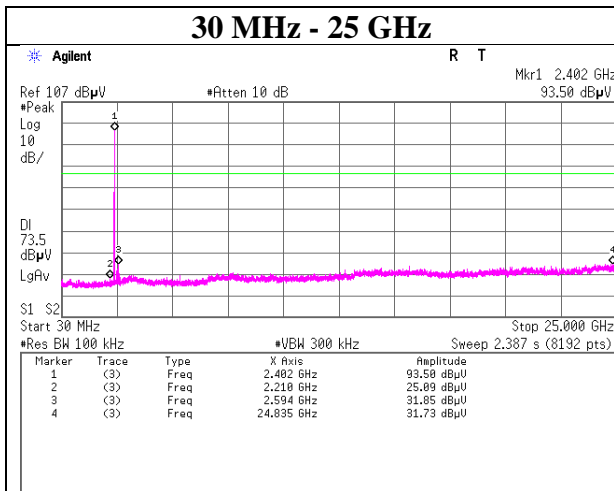
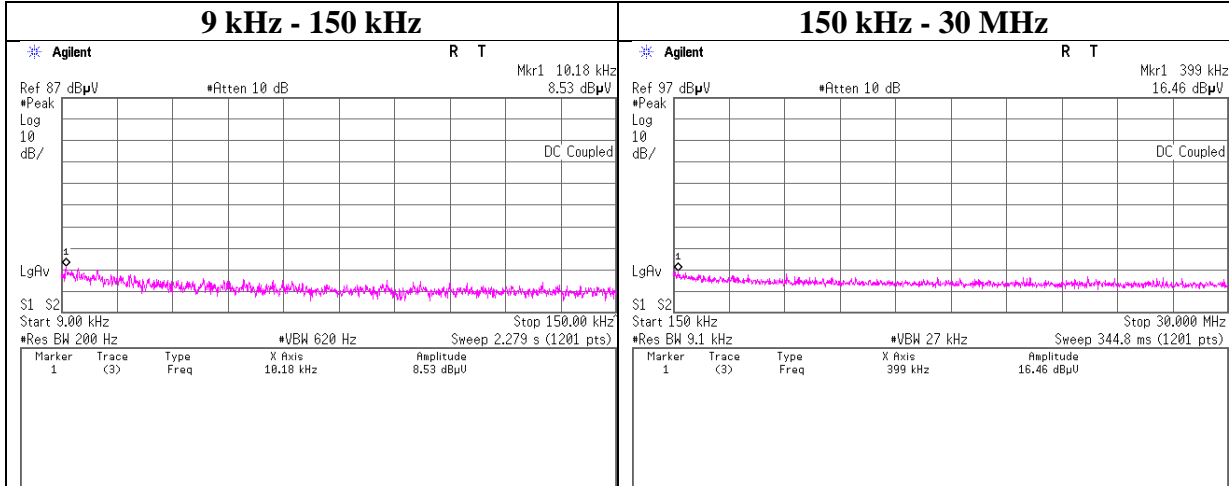


*These plots data contains sufficient number to show the trend of characteristic features for EUT.

Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11245604H
Date	May 19, 2016
Temperature / Humidity	25 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx, Hopping Off, DH5

Tx DH5 2402 MHz



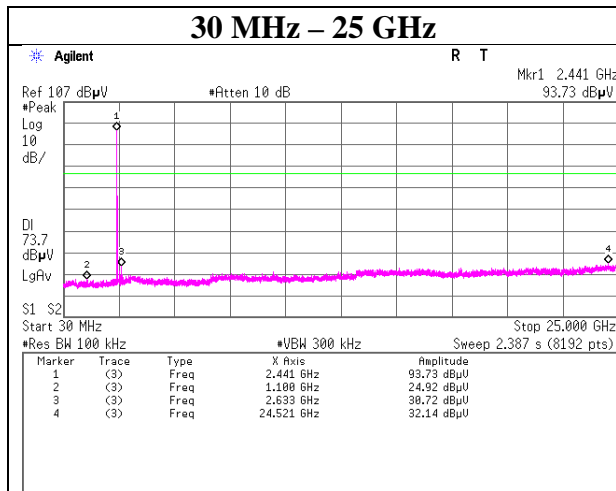
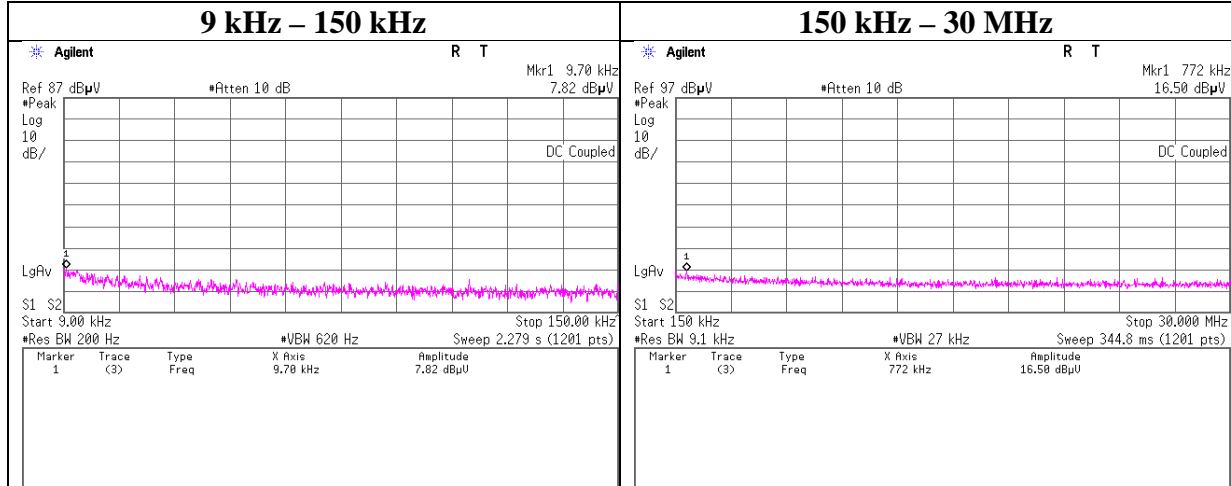
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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11245604H
Date	May 19, 2016
Temperature / Humidity	25 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx, Hopping Off, DH5

Tx DH5 2441 MHz



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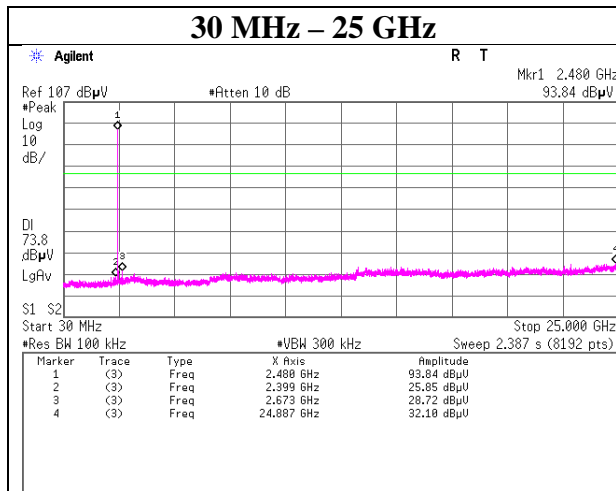
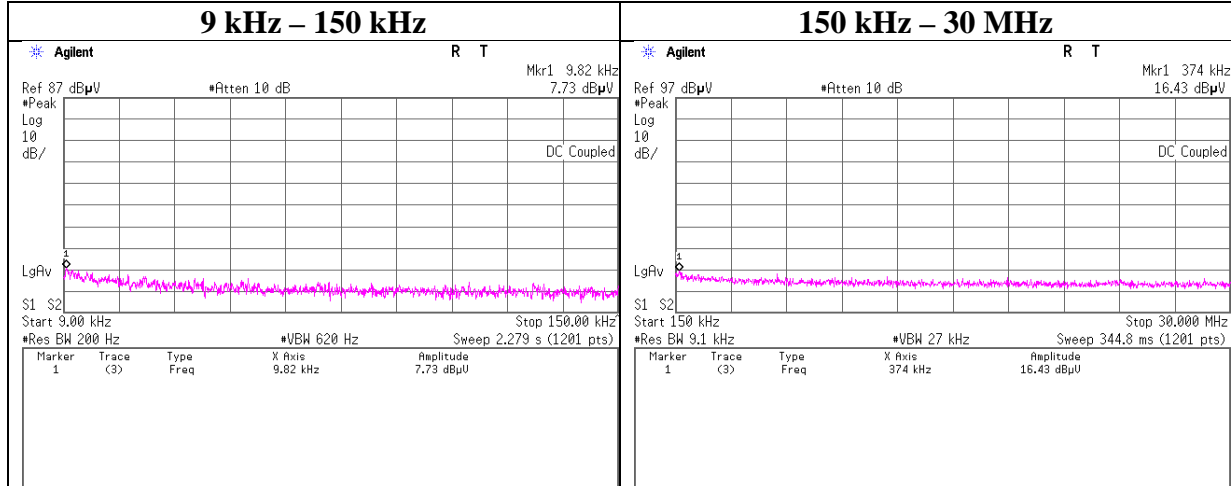
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Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11245604H
Date	May 19, 2016
Temperature / Humidity	25 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx, Hopping Off, DH5

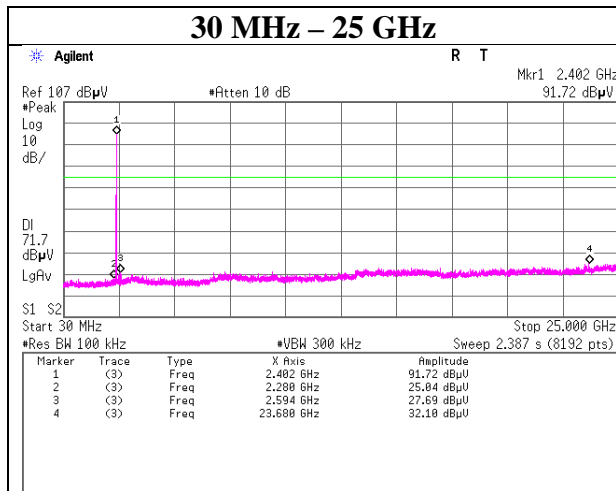
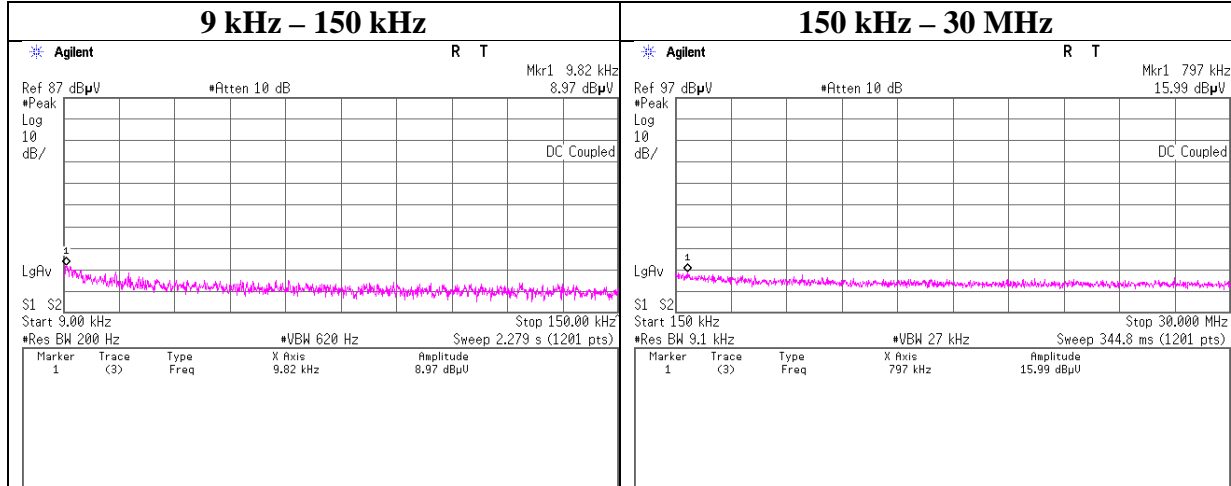
Tx DH5 2480 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11245604H
Date	May 19, 2016
Temperature / Humidity	25 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx, Hopping Off, 3DH5

Tx 3DH5 2402 MHz



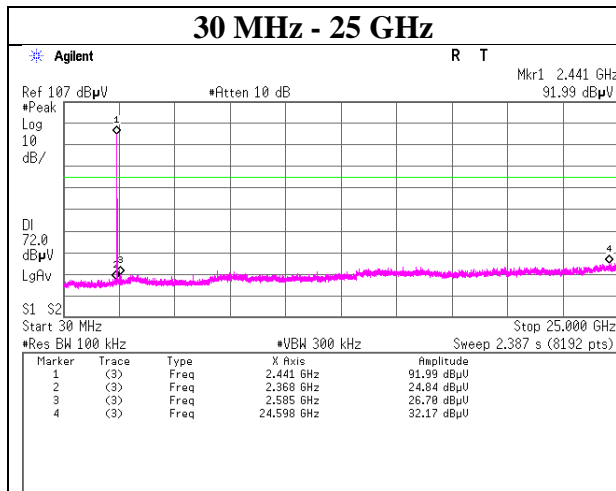
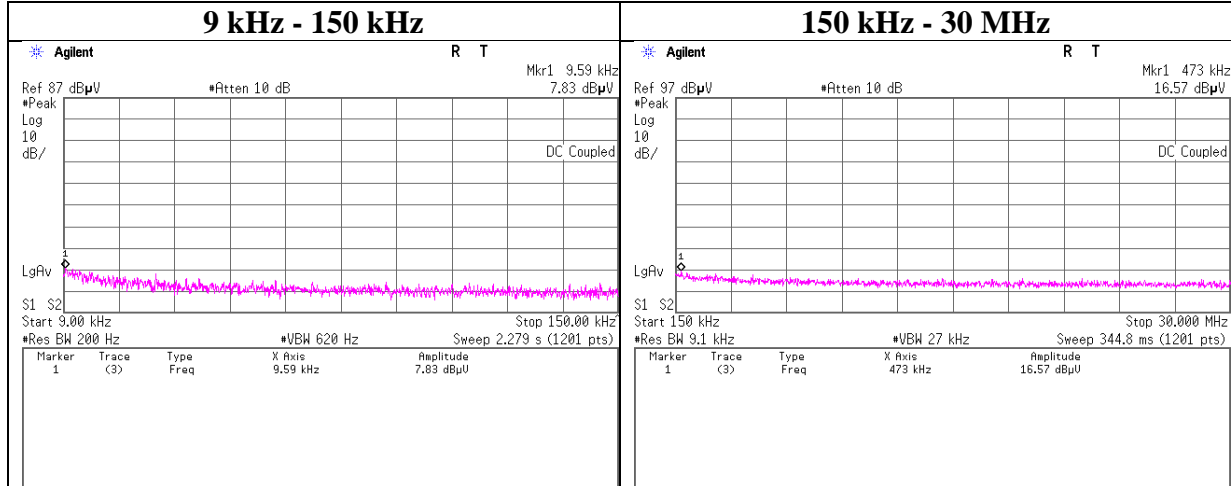
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Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11245604H
Date	May 19, 2016
Temperature / Humidity	25 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx, Hopping Off, 3DH5

Tx 3DH5 2441 MHz



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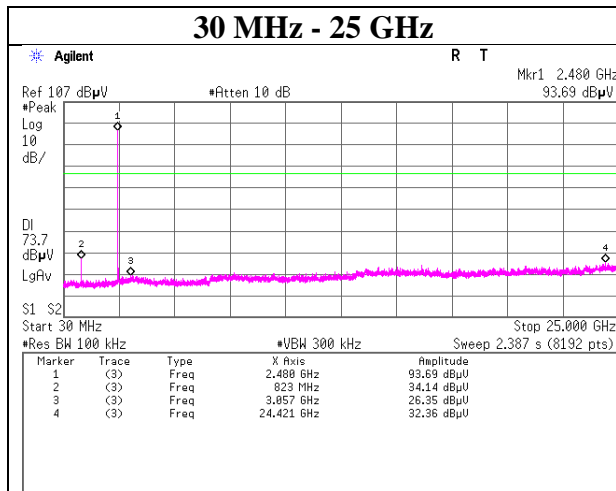
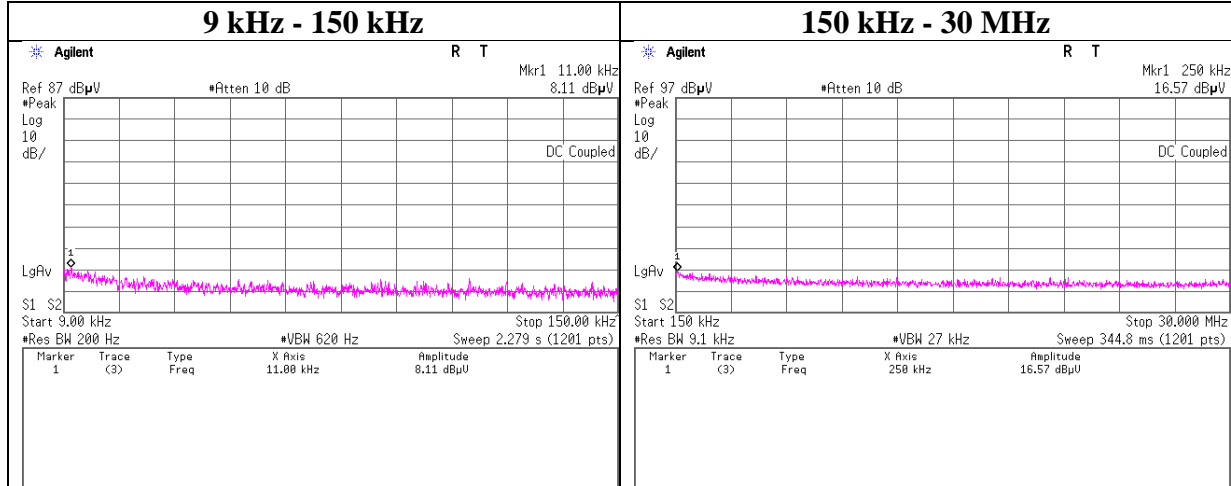
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11245604H
Date	May 19, 2016
Temperature / Humidity	25 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx, Hopping Off, 3DH5

Tx 3DH5 2480 MHz



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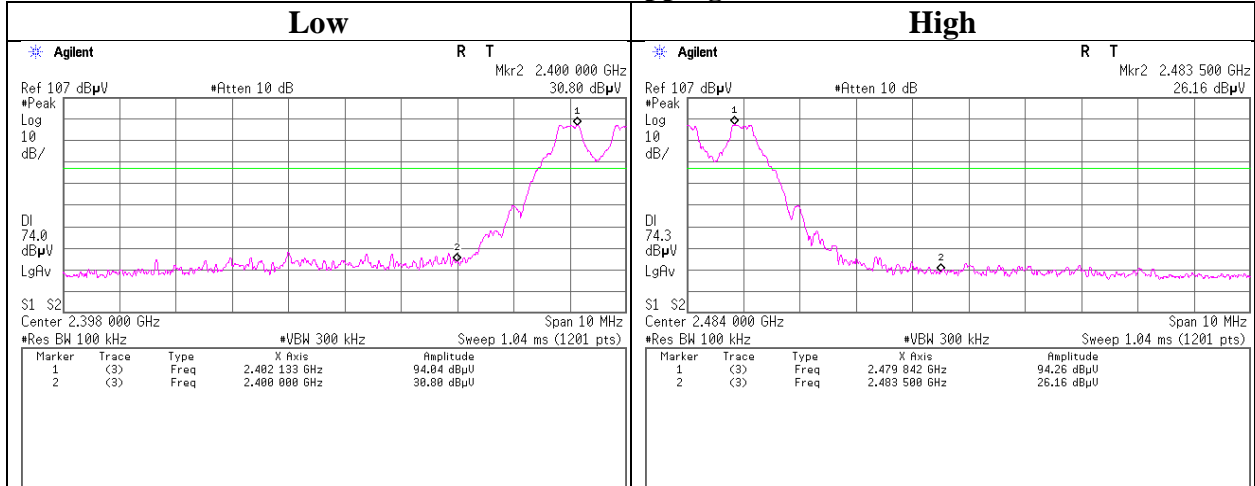
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

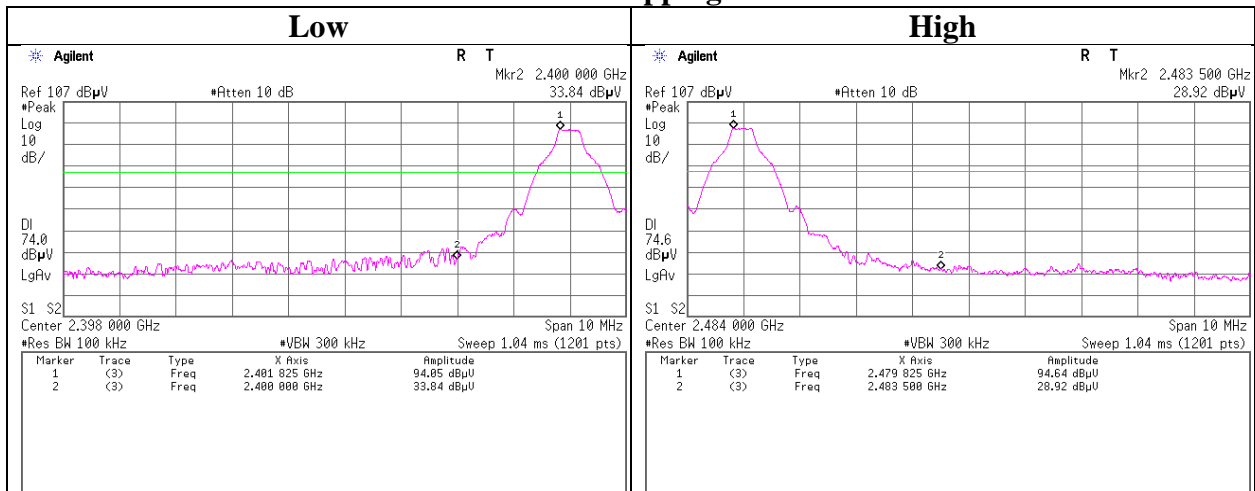
Conducted Emission Band Edge compliance

Test place : Ise EMC Lab. No.11 Measurement Room
 Report No. : 11245604H
 Date : May 19, 2016
 Temperature / Humidity : 25 deg. C / 31 % RH
 Engineer : Takafumi Noguchi
 Mode : Tx DH5

Tx DH5 Hopping On



Tx DH5 Hopping Off



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Ise EMC Lab.

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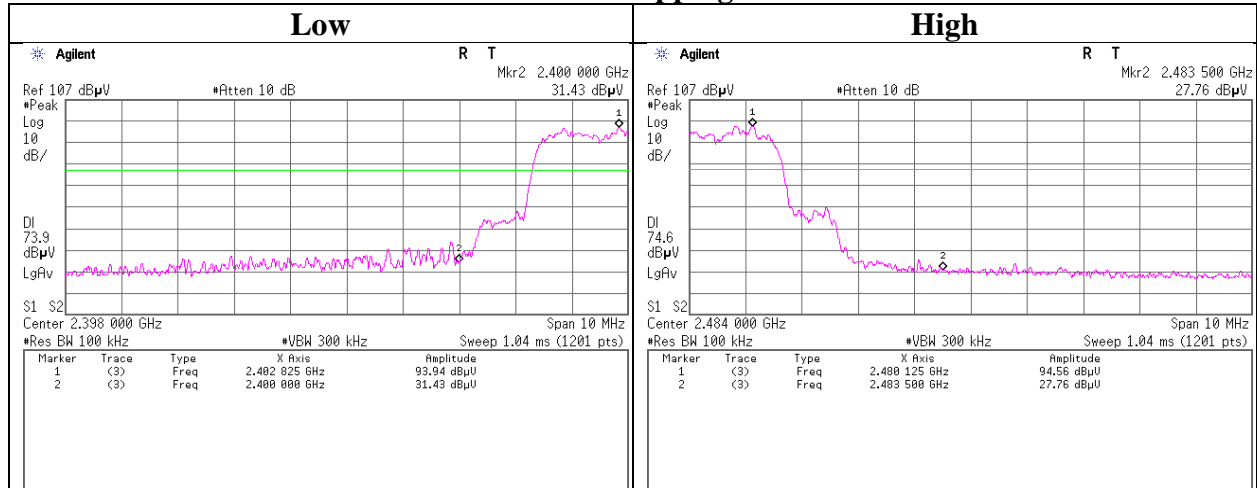
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

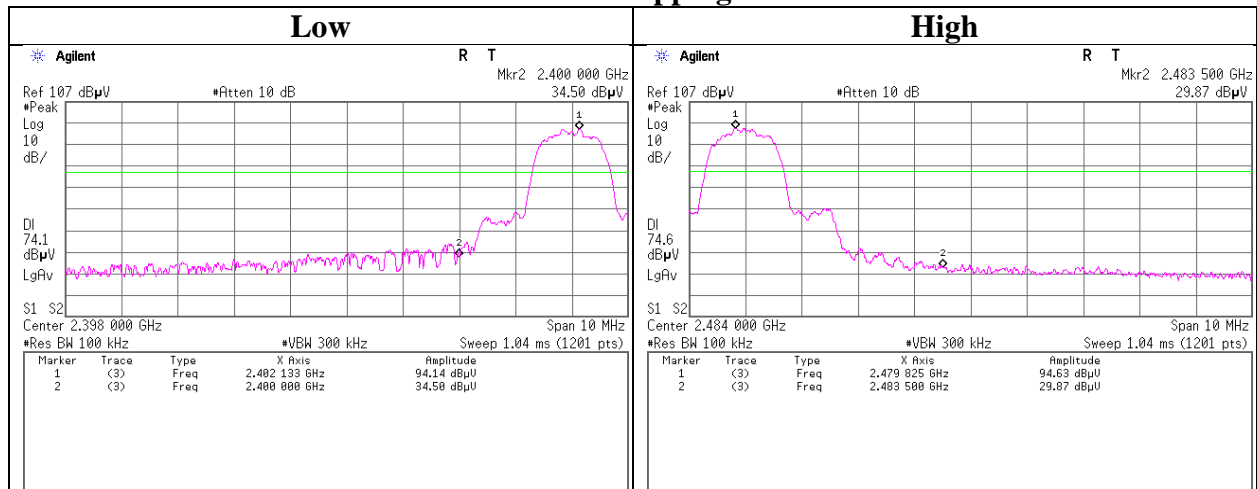
Conducted Emission Band Edge compliance

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11245604H
Date	May 19, 2016
Temperature / Humidity	25 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx 3DH5

Tx 3DH5 Hopping On



Tx 3DH5 Hopping Off



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Ise EMC Lab.

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Telephone : +81 596 24 8999

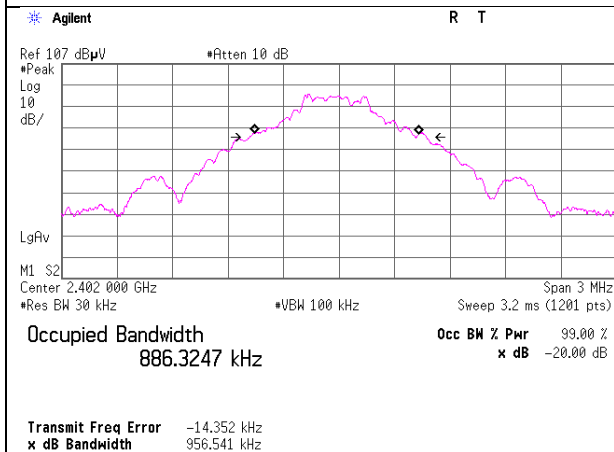
Facsimile : +81 596 24 8124

99% Occupied Bandwidth

Test place : Ise EMC Lab. No.11 Measurement Room
 Report No. : 11245604H
 Date : May 19, 2016
 Temperature / Humidity : 25 deg. C / 31 % RH
 Engineer : Takafumi Noguchi
 Mode : Tx Hopping Off

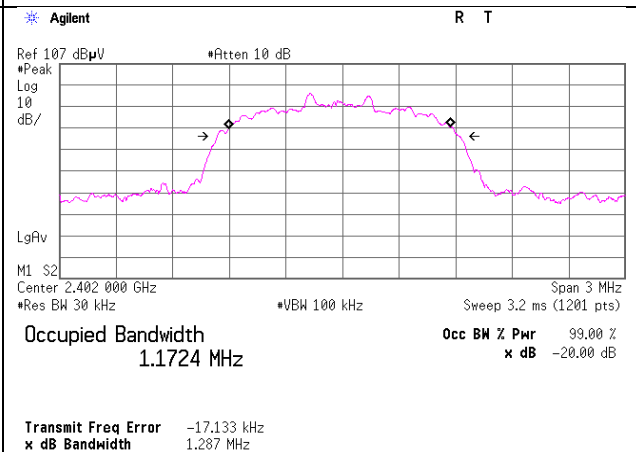
Hopping Off, DH5

2402 MHz

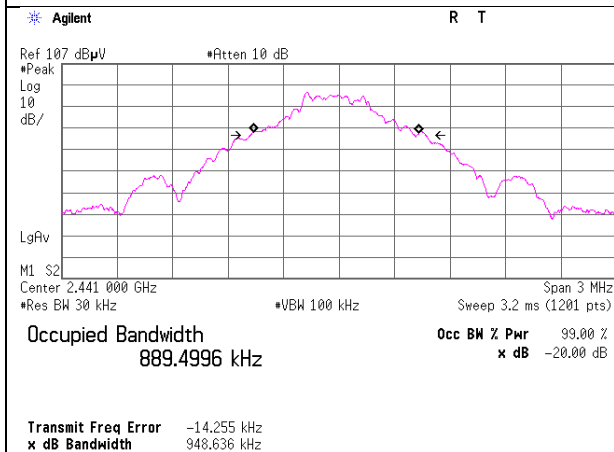


Hopping Off, 3DH5

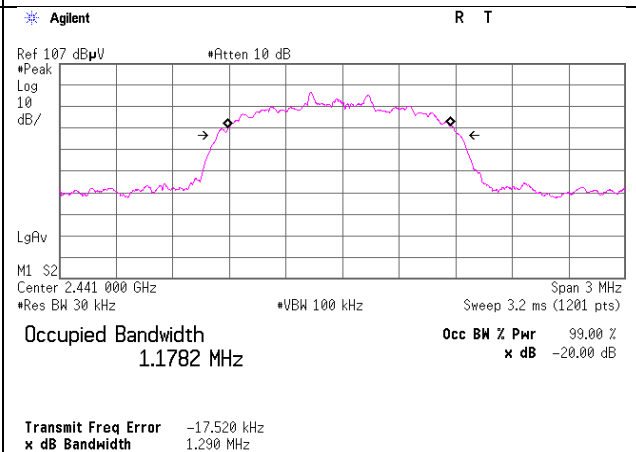
2402 MHz



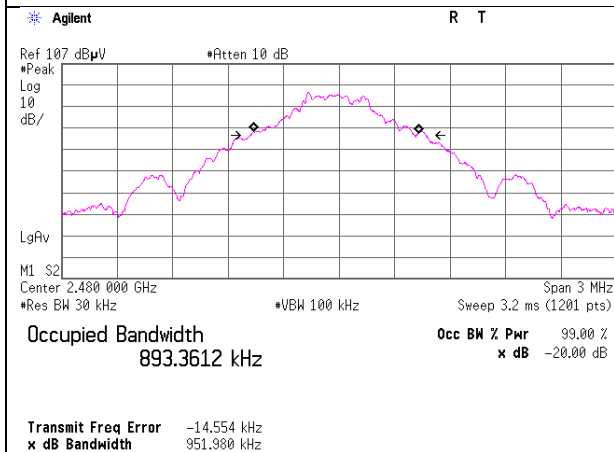
2441 MHz



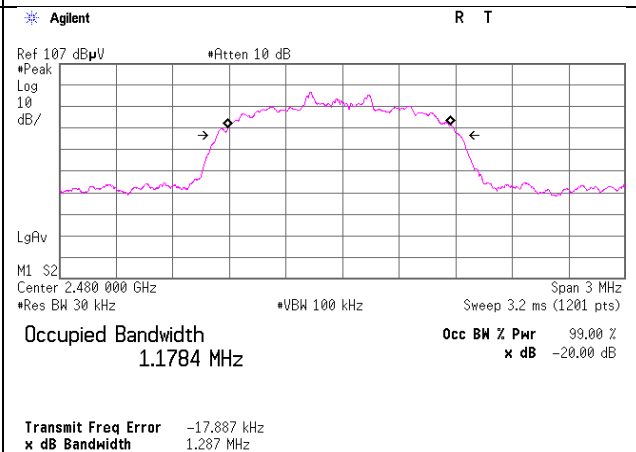
2441 MHz



2480 MHz



2480 MHz



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Ise EMC Lab.

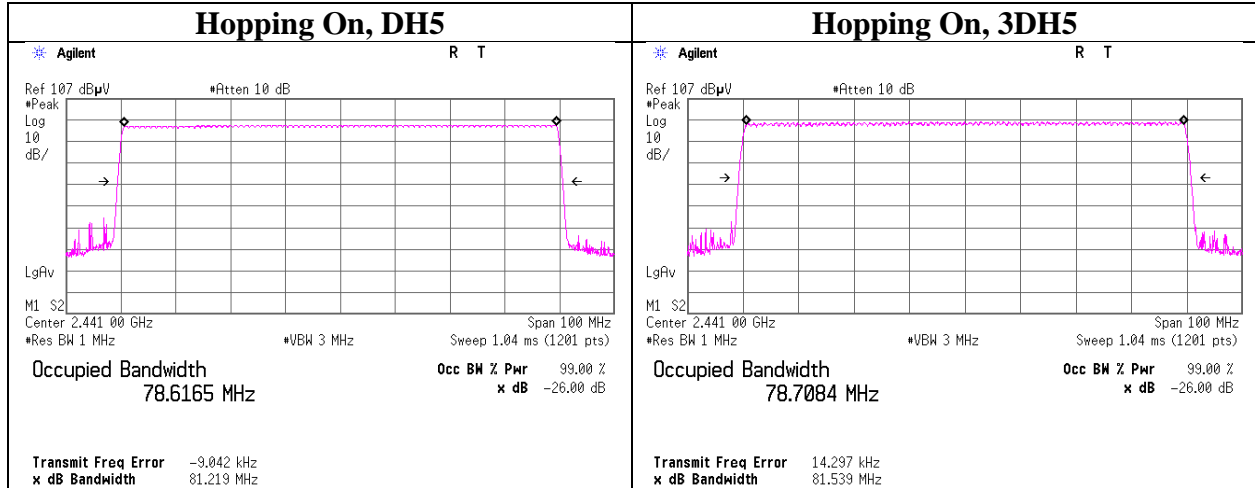
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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99% Occupied Bandwidth

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11245604H
Date	May 19, 2016
Temperature / Humidity	25 deg. C / 31 % RH
Engineer	Takafumi Noguchi
Mode	Tx Hopping On



UL Japan, Inc.

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APPENDIX 2: Test instruments

Test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2015/10/02 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	1501	RE	2016/01/21 * 12
MJM-26	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MTR-10	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	RE	2016/01/29 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2015/11/02 * 12
MLA-23	Logperiodic Antenna(200-1000MHz)	Schwarzbeck	VUSLP9111B	911B-192	RE	2016/01/30 * 12
MCC-50	Coaxial Cable	UL Japan	-	-	RE	2015/06/19 * 12
MAT-68	Attenuator	Anritsu	MP721B	6200961025	RE	2015/11/12 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2016/03/18 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2016/05/19 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2015/08/10 * 12
MCC-141	Microwave Cable	Junkosha	MWX221	1305S002R(1m) / 1405S146(5m)	RE	2015/06/22 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	00650	RE	2015/10/01 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2015/06/06 * 12
MMM-10	DIGITAL HiTESTER	Hioki	3805	051201148	RE	2016/01/18 * 12
MHF-25	High Pass Filter 3.5-18.0GHz	UL Japan	HPF SELECTOR	001	RE	2015/09/16 * 12
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE	2015/09/19 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE	2016/01/21 * 12
MJM-25	Measure	KOMELON	KMC-36	-	RE	-
MHA-05*1)	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2015/05/18 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2016/05/16 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2016/02/26 * 12
MCC-165	Microwave Cable	Junkosha	MWX221	1203S213(1m) / 1311S166(5m)	RE	2015/11/10 * 12
MMM-03	Digital Tester	Fluke	FLUKE 26-3	78030621	RE	2015/08/19 * 12
MRENT-126	Spectrum Analyzer	KEYSIGHT	E4440A	MY46185516	RE / AT	2015/07/31 * 12
MPM-16	Power Meter	Agilent	8990B	MY51000271	AT	2016/04/07 * 12
MPSE-23	Power sensor	Agilent	N1923A	MY54070004	AT	2016/04/07 * 12
MAT-10	Attenuator(10dB)	Weinschel Corp	2	BL1173	AT	2015/11/10 * 12
MAT-90	Attenuator	Weinschel Associates	WA56-10	56100306	AT	2015/06/01 * 12
MCC-144	Microwave Cable	Junkosha	MWX221	1207S407	AT	2015/08/06 * 12
MCC-209	Microwave Cable	RS Components	R-132G7210200C D	-	AT	2016/04/01 * 12
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	AT	2015/12/08 * 12
MMM-07	DIGITAL HiTESTER	Hioki	3805	051201150	AT	2016/01/18 * 12

*1) This test equipment was used for the tests before the expiration date of the calibration.

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

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

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

Test Item: RE: Radiated Emission test
AT: Antenna terminal Conducted Tests

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