



RADIO TEST REPORT

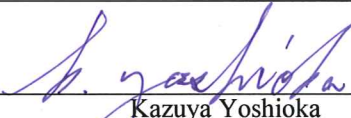
Test Report No. : 11000441H-R1

Applicant : **Panasonic Corporation**
Type of Equipment : **Car Audio**
Model No. : **AZ1601**
Test regulation : **FCC Part 15 Subpart C: 2015**
FCC ID : **ACJ932AZ1601**
Test Result : **Complied**

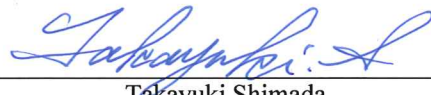
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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not 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 11000441H. 11000441H is replaced with this report.

Date of test: November 16 and December 21, 2015

Representative test engineer:


Kazuya Yoshioka
Engineer
Consumer Technology Division

Approved by:


Takayuki Shimada
Engineer
Consumer Technology Division



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
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13-EM-F0429

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SECTION 1: Customer information

Company Name : Panasonic Corporation
Address : 4261 Ikonobe-cho, Tsuzuki-ku, Yokohama City 224-8520, Japan
Telephone Number : +81-50-3689-7133
Facsimile Number : +81-45-931-0806
Contact Person : Teruyuki Miura

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

2.1 Identification of E.U.T.

Type of Equipment : Car Audio
Model No. : AZ1601
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC 13.2 V (DC 10.0 V to 16.0 V)
Receipt Date of Sample : October 30, 2015
Country of Mass-production : Thailand
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No Modification by the test lab

2.2 Product Description

General Specification

Clock frequency(ies) in the system : 26 MHz

Radio Specification

[Bluetooth (Ver. 3.0 with EDR function)]

Radio Type : Transceiver
Frequency of Operation : 2402-2480MHz
Modulation : FHSS
Power Supply (radio part input) : DC 3.3V
Antenna type : Pattern Antenna
Antenna Gain : 0.5 dBi

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C: 2015, final revised on November 23, 2015
*Some parts are effective on and after December 17, 2015 or December 23, 2015. The revision does not affect the test specification applied to the EUT.

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

3.2 Procedures and results

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.10-2013 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	1.5 dB 7206.00 MHz, AV, Vertical	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)

The EUT provides stable voltage (DC 3.3 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 $k = 2$.
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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	

Polarity	Radiated emission (Below 1GHz)			
	(3 m*)(+dB)		(10 m*)(+dB)	
	30 – 300 MHz	300 – 1000MHz	30 – 300 MHz	300 – 1000MHz
Horizontal	4.8 dB	5.2 dB	4.8 dB	5.0 dB
Vertical	4.5 dB	5.9 dB	4.8 dB	5.1 dB

Radiated emission				
(3 m*)(+dB)		(1 m*)(+dB)	(0.5 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.

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	-	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 m 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

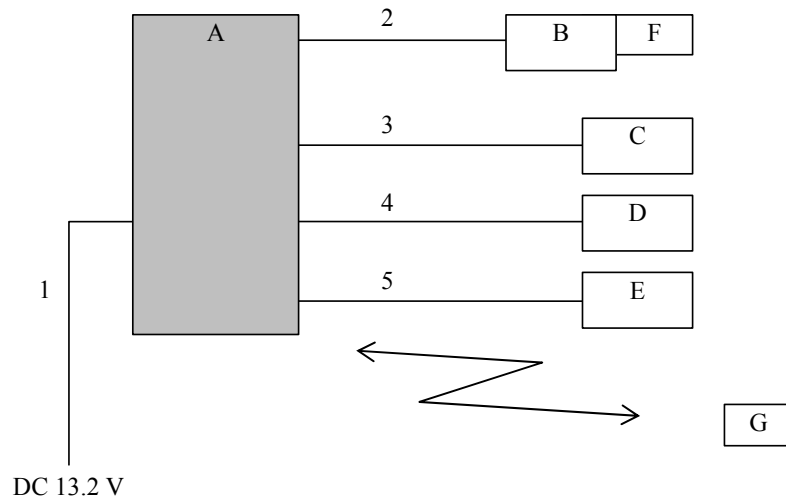
4.1 Operating Mode(s)

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

Details of Operating Mode(s)

Test Item	Mode	Tested frequency
Conducted Emission, 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) *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. * 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: Same as Production model - Software: LsPD1310C01 *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>		

4.2 Configuration and peripherals



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remark
A	Car Audio	AZ1601	500004	Panasonic Corporation	EUT
B	USB AUX Terminal	-	-	Panasonic Corporation	-
C	Microphone	-	-	Panasonic Corporation	-
D	DUMMY ANT	-	-	-	-
E	DUMMY Speaker	-	-	-	-
F	USB Memory	RUF2JV4GS	121101	BUFFALO	-
G	iPad touch	MLEP-01	C3RJ4SLADT75	Apple	-

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	DC Cable	2.8	Unshielded	Unshielded	-
2	USB/Audio Cable	0.6	Shielded	Shielded	-
3	Signal Cable	2.5	Unshielded	Unshielded	-
4	Antenna Cable	2.5	Unshielded	Unshielded	-
5	Speaker Cable	2.5	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, 0.5 m by 0.5 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 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	30 MHz to 300 MHz	300 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	4.4 m *2) (1 - 10 GHz), 1.0 m *2) (above 10 GHz)		4.4 m *2) (1- 10 GHz), 1.0 m *2) (above 10 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: $20 \times \log(4.4 \text{ m} / 3.0 \text{ m}) = 3.3 \text{ dB}$ (1 - 10 GHz)
 $20 \times \log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$ (above 10 GHz)

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 M - 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

APPENDIX 1: Test data

20dB Bandwidth and Carrier Frequency Separation

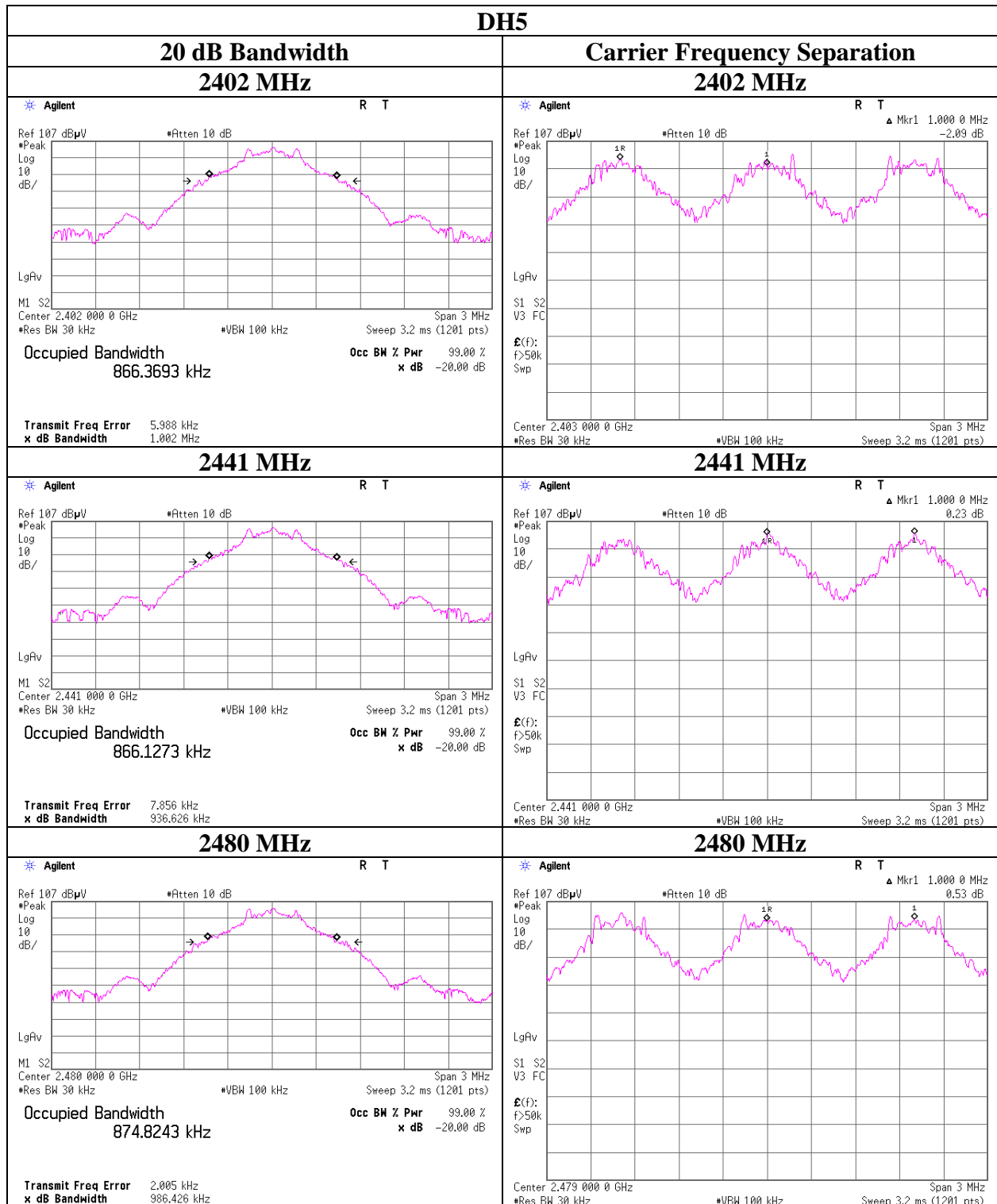
Test place : Ise EMC Lab. No.6 Measurement Room
Report No. : 11000441H
Date : November 16, 2015
Temperature / Humidity : 23 deg. C / 43 % RH
Engineer : Kazuya Yoshioka
Mode : Tx, Hopping Off, DH5

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	1.002	1.000	≥ 0.668
DH5	2441.0	0.937	1.000	≥ 0.625
DH5	2480.0	0.986	1.000	≥ 0.657
3DH5	2402.0	1.283	1.000	≥ 0.855
3DH5	2441.0	1.273	1.000	≥ 0.849
3DH5	2480.0	1.284	1.000	≥ 0.856

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

No limit applies to 20dB Bandwidth.

20dB Bandwidth and Carrier Frequency Separation



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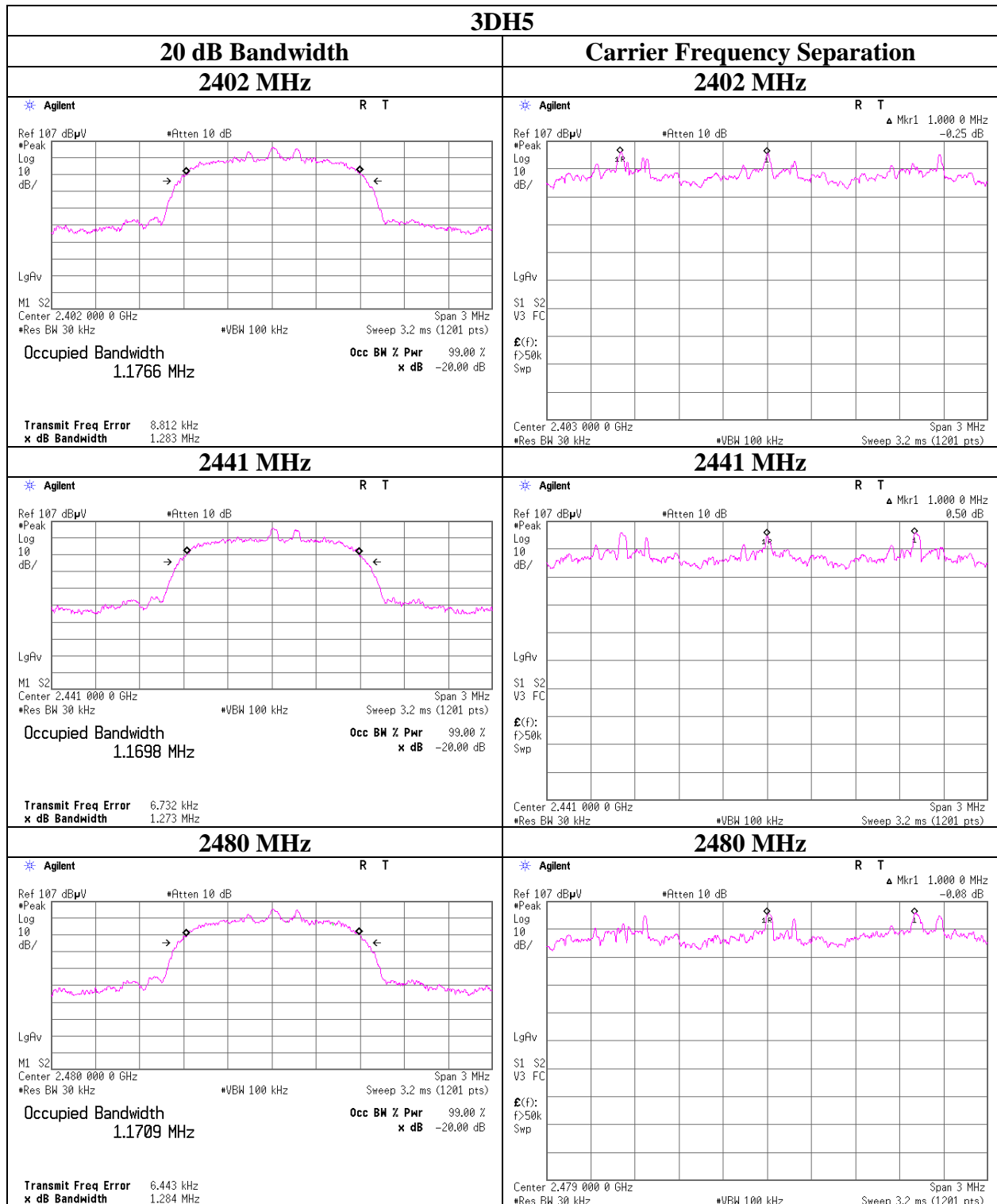
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20dB Bandwidth and Carrier Frequency Separation



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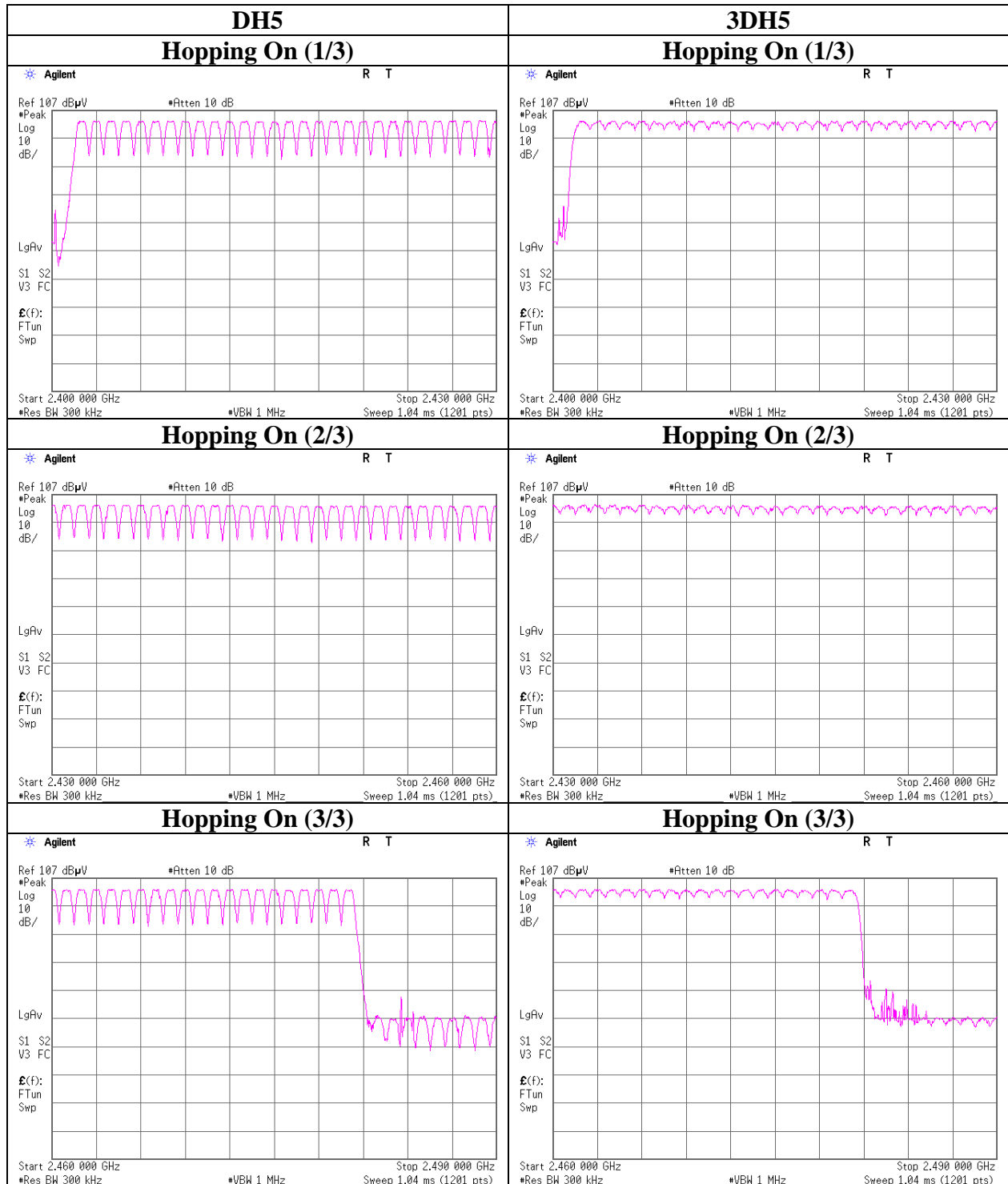
Number of Hopping Frequency

Test place Ise EMC Lab. No.6 Measurement Room
Report No. 11000441H
Date November 16, 2015
Temperature / Humidity 23 deg. C / 43 % RH
Engineer Kazuya Yoshioka
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.6 Measurement Room
 Report No. : 11000441H
 Date : November 16, 2015
 Temperature / Humidity : 23 deg. C / 43 % RH
 Engineer : Kazuya Yoshioka
 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	50.4 times / 5 sec. x 31.6 sec. = 319 times	0.461	147	400
DH3	25.8 times / 5 sec. x 31.6 sec. = 164 times	1.719	282	400
DH5	16.8 times / 5 sec. x 31.6 sec. = 107 times	2.976	318	400
3DH1	50.4 times / 5 sec. x 31.6 sec. = 319 times	0.458	146	400
3DH3	25.4 times / 5 sec. x 31.6 sec. = 161 times	1.715	276	400
3DH5	17.4 times / 5 sec. x 31.6 sec. = 110 times	2.964	326	400

Sample Calculation

Result = Number of transmission x Length of transmission

*Average data of 5 tests.

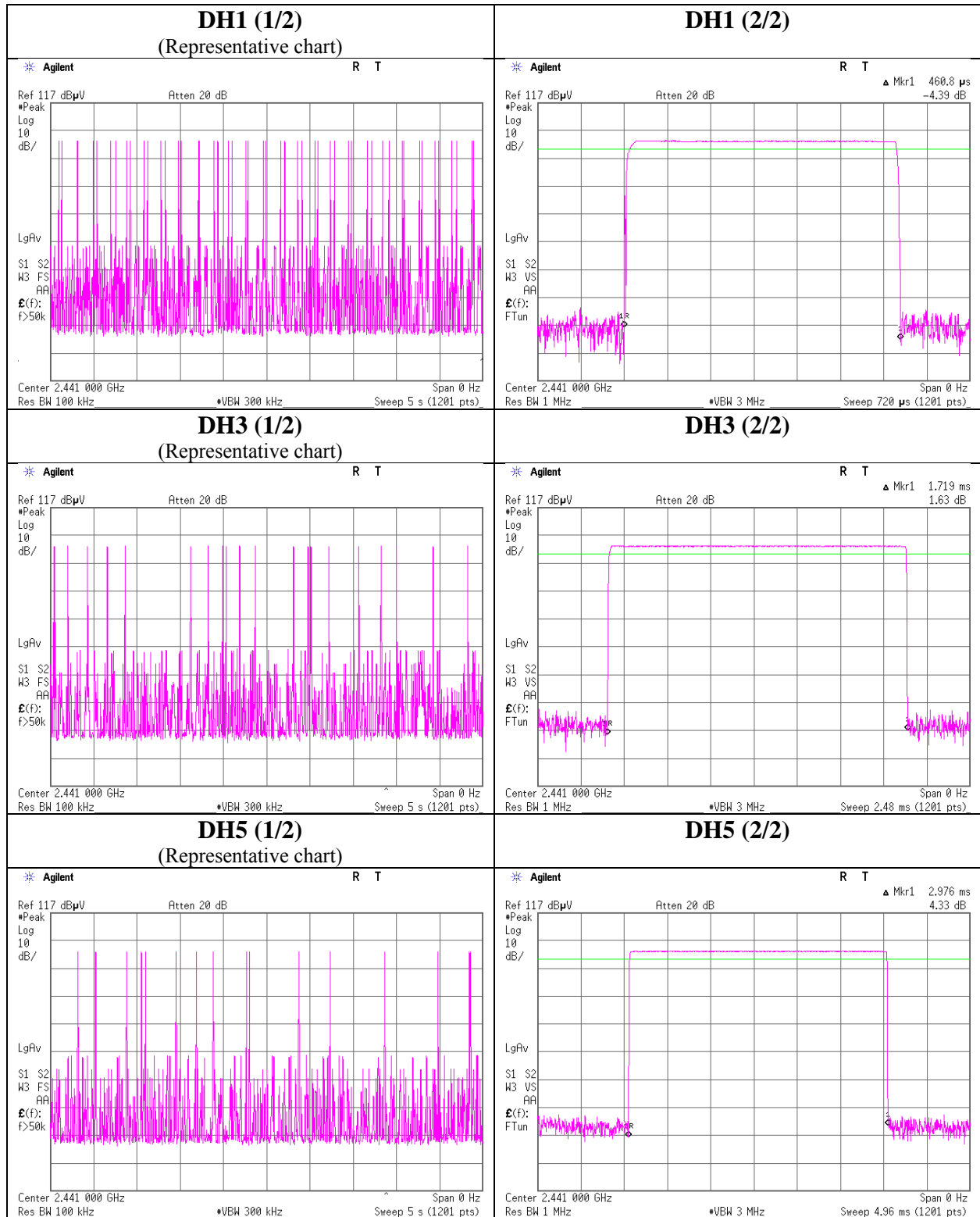
Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	50	50	51	50	51	50.4
DH3	26	26	28	24	25	25.8
DH5	16	18	15	18	17	16.8
3DH1	50	51	51	50	50	50.4
3DH3	24	26	22	28	27	25.4
3DH5	15	18	20	17	17	17.4

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 $N = 79$.

Dwell time



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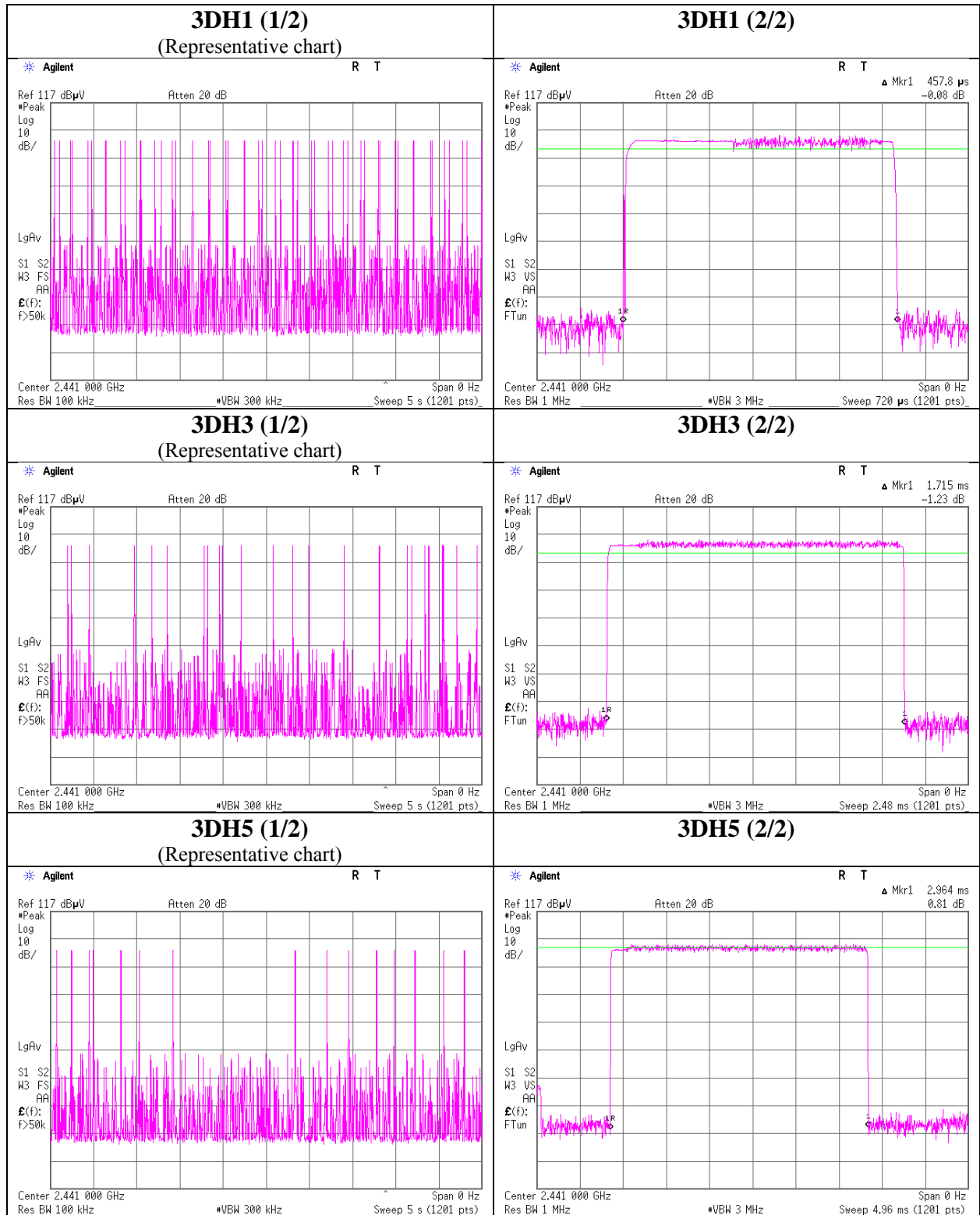
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Dwell time



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Maximum Peak Output Power

Test place : Ise EMC Lab. No.6 Measurement Room
 Report No. : 11000441H
 Date : November 16, 2015
 Temperature / Humidity : 23 deg. C / 43 % RH
 Engineer : Kazuya Yoshioka
 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	-3.37	2.79	0.00	-0.58	0.87	20.96	125	21.54
DH5	2441.0	-3.52	2.81	0.00	-0.71	0.85	20.96	125	21.67
DH5	2480.0	-3.82	2.81	0.00	-1.01	0.79	20.96	125	21.97
2DH5	2402.0	-1.68	2.79	0.00	1.11	1.29	20.96	125	19.85
2DH5	2441.0	-1.82	2.81	0.00	0.99	1.26	20.96	125	19.97
2DH5	2480.0	-2.07	2.81	0.00	0.74	1.19	20.96	125	20.22
3DH5	2402.0	-1.12	2.79	0.00	1.67	1.47	20.96	125	19.29
3DH5	2441.0	-1.25	2.81	0.00	1.56	1.43	20.96	125	19.40
3DH5	2480.0	-1.51	2.81	0.00	1.30	1.35	20.96	125	19.66

Sample Calculation:

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

*The equipment and cables were not used for factor 0 dB of the data sheets.

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.

Average Output Power
(Reference data for RF Exposure)

Test place : Ise EMC Lab. No.6 Measurement Room
Report No. : 11000441H
Date : November 16, 2015
Temperature / Humidity : 23 deg. C / 43 % RH
Engineer : Kazuya Yoshioka
Mode : Tx, Hopping Off

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Frame power)	
					[dBm]	[mW]
DH5	2402.0	-4.76	2.79	0.00	-1.97	0.64
DH5	2441.0	-4.91	2.81	0.00	-2.10	0.62
DH5	2480.0	-5.19	2.81	0.00	-2.38	0.58
2DH5	2402.0	-5.26	2.79	0.00	-2.47	0.57
2DH5	2441.0	-5.41	2.81	0.00	-2.60	0.55
2DH5	2480.0	-5.69	2.81	0.00	-2.88	0.52
3DH5	2402.0	-5.25	2.79	0.00	-2.46	0.57
3DH5	2441.0	-5.41	2.81	0.00	-2.60	0.55
3DH5	2480.0	-5.68	2.81	0.00	-2.87	0.52

Sample Calculation:

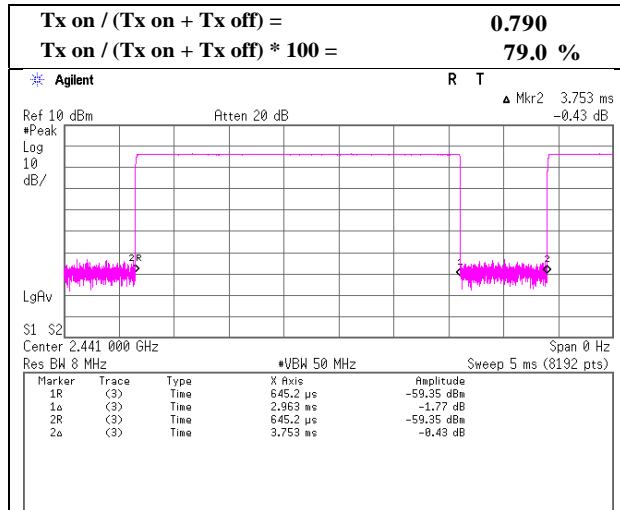
Result (Frame power) = Reading + Cable Loss (including the cable(s) customer supplied)

*The equipment and cables were not used for factor 0 dB of the data sheets.

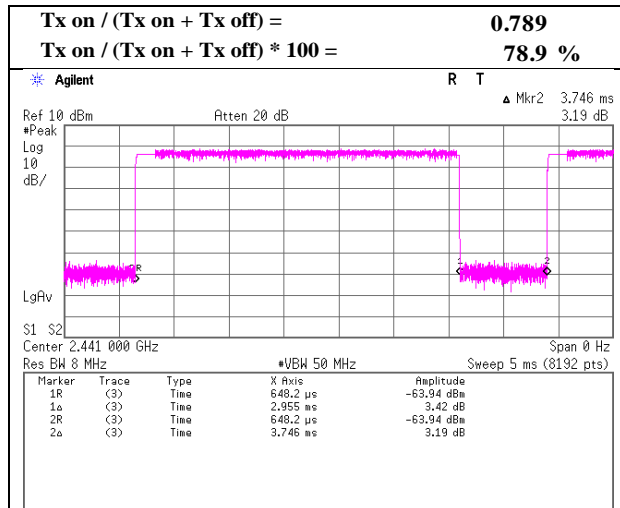
Burst Rate Confirmation

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off

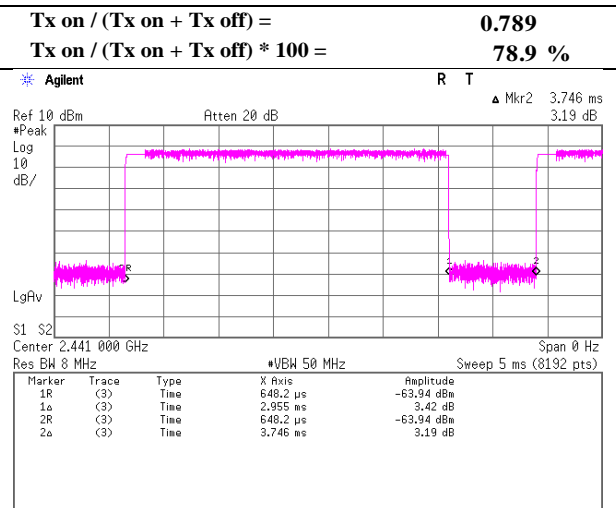
DH5



2DH5



3DH5



Radiated Spurious Emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.2	No.3
Report No.	11000441H	
Date	December 21, 2015	December 21, 2015
Temperature / Humidity	18 deg. C / 35 % RH	23 deg. C / 41 % RH
Engineer	Takafumi Noguchi	Hiroyuki Furutaka
	(Below 1GHz)	(Above 1GHz)
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	184.317	QP	38.9	16.3	8.1	27.8	35.5	43.5	8.0	
Hori	194.133	QP	34.9	16.4	8.1	27.7	31.7	43.5	11.8	
Hori	221.182	QP	37.5	16.8	8.3	27.6	35.0	46.0	11.0	
Hori	258.045	QP	37.5	17.5	8.6	27.4	36.2	46.0	9.8	
Hori	363.995	QP	40.2	16.2	9.2	27.9	37.7	46.0	8.3	
Hori	479.992	QP	35.1	17.8	9.7	28.5	34.1	46.0	11.9	
Hori	626.683	QP	30.7	19.6	10.2	28.3	32.2	46.0	13.8	
Hori	788.881	QP	37.8	21.8	10.9	27.9	42.6	46.0	3.4	
Hori	2390.000	PK	55.2	26.9	6.6	32.0	56.7	73.9	17.3	
Hori	4804.000	PK	41.8	31.8	8.8	31.3	51.1	73.9	22.8	NS
Hori	7206.000	PK	43.0	36.0	10.0	32.0	57.0	73.9	16.9	
Hori	9608.000	PK	42.6	38.2	10.8	32.4	59.2	73.9	14.7	NS
Hori	2390.000	AV	29.7	26.9	6.6	32.0	31.2	53.9	22.7	
Hori	4804.000	AV	29.7	31.8	8.8	31.3	39.0	53.9	14.9	NS
Hori	7206.000	AV	35.3	36.0	10.0	32.0	49.3	53.9	4.6	
Hori	9608.000	AV	30.0	38.2	10.8	32.4	46.6	53.9	7.3	NS
Vert	184.317	QP	41.1	16.3	8.1	27.8	37.7	43.5	5.8	
Vert	194.133	QP	36.8	16.4	8.1	27.7	33.6	43.5	9.9	
Vert	221.182	QP	38.6	16.8	8.3	27.6	36.1	46.0	9.9	
Vert	258.045	QP	32.9	17.5	8.6	27.4	31.6	46.0	14.4	
Vert	363.995	QP	32.6	16.2	9.2	27.9	30.1	46.0	15.9	
Vert	479.992	QP	33.4	17.8	9.7	28.5	32.4	46.0	13.6	
Vert	626.683	QP	30.9	19.6	10.2	28.3	32.4	46.0	13.6	
Vert	812.085	QP	37.7	22.0	11.0	27.8	42.9	46.0	3.1	
Vert	2390.000	PK	45.0	26.9	6.6	32.0	46.5	73.9	27.4	
Vert	4804.000	PK	40.3	31.8	8.8	31.3	49.6	73.9	24.3	NS
Vert	7206.000	PK	46.2	36.0	10.0	32.0	60.2	73.9	13.7	
Vert	9608.000	PK	42.4	38.2	10.8	32.4	59.0	73.9	14.9	NS
Vert	2390.000	AV	36.0	26.9	6.6	32.0	37.5	53.9	16.4	
Vert	4804.000	AV	29.4	31.8	8.8	31.3	38.7	53.9	15.2	NS
Vert	7206.000	AV	38.4	36.0	10.0	32.0	52.4	53.9	1.5	
Vert	9608.000	AV	29.9	38.2	10.8	32.4	46.5	53.9	7.4	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(1- 10 GHz))-Distance factor(above 10 GHz) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 1 GHz - 10 GHz 20log(4.4 m / 3.0 m) = 3.3 dB
10 GHz - 26.5 GHz 20log(1.0 m / 3.0 m) = -9.5 dB

NS: Notsignal detected

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	86.2	26.9	6.6	32.0	87.7	-	-	Carrier
Hori	2400.000	PK	48.7	26.9	6.6	32.0	50.2	67.7	17.5	
Vert	2402.000	PK	85.7	26.9	6.6	32.0	87.2	-	-	Carrier
Vert	2400.000	PK	45.1	26.9	6.6	32.0	46.6	67.2	20.6	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(1- 10 GHz))-Distance factor(above 10 GHz) - Gain(Amplifier)

***These results have sufficient margin without taking account Dwell time factor.**

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Ise EMC Lab.

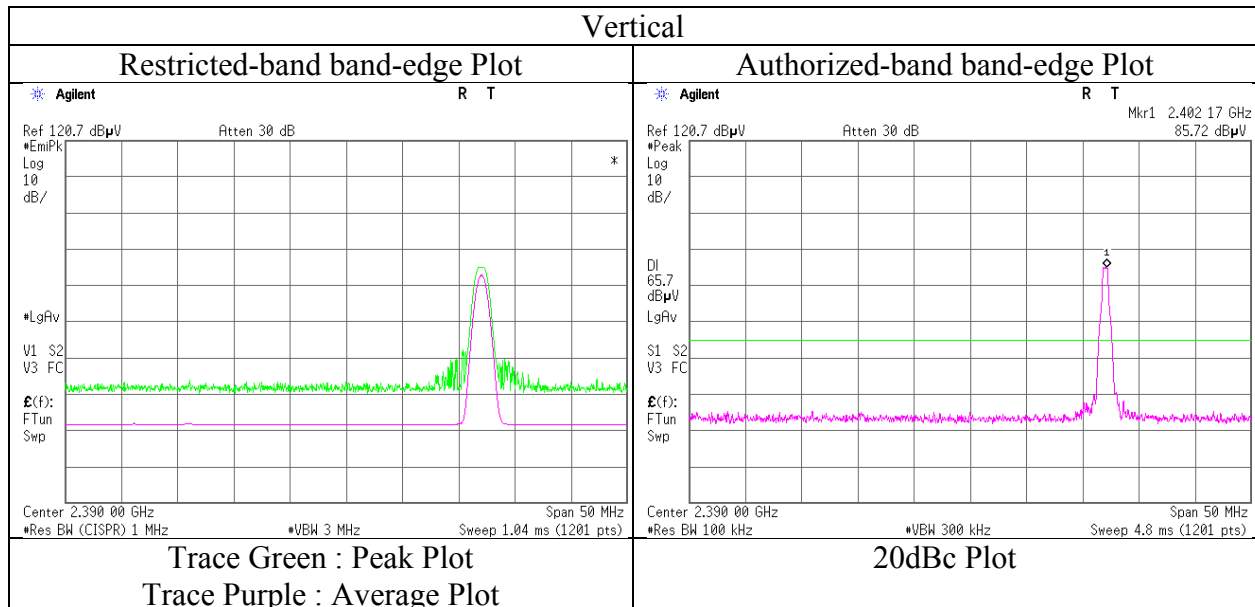
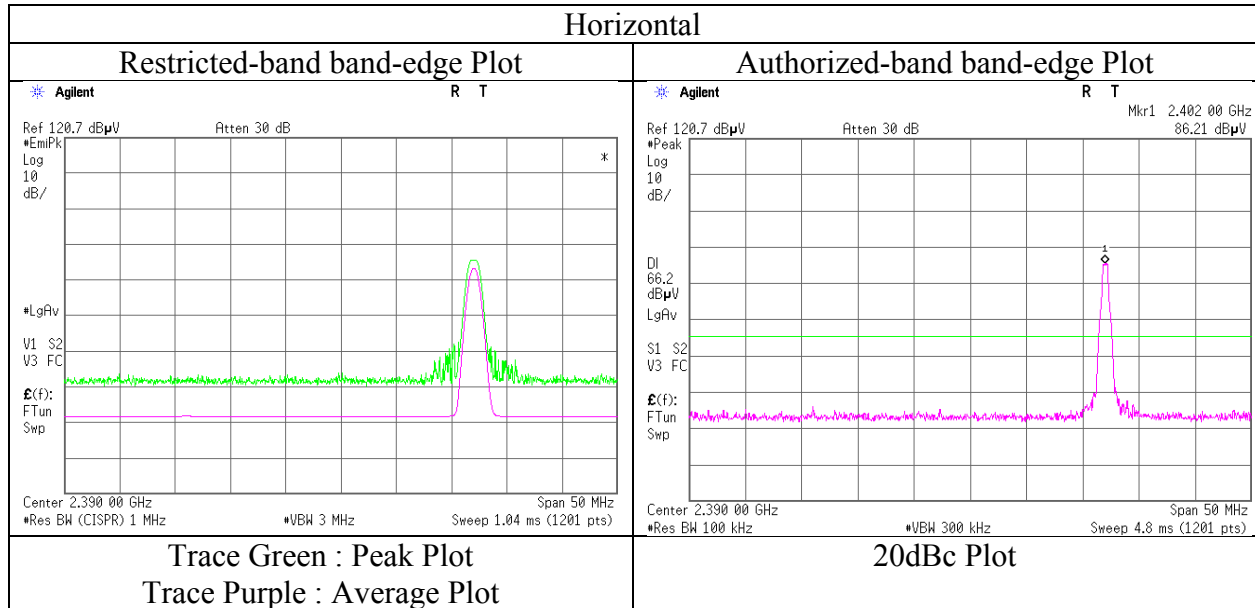
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Ise EMC Lab.
Semi Anechoic Chamber	No.3
Report No.	11000441H
Date	December 21, 2015
Temperature / Humidity	23 deg. C / 41 % RH
Engineer	Hiroyuki Furutaka
Mode	Tx, Hopping Off, DH5 2402 MHz



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

UL Japan, Inc.

Ise EMC Lab.

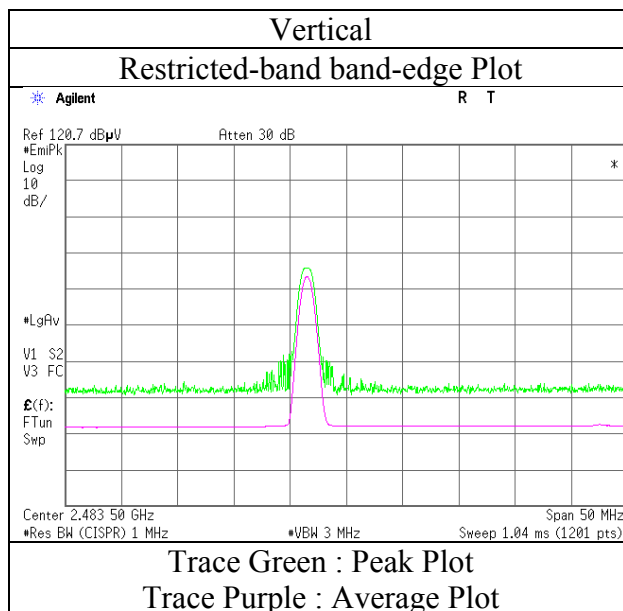
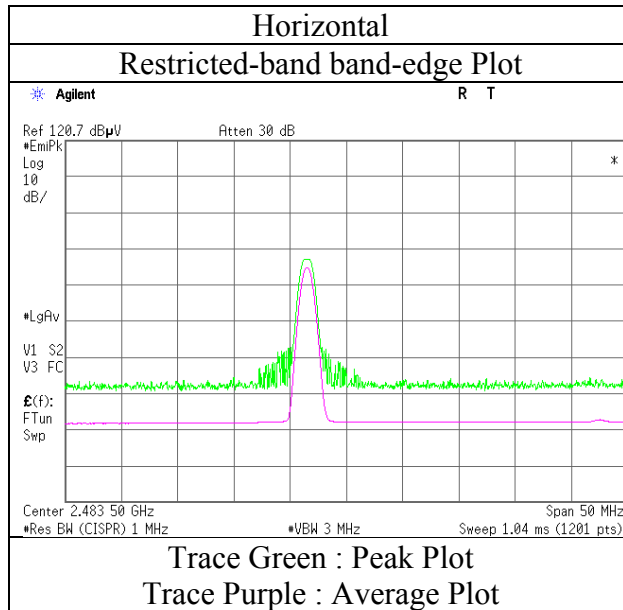
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission
(Reference Plot for band-edge)

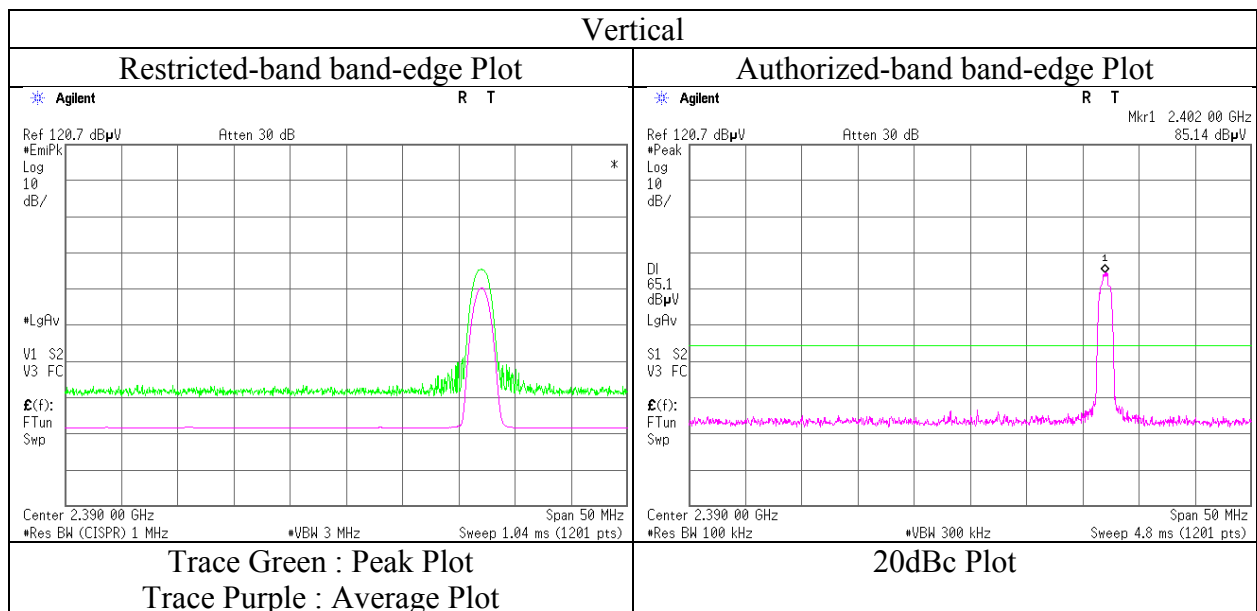
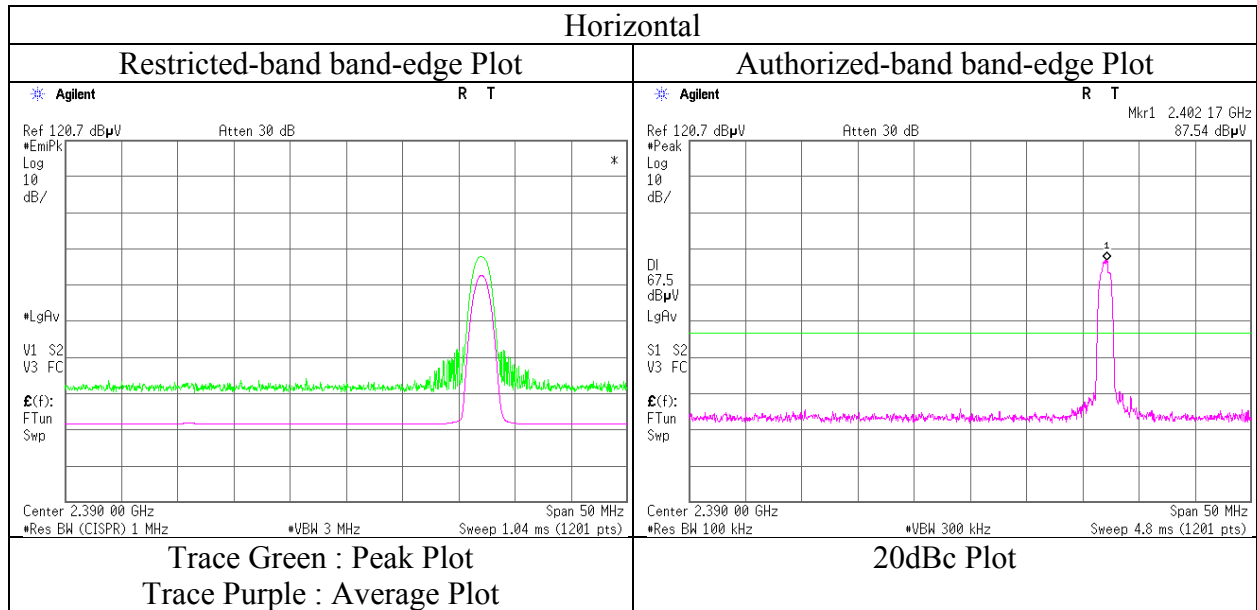
Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11000441H
Date	December 21, 2015
Temperature / Humidity	23 deg. C / 41 % RH
Engineer	Hiroyuki Furutaka
Mode	Tx, Hopping Off, DH5 2480 MHz



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

Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11000441H
Date	December 21, 2015
Temperature / Humidity	23 deg. C / 41 % RH
Engineer	Hiroyuki Furutaka
Mode	Tx, Hopping Off, 3DH5 2402 MHz



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

UL Japan, Inc.

Ise EMC Lab.

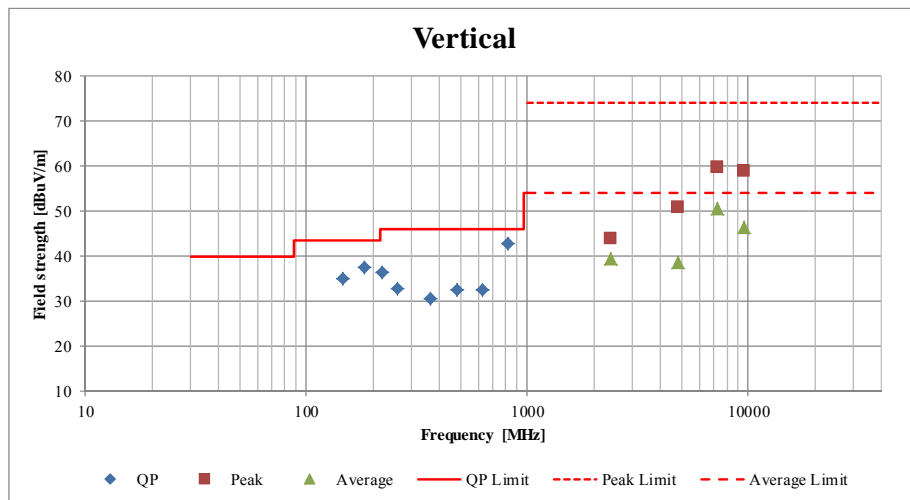
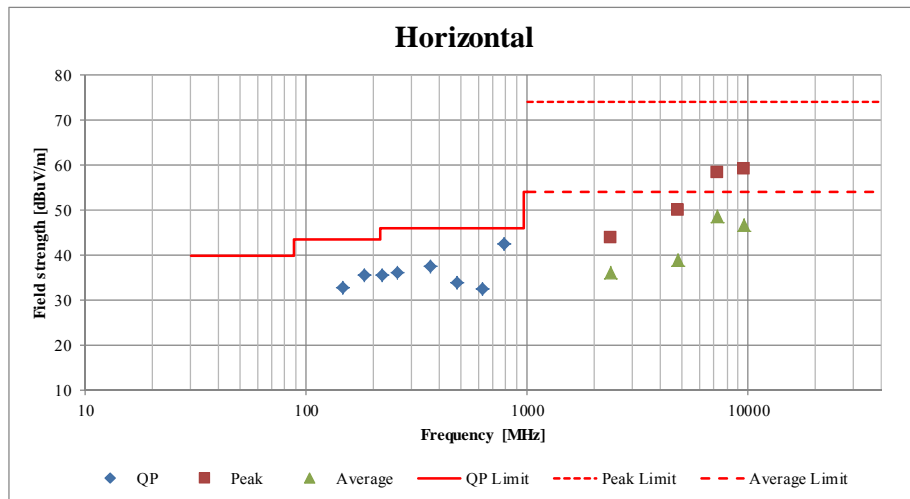
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission (Plot data, Worst case)

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.2	No.3
Report No.	11000441H	
Date	December 21, 2015	December 21, 2015
Temperature / Humidity	18 deg. C / 35 % RH	23 deg. C / 41 % RH
Engineer	Takafumi Noguchi (Below 1GHz)	Hiroyuki Furutaka (Above 1GHz)
Mode	Tx, Hopping Off, 3DH5 2402 MHz	



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

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Ise EMC Lab.

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Telephone : +81 596 24 8999

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Radiated Spurious Emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.2	No.3
Report No.	11000441H	
Date	December 21, 2015	December 21, 2015
Temperature / Humidity	18 deg. C / 35 % RH	23 deg. C / 41 % RH
Engineer	Takafumi Noguchi	Hiroyuki Furutaka
	(Below 1GHz)	(Above 1GHz)
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	145.597	QP	38.4	14.5	7.8	28.0	32.7	43.5	10.8	
Hori	184.317	QP	39.0	16.3	8.1	27.8	35.6	43.5	7.9	
Hori	221.182	QP	39.0	16.8	8.3	27.6	36.5	46.0	9.5	
Hori	258.045	QP	37.8	17.5	8.6	27.4	36.5	46.0	9.5	
Hori	363.995	QP	40.2	16.2	9.2	27.9	37.7	46.0	8.3	
Hori	479.992	QP	36.0	17.8	9.7	28.5	35.0	46.0	11.0	
Hori	626.683	QP	31.5	19.6	10.2	28.3	33.0	46.0	13.0	
Hori	788.881	QP	37.7	21.8	10.9	27.9	42.5	46.0	3.5	
Hori	4882.000	PK	40.0	31.9	8.8	31.3	49.4	73.9	24.5	NS
Hori	7323.000	PK	45.0	36.0	10.1	32.0	59.1	73.9	14.8	
Hori	9764.000	PK	42.4	38.2	10.8	32.5	58.9	73.9	15.0	NS
Hori	4882.000	AV	30.0	31.9	8.8	31.3	39.4	53.9	14.5	NS
Hori	7323.000	AV	34.3	36.0	10.1	32.0	48.4	53.9	5.5	
Hori	9764.000	AV	29.9	38.2	10.8	32.5	46.4	53.9	7.5	NS
Vert	145.597	QP	40.5	14.5	7.8	28.0	34.8	43.5	8.7	
Vert	184.317	QP	40.5	16.3	8.1	27.8	37.1	43.5	6.4	
Vert	221.182	QP	38.8	16.8	8.3	27.6	36.3	46.0	9.7	
Vert	258.045	QP	34.0	17.5	8.6	27.4	32.7	46.0	13.3	
Vert	363.995	QP	32.8	16.2	9.2	27.9	30.3	46.0	15.7	
Vert	479.992	QP	34.0	17.8	9.7	28.5	33.0	46.0	13.0	
Vert	626.683	QP	31.2	19.6	10.2	28.3	32.7	46.0	13.3	
Vert	812.085	QP	37.7	22.0	11.0	27.8	42.9	46.0	3.1	
Vert	4882.000	PK	41.0	31.9	8.8	31.3	50.4	73.9	23.5	NS
Vert	7323.000	PK	46.1	36.0	10.1	32.0	60.2	73.9	13.7	
Vert	9764.000	PK	42.5	38.2	10.8	32.5	59.0	73.9	14.9	NS
Vert	4882.000	AV	28.8	31.9	8.8	31.3	38.2	53.9	15.7	NS
Vert	7323.000	AV	36.7	36.0	10.1	32.0	50.8	53.9	3.1	
Vert	9764.000	AV	30.0	38.2	10.8	32.5	46.5	53.9	7.4	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(1- 10 GHz))-Distance factor(above 10 GHz)) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 1 GHz - 10 GHz 20log (4.4 m / 3.0 m) = 3.3 dB

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

NS: No signal detected

***These results have sufficient margin without taking account Dwell time factor.**

Radiated Spurious Emission

Test place	Ise EMC Lab.	
Semi Anechoic Chamber	No.2	No.3
Report No.	11000441H	
Date	December 21, 2015	December 21, 2015
Temperature / Humidity	18 deg. C / 35 % RH	23 deg. C / 41 % RH
Engineer	Takafumi Noguchi	Hiroyuki Furutaka
	(Below 1GHz)	(Above 1GHz)
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	145.597	QP	38.6	14.5	7.8	28.0	32.9	43.5	10.6	
Hori	184.317	QP	39.1	16.3	8.1	27.8	35.7	43.5	7.8	
Hori	221.182	QP	39.1	16.8	8.3	27.6	36.6	46.0	9.4	
Hori	258.045	QP	37.5	17.5	8.6	27.4	36.2	46.0	9.8	
Hori	363.995	QP	40.0	16.2	9.2	27.9	37.5	46.0	8.5	
Hori	479.992	QP	36.1	17.8	9.7	28.5	35.1	46.0	10.9	
Hori	626.683	QP	31.6	19.6	10.2	28.3	33.1	46.0	12.9	
Hori	788.881	QP	37.7	21.8	10.9	27.9	42.5	46.0	3.5	
Hori	2483.500	PK	57.8	26.9	6.6	32.0	59.3	73.9	14.6	
Hori	4960.000	PK	41.0	32.1	8.7	31.2	50.6	73.9	23.3	NS
Hori	7440.000	PK	45.1	36.0	10.0	32.1	59.0	73.9	14.9	
Hori	9920.000	PK	42.4	38.2	10.9	32.5	59.0	73.9	14.9	NS
Hori	2483.500	AV	31.4	26.9	6.6	32.0	32.9	53.9	21.0	
Hori	4960.000	AV	29.6	32.1	8.7	31.2	39.2	53.9	14.7	NS
Hori	7440.000	AV	33.8	36.0	10.0	32.1	47.7	53.9	6.2	
Hori	9920.000	AV	29.8	38.2	10.9	32.5	46.4	53.9	7.5	NS
Vert	145.597	QP	40.5	14.5	7.8	28.0	34.8	43.5	8.7	
Vert	184.317	QP	40.7	16.3	8.1	27.8	37.3	43.5	6.2	
Vert	221.182	QP	39.0	16.8	8.3	27.6	36.5	46.0	9.5	
Vert	258.045	QP	34.1	17.5	8.6	27.4	32.8	46.0	13.2	
Vert	363.995	QP	33.0	16.2	9.2	27.9	30.5	46.0	15.5	
Vert	479.992	QP	33.8	17.8	9.7	28.5	32.8	46.0	13.2	
Vert	626.683	QP	31.3	19.6	10.2	28.3	32.8	46.0	13.2	
Vert	812.085	QP	37.7	22.0	11.0	27.8	42.9	46.0	3.1	
Vert	2483.500	PK	55.4	26.9	6.6	32.0	56.9	73.9	17.0	
Vert	4960.000	PK	40.1	32.1	8.7	31.2	49.7	73.9	24.2	NS
Vert	7440.000	PK	46.3	36.0	10.0	32.1	60.2	73.9	13.7	
Vert	9920.000	PK	42.5	38.2	10.9	32.5	59.1	73.9	14.8	NS
Vert	2483.500	AV	30.7	26.9	6.6	32.0	32.2	53.9	21.7	
Vert	4960.000	AV	29.5	32.1	8.7	31.2	39.1	53.9	14.8	NS
Vert	7440.000	AV	36.8	36.0	10.0	32.1	50.7	53.9	3.2	
Vert	9920.000	AV	30.0	38.2	10.9	32.5	46.6	53.9	7.3	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(1- 10 GHz))-Distance factor(above 10 GHz) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

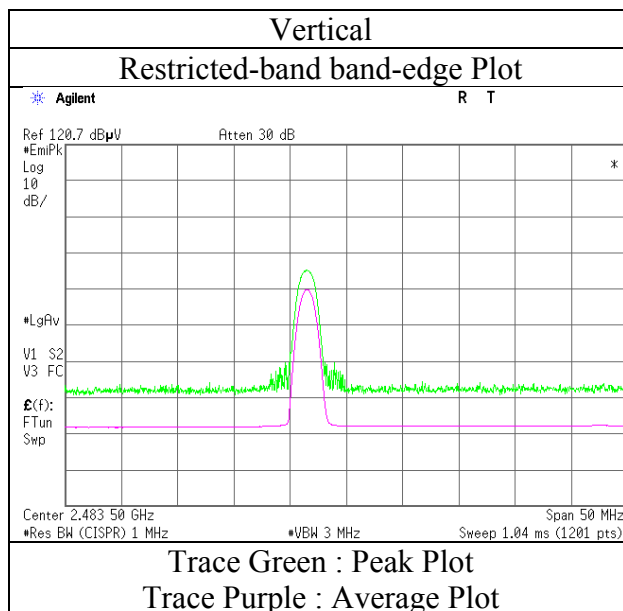
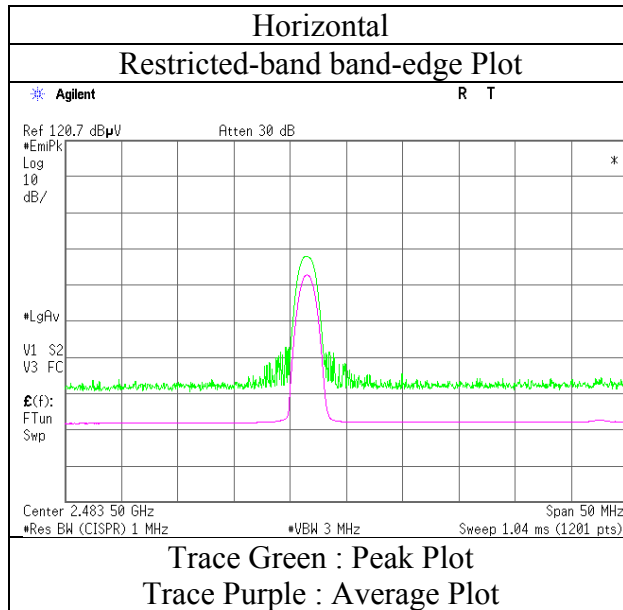
Distance factor: 1 GHz - 10 GHz 20log(4.4 m / 3.0 m) = 3.3 dB
10 GHz - 26.5 GHz 20log(1.0 m / 3.0 m) = -9.5 dB

NS: No signal detected

***These results have sufficient margin without taking account Dwell time factor.**

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber
Report No.	11000441H
Date	December 21, 2015
Temperature / Humidity	23 deg. C / 41 % RH
Engineer	Hiroyuki Furutaka
Mode	Tx, Hopping Off, 3DH5 2480 MHz

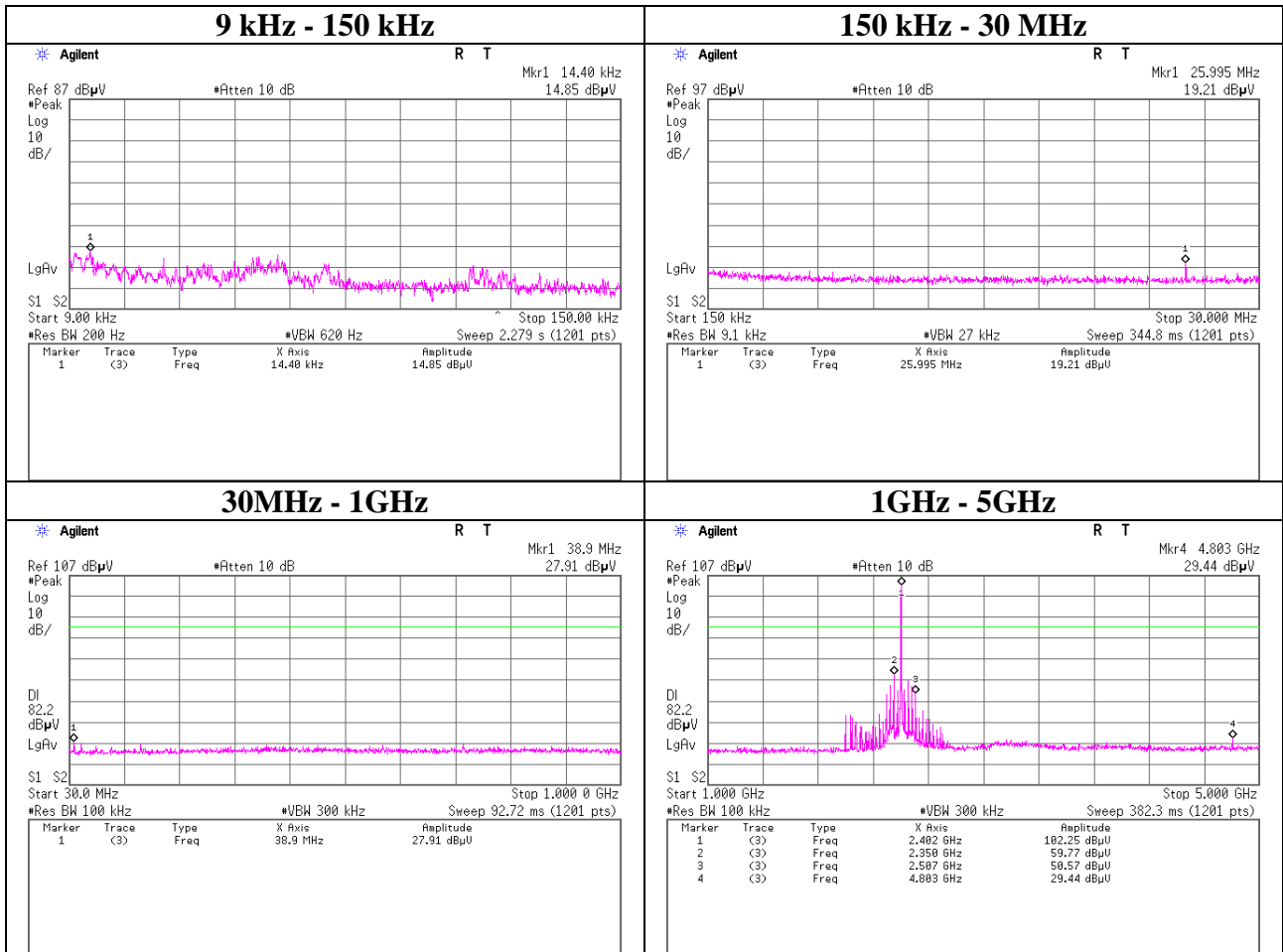


* Final result of restricted band edge was shown in tabular data.

Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, DH5

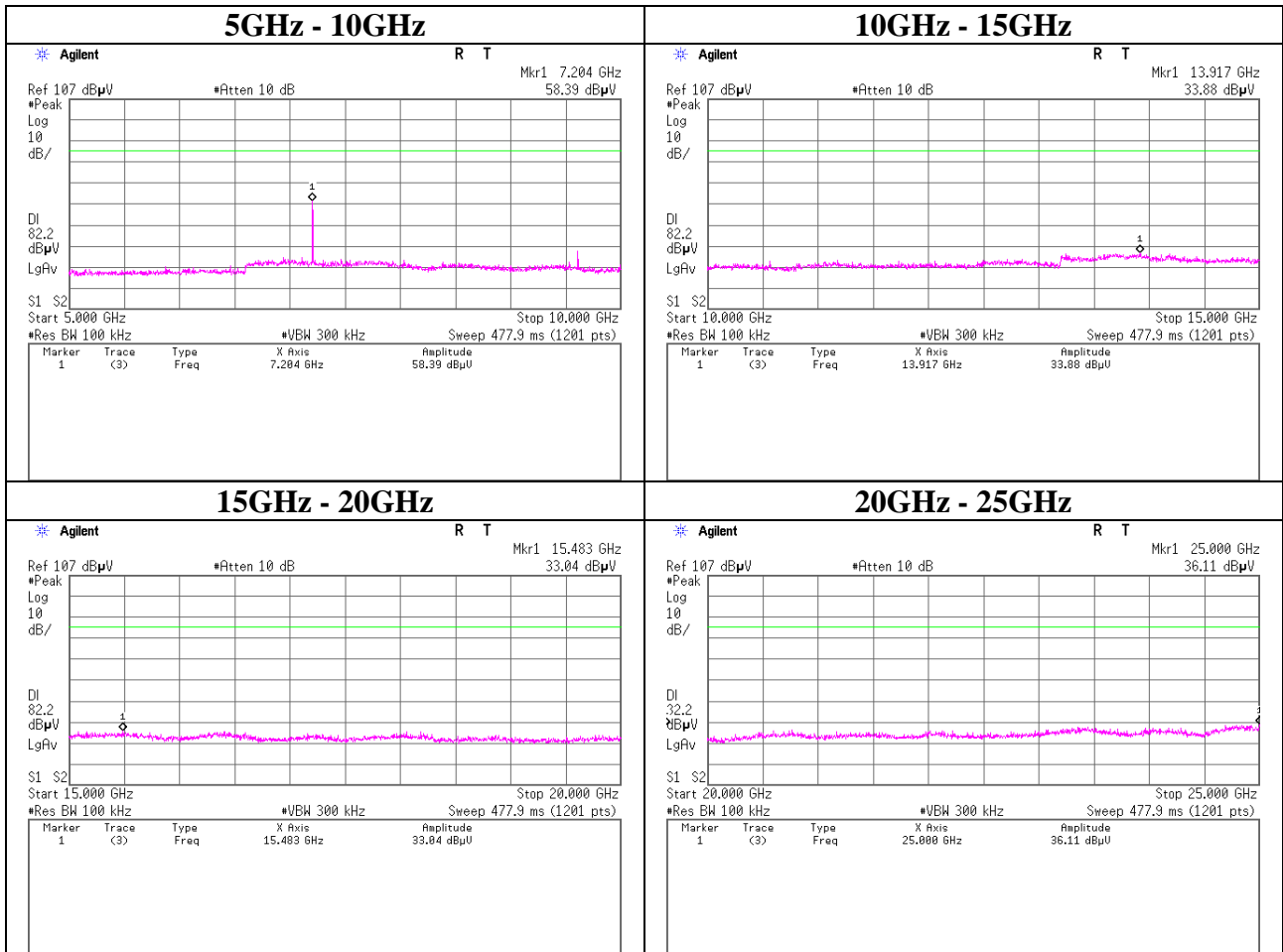
2402 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, DH5

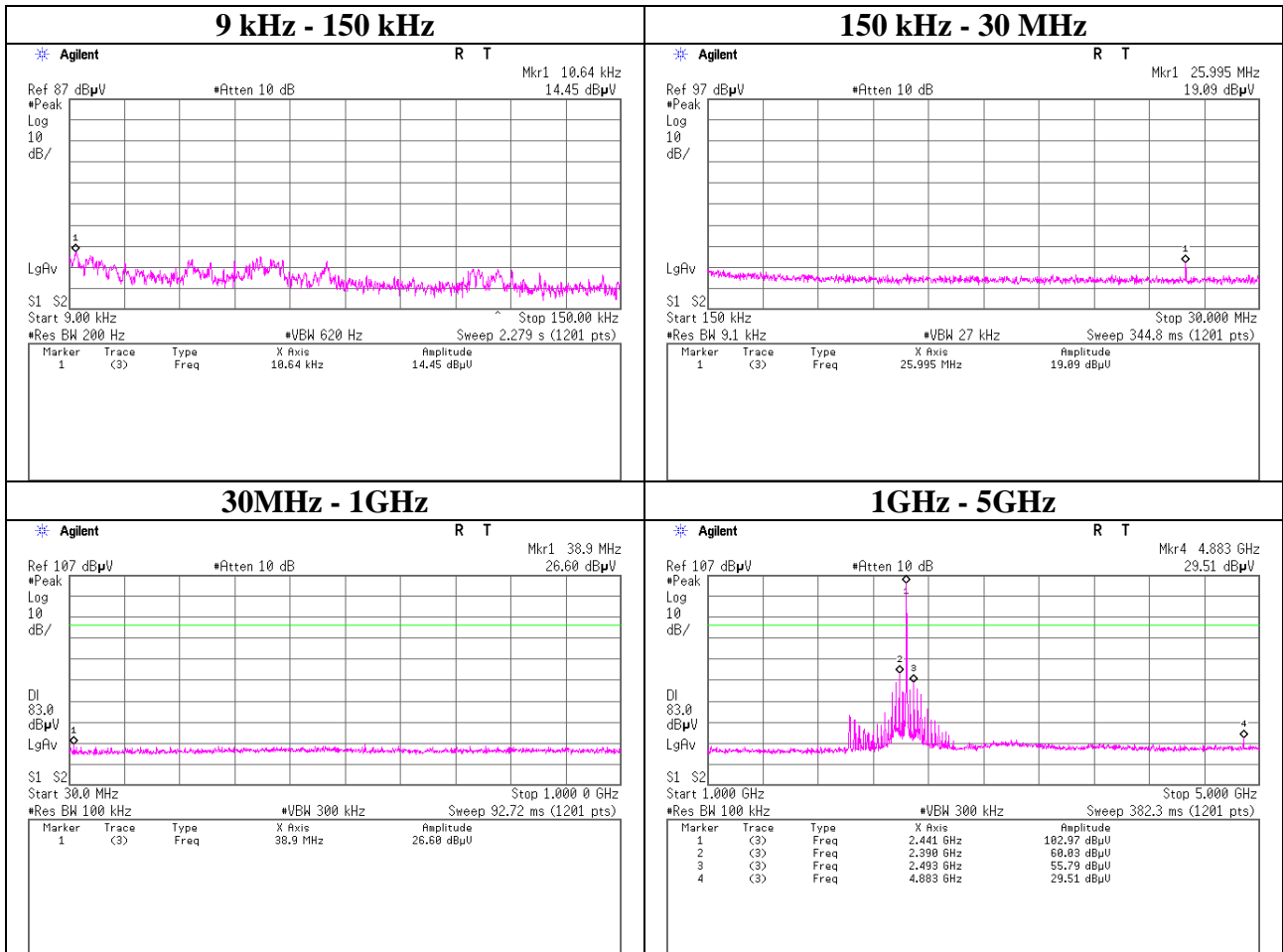
2402 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, DH5

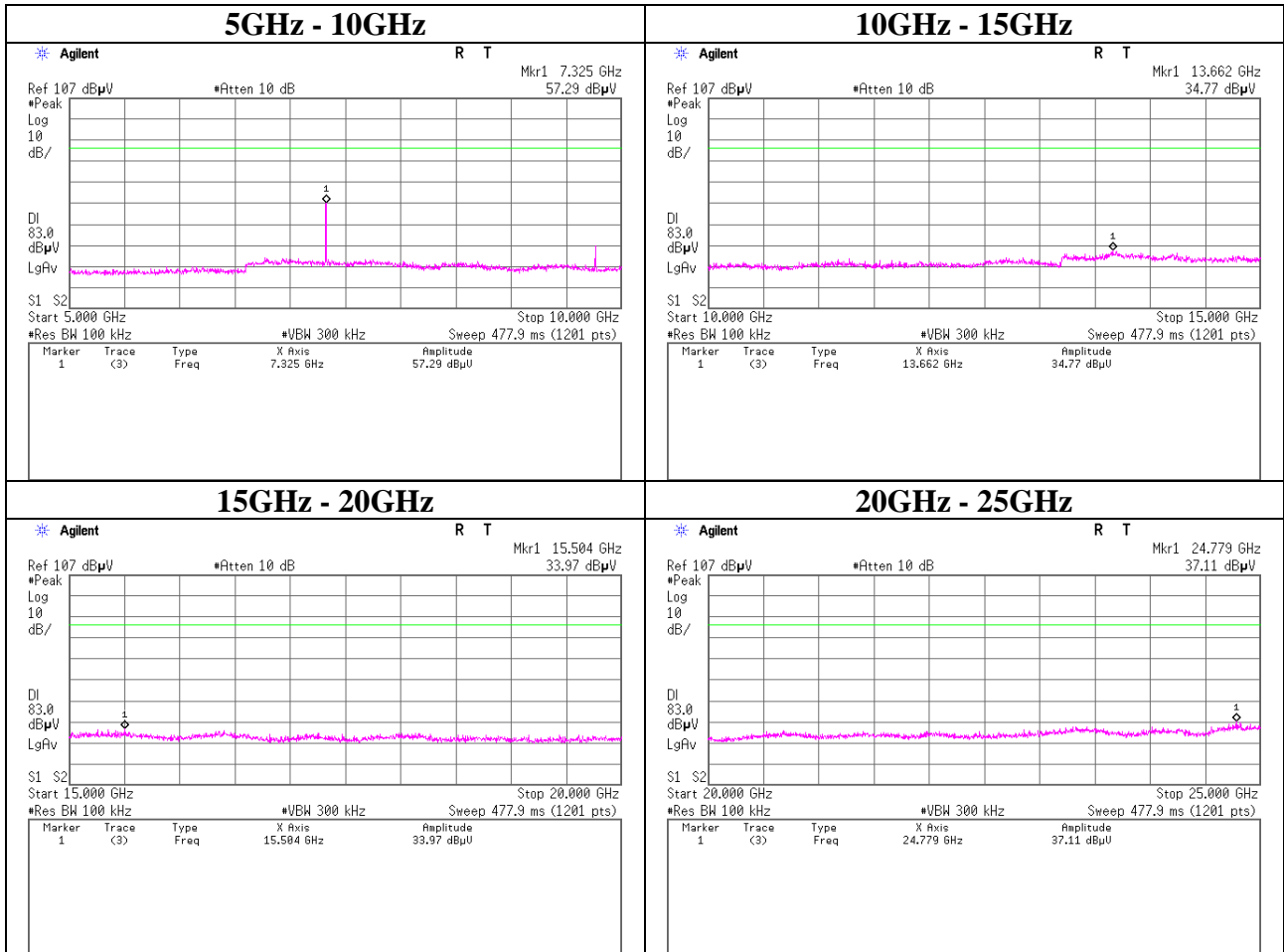
2441 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, DH5

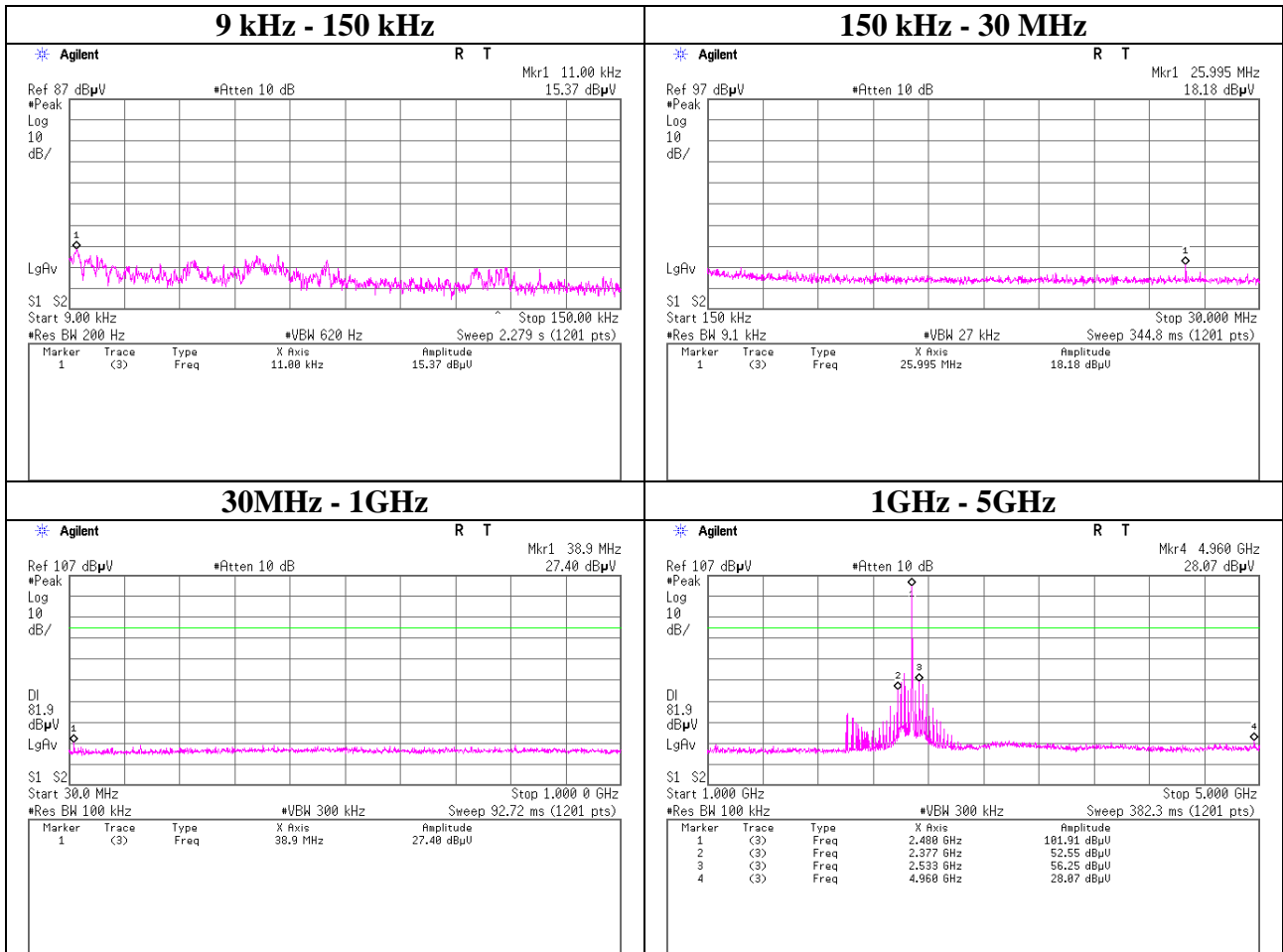
2441 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, DH5

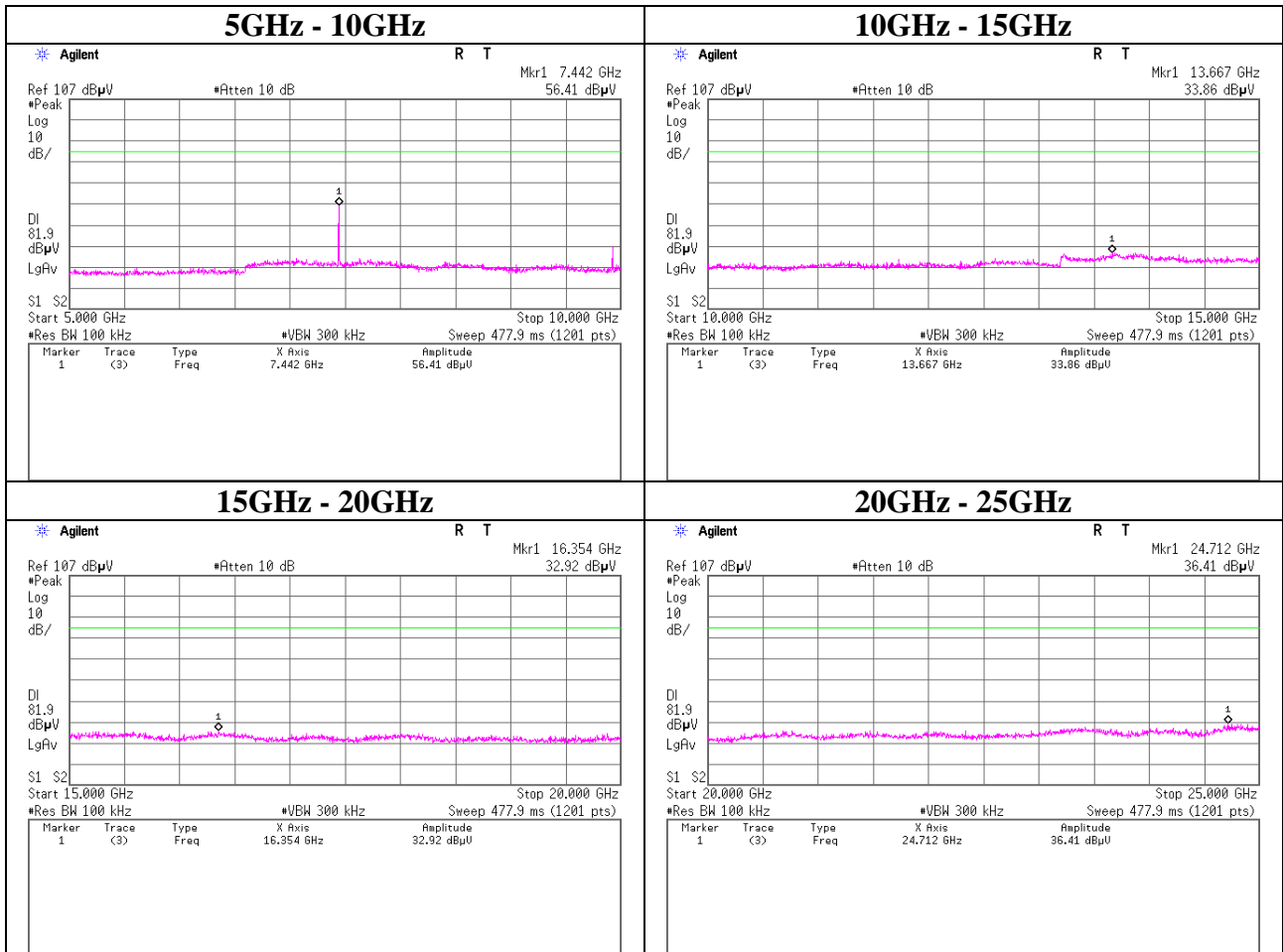
2480 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, DH5

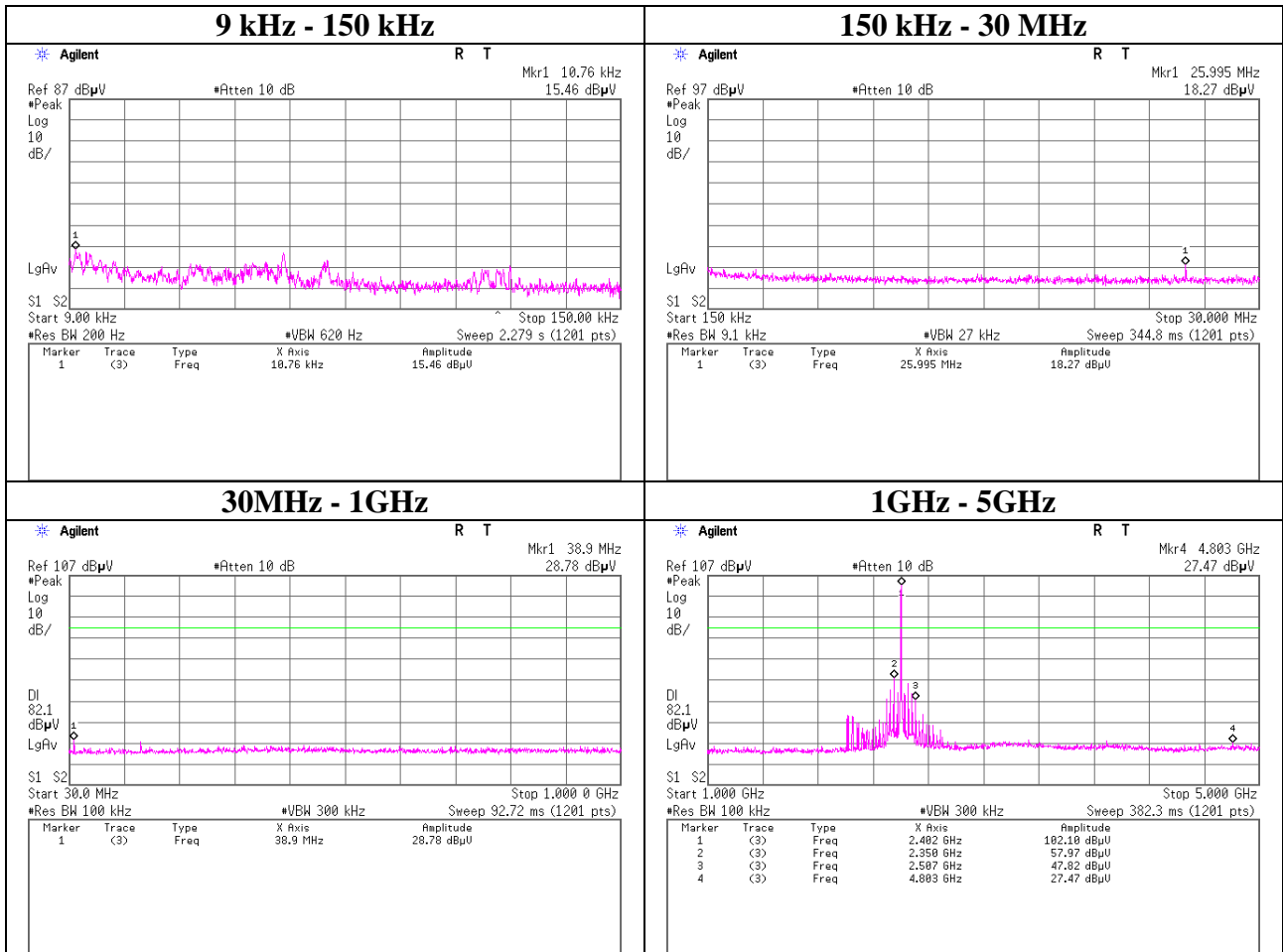
2480 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, 3DH5

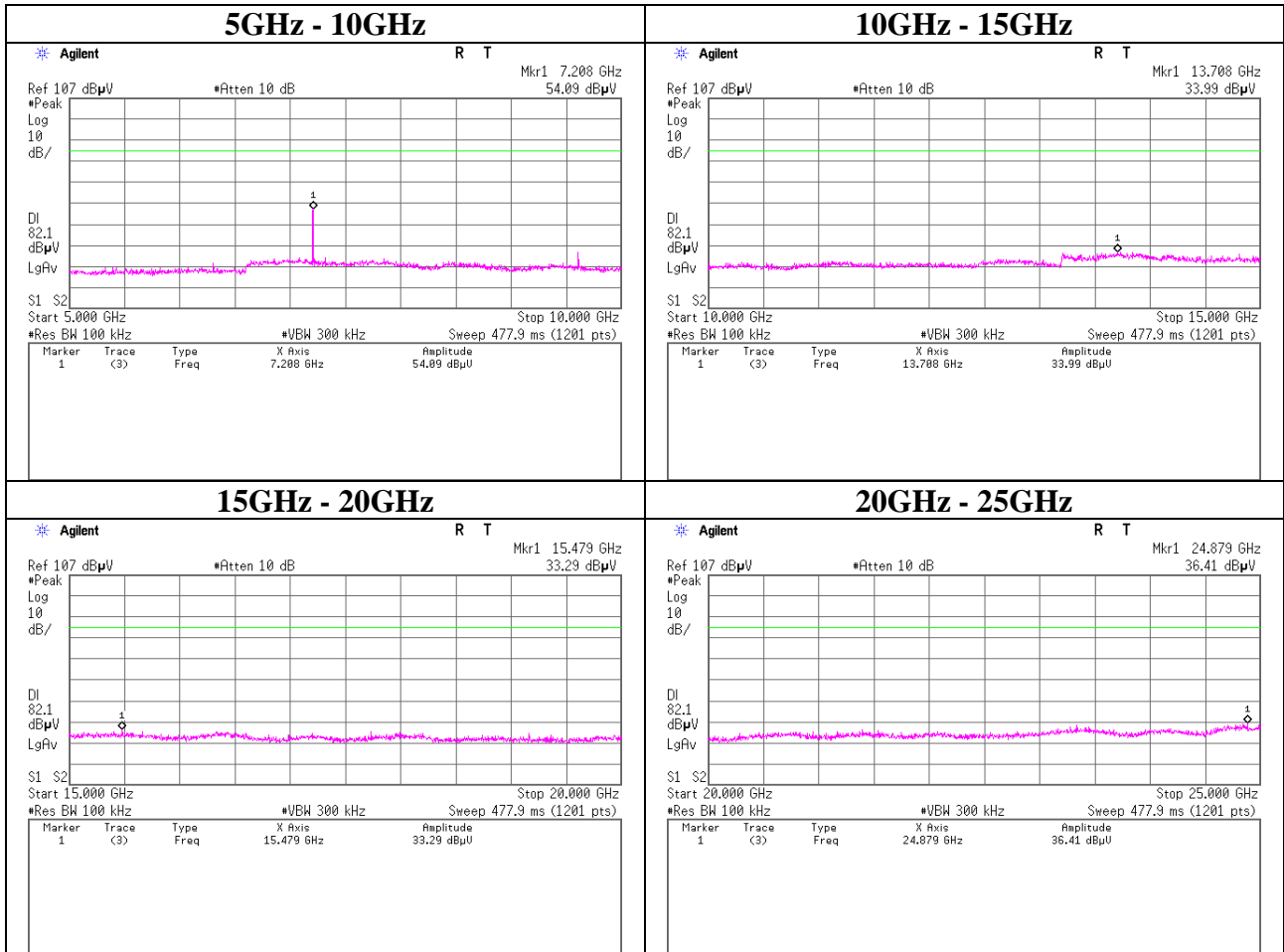
2402 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, 3DH5

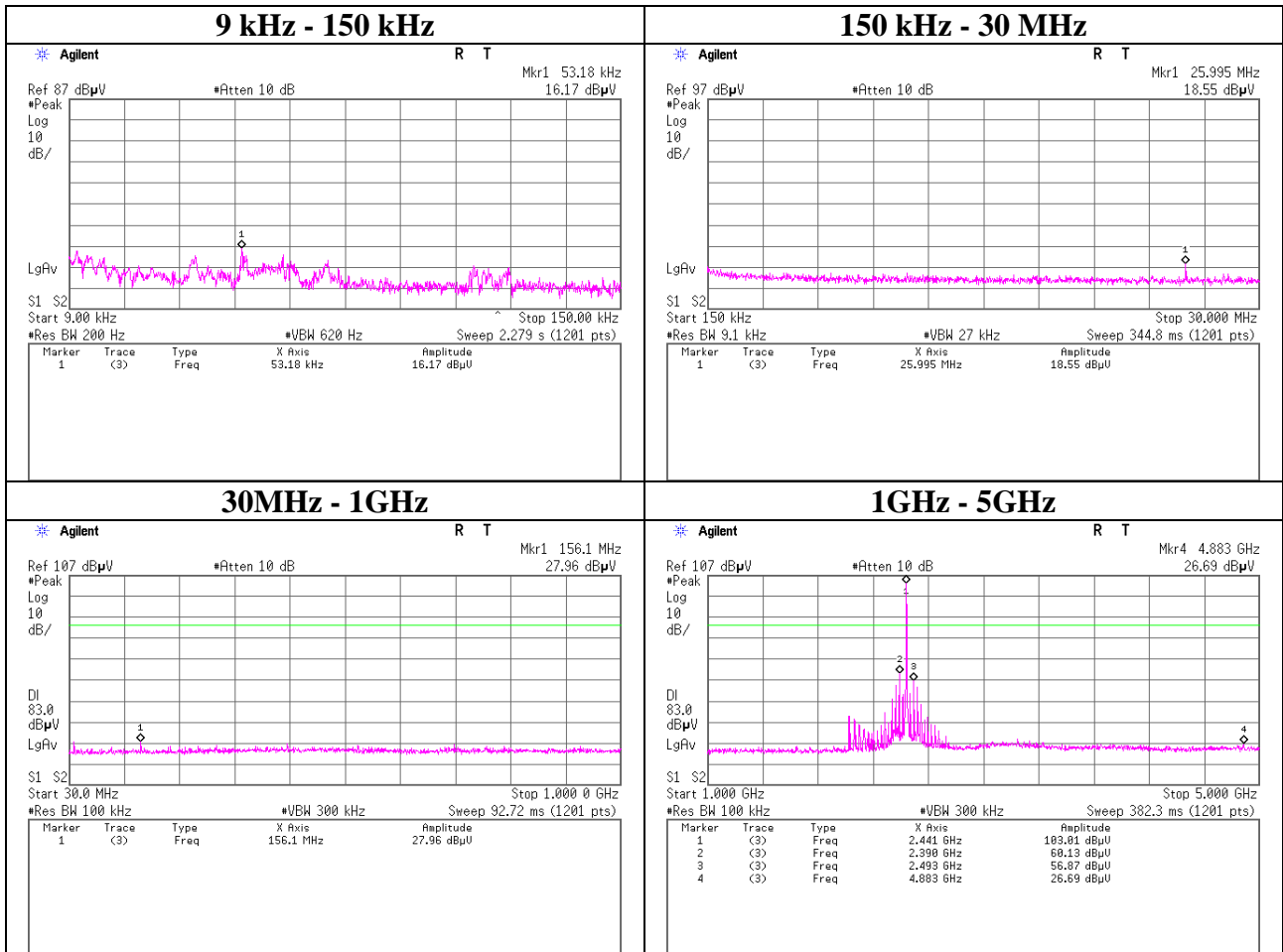
2402 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, 3DH5

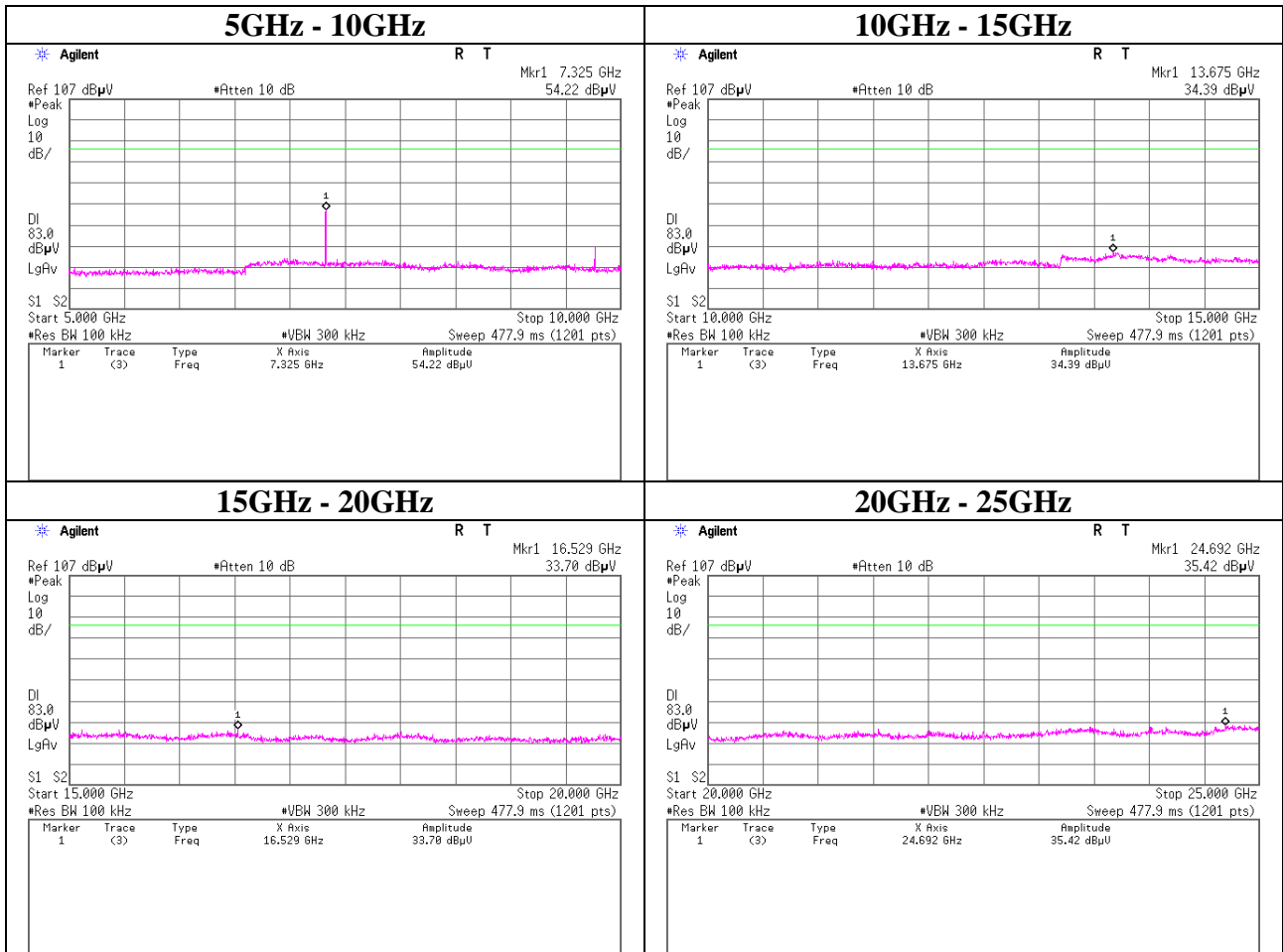
2441 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, 3DH5

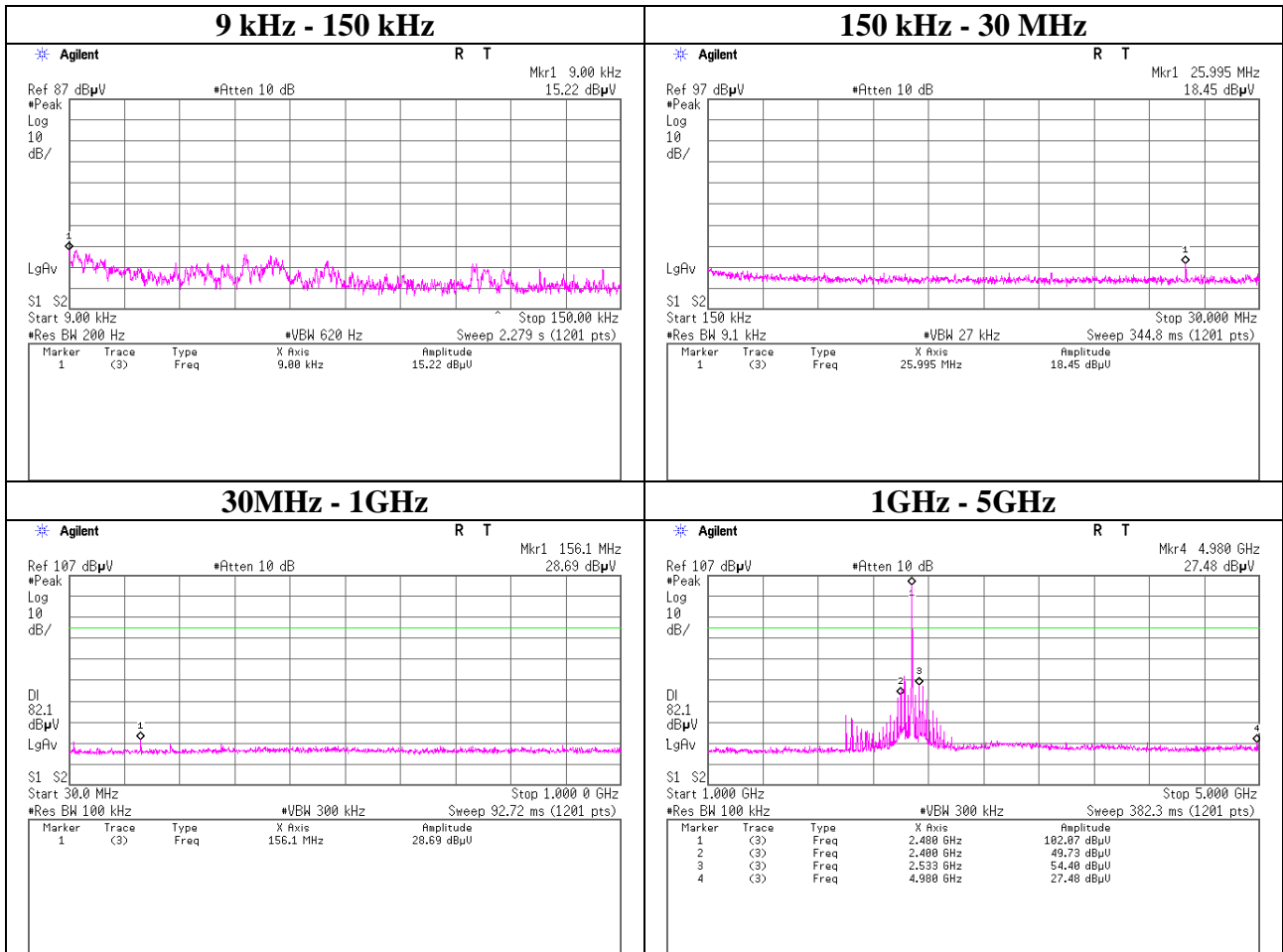
2441 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, 3DH5

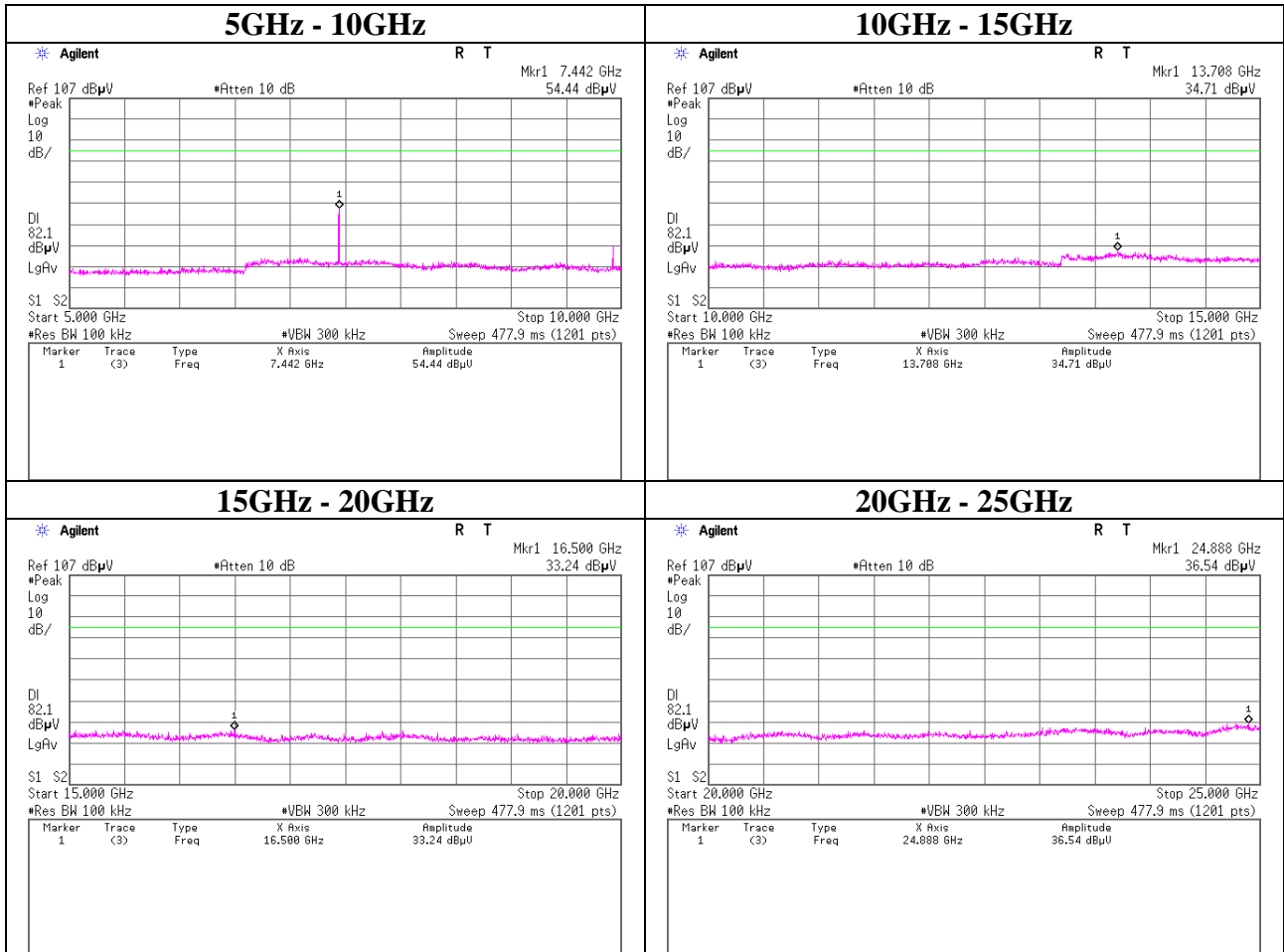
2480 MHz



Conducted Spurious Emission

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx, Hopping Off, 3DH5

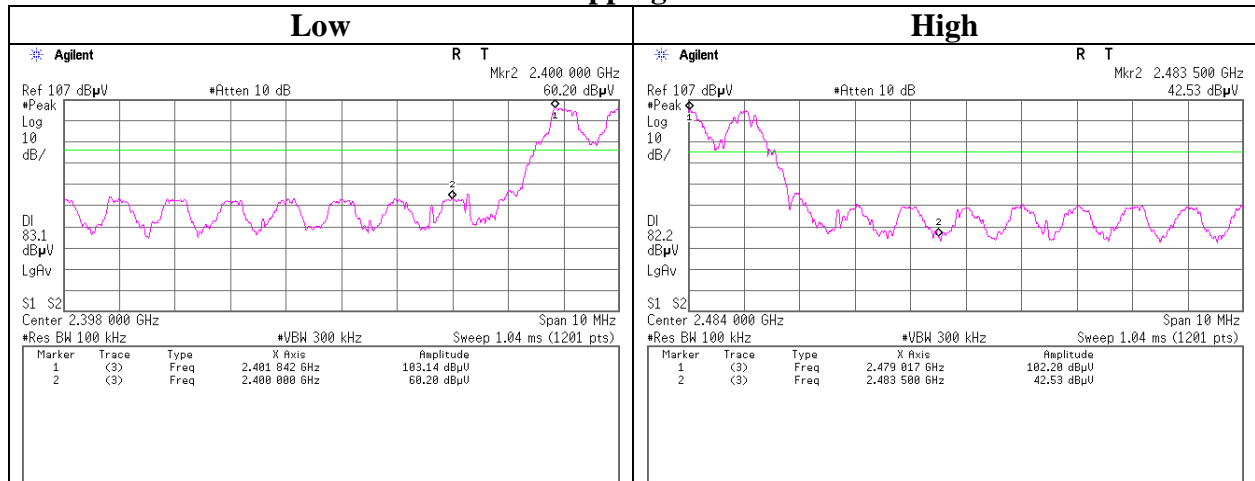
2480 MHz



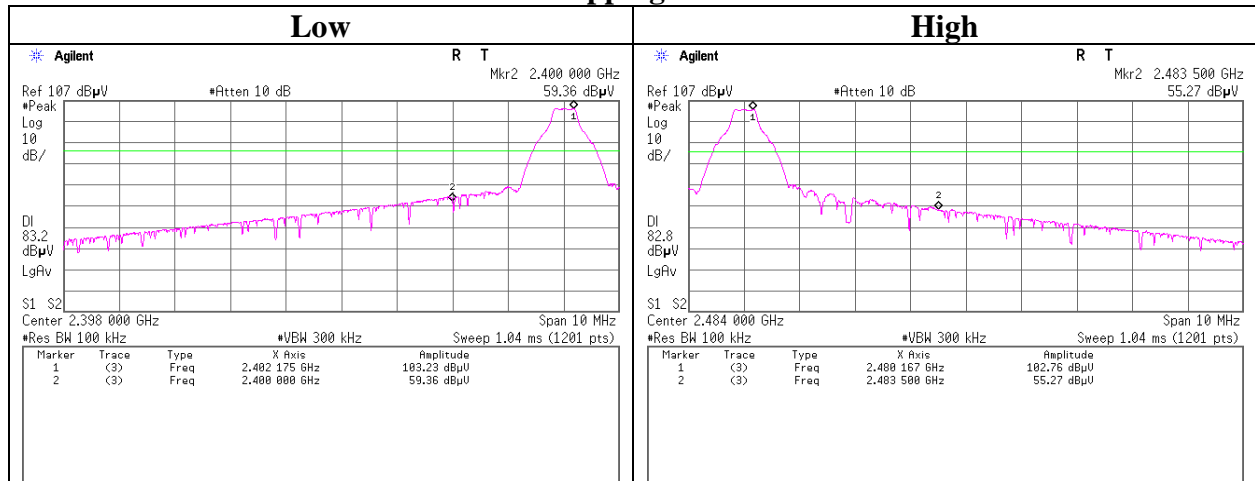
Conducted Emission Band Edge compliance

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx DH5

Hopping On



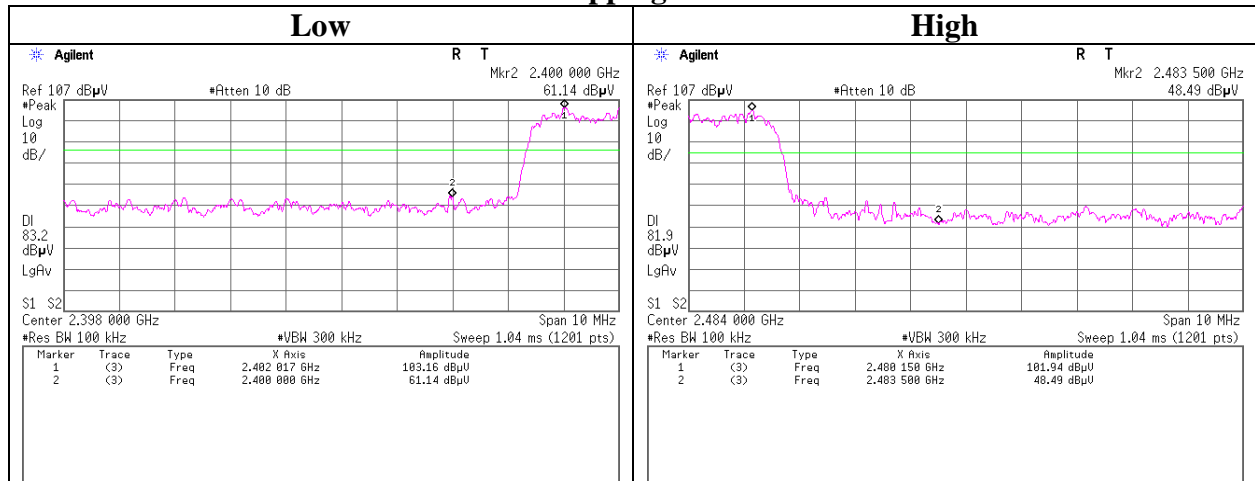
Hopping Off



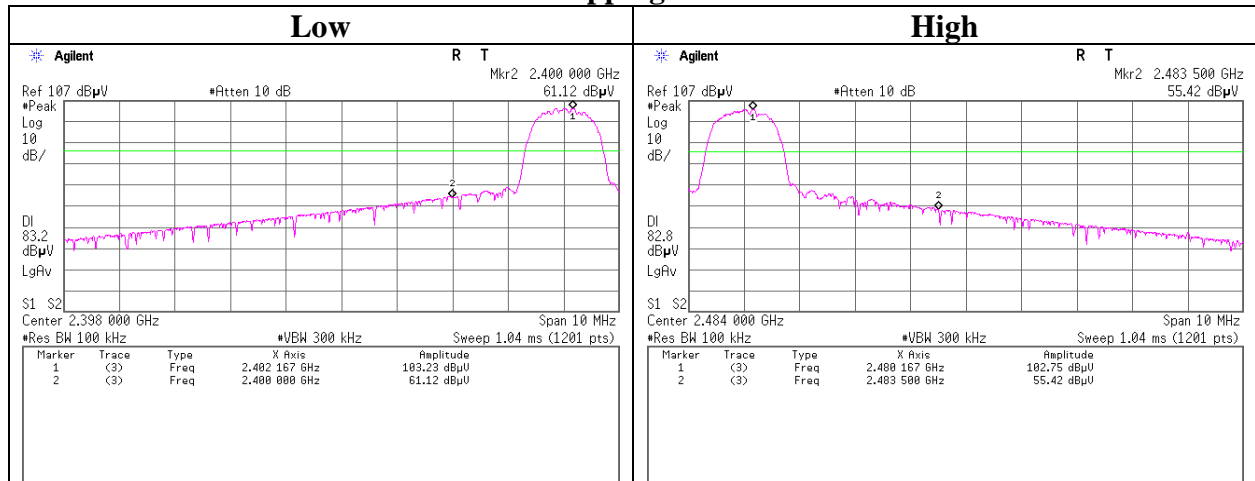
Conducted Emission Band Edge compliance

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx 3DH5

Hopping On



Hopping Off



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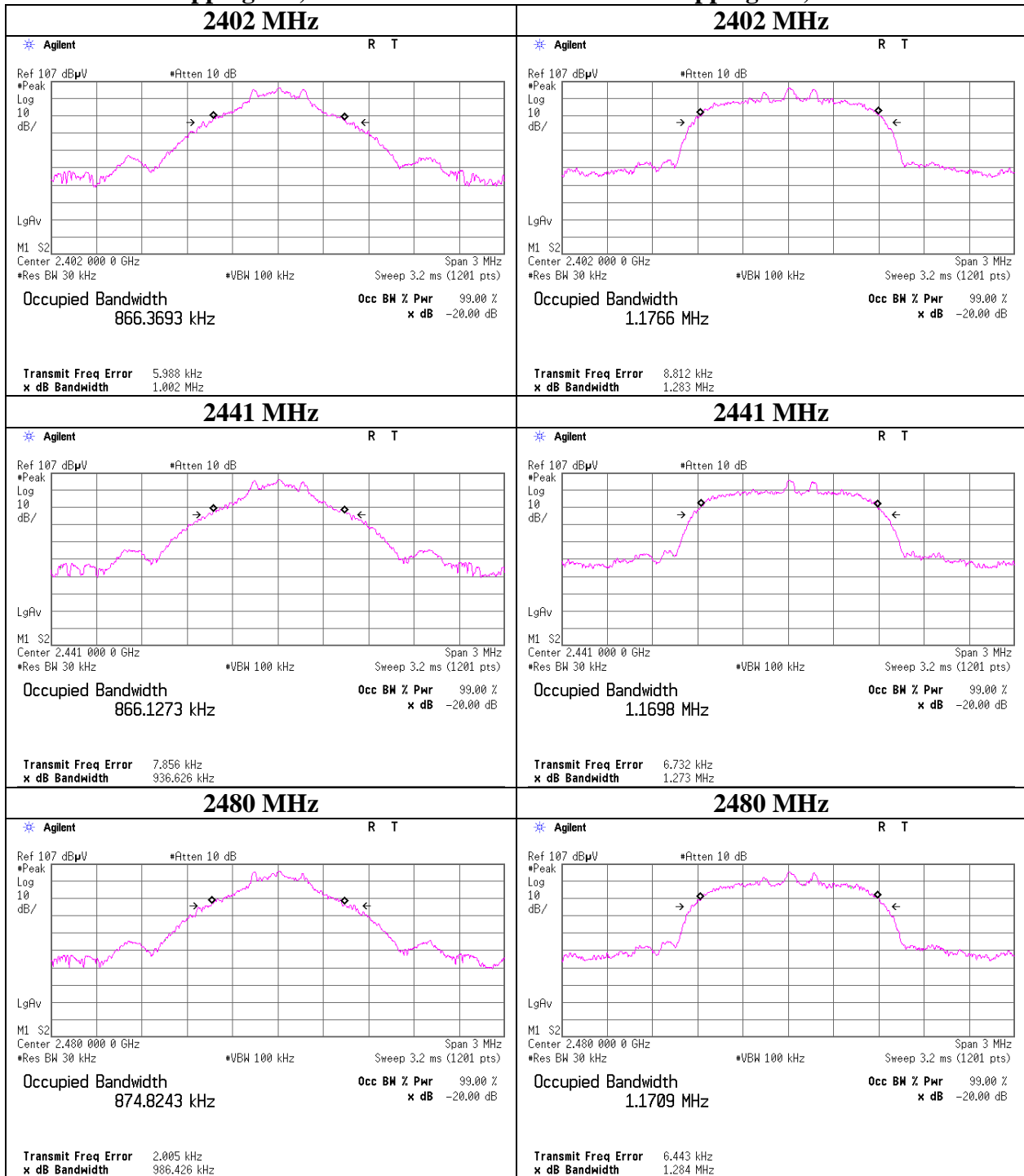
Facsimile : +81 596 24 8124

99% Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx Hopping Off

Hopping Off, DH5

Hopping Off, 3DH5



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Ise EMC Lab.

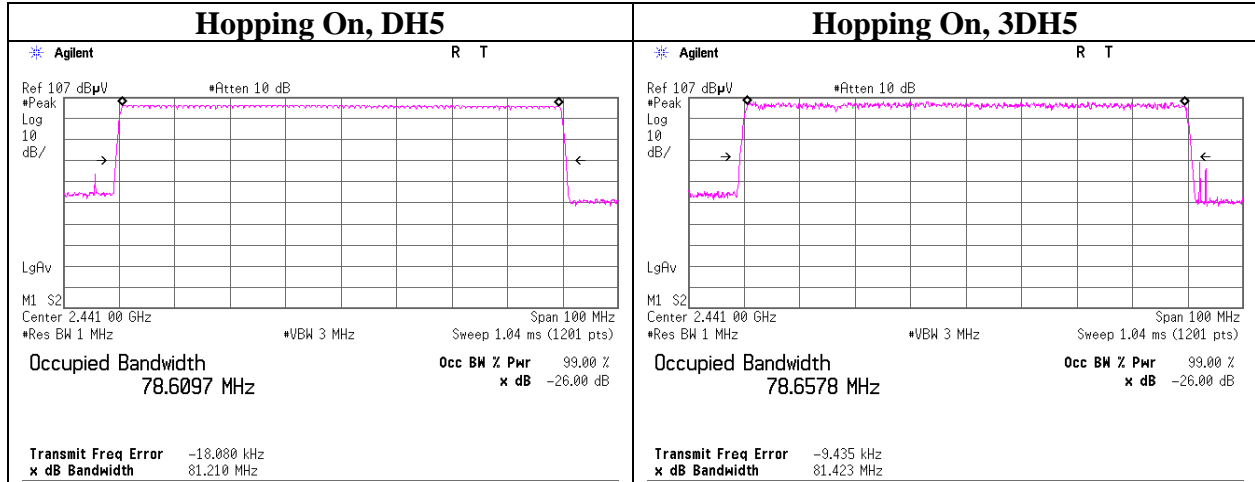
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Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

99% Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	11000441H
Date	November 16, 2015
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Kazuya Yoshioka
Mode	Tx Hopping On



APPENDIX 2: Test instruments

Test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2015/07/01 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2015/01/13 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2015/11/06 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2015/10/11 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2015/10/11 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2015/10/11 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2015/02/06 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2015/11/10 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2015/09/04 * 12
MMM-01	Digital Tester	Fluke	FLUKE 26-3	78030611	RE	2015/08/19 * 12
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2015/10/01 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	1301	RE	2015/01/13 * 12
MJM-16	Measure	KOMELON	KMC-36	-	RE	-
MSA-13	Spectrum Analyzer	Agilent	E4440A	MY46185823	RE	2015/06/02 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2015/05/18 * 12
MCC-167	Microwave Cable	Junkosha	MWX221	1404S374(1m) / 1405S074(5m)	RE	2015/05/21 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2015/03/19 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2015/05/19 * 12
MMM-08	DIGITAL HiTESTER	Hioki	3805	051201197	RE	2015/01/16 * 12
MHF-25	High Pass Filter 3.5-18.0GHz	UL Japan	HPF SELECTOR	001	RE	2015/09/16 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	AT	2015/02/26 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2015/10/08 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2015/10/08 * 12
MCC-67	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	28635/2	AT	2015/04/09 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	1401	AT	2015/01/13 * 12
MMM-12	DIGITAL HiTESTER	Hioki	3805	060500120	AT	2015/02/05 * 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 test
AT: Antenna Terminal Conducted test**

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