RADIO TEST REPORT

Test Report No. : 11413625S-D-R2

Applicant	:	**Sony Corporation**
Type of Equipment	:	**AV Receiver**
Model No.	:	**XAV-AX100**
FCC ID	:	**AK8XAVAX100**
Test regulation	:	**FCC Part 15 Subpart C: 2016**
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. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
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 11413625S-D-R1. 11413625S-D-R1 is replaced with this report.

Date of test: August 17 to 30, 2016

Representative test engineer: H. Morikawa

Hiroyuki Morikawa
Engineer
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Leader
Consumer Technology Division

JAB Testing
RTL02610

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".

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REVISION HISTORY

Original Test Report No.: 11413625S-D

Revision	Test report No.	Date	Page revised	Contents
- (Original)	11413625S-D	September 7, 2016	-	-
1	11413625S-D-R1	September 13, 2016	5, 12	Correction of Section 3.2 Correction of description about worst position
2	11413625S-D-R2	September 14, 2016	9, 10	Correction of configuration and peripherals Correction of description of EUT and support equipment

CONTENTS PAGE

SECTION 1: Customer information

Company Name	:	Sony Global Manufacturing & Operations Corporation
Address	:	8-4 Shiomi Kisarazu-shi, Chiba, 292-0834 Japan
Contact Person	:	Kazuhiko Nagano

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

2.1 Identification of E.U.T.

Type of Equipment	:	AV Receiver
Model No.	:	XAV-AX100
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC 12 V
Receipt Date of Sample	:	August 17, 2016
Country of Mass-production	:	China
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab

2.2 Product Description

Model: XAV-AX100 (referred to as the EUT in this report) is an AV Receiver.

Clock frequency(ies) in the system : 27 MHz, 32 MHz, 26 MHz, 8 MHz, 37.05 MHz

Radio Specification

[Bluetooth]

Radio Type	:	Transceiver
Frequency of Operation	:	2402 MHz - 2480 MHz
Modulation	:	FHSS
Power Supply (radio part input)	:	DC 3.3 V
Antenna type	:	2.4 G wire Antenna
Antenna Gain	:	Peak 1.68 dBi, Average 1.1 dBi

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	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	1.0 dB 144.000 MHz, QP, Hori. Tx, Hopping Off, DH5 2480 MHz	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 has no AC mains.
*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 equipment provides the wireless transmitter with stable power supply (DC 3.3 V). 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.

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.

Shonan EMC Lab.

Item	Frequency range	Uncertainty (+/-)			
		No. 1 SAC / SR	No. 2 SAC / SR	No. 3 SAC / SR	No. 4 SAC / SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.1 dB	2.1 dB	2.6 dB	2.2 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	2.7 dB	2.7 dB	3.1 dB	-
	30 MHz-300 MHz	4.4 dB	4.4 dB	4.6 dB	-
	300 MHz-1 GHz	5.6 dB	5.5 dB	5.3 dB	-
	1 GHz-13 GHz	5.2 dB	5.2 dB	5.2 dB	-
Radiated emission (Measurement distance: 1 m)	13 GHz-18 GHz	4.9 dB	4.9 dB	4.9 dB	-
	18 GHz-40 GHz	4.9 dB	4.9 dB	4.9 dB	-

SAC=Semi-Anechoic Chamber

SR= Shielded Room is applied besides radiated emission

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)_SPM-06	0.76 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-06	0.79 dB
Power Measurement above 1 GHz (Average Detector)_SPM-07	0.74 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-07	1.08 dB
Spurious emission (Conducted) below 1GHz	1.5 dB
Spurious emission (Conducted) 1 GHz-3 GHz	1.7 dB
Spurious emission (Conducted) 3 GHz-18 GHz	2.4 dB
Spurious emission (Conducted) 18 GHz-26.5 GHz	2.5 dB
Spurious emission (Conducted) 26.5 GHz-40 GHz	2.5 dB
Bandwidth Measurement	0.66 %
Duty cycle and Time Measurement	0.012 %

Radiated emission test

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

3.5 Test Location

UL Japan, Inc. Shonan EMC Lab.
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Telephone: +81 463 50 6400, Facsimile: +81 463 50 6401
JAB Accreditation No. RTL02610

Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
No.4 Semi-anechoic chamber	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
No.1 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 Shielded room	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 Shielded room	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 shielded room	-	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

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
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

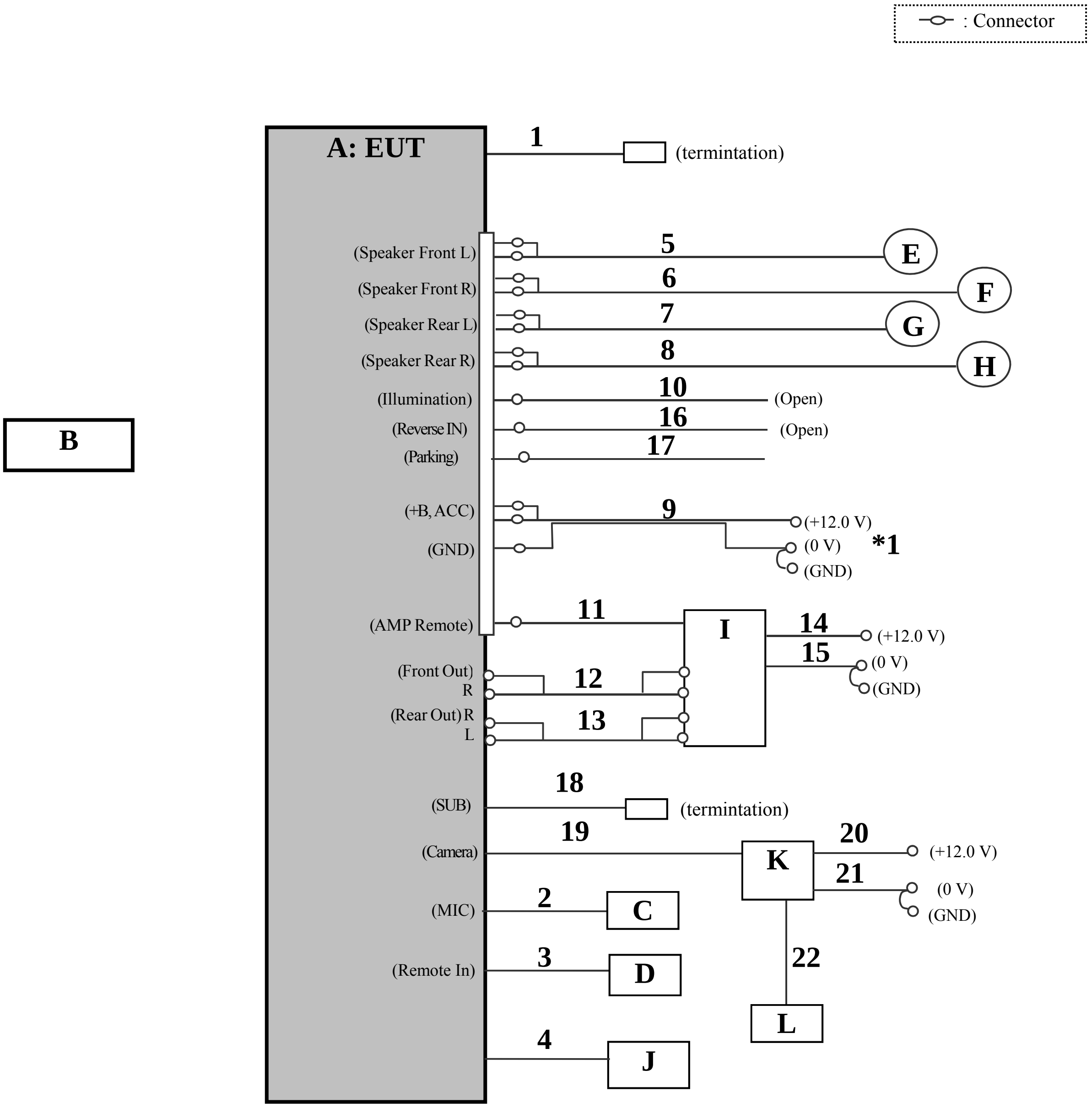
*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload length (except Dwell time test)

*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 the test items based on Bluetooth Core specification.

*EUT has the power settings by the software as follows;
Power settings: Fixed
Software: RDA Host Controller Data Transfer Tester Application
*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.

4.2 Configuration and peripherals



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	AV Receiver	XAV-AX100	0000U-9 *1) 0000U-8 *2)	Sony	EUT
B	Remote Commander	RM-X170	-	Sony	-
C	MIC	-	-	Sony	-
D	Wired Remote Controller	RM-X2S	-	Sony	-
E	Speaker 1	IS-10	-	Sony	-
F	Speaker 2	IS-10	-	Sony	-
G	Speaker 3	XS-GTF1625R	-	Sony	-
H	Speaker 4	XS-GTF1625R	-	Sony	-
I	Stereo Power Amplifier	XM-4S-020	S0C5	Sony	-
J	USB Memory	SDK-USM4GL(B)	10615MEDB	Sony	-
K	Rear View Camera	XA-R800C	100114	Sony	-
L	Camera	-	-	Sony	-

*1) Used for Antenna Terminal conducted test
*2) Used for Conducted Emission test and Radiated Emission test

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	FM antenna	1.1	Shielded	Shielded	-
2	MIC	3.0	Shielded	Shielded	-
3	REMOTE IN	2.0	Shielded	Shielded	-
4	USB	0.2+1.35	Shielded	Shielded	-
5	Speaker (1)	0.15+2.1	Unshielded	Unshielded	-
6	Speaker (2)	0.15+2.1	Unshielded	Unshielded	-
7	Speaker (3)	0.15+2.1	Unshielded	Unshielded	-
8	Speaker (4)	0.15+2.1	Unshielded	Unshielded	-
9	DC Power	0.15+2.1	Unshielded	Unshielded	-
10	Illumination	0.15+1.5	Unshielded	Unshielded	-
11	AMP Remote	0.15+1.4	Unshielded	Unshielded	-
12	RCA (Front Audio Out)	5.0	Shielded	Shielded	-
13	RCA (Rear Audio Out)	5.0	Shielded	Shielded	-
14	DC Power (+)	1.3	Unshielded	Unshielded	-
15	DC Power (-)	1.3	Unshielded	Unshielded	-
16	Reverse In	0.15+1.5	Unshielded	Unshielded	-
17	Parking	1.9	Unshielded	Unshielded	-
18	Video	2.0	Shielded	Shielded	-
19	Video	2.0	Shielded	Shielded	-
20	DC Power (+)	1.3	Unshielded	Unshielded	-
21	DC Power (-)	1.3	Unshielded	Unshielded	-
22	Camera	3.0	Shielded	Shielded	-

SECTION 5: Radiated Spurious Emission

Test Procedure

[For below 1 GHz]
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 1 GHz]
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;

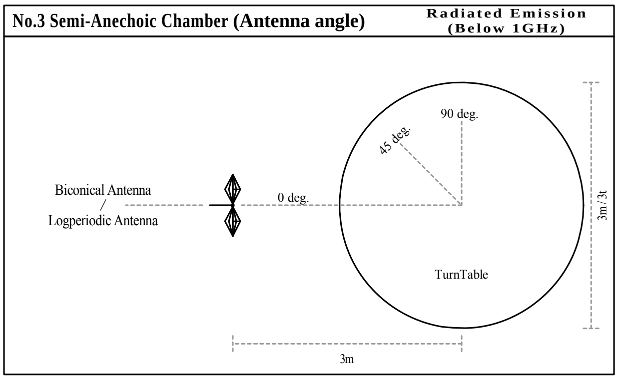
Frequency	30 MHz to 300 MHz	300 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

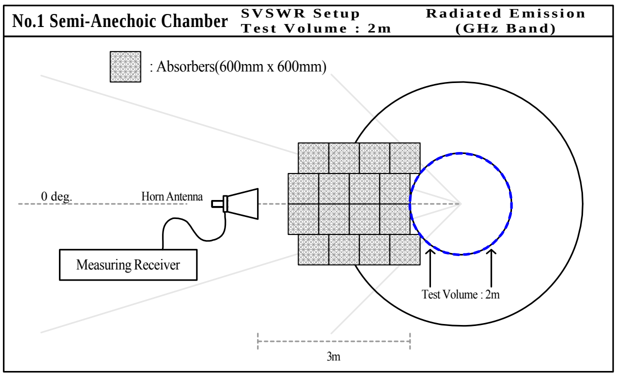
In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired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

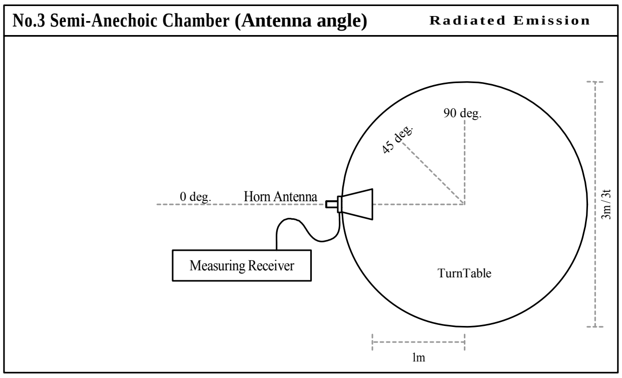
20 dBc was applied to the frequency over the limit of FCC 15.209 / Table 4 of RSS-Gen 8.9 (IC) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (IC).

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	3 m*2) (1 GHz – 13 GHz), 1 m*3) (13 GHz – 26.5 GHz)		3 m*2) (1 GHz – 13 GHz), 1 m*3) (13 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 x log (3.88 m/3.0 m) = 2.24 dB
*3) Distance Factor: 20 x log (1.0 m/3.0 m) = -9.5 dB


No.3 Semi-Anechoic Chamber (Antenna angle) Radiated Emission (Below 1GHz)


No.1 Semi-Anechoic Chamber SVSWR Setup Test Volume : 2m Radiated Emission (GHz Band)


No.3 Semi-Anechoic Chamber (Antenna angle) Radiated Emission

- The carrier level and noise levels were confirmed at angle of -45 deg. to +45 deg. based on the product specification to see the position of maximum noise, and the test was made at the position (below 1 GHz: 0 deg., above 1 GHz: +45 deg.)

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**

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 *1)	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak Average *3)	-	Power Meter (Sensor: 50MHz BW)
Carrier Frequency Separation	3 MHz	100 kHz	300 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) The measurement was performed with Max Hold since the duty cycle was not 100 %.

*2) In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.
Then, wide-band noise near the limit was checked separately, however the noise was low enough as shown in the chart.
(9 kHz - 150 kHz: RBW = 200Hz, 150 kHz - 30 MHz: RBW = 10 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

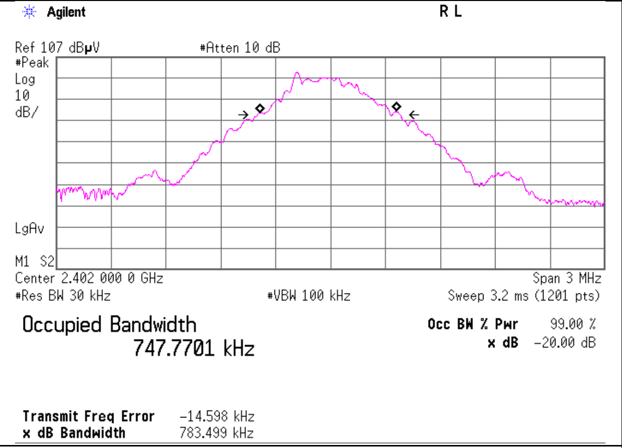
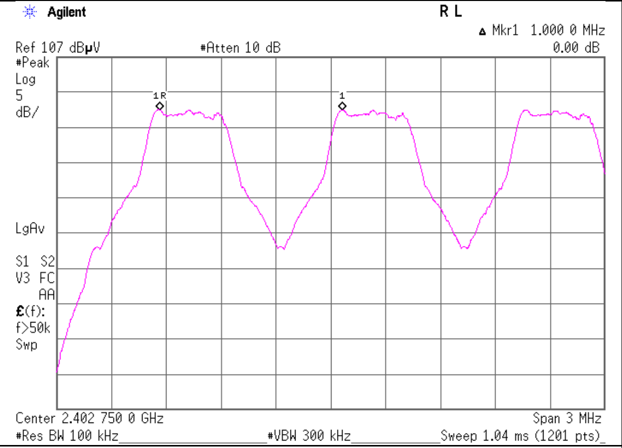
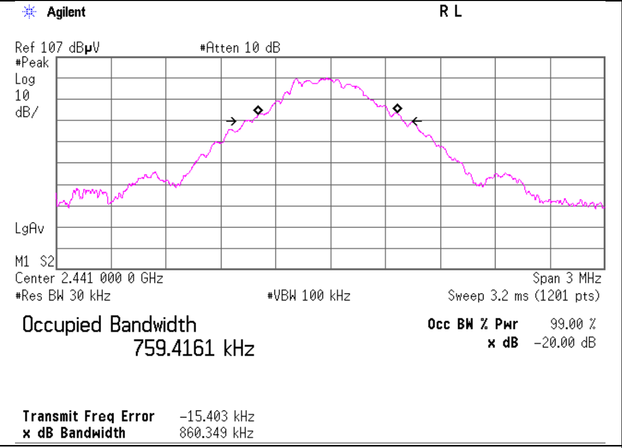
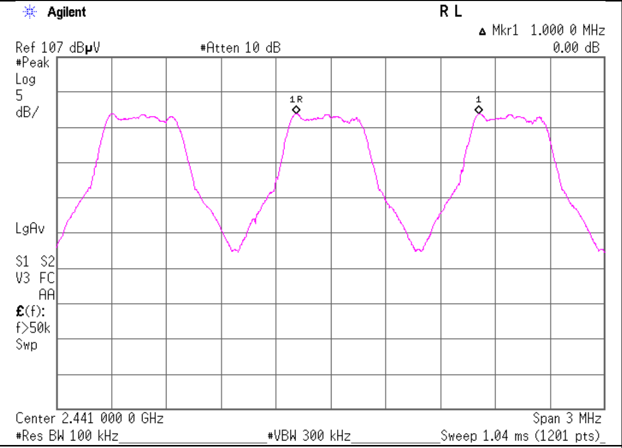
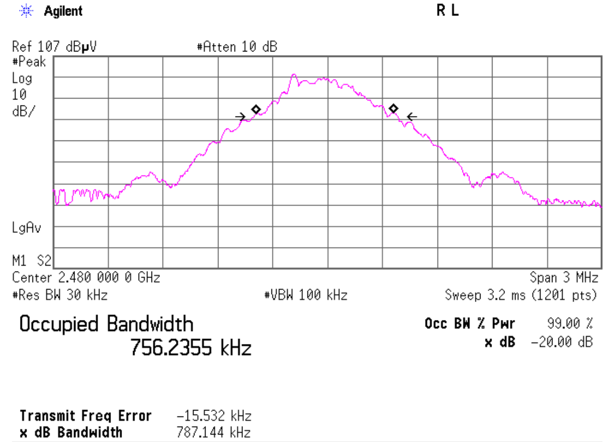
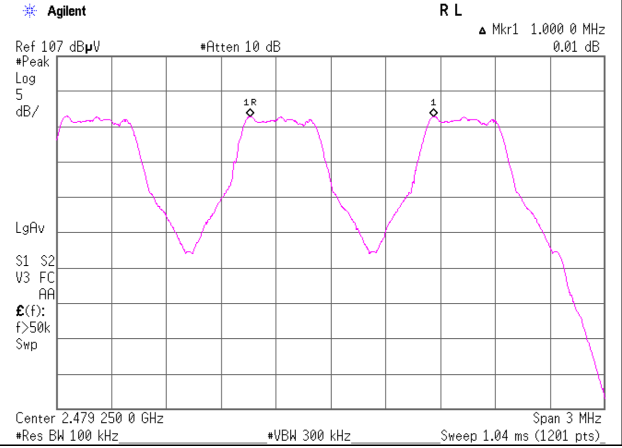
Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx, Hopping Off

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.783	1.000	>= 0.522
DH5	2441.0	0.860	1.000	>= 0.574
DH5	2480.0	0.787	1.000	>= 0.525
3DH5	2402.0	1.154	1.000	>= 0.769
3DH5	2441.0	1.099	1.000	>= 0.732
3DH5	2480.0	1.120	1.000	>= 0.747

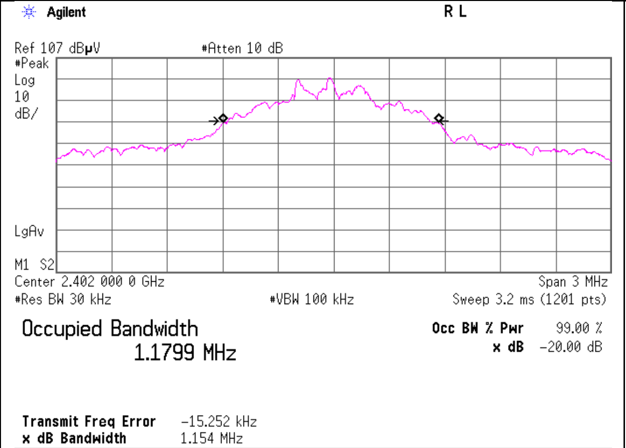
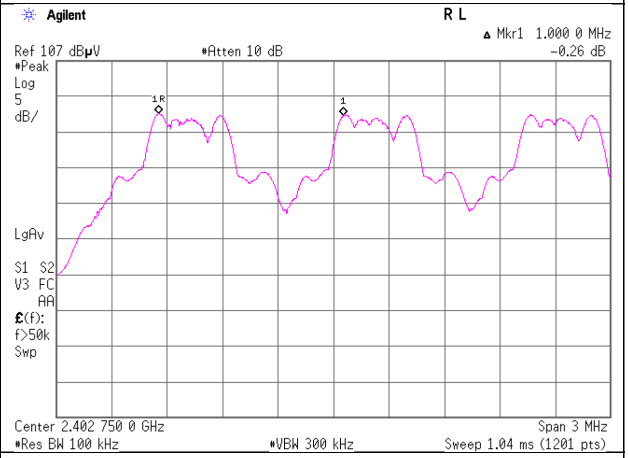
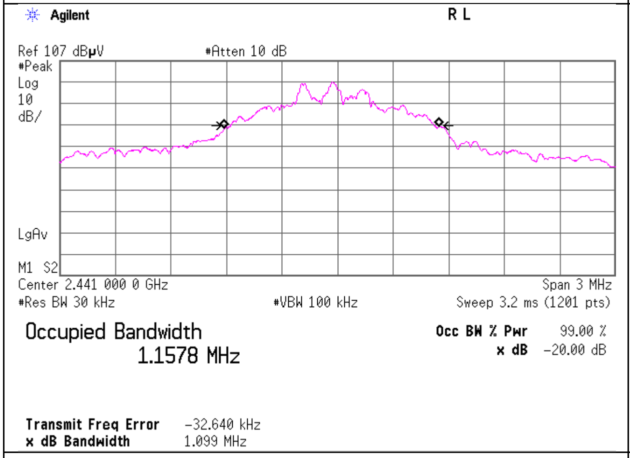
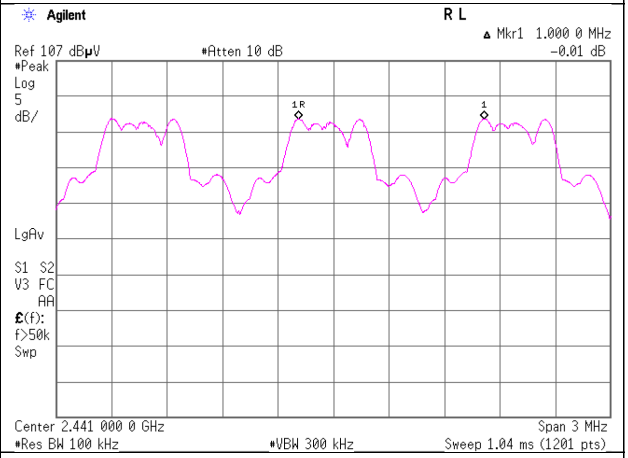
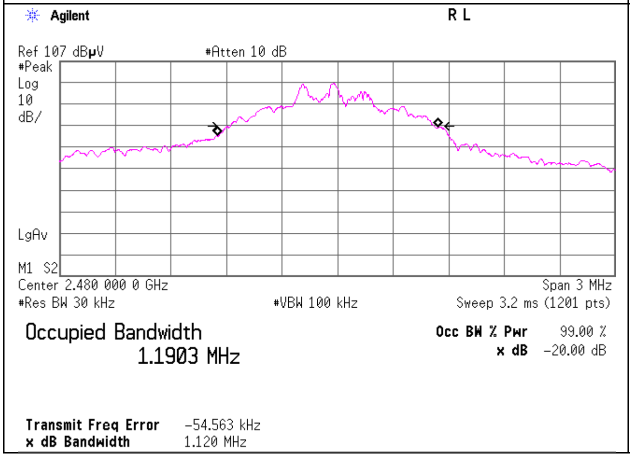
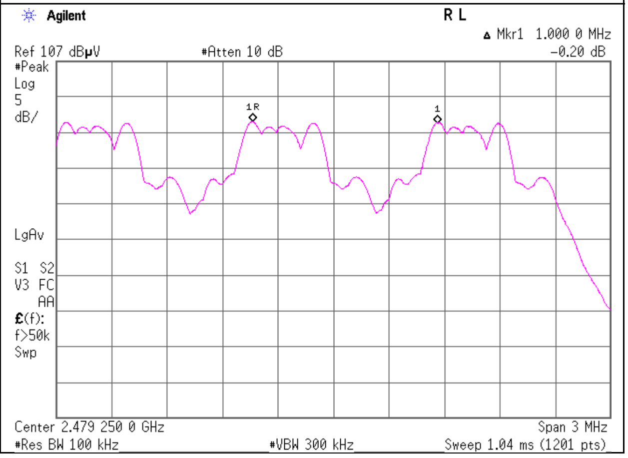
Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).

No limit applies to 20dB Bandwidth.

20dB Bandwidth and Carrier Frequency Separation

DH5	
20 dB Bandwidth	**Carrier Frequency Separation**
2402 MHz	**2402 MHz**
 Ref 107 dBµV #Atten 10 dB #Peak Log 10 dB/ Center 2.402 000 0 GHz Span 3 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 3.2 ms (1201 pts) Occupied Bandwidth 747.7701 kHz Occ BW % Pwr 99.00 % x dB -20.00 dB Transmit Freq Error -14.598 kHz x dB Bandwidth 783.499 kHz	 Δ Mkr1 1.000 0 MHz 0.00 dB Ref 107 dBµV #Atten 10 dB #Peak Log 5 dB/ Center 2.402 750 0 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.04 ms (1201 pts)
2441 MHz	**2441 MHz**
 Ref 107 dBµV #Atten 10 dB #Peak Log 10 dB/ Center 2.441 000 0 GHz Span 3 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 3.2 ms (1201 pts) Occupied Bandwidth 759.4161 kHz Occ BW % Pwr 99.00 % x dB -20.00 dB Transmit Freq Error -15.403 kHz x dB Bandwidth 860.349 kHz	 Δ Mkr1 1.000 0 MHz 0.00 dB Ref 107 dBµV #Atten 10 dB #Peak Log 5 dB/ Center 2.441 000 0 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.04 ms (1201 pts)
2480 MHz	**2480 MHz**
 Ref 107 dBµV #Atten 10 dB #Peak Log 10 dB/ Center 2.480 000 0 GHz Span 3 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 3.2 ms (1201 pts) Occupied Bandwidth 756.2355 kHz Occ BW % Pwr 99.00 % x dB -20.00 dB Transmit Freq Error -15.532 kHz x dB Bandwidth 787.144 kHz	 Δ Mkr1 1.000 0 MHz 0.01 dB Ref 107 dBµV #Atten 10 dB #Peak Log 5 dB/ Center 2.479 250 0 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.04 ms (1201 pts)

20dB Bandwidth and Carrier Frequency Separation

3DH5	
20 dB Bandwidth	**Carrier Frequency Separation**
2402 MHz	**2402 MHz**
 Agilent R L Ref 107 dBμV #Atten 10 dB #Peak Log 10 dB/ LgAv M1 S2 Center 2.402 000 0 GHz Span 3 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 3.2 ms (1201 pts) Occupied Bandwidth 1.1799 MHz Occ BW % Pwr 99.00 % x dB -20.00 dB Transmit Freq Error -15.252 kHz x dB Bandwidth 1.154 MHz	 Agilent R L Δ Mkr1 1.000 0 MHz -0.26 dB Ref 107 dBμV #Atten 10 dB #Peak Log 5 dB/ LgAv S1 S2 V3 FC AA £(f): f>50k Swp Center 2.402 750 0 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.04 ms (1201 pts)
2441MHz	**2441 MHz**
 Agilent R L Ref 107 dBμV #Atten 10 dB #Peak Log 10 dB/ LgAv M1 S2 Center 2.441 000 0 GHz Span 3 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 3.2 ms (1201 pts) Occupied Bandwidth 1.1578 MHz Occ BW % Pwr 99.00 % x dB -20.00 dB Transmit Freq Error -32.640 kHz x dB Bandwidth 1.099 MHz	 Agilent R L Δ Mkr1 1.000 0 MHz -0.01 dB Ref 107 dBμV #Atten 10 dB #Peak Log 5 dB/ LgAv S1 S2 V3 FC AA £(f): f>50k Swp Center 2.441 000 0 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.04 ms (1201 pts)
2480MHz	**2480 MHz**
 Agilent R L Ref 107 dBμV #Atten 10 dB #Peak Log 10 dB/ LgAv M1 S2 Center 2.480 000 0 GHz Span 3 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 3.2 ms (1201 pts) Occupied Bandwidth 1.1903 MHz Occ BW % Pwr 99.00 % x dB -20.00 dB Transmit Freq Error -54.563 kHz x dB Bandwidth 1.120 MHz	 Agilent R L Δ Mkr1 1.000 0 MHz -0.20 dB Ref 107 dBμV #Atten 10 dB #Peak Log 5 dB/ LgAv S1 S2 V3 FC AA £(f): f>50k Swp Center 2.479 250 0 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.04 ms (1201 pts)

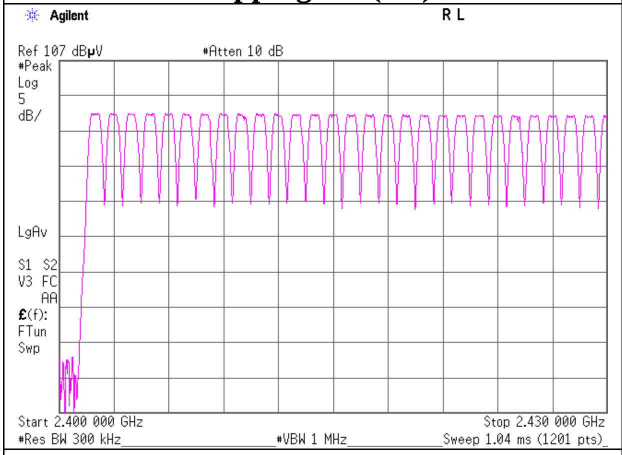
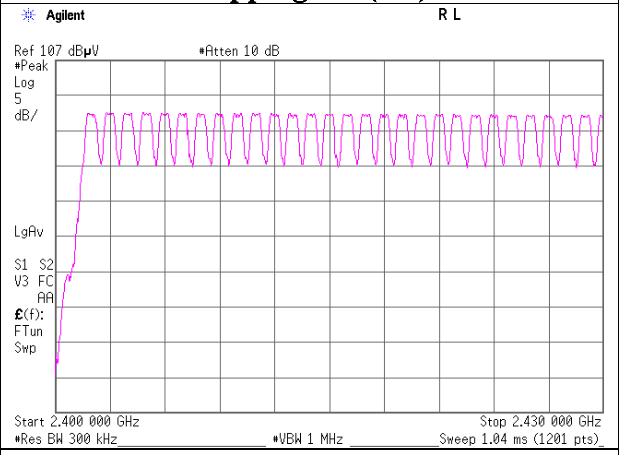
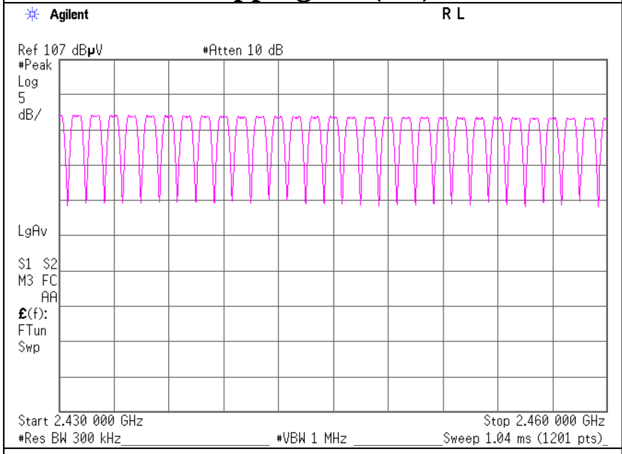
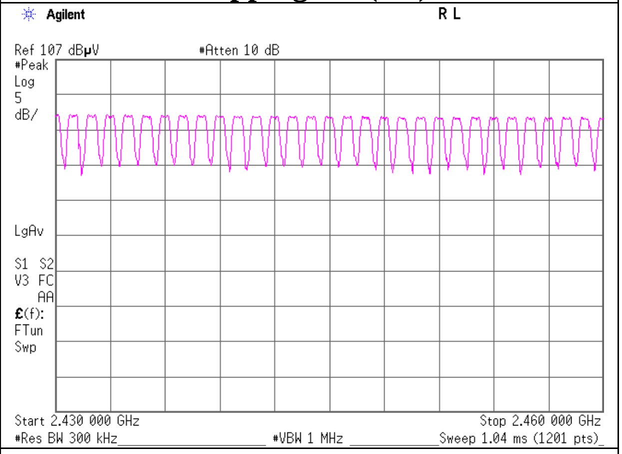
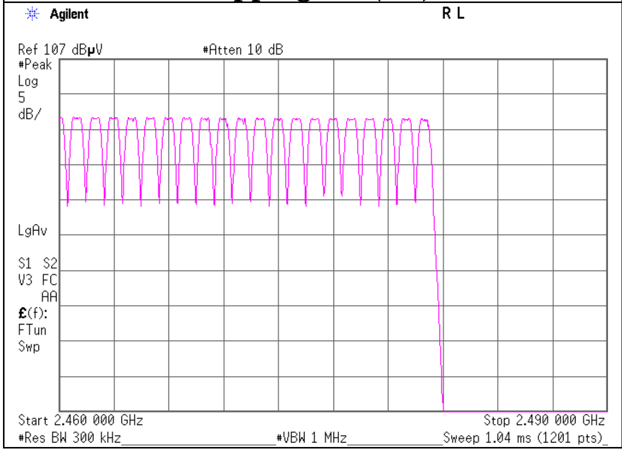
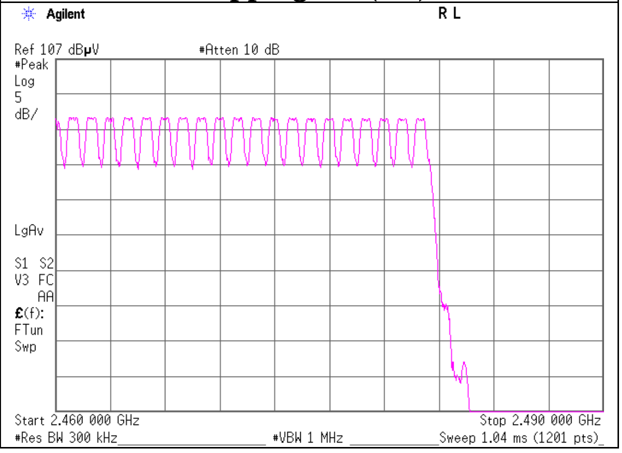
Number of Hopping Frequency

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
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

DH5	3DH5
Hopping On (1/3)	**Hopping On (1/3)**
	
Hopping On (2/3)	**Hopping On (2/3)**
	
Hopping On (3/3)	**Hopping On (3/3)**
	

Dwell time

Test place	Shonan EMC Lab. No.4 Shielded Room
Report No.	11413625S-D-R2
Date	August 30, 2016
Temperature / Humidity	25 deg. C / 68 % RH
Engineer	Hiroyuki Morikawa
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	51.0 times / 5 sec. x 31.6 sec. = 323 times	0.417	135	400
DH3	26.0 times / 5 sec. x 31.6 sec. = 165 times	1.689	279	400
DH5	17.0 times / 5 sec. x 31.6 sec. = 108 times	2.937	317	400
3DH1	51.0 times / 5 sec. x 31.6 sec. = 323 times	0.417	135	400
3DH3	26.0 times / 5 sec. x 31.6 sec. = 165 times	1.680	277	400
3DH5	17.0 times / 5 sec. x 31.6 sec. = 108 times	2.943	318	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	51	51	51	51	51	51
DH3	26	26	26	26	26	26
DH5	17	17	17	17	17	17
3DH1	51	51	51	51	51	51
3DH3	26	26	26	26	26	26
3DH5	17	17	17	17	17	17

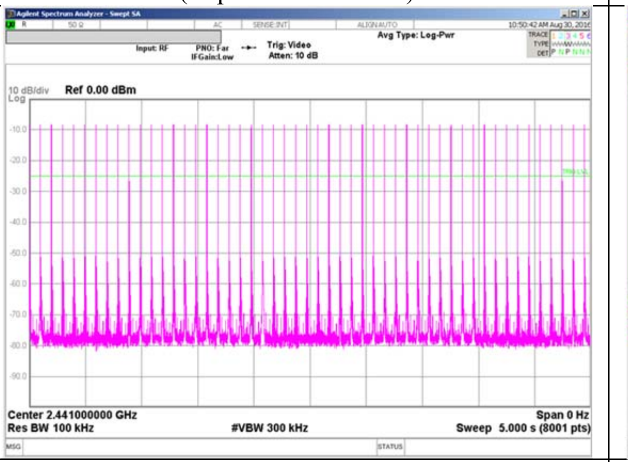
Sample Calculation
Average = Summation (Sampling 1 to 5) / 5

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 x 0.4s, where N is the number of channels being used in the hopping sequence (20 ≤ N ≤ 79), is always less than 0.4s regardless of packet size. This is confirmed in the test report for N = 79.

Dwell time

DH1 (1/2)

(Representative chart)



Input: RF
PNO: Far
IFGain:Low
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
Ref 0.00 dBm
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 5.000 s (8001 pts)

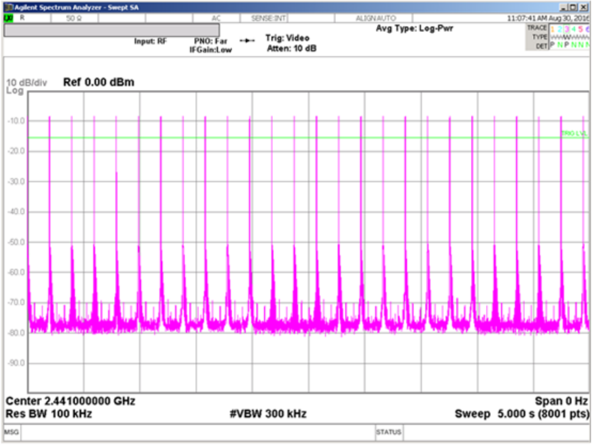
DH1 (2/2)

Marker 1 Δ 416.750 µs
Input: RF
PNO: Fast
IFGain:Low
Trig Delay: -295.0 µs
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
Ref 0.00 dBm
ΔMkr1 416.8 µs
-3.06 dB
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 1.000 ms (8001 pts)

MKR	MODE	TRC	SCL	X		Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	3	t	(Δ) 416.8 µs	(Δ)	-3.06 dB			
2	F	3	t	289.9 µs		-78.49 dBm			
3									
4									
5									
6									
7									
8									
9									
10									

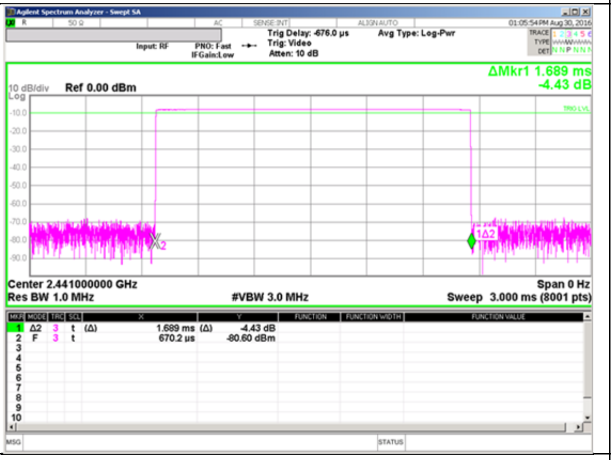
DH3 (1/2)

(Representative chart)



Input: RF
PNO: Far
IFGain:Low
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
Ref 0.00 dBm
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 5.000 s (8001 pts)

DH3 (2/2)

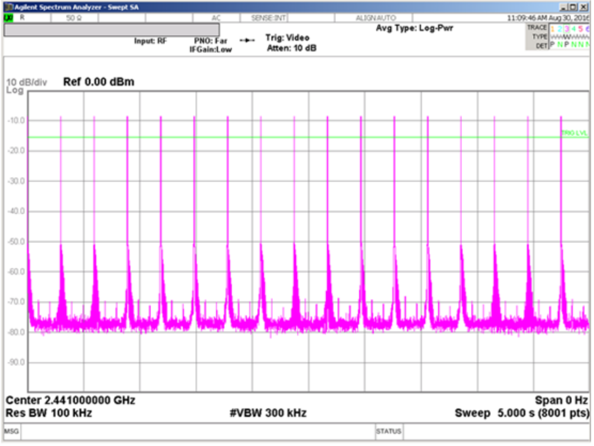


Input: RF
PNO: Fast
IFGain:Low
Trig Delay: -676.0 µs
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
Ref 0.00 dBm
ΔMkr1 1.689 ms
-4.43 dB
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 3.000 ms (8001 pts)

MKR	MODE	TRC	SCL	X		Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	3	t	(Δ) 1.689 ms	(Δ)	-4.43 dB			
2	F	3	t	670.2 µs		-80.60 dBm			
3									
4									
5									
6									
7									
8									
9									
10									

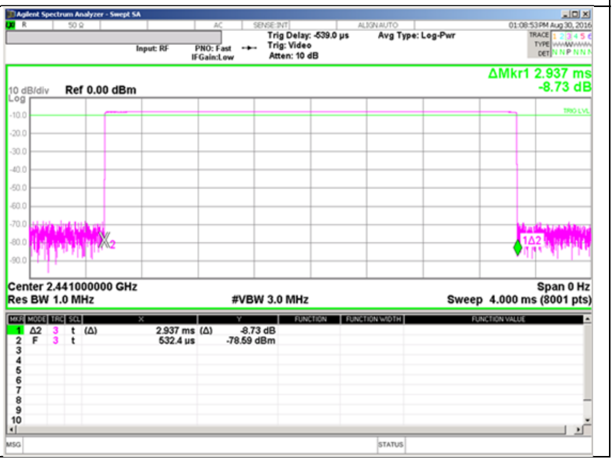
DH5 (1/2)

(Representative chart)



Input: RF
PNO: Far
IFGain:Low
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
Ref 0.00 dBm
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 5.000 s (8001 pts)

DH5 (2/2)



Input: RF
PNO: Fast
IFGain:Low
Trig Delay: -539.0 µs
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
Ref 0.00 dBm
ΔMkr1 2.937 ms
-8.73 dB
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 4.000 ms (8001 pts)

MKR	MODE	TRC	SCL	X		Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	3	t	(Δ) 2.937 ms	(Δ)	-8.73 dB			
2	F	3	t	532.4 µs		-78.59 dBm			
3									
4									
5									
6									
7									
8									
9									
10									

Dwell time

3DH1 (1/2)

(Representative chart)

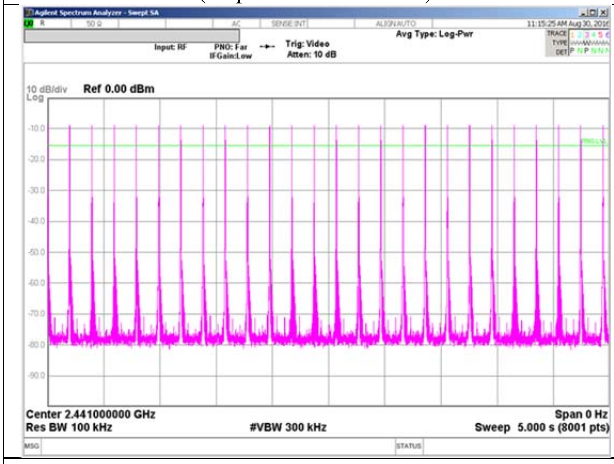

Agilent Spectrum Analyzer - Swept SA
11:12:13 AM Aug 30, 2016
Input: RF
PNO: Far
IFGain:Low
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
10 dB/div Ref 0.00 dBm
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 5.000 s (8001 pts)

3DH1 (2/2)


Agilent Spectrum Analyzer - Swept SA
11:43:12 AM Aug 30, 2016
Input: RF
PNO: Fast
IFGain:Low
Trig Delay: -295.0 µs
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr1 416.9 µs
0.49 dB
10 dB/div Ref 0.00 dBm
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 1.000 ms (8001 pts)
1 Δ2 3 t (Δ) 416.9 µs (Δ) 0.49 dB
2 F 3 t 290.6 µs -89.93 dBm

3DH3 (1/2)

(Representative chart)

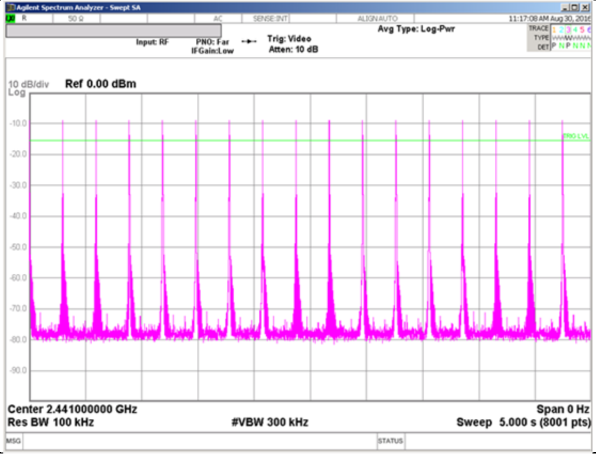

Agilent Spectrum Analyzer - Swept SA
11:15:25 AM Aug 30, 2016
Input: RF
PNO: Far
IFGain:Low
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
10 dB/div Ref 0.00 dBm
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 5.000 s (8001 pts)

3DH3 (2/2)

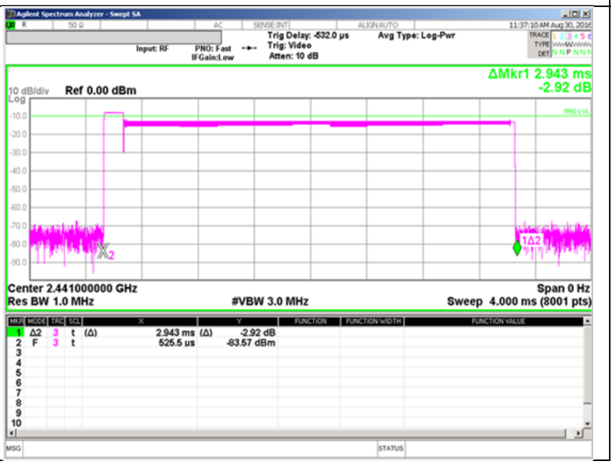

Agilent Spectrum Analyzer - Swept SA
11:39:23 AM Aug 30, 2016
Input: RF
PNO: Fast
IFGain:Low
Trig Delay: -652.0 µs
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr1 1.680 ms
-6.99 dB
10 dB/div Ref 0.00 dBm
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 3.000 ms (8001 pts)
1 Δ2 3 t (Δ) 1.680 ms (Δ) -6.99 dB
2 F 3 t 647.4 µs -80.90 dBm

3DH5 (1/2)

(Representative chart)


Agilent Spectrum Analyzer - Swept SA
11:17:08 AM Aug 30, 2016
Input: RF
PNO: Far
IFGain:Low
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
10 dB/div Ref 0.00 dBm
Center 2.441000000 GHz
Res BW 100 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 5.000 s (8001 pts)

3DH5 (2/2)


Agilent Spectrum Analyzer - Swept SA
11:37:10 AM Aug 30, 2016
Input: RF
PNO: Fast
IFGain:Low
Trig Delay: -532.0 µs
Trig: Video
Atten: 10 dB
Avg Type: Log-Pwr
ΔMkr1 2.943 ms
-2.92 dB
10 dB/div Ref 0.00 dBm
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 4.000 ms (8001 pts)
1 Δ2 3 t (Δ) 2.943 ms (Δ) -2.92 dB
2 F 3 t 525.5 µs -83.57 dBm

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx, Hopping Off

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
DH5	2402.0	-7.40	1.08	10.01	3.69	2.34	20.96	125	17.27
DH5	2441.0	-7.92	1.09	10.01	3.18	2.08	20.96	125	17.78
DH5	2480.0	-8.35	1.11	10.01	2.77	1.89	20.96	125	18.19
2DH5	2402.0	-7.42	1.08	10.01	3.67	2.33	20.96	125	17.29
2DH5	2441.0	-8.00	1.09	10.01	3.10	2.04	20.96	125	17.86
2DH5	2480.0	-8.41	1.11	10.01	2.71	1.87	20.96	125	18.25
3DH5	2402.0	-7.38	1.08	10.01	3.71	2.35	20.96	125	17.25
3DH5	2441.0	-7.95	1.09	10.01	3.15	2.07	20.96	125	17.81
3DH5	2480.0	-8.37	1.11	10.01	2.75	1.88	20.96	125	18.21

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	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx, Hopping Off

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average) [dBm]	[mW]	Duty factor [dB]	Result (Burst power average) [dBm]	[mW]
DH5	2402.0	-8.65	1.08	10.01	2.44	1.75	1.05	3.49	2.23
DH5	2441.0	-9.21	1.09	10.01	1.89	1.55	1.05	2.94	1.97
DH5	2480.0	-9.64	1.11	10.01	1.48	1.41	1.05	2.53	1.79
2DH5	2402.0	-13.73	1.08	10.01	-2.64	0.54	1.06	-1.58	0.70
2DH5	2441.0	-14.11	1.09	10.01	-3.01	0.50	1.06	-1.95	0.64
2DH5	2480.0	-14.33	1.11	10.01	-3.21	0.48	1.06	-2.15	0.61
3DH5	2402.0	-13.70	1.08	10.01	-2.61	0.55	1.06	-1.55	0.70
3DH5	2441.0	-14.08	1.09	10.01	-2.98	0.50	1.06	-1.92	0.64
3DH5	2480.0	-14.29	1.11	10.01	-3.17	0.48	1.06	-2.11	0.62

Sample Calculation:
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result (Burst power average) = Time average + Duty factor

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

Radiated Spurious Emission

Test place	Shonan EMC Lab. No.1 and No.3 Semi Anechoic Chamber	
Report No.	11413625S-D-R2	
Date	August 17, 2016	August 18, 2016
Temperature / Humidity	23 deg. C / 58 % RH	22 deg. C / 61 % RH
Engineer	Takahiro Suzuki (1-18 GHz) (No.1SAC)	Takahiro Suzuki (30-1000 MHz) (18-26.5GHz) (No.1SAC)
Mode	Tx, Hopping Off, DH5 2402 MHz	

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	101.678	QP	48.17	9.95	7.47	32.14	0.00	33.45	43.50	10.0	306	275	
Hori.	108.000	QP	55.06	10.85	7.40	32.13	0.00	41.18	43.50	2.3	309	283	
Hori.	144.000	QP	50.13	14.33	7.81	32.10	0.00	40.17	43.50	3.3	213	78	
Hori.	216.000	QP	44.78	16.52	8.22	32.03	0.00	37.49	43.50	6.0	170	250	
Hori.	661.515	QP	44.29	19.74	10.23	31.92	0.00	42.34	46.00	3.6	179	210	
Hori.	1984.407	PK	53.51	27.17	13.35	37.25	2.24	59.02	73.90	14.8	168	36	
Hori.	2390.000	PK	46.04	27.71	13.70	37.06	2.24	52.63	73.90	21.2	177	249	
Hori.	2396.881	PK	58.98	27.72	13.71	37.05	2.24	65.60	73.90	8.3	177	249	
Hori.	3307.598	PK	50.53	28.27	5.46	36.80	2.24	49.70	73.90	24.2	100	105	
Hori.	4804.000	PK	50.95	31.43	5.92	37.12	2.24	53.42	73.90	20.4	100	264	
Hori.	7206.000	PK	45.57	36.90	7.23	37.84	2.24	54.10	73.90	19.8	100	0	
Hori.	9608.000	PK	45.14	37.94	7.85	39.13	2.24	54.04	73.90	19.8	100	0	
Hori.	1984.407	AV	38.62	27.17	13.35	37.25	2.24	44.13	53.90	9.7	168	36	
Hori.	2390.000	AV	30.05	27.71	13.70	37.06	2.24	36.64	53.90	17.2	177	249	
Hori.	2396.881	AV	32.43	27.72	13.71	37.05	2.24	39.05	53.90	14.8	177	249	
Hori.	3307.598	AV	36.03	28.27	5.46	36.80	2.24	35.20	53.90	18.7	100	105	
Hori.	4804.000	AV	43.27	31.43	5.92	37.12	2.24	45.74	53.90	8.1	100	264	
Hori.	7206.000	AV	32.64	36.90	7.23	37.84	2.24	41.17	53.90	12.7	100	0	
Hori.	9608.000	AV	33.74	37.94	7.85	39.13	2.24	42.64	53.90	11.2	100	0	
Vert.	66.026	QP	46.55	6.44	6.69	32.16	0.00	27.52	40.00	12.4	100	184	
Vert.	72.000	QP	46.74	5.87	7.10	32.16	0.00	27.55	40.00	12.4	100	154	
Vert.	108.000	QP	51.29	10.85	7.40	32.13	0.00	37.41	43.50	6.0	100	88	
Vert.	144.000	QP	50.32	14.33	7.81	32.10	0.00	40.36	43.50	3.1	100	175	
Vert.	891.000	QP	37.07	22.20	10.98	31.10	0.00	39.15	46.00	6.8	100	358	
Vert.	1984.546	PK	54.63	27.17	13.35	37.25	2.24	60.14	73.90	13.7	100	30	
Vert.	2390.000	PK	52.06	27.71	13.70	37.06	2.24	58.65	73.90	15.2	188	156	
Vert.	2398.243	PK	65.03	27.72	13.71	37.05	2.24	71.65	73.90	**2.2**	188	156	
Vert.	3307.622	PK	54.29	28.27	5.46	36.80	2.24	53.46	73.90	20.4	145	310	
Vert.	4804.000	PK	52.15	31.43	5.92	37.12	2.24	54.62	73.90	19.2	161	118	
Vert.	7206.000	PK	44.52	36.90	7.23	37.84	2.24	53.05	73.90	20.8	100	0	
Vert.	9608.000	PK	46.85	37.94	7.85	39.13	2.24	55.75	73.90	18.1	100	0	
Vert.	1984.546	AV	39.56	27.17	13.35	37.25	2.24	45.07	53.90	8.8	100	30	
Vert.	2390.000	AV	30.44	27.71	13.70	37.06	2.24	37.03	53.90	16.8	188	156	
Vert.	2398.243	AV	32.25	27.72	13.71	37.05	2.24	38.87	53.90	15.0	188	156	
Vert.	3307.622	AV	39.78	28.27	5.46	36.80	2.24	38.95	53.90	14.9	145	310	
Vert.	4804.000	AV	44.74	31.43	5.92	37.12	2.24	47.21	53.90	6.6	161	118	
Vert.	7206.000	AV	32.69	36.90	7.23	37.84	2.24	41.22	53.90	12.6	100	0	
Vert.	9608.000	AV	33.79	37.94	7.85	39.13	2.24	42.69	53.90	11.2	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.88 m / 3.0 m) = 2.24 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB
* These results have sufficient margin without taking account Dwell time factor.

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	82.53	27.72	13.71	37.05	2.24	89.15	-	-	Carrier
Hori.	2400.000	PK	41.52	27.72	13.71	37.05	2.24	48.14	69.15	21.0	
Vert.	2402.000	PK	89.84	27.72	13.71	37.05	2.24	96.46	-	-	Carrier
Vert.	2400.000	PK	46.91	27.72	13.71	37.05	2.24	53.53	76.46	22.9	

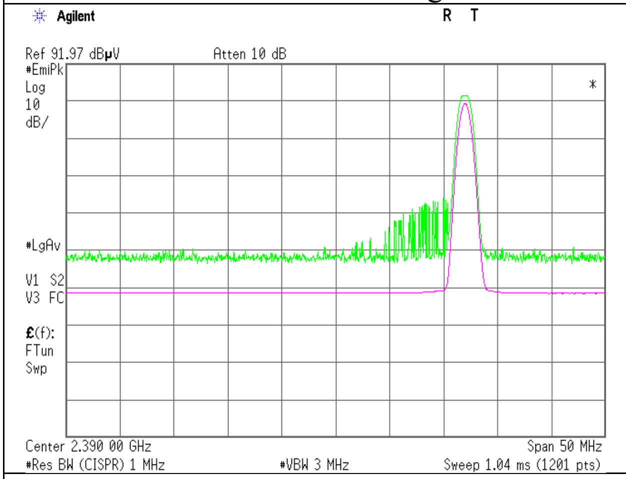
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.88 m / 3.0 m) = 2.24 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11413625S-D-R2
Date	August 17, 2016
Temperature / Humidity	23 deg. C / 58 % RH
Engineer	Takahiro Suzuki
Mode	Tx, Hopping Off, DH5 2402 MHz

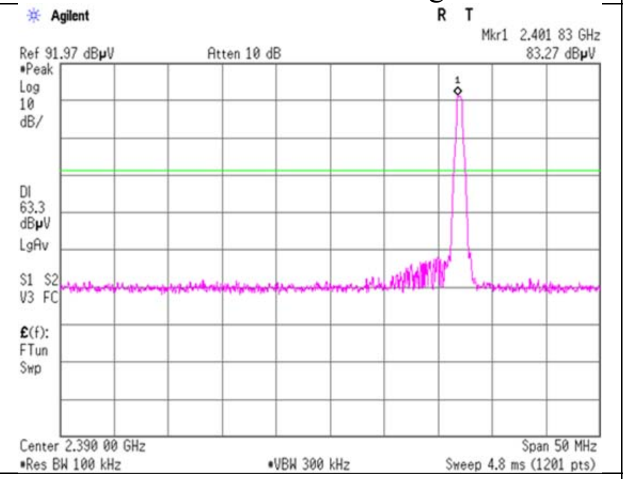
Horizontal

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

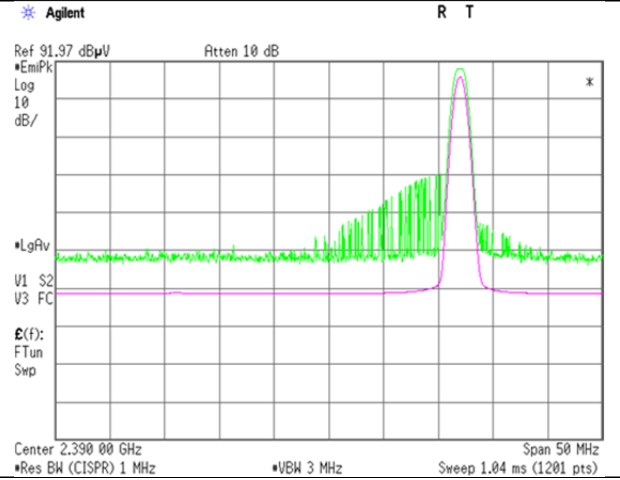
Authorized-band band-edge Plot



20dBc Plot

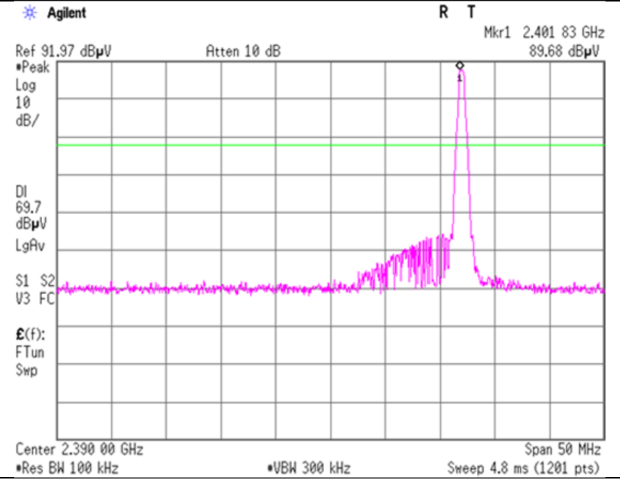
Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Authorized-band band-edge Plot



20dBc Plot

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

Radiated Spurious Emission

Test place	Shonan EMC Lab. No.1 and No.3 Semi Anechoic Chamber	
Report No.	11413625S-D-R2	
Date	August 17, 2016	August 18, 2016
Temperature / Humidity	23 deg. C / 58 % RH	22 deg. C / 61 % RH
Engineer	Takahiro Suzuki (1-18 GHz) (No.1SAC)	Takahiro Suzuki (30-1000 MHz) (18-26.5 GHz) (No.3SAC)
Mode	Tx, Hopping Off, DH5 2441 MHz	

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	101.567	QP	47.68	9.93	7.48	32.14	0.00	32.95	43.50	10.5	298	273	
Hori.	108.000	QP	54.76	10.85	7.40	32.13	0.00	40.88	43.50	**2.6**	305	257	
Hori.	144.000	QP	49.57	14.33	7.81	32.10	0.00	39.61	43.50	3.8	211	43	
Hori.	216.000	QP	44.39	16.52	8.22	32.03	0.00	37.10	43.50	6.4	166	254	
Hori.	661.599	QP	43.89	19.74	10.23	31.92	0.00	41.94	46.00	4.0	181	225	
Hori.	1984.610	PK	53.57	27.17	13.35	37.25	2.24	59.08	73.90	14.8	166	33	
Hori.	2438.191	PK	58.18	27.77	13.75	37.03	2.24	64.91	73.90	8.9	121	228	
Hori.	3307.507	PK	50.57	28.27	5.46	36.80	2.24	49.74	73.90	24.1	100	98	
Hori.	4882.000	PK	47.97	31.72	5.97	37.16	2.24	50.74	73.90	23.1	119	38	
Hori.	7323.000	PK	44.24	36.89	7.32	37.92	2.24	52.77	73.90	21.1	100	0	
Hori.	9764.000	PK	45.92	38.01	7.98	39.20	2.24	54.95	73.90	18.9	100	0	
Hori.	1984.610	AV	38.77	27.17	13.35	37.25	2.24	44.28	53.90	9.6	166	33	
Hori.	2438.191	AV	30.23	27.77	13.75	37.03	2.24	36.96	53.90	16.9	121	228	
Hori.	3307.507	AV	36.00	28.27	5.46	36.80	2.24	35.17	53.90	18.7	100	98	
Hori.	4882.000	AV	39.12	31.72	5.97	37.16	2.24	41.89	53.90	12.0	119	38	
Hori.	7323.000	AV	30.38	36.89	7.32	37.92	2.24	38.91	53.90	14.9	100	0	
Hori.	9764.000	AV	32.40	38.01	7.98	39.20	2.24	41.43	53.90	12.4	100	0	
Vert.	66.019	QP	45.99	6.45	6.69	32.16	0.00	26.97	40.00	13.0	100	261	
Vert.	72.000	QP	47.43	5.87	7.10	32.16	0.00	28.24	40.00	11.7	100	108	
Vert.	108.000	QP	51.58	10.85	7.40	32.13	0.00	37.70	43.50	5.8	100	288	
Vert.	144.000	QP	50.46	14.33	7.81	32.10	0.00	40.50	43.50	3.0	100	356	
Vert.	891.000	QP	37.00	22.20	10.98	31.10	0.00	39.08	46.00	6.9	100	1	
Vert.	1984.610	PK	53.15	27.17	13.35	37.25	2.24	58.66	73.90	15.2	100	33	
Vert.	2438.191	PK	62.68	27.77	13.75	37.03	2.24	69.41	73.90	4.4	201	147	
Vert.	3307.507	PK	55.14	28.27	5.46	36.80	2.24	54.31	73.90	19.5	143	299	
Vert.	4882.000	PK	49.76	31.72	5.97	37.16	2.24	52.53	73.90	21.3	170	123	
Vert.	7323.000	PK	44.77	36.89	7.32	37.92	2.24	53.30	73.90	20.6	100	0	
Vert.	9764.000	PK	45.19	38.01	7.98	39.20	2.24	54.22	73.90	19.6	100	0	
Vert.	1984.610	AV	37.97	27.17	13.35	37.25	2.24	43.48	53.90	10.4	100	33	
Vert.	2438.191	AV	30.82	27.77	13.75	37.03	2.24	37.55	53.90	16.3	201	147	
Vert.	3307.507	AV	40.02	28.27	5.46	36.80	2.24	39.19	53.90	14.7	143	299	
Vert.	4882.000	AV	43.03	31.72	5.97	37.16	2.24	45.80	53.90	8.1	170	123	
Vert.	7323.000	AV	31.43	36.89	7.32	37.92	2.24	39.96	53.90	13.9	100	0	
Vert.	9764.000	AV	32.25	38.01	7.98	39.20	2.24	41.28	53.90	12.6	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.88 m / 3.0 m) = 2.24 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB
* These results have sufficient margin without taking account Dwell time factor.

Radiated Spurious Emission

Test place	Shonan EMC Lab. No.1 and No.3 Semi Anechoic Chamber	
Report No.	11413625S-D-R2	
Date	August 17, 2016	August 18, 2016
Temperature / Humidity	23 deg. C / 58 % RH	22 deg. C / 61 % RH
Engineer	Takahiro Suzuki (1-18 GHz) (No.1SAC)	Takahiro Suzuki (30-1000 MHz) (18-26.5 GHz) (No.3SAC)
Mode	Tx, Hopping Off, DH5 2480 MHz	

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	101.480	QP	48.00	9.92	7.48	32.14	0.00	33.26	43.50	10.2	306	302	
Hori.	108.000	QP	54.87	10.85	7.40	32.13	0.00	40.99	43.50	2.5	288	260	
Hori.	144.000	QP	52.43	14.33	7.81	32.10	0.00	42.47	43.50	**1.0**	227	79	
Hori.	216.000	QP	44.51	16.52	8.22	32.03	0.00	37.22	43.50	6.2	172	270	
Hori.	661.589	QP	43.26	19.74	10.23	31.92	0.00	41.31	46.00	4.6	174	209	
Hori.	1984.502	PK	53.18	27.17	13.35	37.25	2.24	58.69	73.90	15.2	169	38	
Hori.	2477.117	PK	57.39	27.81	13.78	37.01	2.24	64.21	73.90	9.6	220	215	
Hori.	2483.500	PK	43.04	27.82	13.79	37.01	2.24	49.88	73.90	24.0	220	215	
Hori.	3307.676	PK	54.00	28.27	5.46	36.80	2.24	53.17	73.90	20.7	142	305	
Hori.	4960.000	PK	44.25	32.02	6.02	37.19	2.24	47.34	73.90	26.5	171	18	
Hori.	7440.000	PK	44.76	36.89	7.39	37.99	2.24	53.29	73.90	20.6	100	0	
Hori.	9920.000	PK	44.02	38.07	8.13	39.26	2.24	53.20	73.90	20.7	100	0	
Hori.	1984.502	AV	38.09	27.17	13.35	37.25	2.24	43.60	53.90	10.3	169	38	
Hori.	2477.117	AV	29.13	27.81	13.78	37.01	2.24	35.95	53.90	17.9	220	215	
Hori.	2483.500	AV	28.69	27.82	13.79	37.01	2.24	35.53	53.90	18.3	220	215	
Hori.	3307.676	AV	40.03	28.27	5.46	36.80	2.24	39.20	53.90	14.7	142	305	
Hori.	4960.000	AV	35.82	32.02	6.02	37.19	2.24	38.91	53.90	14.9	171	18	
Hori.	7440.000	AV	31.73	36.89	7.39	37.99	2.24	40.26	53.90	13.6	100	0	
Hori.	9920.000	AV	32.21	38.07	8.13	39.26	2.24	41.39	53.90	12.5	100	0	
Vert.	67.208	QP	46.00	6.28	6.76	32.16	0.00	26.88	40.00	13.1	100	245	
Vert.	72.000	QP	47.11	5.87	7.10	32.16	0.00	27.92	40.00	12.0	100	131	
Vert.	108.000	QP	51.03	10.85	7.40	32.13	0.00	37.15	43.50	6.3	100	39	
Vert.	144.000	QP	50.98	14.33	7.81	32.10	0.00	41.02	43.50	2.4	100	328	
Vert.	891.000	QP	37.76	22.20	10.98	31.10	0.00	39.84	46.00	6.1	100	358	
Vert.	1984.502	PK	53.87	27.17	13.35	37.25	2.24	59.38	73.90	14.5	100	28	
Vert.	2477.117	PK	59.58	27.81	13.78	37.01	2.24	66.40	73.90	7.5	146	338	
Vert.	2483.500	PK	47.17	27.82	13.79	37.01	2.24	54.01	73.90	19.8	146	338	
Vert.	3307.676	PK	55.18	28.27	5.46	36.80	2.24	54.35	73.90	19.5	146	301	
Vert.	4960.000	PK	49.01	32.02	6.02	37.19	2.24	52.10	73.90	21.8	100	0	
Vert.	7440.000	PK	45.12	36.89	7.39	37.99	2.24	53.65	73.90	20.2	100	0	
Vert.	9920.000	PK	44.96	38.07	8.13	39.26	2.24	54.14	73.90	19.7	100	0	
Vert.	1984.502	AV	38.99	27.17	13.35	37.25	2.24	44.50	53.90	9.4	100	28	
Vert.	2477.117	AV	30.06	27.81	13.78	37.01	2.24	36.88	53.90	17.0	146	338	
Vert.	2483.500	AV	30.54	27.82	13.79	37.01	2.24	37.38	53.90	16.5	146	338	
Vert.	3307.676	AV	40.16	28.27	5.46	36.80	2.24	39.33	53.90	14.5	146	301	
Vert.	4960.000	AV	40.73	32.02	6.02	37.19	2.24	43.82	53.90	10.0	100	0	
Vert.	7440.000	AV	31.43	36.89	7.39	37.99	2.24	39.96	53.90	13.9	100	0	
Vert.	9920.000	AV	31.46	38.07	8.13	39.26	2.24	40.64	53.90	13.2	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.88 m / 3.0 m) = 2.24 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

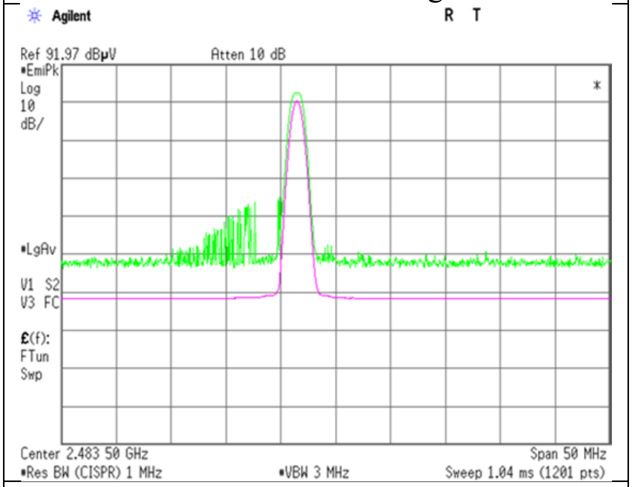
* These results have sufficient margin without taking account Dwell time factor.

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11413625S-D-R2
Date	August 17, 2016
Temperature / Humidity	23 deg. C / 58 % RH
Engineer	Takahiro Suzuki
Mode	Tx, Hopping Off, DH5 2480 MHz

Horizontal

Restricted-band band-edge Plot



Ref 91.97 dBµV Atten 10 dB

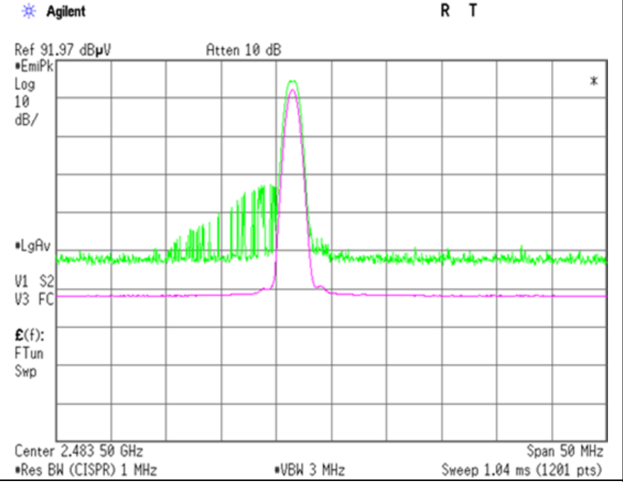
Center 2.483 50 GHz Span 50 MHz

•Res BW (CISPR) 1 MHz •VBW 3 MHz Sweep 1.04 ms (1201 pts)

Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Ref 91.97 dBµV Atten 10 dB

Center 2.483 50 GHz Span 50 MHz

•Res BW (CISPR) 1 MHz •VBW 3 MHz Sweep 1.04 ms (1201 pts)

Trace Green : Peak Plot
Trace Purple : Average Plot

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

Radiated Spurious Emission

Test place	Shonan EMC Lab. No.1 and No.3 Semi Anechoic Chamber	
Report No.	11413625S-D-R2	
Date	August 17, 2016	August 18, 2016
Temperature / Humidity	23 deg. C / 58 % RH	22 deg. C / 61 % RH
Engineer	Takahiro Suzuki	Takahiro Suzuki
	(1-18 GHz)	(30-1000 MHz) (18-26.5 GHz)
	(No.1SAC)	(No.3SAC)
Mode	Tx, Hopping Off, 3DH5 2402 MHz	

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	101.687	QP	48.32	9.95	7.47	32.14	0.00	33.60	43.50	9.9	295	286	
Hori.	108.000	QP	54.82	10.85	7.40	32.13	0.00	40.94	43.50	**2.5**	296	281	
Hori.	144.000	QP	50.27	14.33	7.81	32.10	0.00	40.31	43.50	3.1	209	253	
Hori.	216.000	QP	44.25	16.52	8.22	32.03	0.00	36.96	43.50	6.5	185	91	
Hori.	661.565	QP	43.32	19.74	10.23	31.92	0.00	41.37	46.00	4.6	150	25	
Hori.	1984.624	PK	53.11	27.17	13.35	37.25	2.24	58.62	73.90	15.2	164	35	
Hori.	2390.000	PK	46.13	27.71	13.70	37.06	2.24	52.72	73.90	21.1	162	225	
Hori.	2396.490	PK	57.13	27.72	13.71	37.05	2.24	63.75	73.90	10.1	162	225	
Hori.	3307.600	PK	49.96	28.27	5.46	36.80	2.24	49.13	73.90	24.7	100	112	
Hori.	4804.000	PK	49.64	31.43	5.92	37.12	2.24	52.11	73.90	21.7	100	270	
Hori.	7206.000	PK	44.38	36.90	7.23	37.84	2.24	52.91	73.90	20.9	100	0	
Hori.	9608.000	PK	45.06	37.94	7.85	39.13	2.24	53.96	73.90	19.9	100	0	
Hori.	1984.624	AV	38.42	27.17	13.35	37.25	2.24	43.93	53.90	9.9	164	35	
Hori.	2390.000	AV	29.69	27.71	13.70	37.06	2.24	36.28	53.90	17.6	162	225	
Hori.	2396.490	AV	29.83	27.72	13.71	37.05	2.24	36.45	53.90	17.4	162	225	
Hori.	3307.600	AV	35.48	28.27	5.46	36.80	2.24	34.65	53.90	19.2	100	112	
Hori.	4804.000	AV	38.78	31.43	5.92	37.12	2.24	41.25	53.90	12.6	100	270	
Hori.	7206.000	AV	32.56	36.90	7.23	37.84	2.24	41.09	53.90	12.8	100	0	
Hori.	9608.000	AV	33.58	37.94	7.85	39.13	2.24	42.48	53.90	11.4	100	0	
Vert.	66.246	QP	46.26	6.41	6.71	32.16	0.00	27.22	40.00	12.7	100	77	
Vert.	72.000	QP	46.85	5.87	7.10	32.16	0.00	27.66	40.00	12.3	100	359	
Vert.	108.000	QP	52.00	10.85	7.40	32.13	0.00	38.12	43.50	5.3	100	60	
Vert.	144.000	QP	50.02	14.33	7.81	32.10	0.00	40.06	43.50	3.4	100	1	
Vert.	891.000	QP	37.25	22.20	10.98	31.10	0.00	39.33	46.00	6.6	100	357	
Vert.	1984.624	PK	54.13	27.17	13.35	37.25	2.24	59.64	73.90	14.2	100	27	
Vert.	2390.000	PK	49.85	27.71	13.70	37.06	2.24	56.44	73.90	17.4	182	158	
Vert.	2396.490	PK	60.38	27.72	13.71	37.05	2.24	67.00	73.90	6.9	182	158	
Vert.	3307.600	PK	53.98	28.27	5.46	36.80	2.24	53.15	73.90	20.7	142	309	
Vert.	4804.000	PK	51.66	31.43	5.92	37.12	2.24	54.13	73.90	19.7	126	115	
Vert.	7206.000	PK	44.59	36.90	7.23	37.84	2.24	53.12	73.90	20.7	100	0	
Vert.	9608.000	PK	46.71	37.94	7.85	39.13	2.24	55.61	73.90	18.2	100	0	
Vert.	1984.624	AV	39.03	27.17	13.35	37.25	2.24	44.54	53.90	9.3	100	27	
Vert.	2390.000	AV	30.13	27.71	13.70	37.06	2.24	36.72	53.90	17.1	182	158	
Vert.	2396.490	AV	30.15	27.72	13.71	37.05	2.24	36.77	53.90	17.1	182	158	
Vert.	3307.600	AV	39.36	28.27	5.46	36.80	2.24	38.53	53.90	15.3	142	309	
Vert.	4804.000	AV	41.99	31.43	5.92	37.12	2.24	44.46	53.90	9.4	126	115	
Vert.	7206.000	AV	32.77	36.90	7.23	37.84	2.24	41.30	53.90	12.6	100	0	
Vert.	9608.000	AV	33.56	37.94	7.85	39.13	2.24	42.46	53.90	11.4	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.88 m / 3.0 m) = 2.24 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB
* These results have sufficient margin without taking account Dwell time factor.

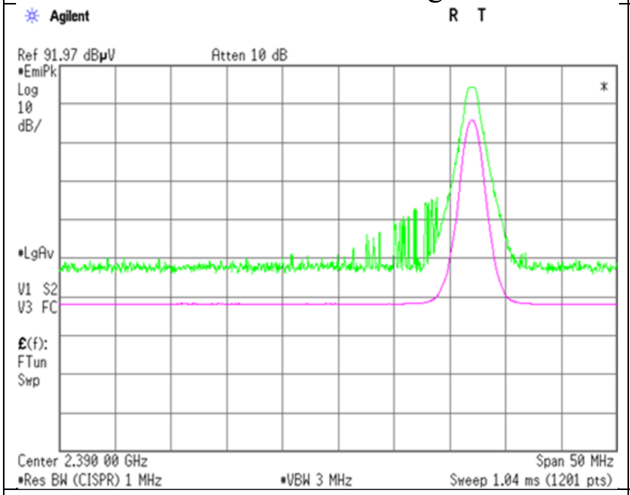
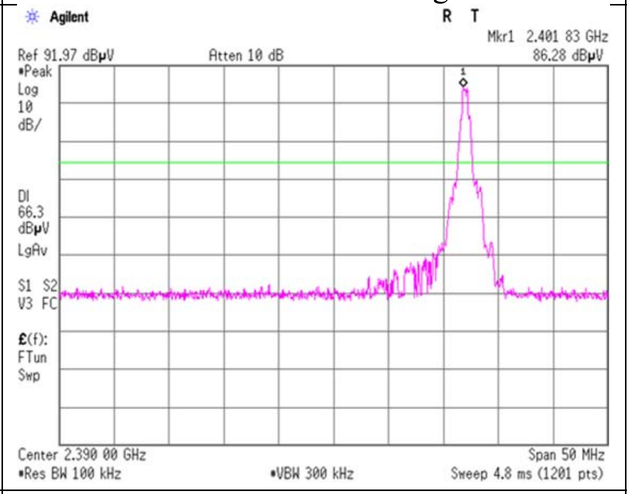
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

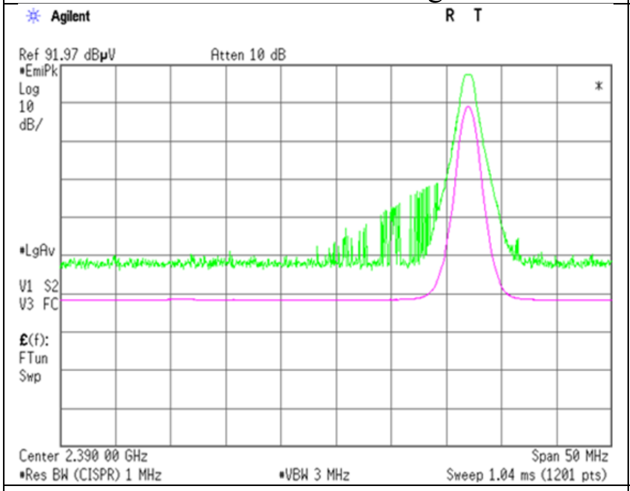
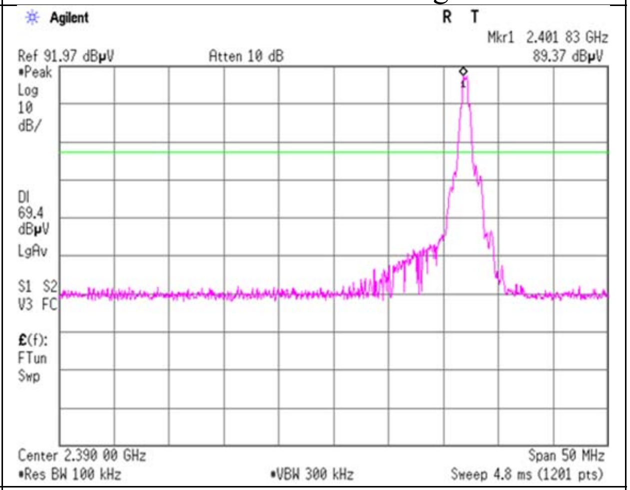
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	85.56	27.72	13.71	37.05	2.24	92.18	-	-	Carrier
Hori.	2400.000	PK	44.05	27.72	13.71	37.05	2.24	50.67	72.18	21.5	
Vert.	2402.000	PK	89.06	27.72	13.71	37.05	2.24	95.68	-	-	Carrier
Vert.	2400.000	PK	46.80	27.72	13.71	37.05	2.24	53.42	75.68	22.3	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.88 m / 3.0 m) = 2.24 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11413625S-D-R2
Date	August 17, 2016
Temperature / Humidity	23 deg. C / 58 % RH
Engineer	Takahiro Suzuki
Mode	Tx, Hopping Off, 3DH5 2402 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

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

Radiated Spurious Emission

Test place	Shonan EMC Lab. No.1 and No.3 Semi Anechoic Chamber	
Report No.	11413625S-D-R2	
Date	August 17, 2016	August 18, 2016
Temperature / Humidity	23 deg. C / 58 % RH	22 deg. C / 61 % RH
Engineer	Takahiro Suzuki (1-18 GHz) (No.1SAC)	Takahiro Suzuki (30-1000 MHz) (18-26.5 GHz) (No.3SAC)
Mode	Tx, Hopping Off, 3DH5 2441 MHz	

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	101.579	QP	48.96	9.94	7.48	32.14	0.00	34.24	43.50	9.2	309	90	
Hori.	108.000	QP	55.02	10.85	7.40	32.13	0.00	41.14	43.50	**2.3**	309	304	
Hori.	144.000	QP	49.96	14.33	7.81	32.10	0.00	40.00	43.50	3.5	215	118	
Hori.	216.000	QP	43.87	16.52	8.22	32.03	0.00	36.58	43.50	6.9	162	235	
Hori.	661.484	QP	44.17	19.74	10.23	31.92	0.00	42.22	46.00	3.7	179	218	
Hori.	1984.642	PK	53.26	27.17	13.35	37.25	2.24	58.77	73.90	15.1	164	35	
Hori.	2436.714	PK	57.67	27.76	13.75	37.03	2.24	64.39	73.90	9.5	148	225	
Hori.	3307.576	PK	51.11	28.27	5.46	36.80	2.24	50.28	73.90	23.6	100	101	
Hori.	4882.000	PK	47.77	31.72	5.97	37.16	2.24	50.54	73.90	23.3	115	41	
Hori.	7323.000	PK	44.29	36.89	7.32	37.92	2.24	52.82	73.90	21.0	100	0	
Hori.	9764.000	PK	44.86	38.01	7.98	39.20	2.24	53.89	73.90	20.0	100	0	
Hori.	1984.642	AV	38.38	27.17	13.35	37.25	2.24	43.89	53.90	10.0	164	35	
Hori.	2436.714	AV	30.24	27.76	13.75	37.03	2.24	36.96	53.90	16.9	148	225	
Hori.	3307.576	AV	36.32	28.27	5.46	36.80	2.24	35.49	53.90	18.4	100	101	
Hori.	4882.000	AV	38.75	31.72	5.97	37.16	2.24	41.52	53.90	12.3	115	41	
Hori.	7323.000	AV	30.63	36.89	7.32	37.92	2.24	39.16	53.90	14.7	100	0	
Hori.	9764.000	AV	32.61	38.01	7.98	39.20	2.24	41.64	53.90	12.2	100	0	
Vert.	67.252	QP	44.53	6.27	6.77	32.16	0.00	25.41	40.00	14.5	100	358	
Vert.	72.000	QP	48.76	5.87	7.10	32.16	0.00	29.57	40.00	10.4	100	20	
Vert.	108.000	QP	51.22	10.85	7.40	32.13	0.00	37.34	43.50	6.1	100	80	
Vert.	144.000	QP	49.98	14.33	7.81	32.10	0.00	40.02	43.50	3.4	100	356	
Vert.	891.000	QP	38.03	22.20	10.98	31.10	0.00	40.11	46.00	5.8	100	352	
Vert.	1984.642	PK	53.00	27.17	13.35	37.25	2.24	58.51	73.90	15.3	100	27	
Vert.	2436.714	PK	60.89	27.76	13.75	37.03	2.24	67.61	73.90	6.2	185	150	
Vert.	3307.576	PK	54.89	28.27	5.46	36.80	2.24	54.06	73.90	19.8	146	308	
Vert.	4882.000	PK	50.77	31.72	5.97	37.16	2.24	53.54	73.90	20.3	191	122	
Vert.	7323.000	PK	47.64	36.89	7.32	37.92	2.24	56.17	73.90	17.7	100	0	
Vert.	9764.000	PK	45.08	38.01	7.98	39.20	2.24	54.11	73.90	19.7	100	0	
Vert.	1984.642	AV	38.03	27.17	13.35	37.25	2.24	43.54	53.90	10.3	100	27	
Vert.	2436.714	AV	30.18	27.76	13.75	37.03	2.24	36.90	53.90	17.0	185	150	
Vert.	3307.576	AV	39.89	28.27	5.46	36.80	2.24	39.06	53.90	14.8	146	308	
Vert.	4882.000	AV	40.25	31.72	5.97	37.16	2.24	43.02	53.90	10.8	191	122	
Vert.	7323.000	AV	31.55	36.89	7.32	37.92	2.24	40.08	53.90	13.8	100	0	
Vert.	9764.000	AV	32.34	38.01	7.98	39.20	2.24	41.37	53.90	12.5	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.88 m / 3.0 m) = 2.24 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

Radiated Spurious Emission

Test place	Shonan EMC Lab. No.1 and No.3 Semi Anechoic Chamber	
Report No.	11413625S-D-R2	
Date	August 17, 2016	August 18, 2016
Temperature / Humidity	23 deg. C / 58 % RH	22 deg. C / 61 % RH
Engineer	Takahiro Suzuki (1-18 GHz)	Takahiro Suzuki (30-1000 MHz) (18-26.5 GHz)
	(No.1SAC)	(No.3SAC)
Mode	Tx, Hopping Off, 3DH5 2480 MHz	

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	101.357	QP	47.55	9.90	7.48	32.14	0.00	32.79	43.50	10.7	308	128	
Hori.	108.000	QP	54.24	10.85	7.40	32.13	0.00	40.36	43.50	3.1	310	294	
Hori.	144.000	QP	51.00	14.33	7.81	32.10	0.00	41.04	43.50	**2.4**	206	85	
Hori.	216.000	QP	45.23	16.52	8.22	32.03	0.00	37.94	43.50	5.5	196	250	
Hori.	661.503	QP	43.67	19.74	10.23	31.92	0.00	41.72	46.00	4.2	185	211	
Hori.	1984.557	PK	52.87	27.17	13.35	37.25	2.24	58.38	73.90	15.5	166	35	
Hori.	2476.252	PK	58.73	27.81	13.78	37.01	2.24	65.55	73.90	8.3	220	217	
Hori.	2483.500	PK	47.72	27.82	13.79	37.01	2.24	54.56	73.90	19.3	220	217	
Hori.	3307.676	PK	54.23	28.27	5.46	36.80	2.24	53.40	73.90	20.5	140	298	
Hori.	4960.000	PK	44.06	32.02	6.02	37.19	2.24	47.15	73.90	26.7	170	16	
Hori.	7440.000	PK	44.64	36.89	7.39	37.99	2.24	53.17	73.90	20.7	100	0	
Hori.	9920.000	PK	44.18	38.07	8.13	39.26	2.24	53.36	73.90	20.5	100	0	
Hori.	1984.557	AV	37.93	27.17	13.35	37.25	2.24	43.44	53.90	10.4	166	35	
Hori.	2476.252	AV	30.16	27.81	13.78	37.01	2.24	36.98	53.90	16.9	220	217	
Hori.	2483.500	AV	30.32	27.82	13.79	37.01	2.24	37.16	53.90	16.7	220	217	
Hori.	3307.676	AV	41.18	28.27	5.46	36.80	2.24	40.35	53.90	13.5	140	298	
Hori.	4960.000	AV	35.08	32.02	6.02	37.19	2.24	38.17	53.90	15.7	170	16	
Hori.	7440.000	AV	31.55	36.89	7.39	37.99	2.24	40.08	53.90	13.8	100	0	
Hori.	9920.000	AV	33.12	38.07	8.13	39.26	2.24	42.30	53.90	11.6	100	0	
Vert.	67.601	QP	46.33	6.22	6.78	32.16	0.00	27.17	40.00	12.8	100	34	
Vert.	72.000	QP	47.61	5.87	7.10	32.16	0.00	28.42	40.00	11.5	100	325	
Vert.	108.000	QP	51.74	10.85	7.40	32.13	0.00	37.86	43.50	5.6	100	128	
Vert.	144.000	QP	50.25	14.33	7.81	32.10	0.00	40.29	43.50	3.2	100	358	
Vert.	891.000	QP	36.76	22.20	10.98	31.10	0.00	38.84	46.00	7.1	100	356	
Vert.	1984.557	PK	54.13	27.17	13.35	37.25	2.24	59.64	73.90	14.2	100	34	
Vert.	2476.252	PK	60.03	27.81	13.78	37.01	2.24	66.85	73.90	7.0	143	332	
Vert.	2483.500	PK	47.56	27.82	13.79	37.01	2.24	54.40	73.90	19.5	143	332	
Vert.	3307.676	PK	55.00	28.27	5.46	36.80	2.24	54.17	73.90	19.7	140	292	
Vert.	4960.000	PK	48.73	32.02	6.02	37.19	2.24	51.82	73.90	22.0	100	0	
Vert.	7440.000	PK	44.87	36.89	7.39	37.99	2.24	53.40	73.90	20.5	100	0	
Vert.	9920.000	PK	44.58	38.07	8.13	39.26	2.24	53.76	73.90	20.1	100	0	
Vert.	1984.557	AV	39.00	27.17	13.35	37.25	2.24	44.51	53.90	9.3	100	34	
Vert.	2476.252	AV	30.87	27.81	13.78	37.01	2.24	37.69	53.90	16.2	143	332	
Vert.	2483.500	AV	29.62	27.82	13.79	37.01	2.24	36.46	53.90	17.4	143	332	
Vert.	3307.676	AV	39.95	28.27	5.46	36.80	2.24	39.12	53.90	14.7	140	292	
Vert.	4960.000	AV	39.68	32.02	6.02	37.19	2.24	42.77	53.90	11.1	100	0	
Vert.	7440.000	AV	31.99	36.89	7.39	37.99	2.24	40.52	53.90	13.3	100	0	
Vert.	9920.000	AV	32.00	38.07	8.13	39.26	2.24	41.18	53.90	12.7	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : 20log (3.88 m / 3.0 m) = 2.24 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

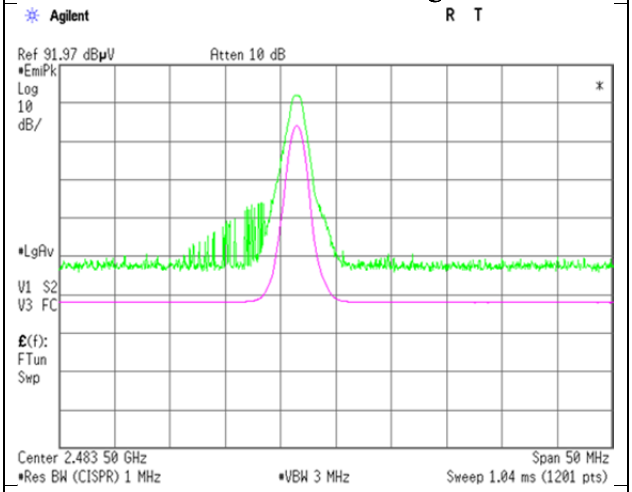
* These results have sufficient margin without taking account Dwell time factor.

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab. No.1 Semi Anechoic Chamber
Report No.	11413625S-D-R2
Date	August 17, 2016
Temperature / Humidity	23 deg. C / 58 % RH
Engineer	Takahiro Suzuki
Mode	Tx, Hopping Off, 3DH5 2480 MHz

Horizontal

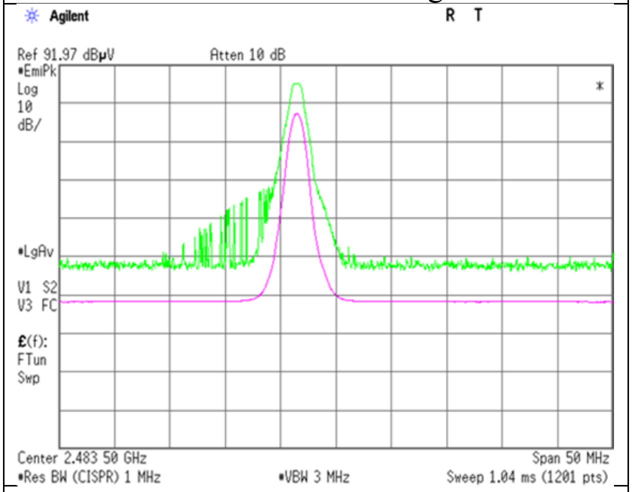
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot

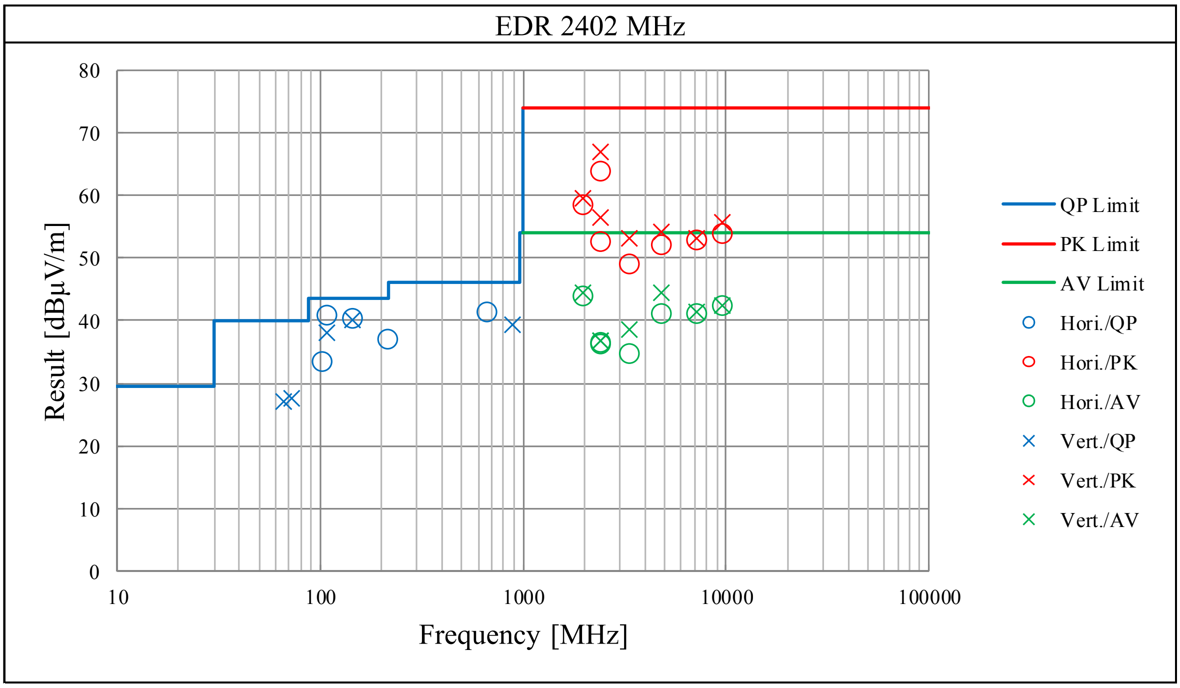


Trace Green : Peak Plot
Trace Purple : Average Plot

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

Radiated Spurious Emission
(Plot data, Worst case)

Test place	Shonan EMC Lab. No.1 and No.3 Semi Anechoic Chamber	
Report No.	11413625S-D-R2	
Date	August 17, 2016	August 18, 2016
Temperature / Humidity	23 deg. C / 58 % RH	22 deg. C /61 % RH
Engineer	Takahiro Suzuki (1-18 GHz)	Takahiro Suzuki (30-1000 MHz) (18-26.5 GHz)
	(No.1SAC)	(No.3SAC)
Mode	Tx, Hopping Off, 3DH5 2402 MHz	



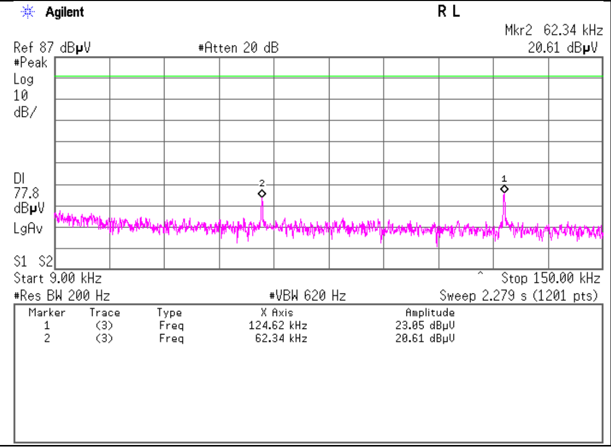
*These plots data contains sufficient number to show the trend of characteristic features for EUT.

Conducted Spurious Emission

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx, Hopping Off, DH5

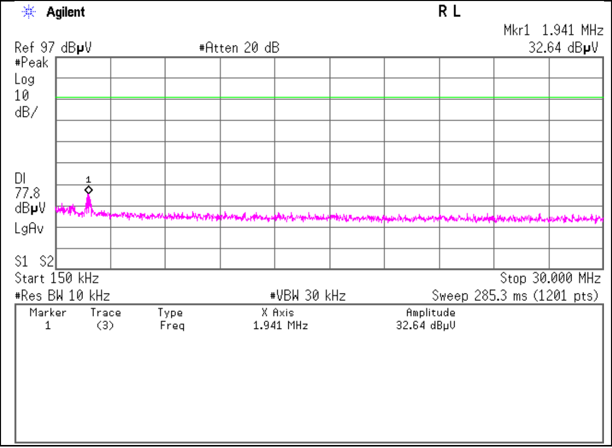
2402 MHz

9 kHz - 150 kHz



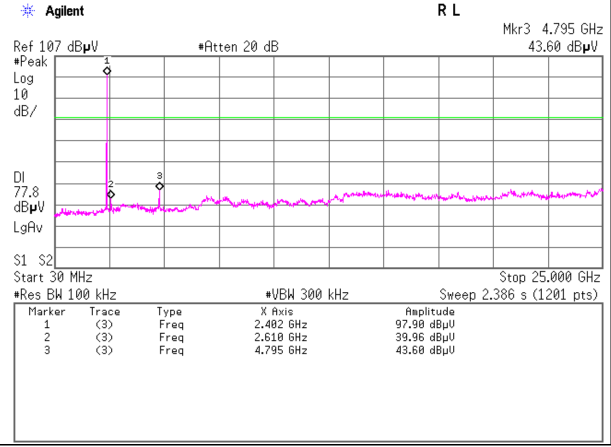
```
Marker   Trace   Type     X Axis       Amplitude
  1       (3)    Freq   124.62 kHz    23.05 dBμV
  2       (3)    Freq    62.34 kHz    20.61 dBμV
```

150 kHz - 30 MHz



```
Marker   Trace   Type     X Axis       Amplitude
  1       (3)    Freq    1.941 MHz    32.64 dBμV
```

30 MHz - 25 GHz



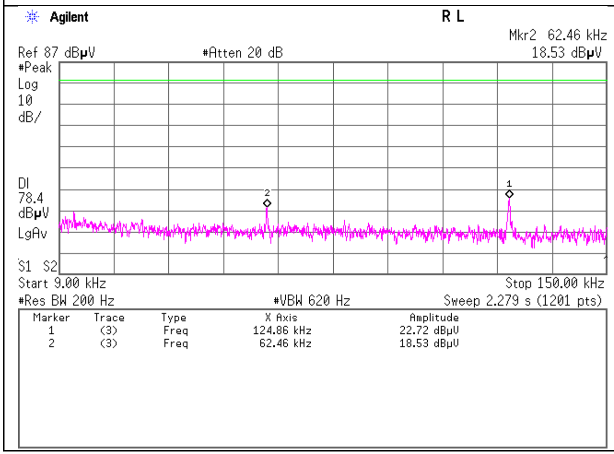
```
Marker   Trace   Type     X Axis       Amplitude
  1       (3)    Freq    2.402 GHz    97.90 dBμV
  2       (3)    Freq    2.610 GHz    39.96 dBμV
  3       (3)    Freq    4.795 GHz    43.60 dBμV
```

Conducted Spurious Emission

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx, Hopping Off, DH5

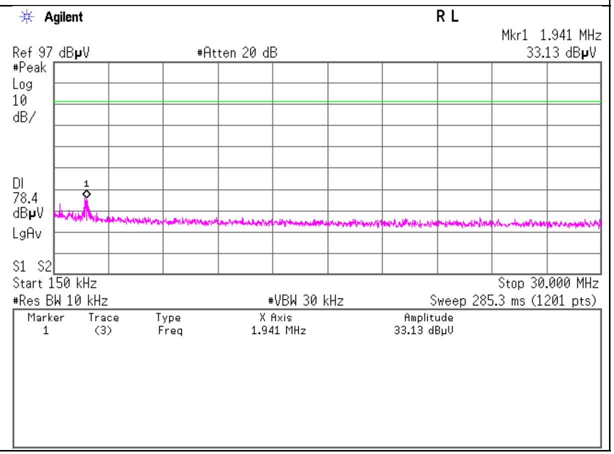
2441 MHz

9 kHz – 150 kHz



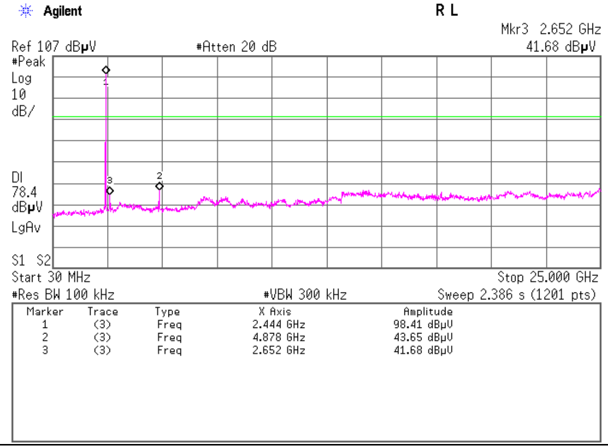
Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	124.86 kHz	22.72 dBμV
2	(3)	Freq	62.46 kHz	18.53 dBμV

150 kHz – 30 MHz



Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	1.941 MHz	33.13 dBμV

30 MHz – 25 GHz



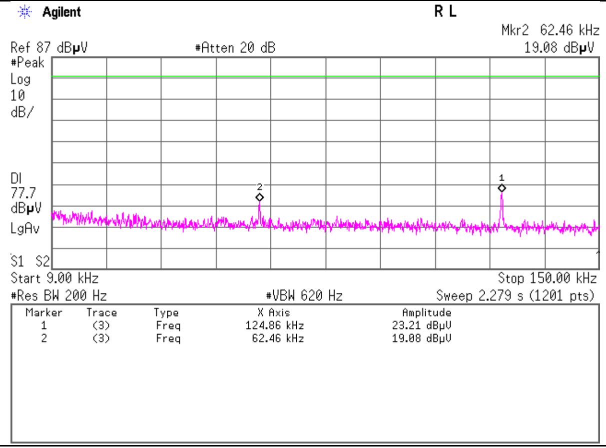
Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	2.444 GHz	98.41 dBμV
2	(3)	Freq	4.878 GHz	43.65 dBμV
3	(3)	Freq	2.652 GHz	41.68 dBμV

Conducted Spurious Emission

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx, Hopping Off, DH5

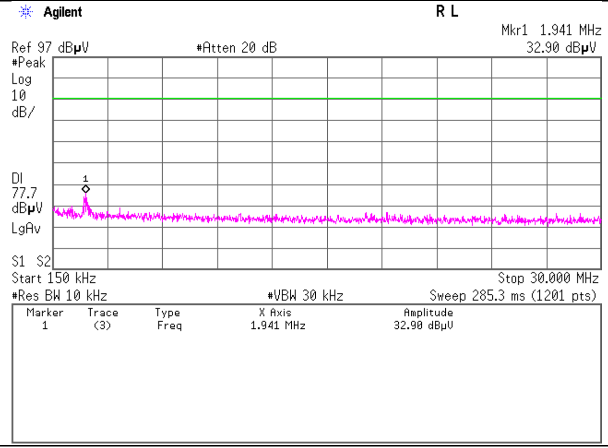
2480 MHz

9 kHz – 150 kHz



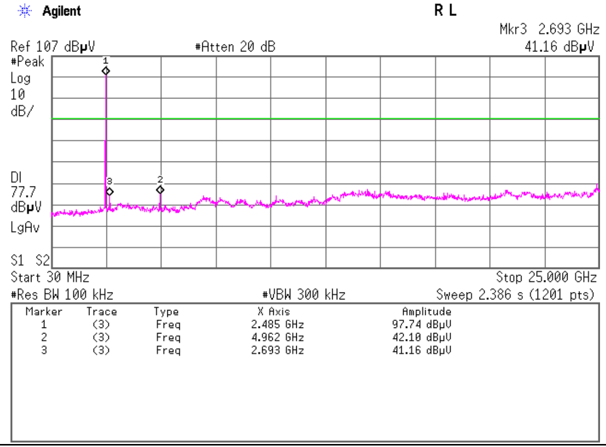
```
Agilent                                R L
                                              Mkr2  62.46 kHz
Ref 87 dBµV            #Atten 20 dB              19.08 dBµV
#Peak
Log
10
dB/
Dl
77.7
dBµV
LgAv
S1  S2
Start 9.00 kHz                               Stop 150.00 kHz
#Res BW 200 Hz          #VBW 620 Hz      Sweep 2.279 s (1201 pts)
  Marker    Trace    Type       X Axis        Amplitude
    1        (3)     Freq     124.86 kHz      23.21 dBµV
    2        (3)     Freq      62.46 kHz      19.08 dBµV
```

150 kHz – 30 MHz



```
Agilent                                R L
                                              Mkr1  1.941 MHz
Ref 97 dBµV            #Atten 20 dB              32.90 dBµV
#Peak
Log
10
dB/
Dl
77.7
dBµV
LgAv
S1  S2
Start 150 kHz                                Stop 30.000 MHz
#Res BW 10 kHz          #VBW 30 kHz     Sweep 285.3 ms (1201 pts)
  Marker    Trace    Type       X Axis        Amplitude
    1        (3)     Freq     1.941 MHz       32.90 dBµV
```

30 MHz – 25 GHz



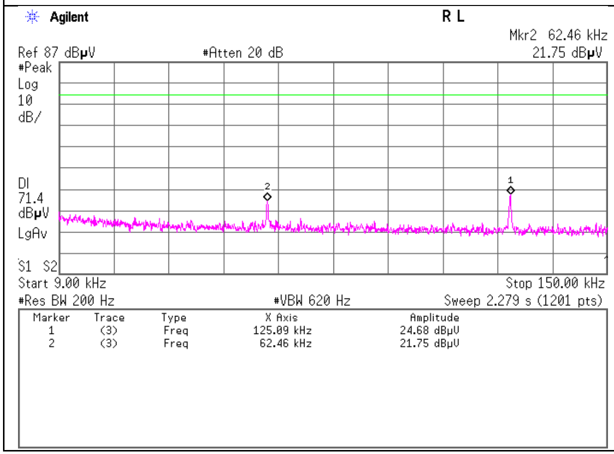
```
Agilent                                R L
                                              Mkr3  2.693 GHz
Ref 107 dBµV           #Atten 20 dB              41.16 dBµV
#Peak
Log
10
dB/
Dl
77.7
dBµV
LgAv
S1  S2
Start 30 MHz                                 Stop 25.000 GHz
#Res BW 100 kHz         #VBW 300 kHz     Sweep 2.386 s (1201 pts)
  Marker    Trace    Type       X Axis        Amplitude
    1        (3)     Freq     2.485 GHz       97.74 dBµV
    2        (3)     Freq     4.962 GHz       42.10 dBµV
    3        (3)     Freq     2.693 GHz       41.16 dBµV
```

Conducted Spurious Emission

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx, Hopping Off, 3DH5

2402 MHz

9 kHz – 150 kHz



Mkr2 62.46 kHz
21.75 dBμV

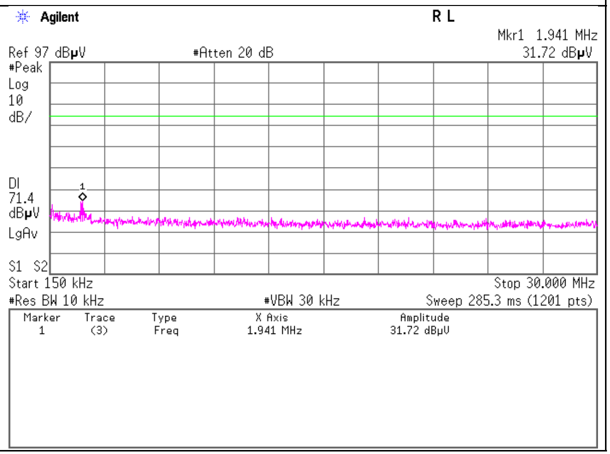
Ref 87 dBμV #Atten 20 dB

Start 9.00 kHz Stop 150.00 kHz

#Res BW 200 Hz #VBW 620 Hz Sweep 2.279 s (1201 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	125.09 kHz	24.68 dBμV
2	(3)	Freq	62.46 kHz	21.75 dBμV

150 kHz – 30 MHz



Mkr1 1.941 MHz
31.72 dBμV

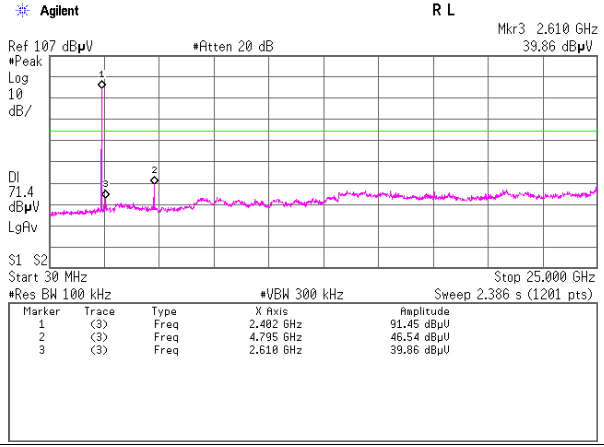
Ref 97 dBμV #Atten 20 dB

Start 150 kHz Stop 30.000 MHz

#Res BW 10 kHz #VBW 30 kHz Sweep 285.3 ms (1201 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	1.941 MHz	31.72 dBμV

30 MHz – 25 GHz



Mkr3 2.610 GHz
39.86 dBμV

Ref 107 dBμV #Atten 20 dB

Start 30 MHz Stop 25.000 GHz

#Res BW 100 kHz #VBW 300 kHz Sweep 2.386 s (1201 pts)

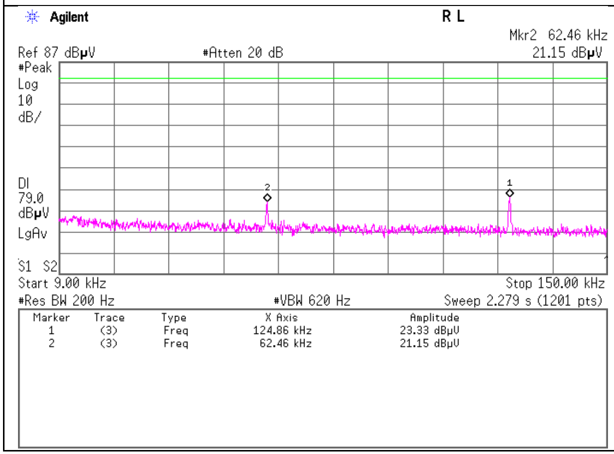
Marker	Trace	Type	X Axis	Amplitude
1	(3)	Freq	2.402 GHz	91.45 dBμV
2	(3)	Freq	4.795 GHz	46.54 dBμV
3	(3)	Freq	2.610 GHz	39.86 dBμV

Conducted Spurious Emission

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx, Hopping Off, 3DH5

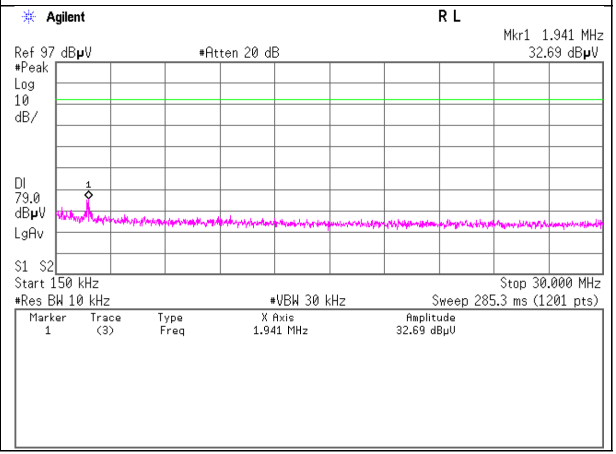
2441 MHz

9 kHz - 150 kHz



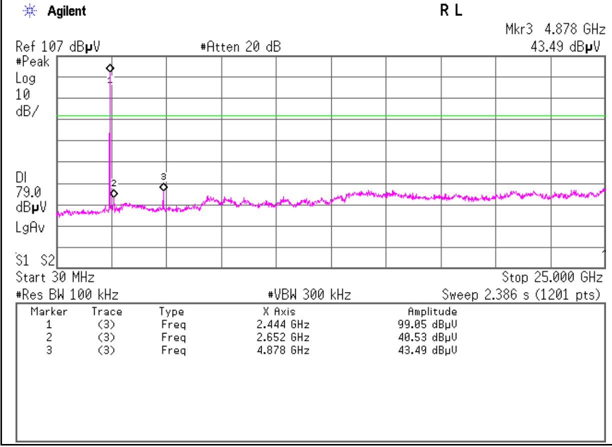
```
Mkr2  62.46 kHz
Ref 87 dBµV        #Atten 20 dB                21.15 dBµV
Start 9.00 kHz                          Stop 150.00 kHz
#Res BW 200 Hz     #VBW 620 Hz    Sweep 2.279 s (1201 pts)
Marker  Trace  Type   X Axis      Amplitude
  1      (3)   Freq   124.86 kHz  23.33 dBµV
  2      (3)   Freq   62.46 kHz   21.15 dBµV
```

150 kHz - 30 MHz



```
Mkr1  1.941 MHz
Ref 97 dBµV        #Atten 20 dB                32.69 dBµV
Start 150 kHz                           Stop 30.000 MHz
#Res BW 10 kHz     #VBW 30 kHz    Sweep 285.3 ms (1201 pts)
Marker  Trace  Type   X Axis      Amplitude
  1      (3)   Freq   1.941 MHz   32.69 dBµV
```

30 MHz - 25 GHz



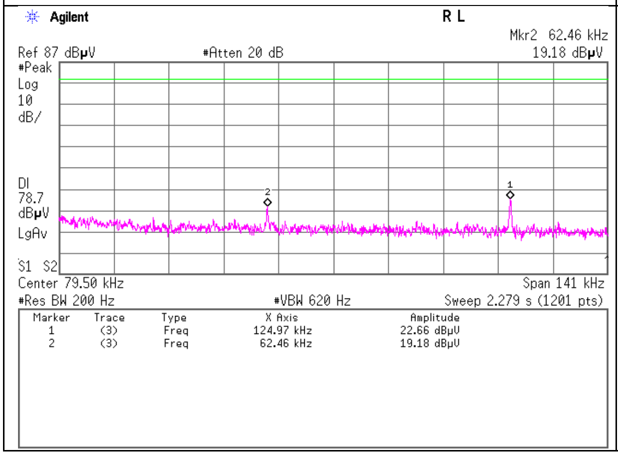
```
Mkr3  4.878 GHz
Ref 107 dBµV       #Atten 20 dB                43.49 dBµV
Start 30 MHz                            Stop 25.000 GHz
#Res BW 100 kHz    #VBW 300 kHz   Sweep 2.386 s (1201 pts)
Marker  Trace  Type   X Axis      Amplitude
  1      (3)   Freq   2.444 GHz   99.05 dBµV
  2      (3)   Freq   2.652 GHz   40.53 dBµV
  3      (3)   Freq   4.878 GHz   43.49 dBµV
```

Conducted Spurious Emission

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx, Hopping Off, 3DH5

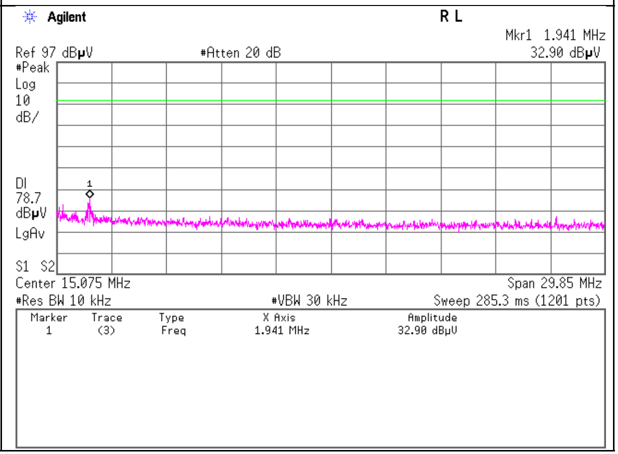
2480 MHz

9 kHz - 150 kHz



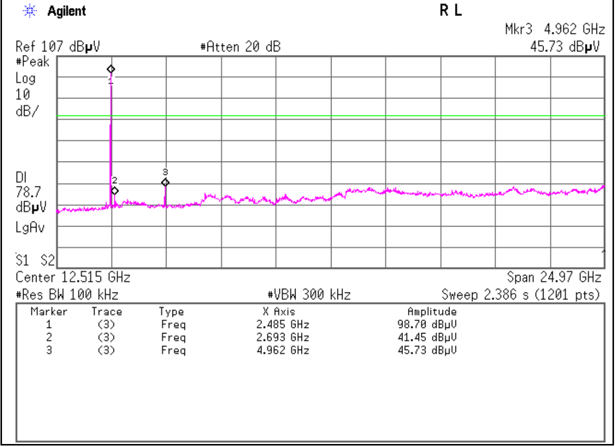
```
Marker  Trace  Type  X Axis      Amplitude
  1      (3)   Freq  124.97 kHz  22.66 dBμV
  2      (3)   Freq  62.46 kHz   19.18 dBμV
```

150 kHz - 30 MHz



```
Marker  Trace  Type  X Axis     Amplitude
  1      (3)   Freq  1.941 MHz  32.90 dBμV
```

30 MHz - 25 GHz



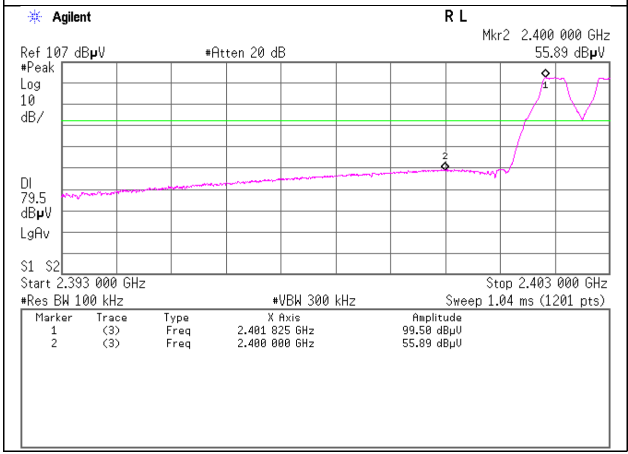
```
Marker  Trace  Type  X Axis     Amplitude
  1      (3)   Freq  2.485 GHz  98.70 dBμV
  2      (3)   Freq  2.693 GHz  41.45 dBμV
  3      (3)   Freq  4.962 GHz  45.73 dBμV
```

Conducted Emission Band Edge compliance

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx DH5

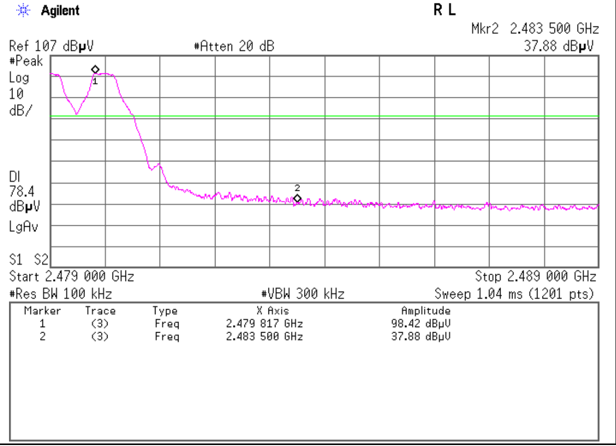
Hopping On

Low



```
Mkr2  2.400 000 GHz
Ref 107 dBμV          #Atten 20 dB          55.89 dBμV
#Peak
Start 2.393 000 GHz                          Stop 2.403 000 GHz
#Res BW 100 kHz       #VBW 300 kHz   Sweep 1.04 ms (1201 pts)

Marker   Trace   Type     X Axis           Amplitude
  1       (3)    Freq     2.401 825 GHz    99.50 dBμV
  2       (3)    Freq     2.400 000 GHz    55.89 dBμV
```

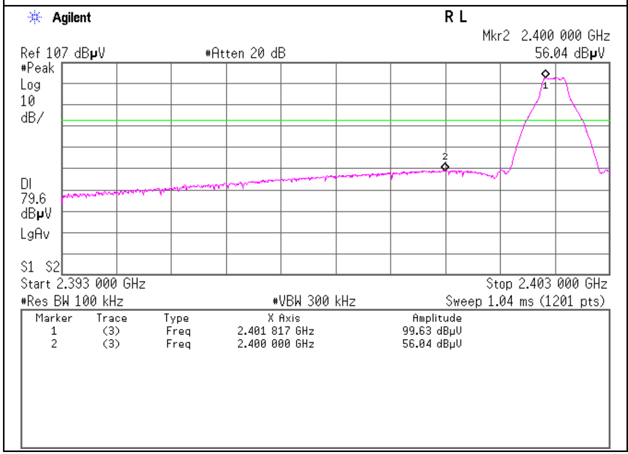
High



```
Mkr2  2.483 500 GHz
Ref 107 dBμV          #Atten 20 dB          37.88 dBμV
#Peak
Start 2.479 000 GHz                          Stop 2.489 000 GHz
#Res BW 100 kHz       #VBW 300 kHz   Sweep 1.04 ms (1201 pts)

Marker   Trace   Type     X Axis           Amplitude
  1       (3)    Freq     2.479 817 GHz    98.42 dBμV
  2       (3)    Freq     2.483 500 GHz    37.88 dBμV
```

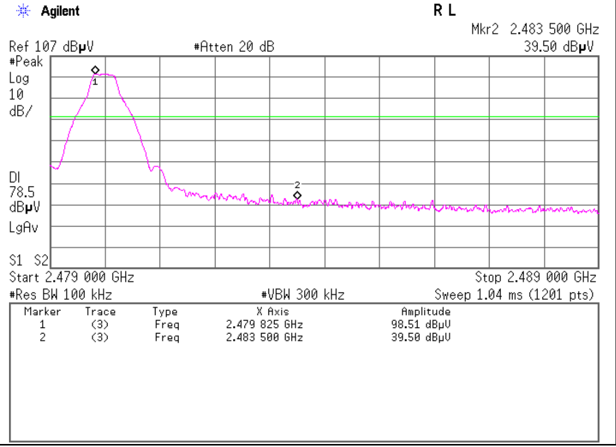
Hopping Off

Low



```
Mkr2  2.400 000 GHz
Ref 107 dBμV          #Atten 20 dB          56.04 dBμV
#Peak
Start 2.393 000 GHz                          Stop 2.403 000 GHz
#Res BW 100 kHz       #VBW 300 kHz   Sweep 1.04 ms (1201 pts)

Marker   Trace   Type     X Axis           Amplitude
  1       (3)    Freq     2.401 817 GHz    99.63 dBμV
  2       (3)    Freq     2.400 000 GHz    56.04 dBμV
```

High



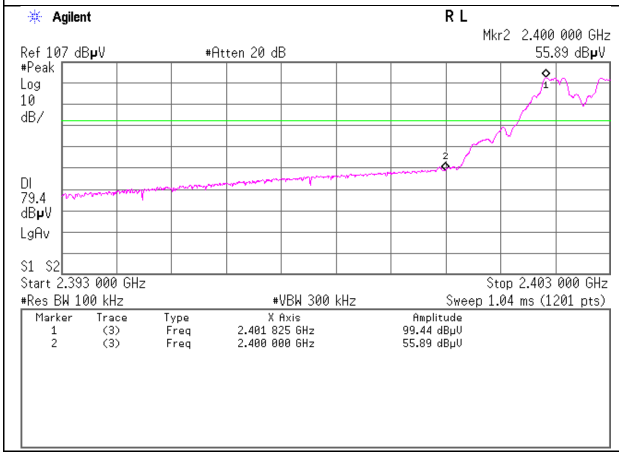
```
Mkr2  2.483 500 GHz
Ref 107 dBμV          #Atten 20 dB          39.50 dBμV
#Peak
Start 2.479 000 GHz                          Stop 2.489 000 GHz
#Res BW 100 kHz       #VBW 300 kHz   Sweep 1.04 ms (1201 pts)

Marker   Trace   Type     X Axis           Amplitude
  1       (3)    Freq     2.479 825 GHz    98.51 dBμV
  2       (3)    Freq     2.483 500 GHz    39.50 dBμV
```

Conducted Emission Band Edge compliance

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx 3DH5

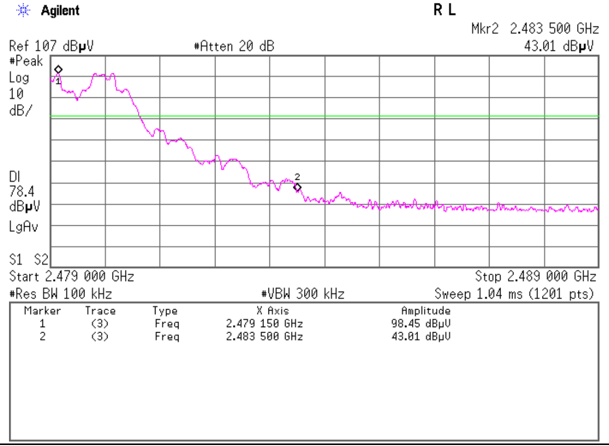
Hopping On

Low



```
Marker   Trace   Type    X Axis           Amplitude
  1       (3)    Freq    2.401 825 GHz    99.44 dBμV
  2       (3)    Freq    2.400 000 GHz    55.89 dBμV
```

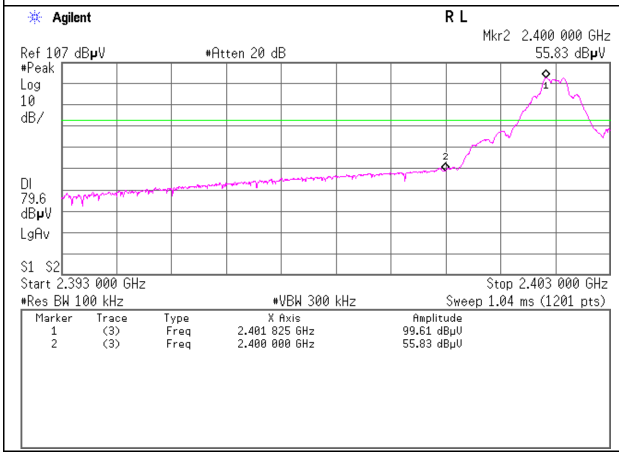
High



```
Marker   Trace   Type    X Axis           Amplitude
  1       (3)    Freq    2.479 150 GHz    98.45 dBμV
  2       (3)    Freq    2.483 500 GHz    43.01 dBμV
```

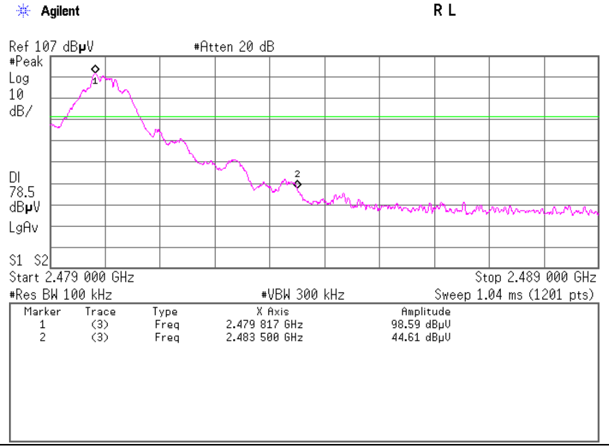
Hopping Off

Low



```
Marker   Trace   Type    X Axis           Amplitude
  1       (3)    Freq    2.401 825 GHz    99.61 dBμV
  2       (3)    Freq    2.400 000 GHz    55.83 dBμV
```

High



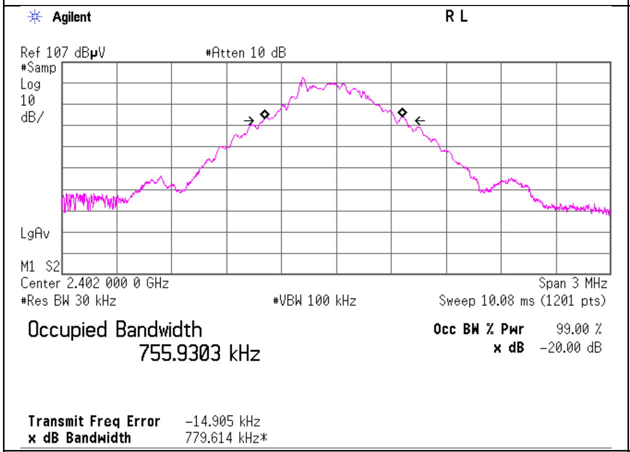
```
Marker   Trace   Type    X Axis           Amplitude
  1       (3)    Freq    2.479 817 GHz    98.59 dBμV
  2       (3)    Freq    2.483 500 GHz    44.61 dBμV
```

99%Occupied Bandwidth

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx

Hopping Off, DH5

2402 MHz



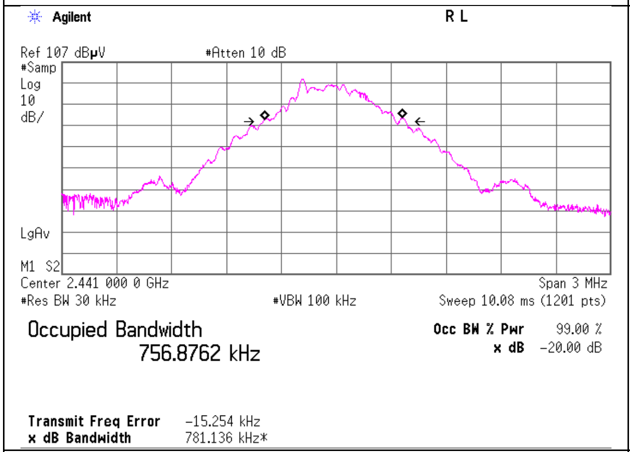
Center 2.402 000 0 GHz Span 3 MHz
#Res BW 30 kHz #VBW 100 kHz Sweep 10.08 ms (1201 pts)

Occupied Bandwidth
755.9303 kHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error -14.905 kHz
x dB Bandwidth 779.614 kHz*

2441 MHz



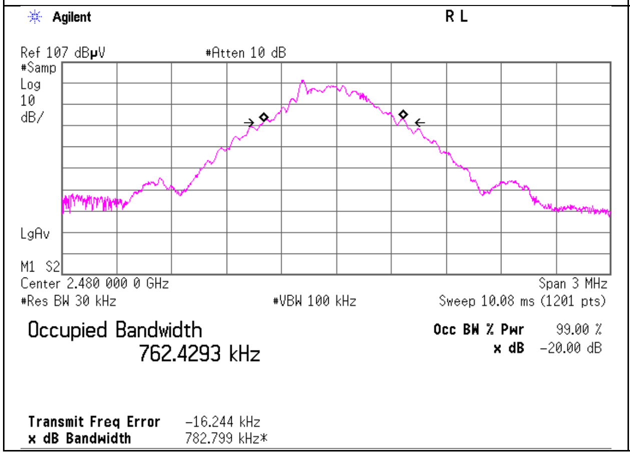
Center 2.441 000 0 GHz Span 3 MHz
#Res BW 30 kHz #VBW 100 kHz Sweep 10.08 ms (1201 pts)

Occupied Bandwidth
756.8762 kHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error -15.254 kHz
x dB Bandwidth 781.136 kHz*

2480 MHz



Center 2.480 000 0 GHz Span 3 MHz
#Res BW 30 kHz #VBW 100 kHz Sweep 10.08 ms (1201 pts)

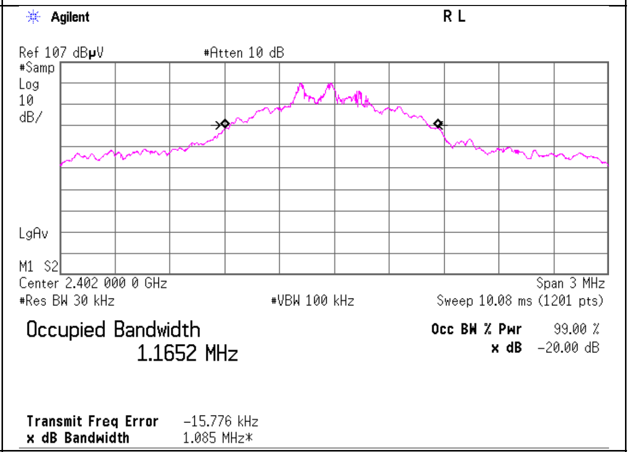
Occupied Bandwidth
762.4293 kHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error -16.244 kHz
x dB Bandwidth 782.799 kHz*

Hopping Off, 3DH5

2402 MHz



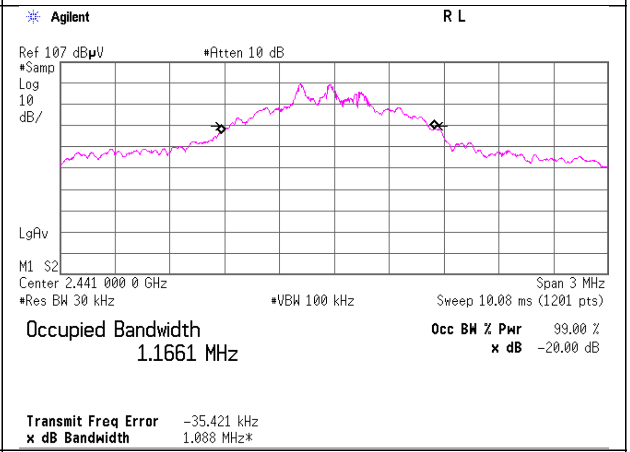
Center 2.402 000 0 GHz Span 3 MHz
#Res BW 30 kHz #VBW 100 kHz Sweep 10.08 ms (1201 pts)

Occupied Bandwidth
1.1652 MHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error -15.776 kHz
x dB Bandwidth 1.085 MHz*

2441 MHz



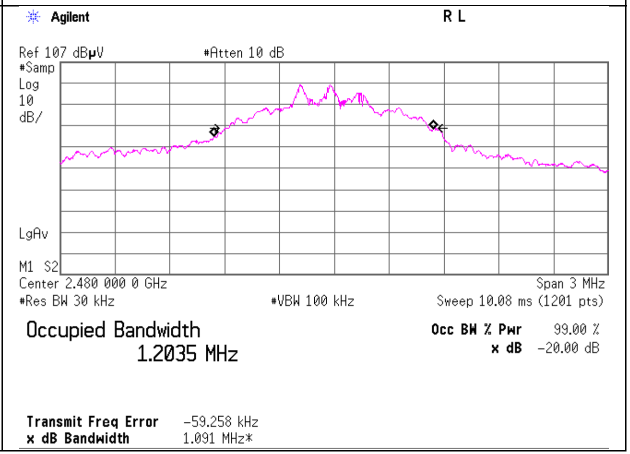
Center 2.441 000 0 GHz Span 3 MHz
#Res BW 30 kHz #VBW 100 kHz Sweep 10.08 ms (1201 pts)

Occupied Bandwidth
1.1661 MHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error -35.421 kHz
x dB Bandwidth 1.088 MHz*

2480 MHz



Center 2.480 000 0 GHz Span 3 MHz
#Res BW 30 kHz #VBW 100 kHz Sweep 10.08 ms (1201 pts)

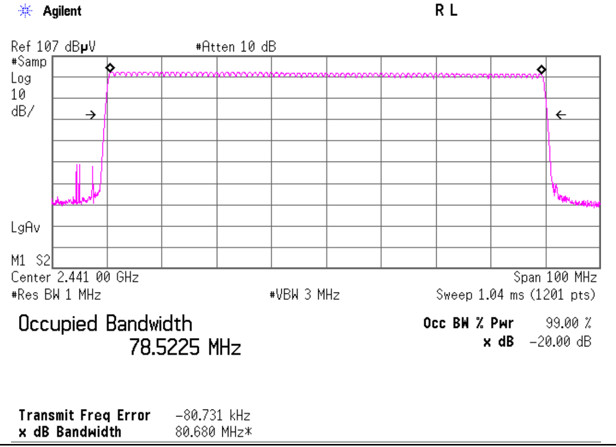
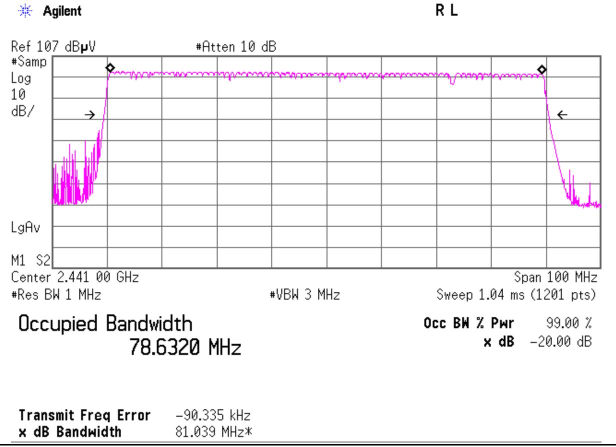
Occupied Bandwidth
1.2035 MHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error -59.258 kHz
x dB Bandwidth 1.091 MHz*

99% Occupied Bandwidth

Test place	Shonan EMC Lab. No.3 Shielded Room
Report No.	11413625S-D-R2
Date	August 22, 2016
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazutaka Takeyama
Mode	Tx

Hopping On, DH5	**Hopping On, 3DH5**
 Ref 107 dBμV #Atten 10 dB Center 2.441 00 GHz Span 100 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 78.5225 MHz **Occ BW % Pwr** 99.00 % **x dB** -20.00 dB **Transmit Freq Error** -80.731 kHz **x dB Bandwidth** 80.680 MHz*	 Ref 107 dBμV #Atten 10 dB Center 2.441 00 GHz Span 100 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1.04 ms (1201 pts) Occupied Bandwidth 78.6320 MHz **Occ BW % Pwr** 99.00 % **x dB** -20.00 dB **Transmit Freq Error** -90.335 kHz **x dB Bandwidth** 81.039 MHz*

APPENDIX 2: Test instruments

Test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	AT	2016/03/23 * 12
SAT10-06	Attenuator	Agilent	8493C-010	74865	AT	2015/11/04 * 12
SCC-G33	Coaxial Cable	Junkosha	MWX241-01000KMSKMS	-	AT	2016/04/18 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	AT	2015/12/07 * 12
STS-03	Digital Hitester	Hioki	3805-50	080997823	AT	2015/11/18 * 12
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2016/04/01 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2016/04/01 * 12
SSA-01	Spectrum Analyzer	Agilent	N9010A-526	MY48031482	AT	2016/04/28 * 12
KOS-11	Humidity Indicator	Custom	CTH-202	Q.C.13	AT	2015/12/07 * 12
STS-04	Digital Hitester	Hioki	3805-50	080997827	AT	2016/03/22 * 12
SAF-05	Pre Amplifier	TOYO Corporation	TPA0118-36	1440490	RE	2016/02/10 * 12
SCC-G05	Coaxial Cable	Junkosha	J12J102207-00	APR-30-15-037	RE	2016/05/24 * 12
SCC-G22	Coaxial Cable	Suhner	SUCOFLEX 104	296199/4	RE	2016/05/11 * 12
SHA-RS01	Horn Antenna	Schwarzbeck	BBHA9120D	770	RE	2015/08/11 * 12
SOS-03	Humidity Indicator	A&D	AD-5681	4063325	RE	2015/10/22 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE	2016/03/23 * 12
SJM-09	Measure	PROMART	SEN1935	-	RE	-
SAEC-02(SVSWR)	Semi-Anechoic Chamber	TDK	SAEC-02(SVSWR)	2	RE	2016/07/22 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFI,MF)	-	RE	-
STS-02	Digital Hitester	Hioki	3805-50	080997819	RE	2016/03/22 * 12
SFL-18	Highpass Filter	MICRO-TRONICS	HPM50111	119	RE	2016/04/18 * 12
SAT10-06	Attenuator	Agilent	8493C-010	74865	RE	2015/11/04 * 12
SAF-08	Pre Amplifier	TOYO Corporation	HAP18-26W	00000019	RE	2016/03/23 * 12
SHA-04	Horn Antenna	ETS LINDGREN	3160-09	LM3640	RE	2016/03/15 * 12
SCC-G33	Coaxial Cable	Junkosha	MWX241-01000KMSKMS	-	RE	2016/04/18 * 12
SCC-G15	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	RE	2016/03/08 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2016/07/15 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2015/10/22 * 12
SJM-15	Measure	ASKUL	-	-	RE	-
STS-03	Digital Hitester	Hioki	3805-50	080997823	RE	2015/11/18 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2015/10/11 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2015/10/11 * 12
SAT6-08	Attenuator	HIROSE ELECTRIC CO.,LTD.	AT-406(40)	-	RE	2016/08/04 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2016/04/22 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2016/02/25 * 12
STR-06	Test Receiver	Rohde & Schwarz	ESCI	101259	RE	2016/03/28 * 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