RADIO TEST REPORT

Test Report No. : 10792621H

Applicant	:	**MITSUBISHI ELECTRIC CORPORATION SANDA WORKS**
Type of Equipment	:	**Car Audio**
Model No.	:	**AR-0H**
FCC ID	:	**UJHAR0H**
Test regulation	:	**FCC Part 15 Subpart C: 2015**
Test Result	:	**Complied**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
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)

Date of test: May 19 and 20, 2015

Representative test engineer:
Tsubasa Takayama
Engineer
Consumer Technology Division

Approved by:
Motoya Imura
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.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

REVISION HISTORY

Original Test Report No.: 10792621H

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10792621H	July 13, 2015	-	-

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

CONTENTS PAGE

SECTION 1: Customer information....4
SECTION 2: Equipment under test (E.U.T.)....4
SECTION 3: Test specification, procedures & results....5
SECTION 4: Operation of E.U.T. during testing....8
SECTION 5: Radiated Spurious Emission....10
SECTION 6: Antenna Terminal Conducted Tests....11
APPENDIX 1: Test data....12
20dB Bandwidth and Carrier Frequency Separation....12
Number of Hopping Frequency....15
Dwell time....17
Maximum Peak Output Power....20
Average Output Power....21
Radiated Spurious Emission....23
Conducted Spurious Emission....30
Conducted Emission Band Edge compliance....42
99%Occupied Bandwidth....44
APPENDIX 2: Test instruments....46
APPENDIX 3: Photographs of test setup....47
Radiated Spurious Emission....47

SECTION 1: Customer information

Company Name	:	MITSUBISHI ELECTRIC CORPORATION SANDA WORKS
Address	:	2-3-33, Miwa, Sanda-city, Hyogo, 669-1513, Japan
Telephone Number	:	+81-79-559-3620
Facsimile Number	:	+81-79-559-3875
Contact Person	:	Keiichi Shiode

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

2.1 Identification of E.U.T.

Type of Equipment	:	Car Audio
Model No.	:	AR-0H
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC 13.2V
Receipt Date of Sample	:	May 16, 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

Model: AR-0H (referred to as the EUT in this report) is a Car Audio.

General Specification

Clock frequency(ies) in the system	:	CPU: 96 MHz (Radio part: 26 MHz)

Radio Specification

	Bluetooth Ver.2.1 with EDR function
Frequency of operation	2402-2480MHz
Type of modulation	FHSS (GFSK, π/4-DQPSK, 8-DPSK)
Channel spacing	1MHz
Antenna type	Pattern antenna
Antenna Gain	2.32dBi
Antenna Connector type	-

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part 15 Subpart C: 2015, final revised on June 12, 2015 and effective July 13, 2015
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

3.2 Procedures and results

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	**FCC:** ANSI C63.4-2009 7. AC powerline conducted emission measurements **IC:** RSS-Gen 8.8	**FCC:** Section 15.207 **IC:** RSS-Gen 8.8	N/A	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	9.0 dB 2483.500 MHz, PK, Horizontal	Complied	Conducted/ Radiated

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.
*1) The test is not applicable since the EUT is not the device that is designed to be connected to the public utility (AC) power line.

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

FCC 15.31 (e)

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

FCC 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 $k = 2$.

Ise EMC Lab.

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

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	
0.7 dB	1.5 dB	1.5 dB	1.7 dB	2.8 dB	2.8 dB	2.9 dB	2.6 dB

Radiated emission test

The data listed in this test report has enough margin, more than the site margin.

3.5 Test Location

UL Japan, Inc. Ise EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone: +81 596 24 8999, Facsimile: +81 596 24 8124

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
Inquiry

Details of Operating Mode(s)

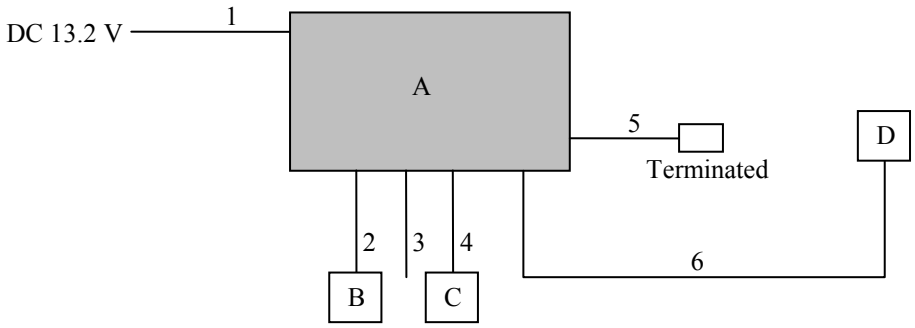
Test Item	Mode	Tested frequency
Spurious Emission (Conducted/Radiated)	Tx (Hopping off) DH5, 3DH5	2402MHz 2441MHz 2480MHz
Carrier Frequency Separation	Tx (Hopping on) DH5, 3DH5 Inquiry	2402MHz 2441MHz 2480MHz
20dB Bandwidth	Tx (Hopping off) DH5, 3DH5 Inquiry	2402MHz 2441MHz 2480MHz
Number of Hopping Frequency	Tx (Hopping on) DH5, 3DH5 Inquiry	-
Dwell time	Tx (Hopping on), -DH1, DH3, DH5 -3DH1, 3DH3, 3DH5 Inquiry	-
Maximum Peak Output Power	Tx (Hopping off) DH5, 2DH5, 3DH5 Inquiry	2402MHz 2441MHz 2480MHz
Band Edge Compliance (Conducted)	Tx DH5, 3DH5 -Hopping on -Hopping off	2402MHz 2480MHz
99% Occupied Bandwidth	Tx DH5, 3DH5 -Hopping on -Hopping off Inquiry	2402MHz 2441MHz 2480MHz

*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload length (except Dwell time test)
*2DH mode (2Mb/s EDR: pi/4DQPSK) was excluded for other tests than power measurement by using 3DH mode (3 Mb/s EDR: 8DPSK) as a representative.

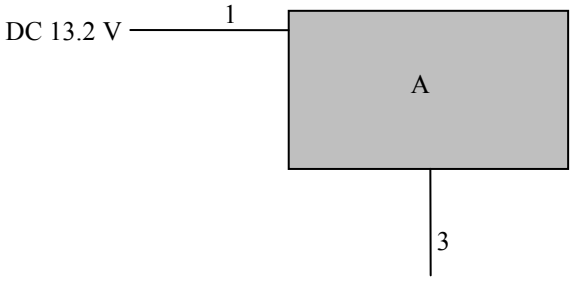
*EUT has the power settings by the software as follows;
Power settings: 0 dBm (average)
Software: HCI Tester2 Ver 1.00
*This setting of software is the worst case.
Any conditions under the normal use do not exceed the condition of setting.
In addition, end users cannot change the settings of the output power of the product.

4.2 Configuration and peripherals

[Radiated Spurious Emission test]



[Antenna Terminal Conducted test]



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Car Audio	AR-0H	No.11 *1) No.10 *2)	MITSUBISHI ELECTRIC CORPORATION SANDA WORKS	EUT
B	Dummy Speaker	-	-	-	-
C	USB Memory	USM4GL	10915MEEB5	SONY	-
D	Portable CD Player	SL-CT520	WL7GA002317R	Panasonic	-

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

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	2.0	Unshielded	Unshielded	-
2	Speaker Cable	0.3	Unshielded	Unshielded	-
3	Signal Cable	1.0	Unshielded	Unshielded	-
4	USB Cable	1.5	Shielded	Shielded	-
5	FM Cable	0.2	Shielded	Shielded	-
6	Audio Cable	1.5	Shielded	Shielded	-

SECTION 5: Radiated Spurious Emission

Test Procedure

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.
The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.
The height of the measuring antenna varied between 1 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.
The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Test Antennas are used as below;

Frequency	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 (below 10 GHz), 1 m*2) (above 10 GHz)		3 m (below 10 GHz), 1 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 x log (3.0 m / 1.0 m) = 9.5 dB

The test was made on EUT at the normal use position.

The test results and limit are rounded off to one decimal place, so some differences might be observed.

Measurement range : 30 M - 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	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak Average *2)	-	Power Meter (Sensor: 50MHz BW)
Carrier Frequency Separation	5 MHz or 3 MHz	100 kHz or 30 kHz	300 kHz or 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 *3)	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) Reference data
*3) In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.
Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.

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

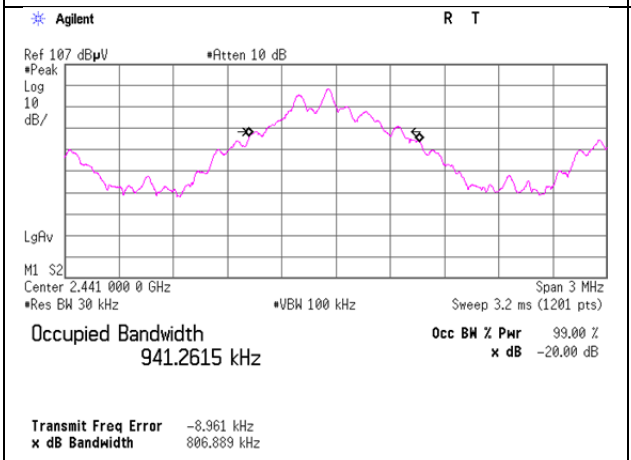
Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10792621H
Date	May 20, 2015
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Shinichi Miyazono
Mode	Tx Hopping On

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.928	1.000	>= 0.619
DH5	2441.0	0.930	1.000	>= 0.620
DH5	2480.0	0.930	1.000	>= 0.620
3DH5	2402.0	1.265	1.000	>= 0.843
3DH5	2441.0	1.268	1.000	>= 0.845
3DH5	2480.0	1.264	1.000	>= 0.843
Inquiry	2441.0	0.807	2.000	>= 0.538

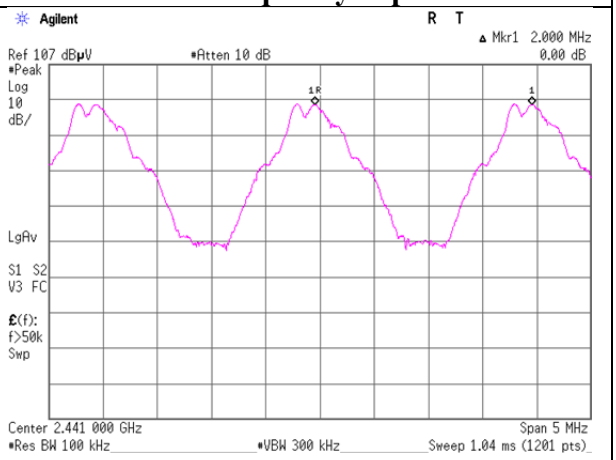
Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).
No limit applies to 20dB Bandwidth.

Inquiry

20 dB Bandwidth



Carrier Frequency Separation

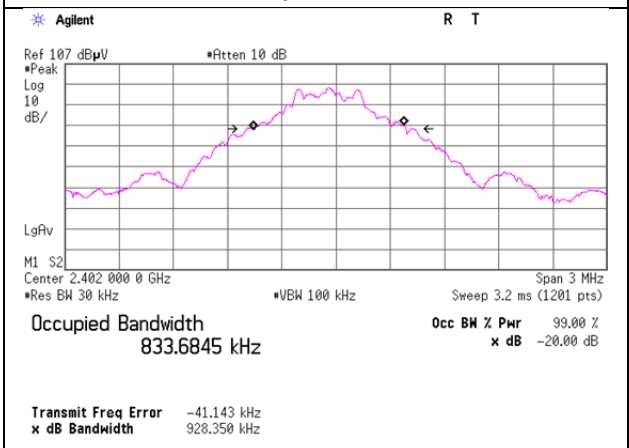


20dB Bandwidth and Carrier Frequency Separation

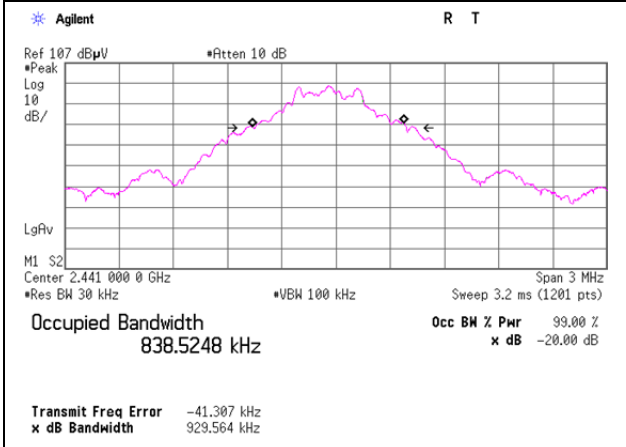
DH5

20 dB Bandwidth

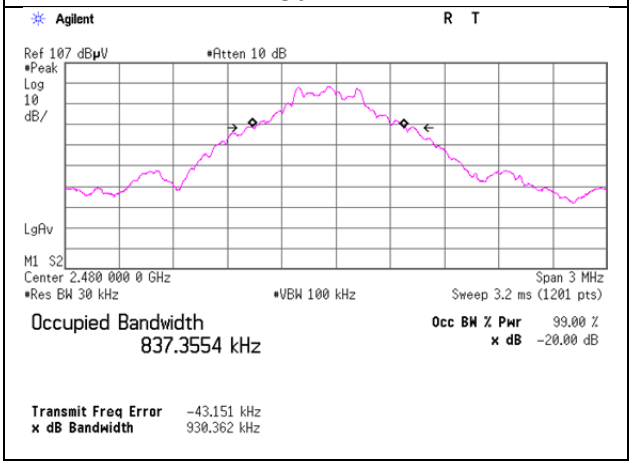
2402 MHz



2441 MHz

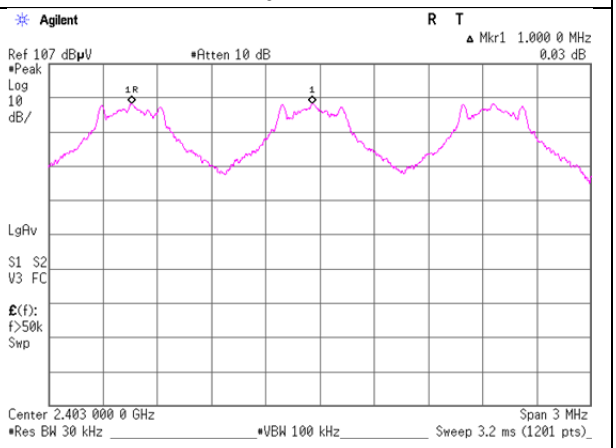


2480 MHz

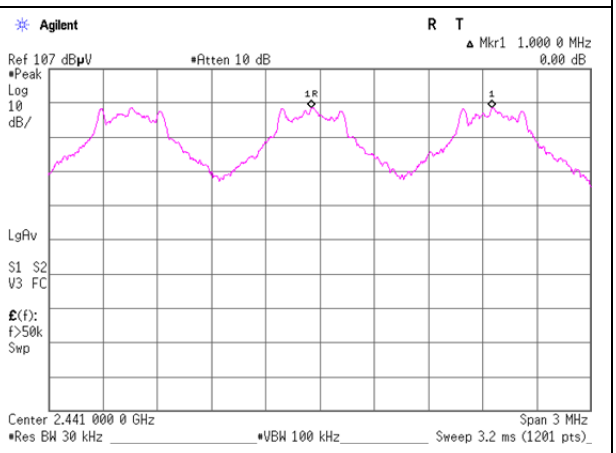


Carrier Frequency Separation

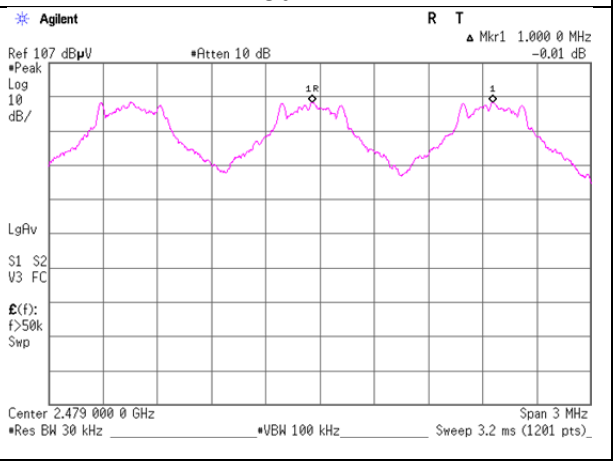
2402 MHz



2441 MHz



2480 MHz

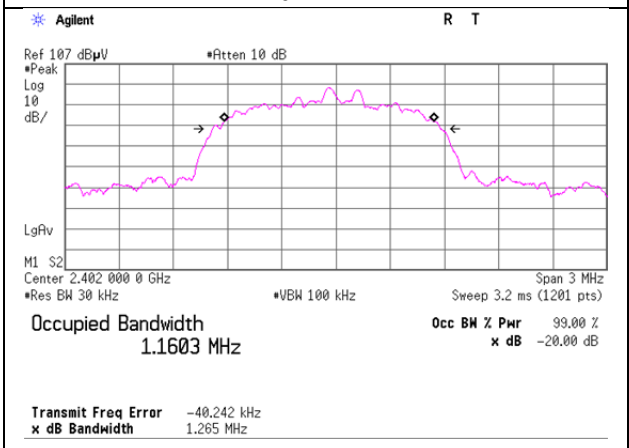


20dB Bandwidth and Carrier Frequency Separation

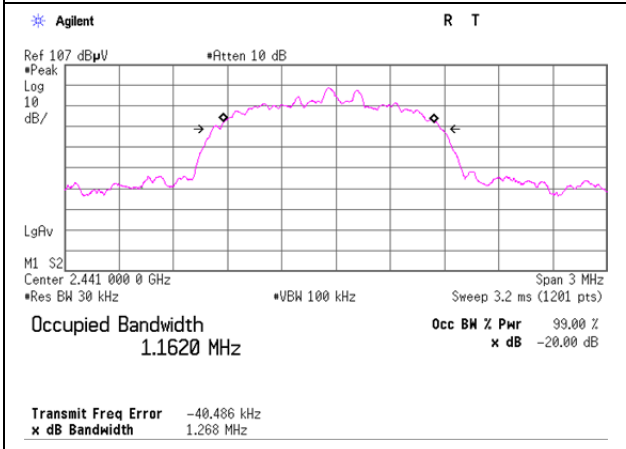
3DH5

20 dB Bandwidth

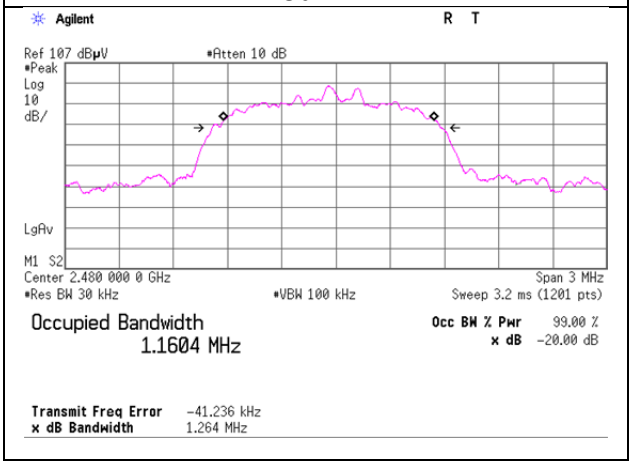
2402 MHz



2441MHz

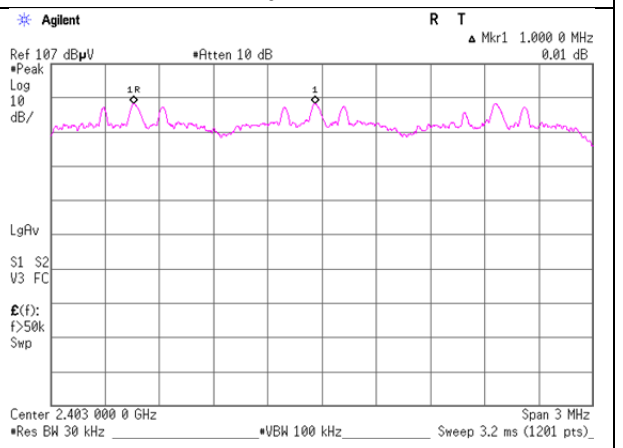


2480MHz

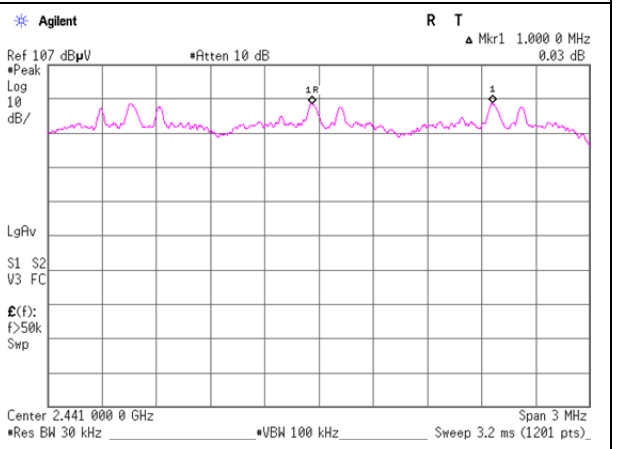


Carrier Frequency Separation

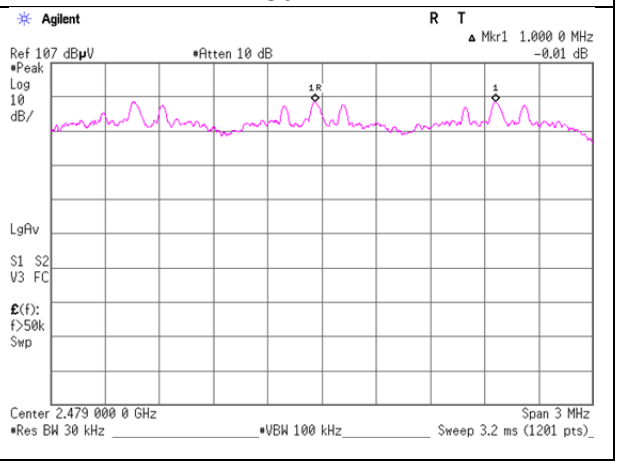
2402 MHz



2441 MHz



2480 MHz



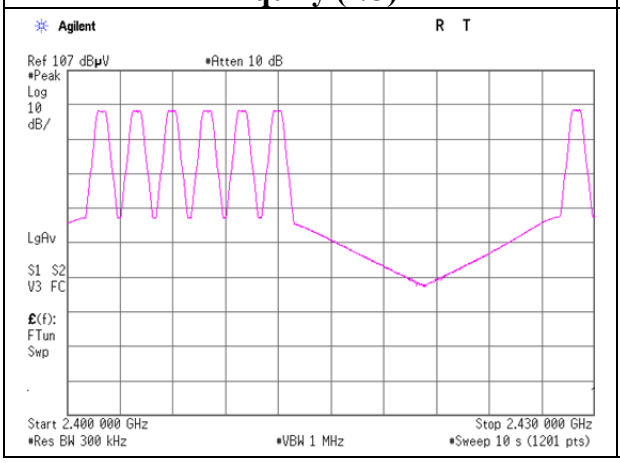
Number of Hopping Frequency

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10792621H
Date	May 20, 2015
Temperature / Humidity	24 deg. C / 51 % RH
Engineer	Shinichi Miyazono
Mode	Tx Hopping On

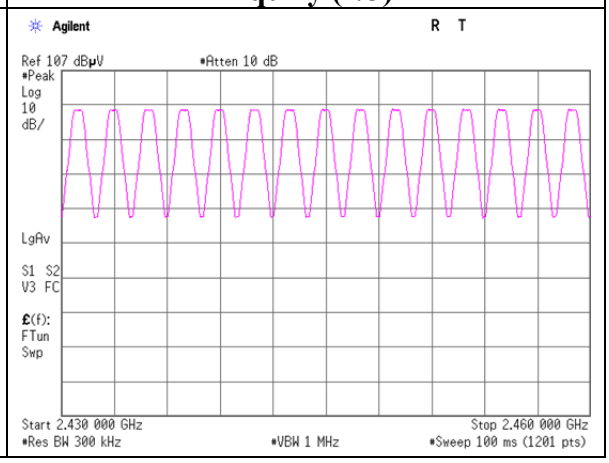
Mode	Number of channel [channels]	Limit [channels]
DH5	79	>= 15
3DH5	79	>= 15
Inquiry	32	>= 15

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

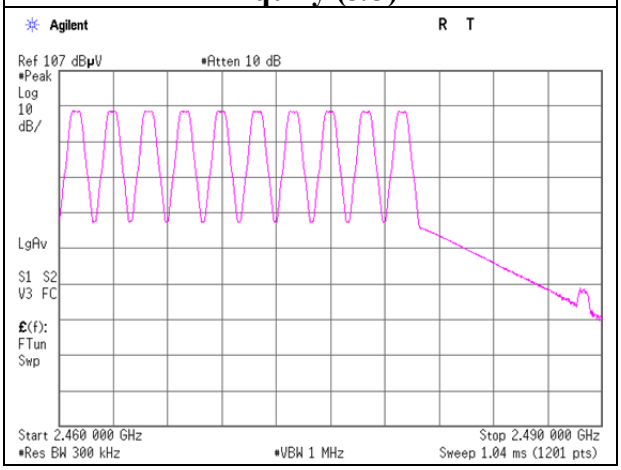
Inquiry (1/3)



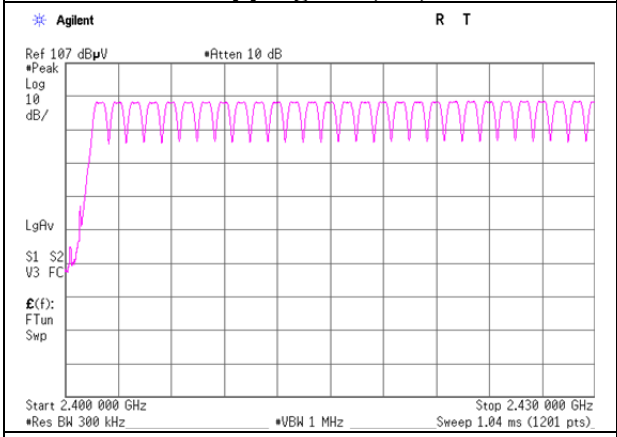
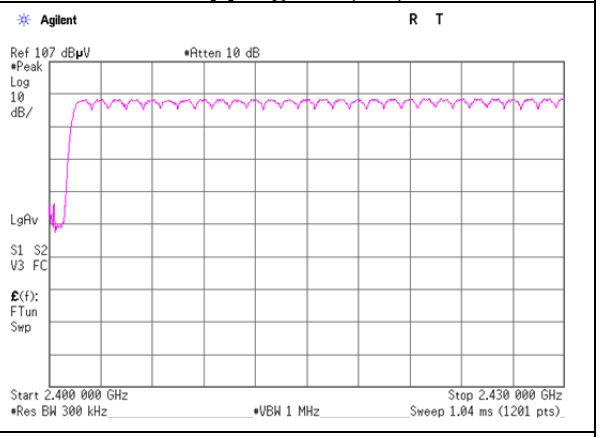
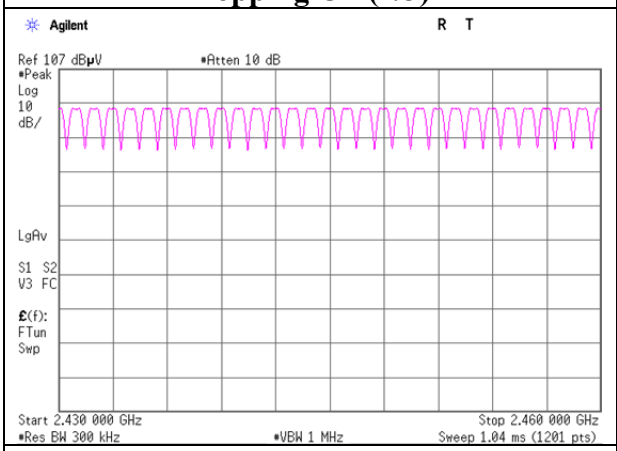
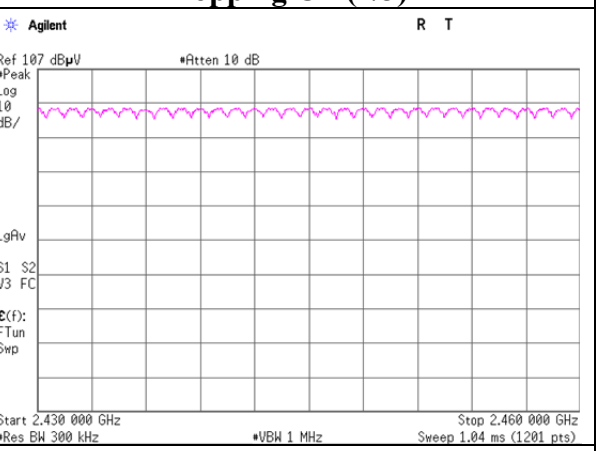
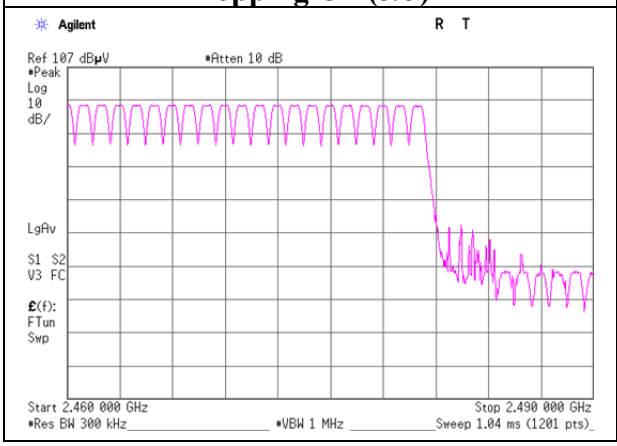
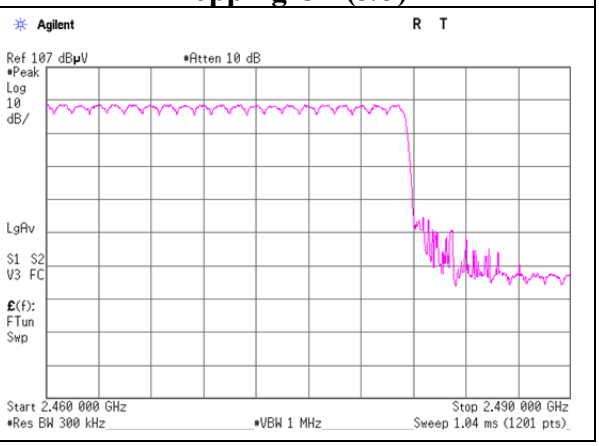
Inquiry (2/3)



Inquiry (3/3)



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	Ise EMC Lab. No.11 Measurement Room
Report No.	10792621H
Date	May 20, 2015
Temperature / Humidity	24 deg. C / 51 % RH
Engineer	Shinichi Miyazono
Mode	Tx Hopping On

Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8 (32 Hopping x 0.4) second period	Length of transmission [msec]	Result [msec]	Limit [msec]
DH1	49.6 times / 5 sec. x 31.6 sec. = 314 times	0.464	146	400
DH3	24.2 times / 5 sec. x 31.6 sec. = 153 times	1.727	264	400
DH5	18.4 times / 5 sec. x 31.6 sec. = 117 times	2.982	349	400
3DH1	50.0 times / 5 sec. x 31.6 sec. = 316 times	0.463	146	400
3DH3	27.8 times / 5 sec. x 31.6 sec. = 176 times	1.729	304	400
3DH5	17.8 times / 5 sec. x 31.6 sec. = 113 times	2.968	335	400
Inquiry	100.0 times / 1 sec. x 12.8 sec. = 1280 times	0.151	193	400

Sample Calculation
Result = Number of transmission x Length of transmition

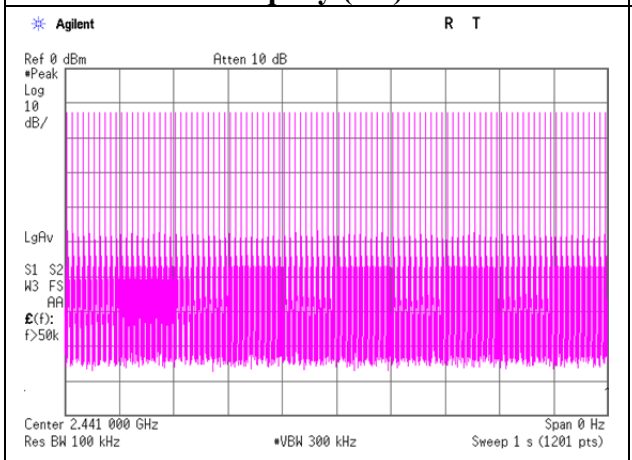
*Average data of 5 tests.(except Inquiry)

Mode	Sampling [times] 1	2	3	4	5	Average [times]
DH1	50	47	50	50	51	49.6
DH3	20	24	26	25	26	24.2
DH5	15	20	23	17	17	18.4
3DH1	49	51	49	50	51	50
3DH3	26	30	29	28	26	27.8
3DH5	17	18	16	20	18	17.8

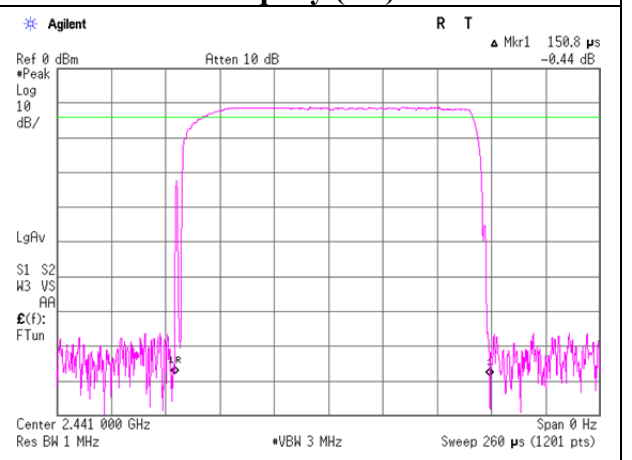
Sample Calculation
Average = Summation (Sampling 1 to 5) / 5

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 ($20 \leq N \leq 79$), is always less than 0.4s regardless of packet size. This is confirmed in the test report for N = 79.

Inquiry (1/2)

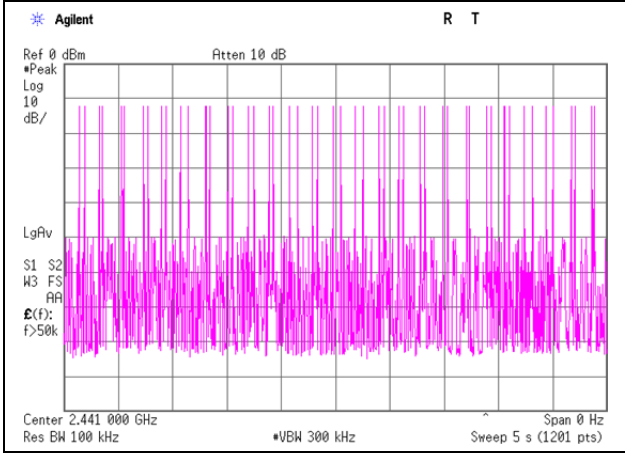


Inquiry (2/2)

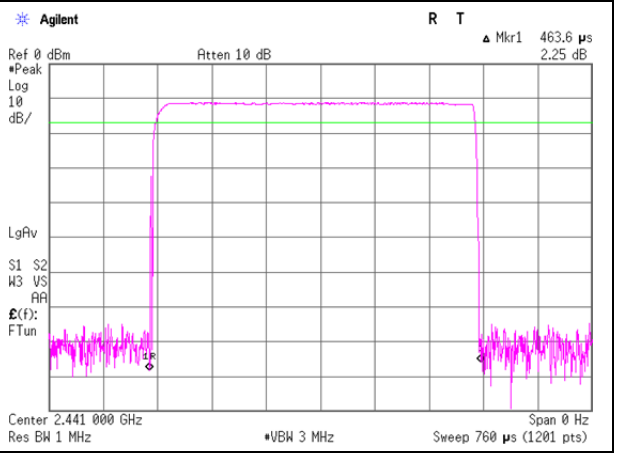


Dwell time

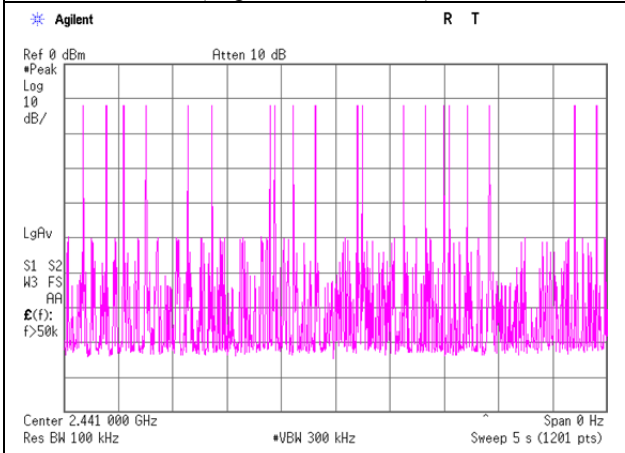
DH1 (1/2)
(Representative chart)



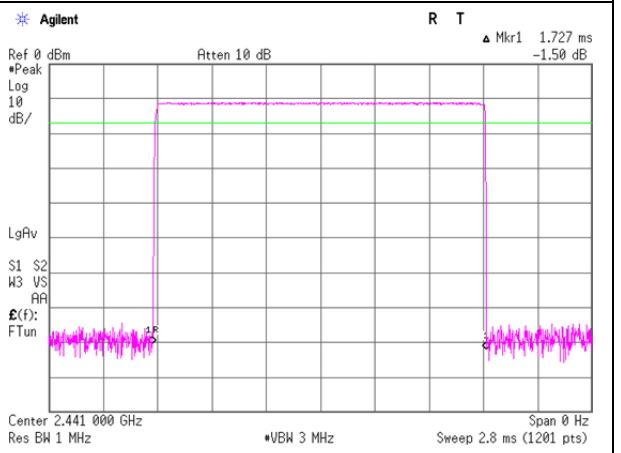
DH1 (2/2)



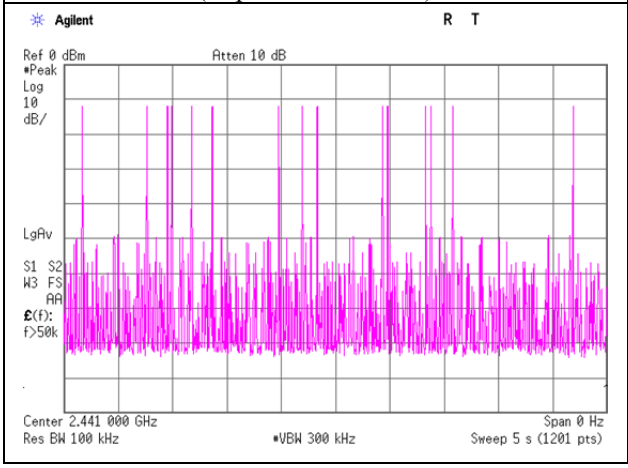
DH3 (1/2)
(Representative chart)



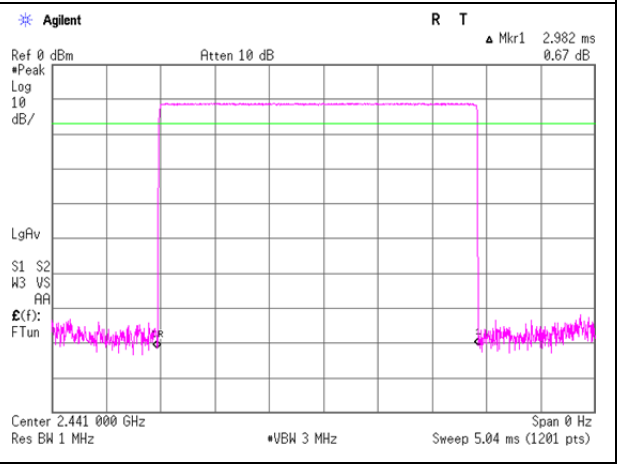
DH3 (2/2)



DH5 (1/2)
(Representative chart)

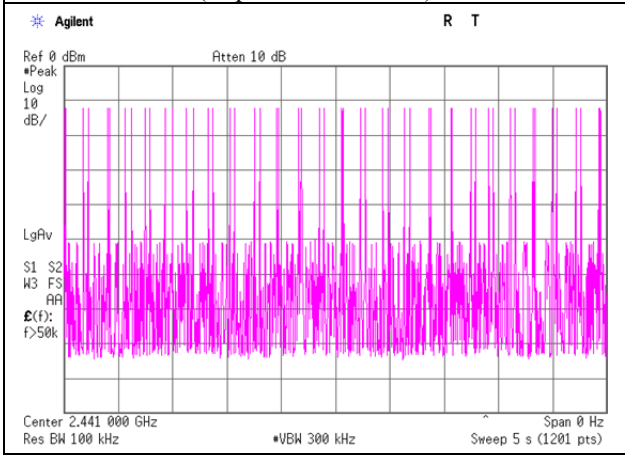


DH5 (2/2)

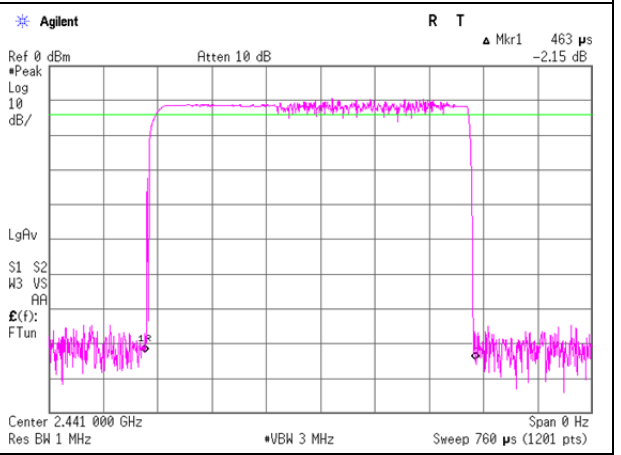


Dwell time

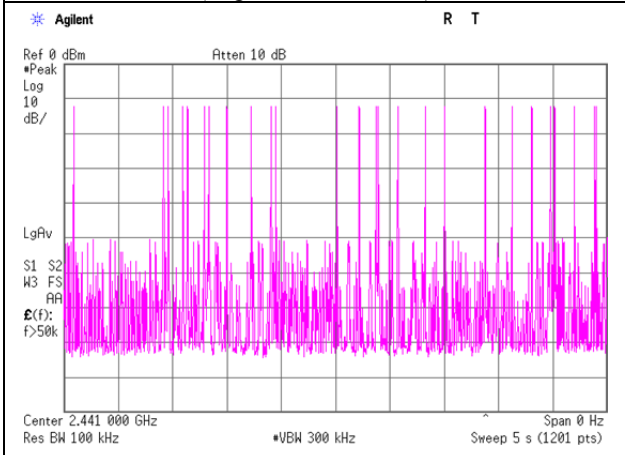
3DH1 (1/2)
(Representative chart)



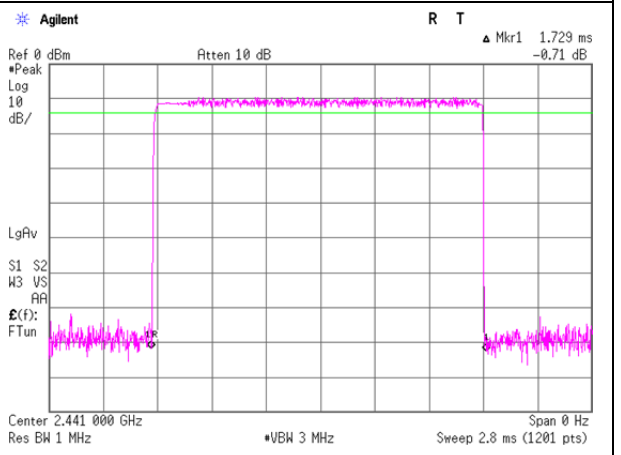
3DH1 (2/2)



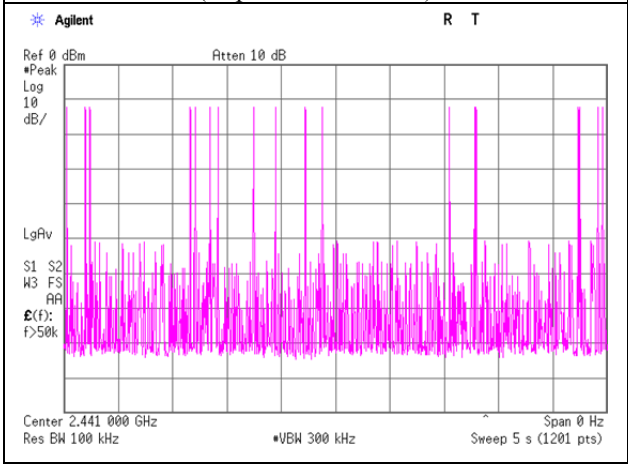
3DH3 (1/2)
(Representative chart)



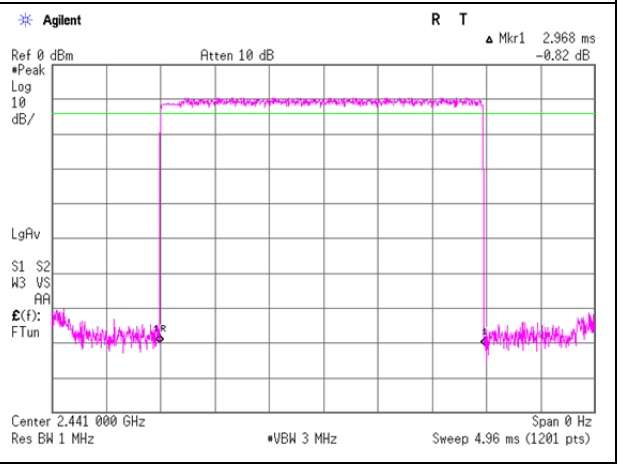
3DH3 (2/2)



3DH5 (1/2)
(Representative chart)



3DH5 (2/2)



Maximum Peak Output Power

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10792621H
Date	May 20, 2015
Temperature / Humidity	24 deg. C / 51 % RH
Engineer	Shinichi Miyazono
Mode	Tx Hopping Off

Mode	Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
DH5	2402.0	-1.24	0.97	0.00	-0.27	0.94	20.96	125	21.23
DH5	2441.0	-0.80	0.99	0.00	0.19	1.04	20.96	125	20.77
DH5	2480.0	-0.92	1.01	0.00	0.09	1.02	20.96	125	20.87
2DH5	2402.0	0.47	0.97	0.00	1.44	1.39	20.96	125	19.52
2DH5	2441.0	0.94	0.99	0.00	1.93	1.56	20.96	125	19.03
2DH5	2480.0	0.82	1.01	0.00	1.83	1.52	20.96	125	19.13
3DH5	2402.0	0.94	0.97	0.00	1.91	1.55	20.96	125	19.05
3DH5	2441.0	1.36	0.99	0.00	2.35	1.72	20.96	125	18.61
3DH5	2480.0	1.24	1.01	0.00	2.25	1.68	20.96	125	18.71
Inquiry	2441.0	-0.83	0.99	0.00	0.16	1.04	20.96	125	20.80

Sample Calculation:
Result = Reading + Cable 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 SAR testing)

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10792621H
Date	May 20, 2015
Temperature / Humidity	24 deg. C / 51 % RH
Engineer	Shinichi Miyazono
Mode	Tx Hopping Off

Mode	Freq.	Reading	Cable Loss	Atten. Loss	Result (Frame power)		Duty factor	Result (Burst power)	
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dB]	[dBm]	[mW]
DH5	2402.0	-2.52	0.97	0.00	-1.55	0.70	1.02	-0.53	0.89
DH5	2441.0	-2.13	0.99	0.00	-1.14	0.77	1.02	-0.12	0.97
DH5	2480.0	-2.25	1.01	0.00	-1.24	0.75	1.02	-0.22	0.95
2DH5	2402.0	-3.04	0.97	0.00	-2.07	0.62	1.02	-1.05	0.79
2DH5	2441.0	-2.64	0.99	0.00	-1.65	0.68	1.02	-0.63	0.86
2DH5	2480.0	-2.75	1.01	0.00	-1.74	0.67	1.02	-0.72	0.85
3DH5	2402.0	-3.02	0.97	0.00	-2.05	0.62	1.02	-1.03	0.79
3DH5	2441.0	-2.62	0.99	0.00	-1.63	0.69	1.02	-0.61	0.87
3DH5	2480.0	-2.73	1.01	0.00	-1.72	0.67	1.02	-0.70	0.85

Sample Calculation:
Result (Frame power) = Reading + Cable Loss
Result (Burst power) = Frame power + Duty factor

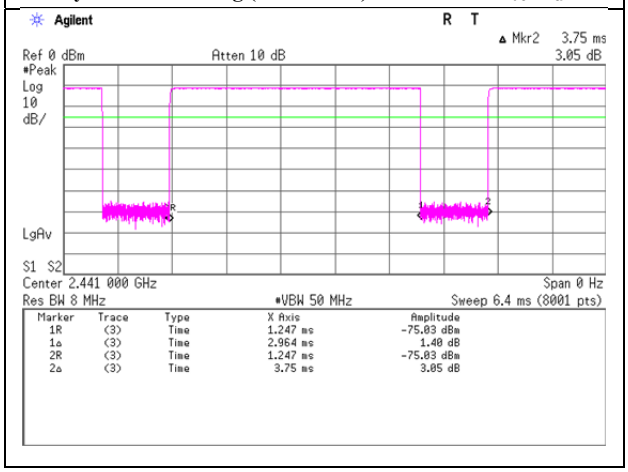
*The equipment and cables were not used for factor 0 dB of the data sheets.

Burst Rate Confirmation

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10792621H
Date	May 20, 2015
Temperature / Humidity	24 deg. C / 51 % RH
Engineer	Shinichi Miyazono
Mode	Tx Hopping Off

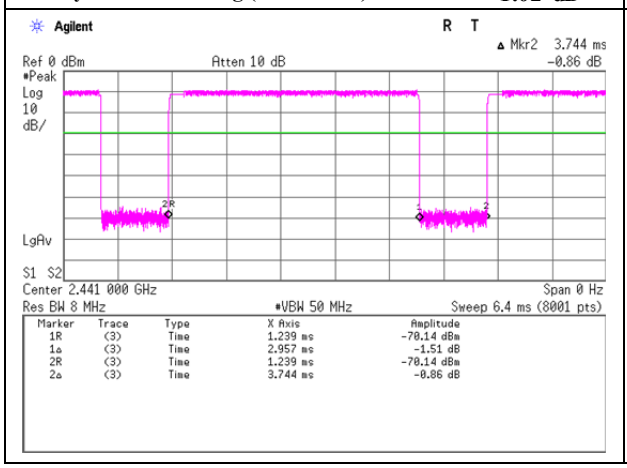
DH5

Tx on / (Tx on + Tx off) =	**0.790**
Tx on / (Tx on + Tx off) * 100 =	**79.0 %**
Duty factor = 10 * log (3.75 / 2.964) =	**1.02 dB**



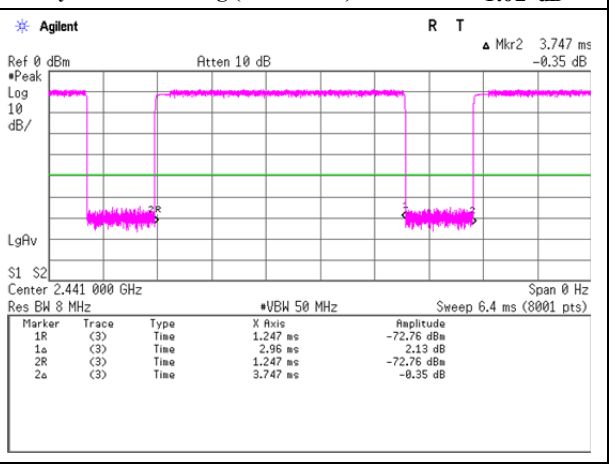
2DH5

Tx on / (Tx on + Tx off) =	**0.790**
Tx on / (Tx on + Tx off) * 100 =	**79.0 %**
Duty factor = 10 * log (3.75 / 2.964) =	**1.02 dB**



3DH5

Tx on / (Tx on + Tx off) =	**0.790**
Tx on / (Tx on + Tx off) * 100 =	**79.0 %**
Duty factor = 10 * log (3.747 / 2.96) =	**1.02 dB**



Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber	
Report No.	10792621H	
Date	May 19, 2015	May 20, 2015
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 51 % RH
Engineer	Keisuke Kawamura (1-26.5GHz)	Tsubasa Takayama (Below 1GHz)
Mode	Tx DH5 2402 MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	215.995	QP	37.4	16.7	9.2	32.1	31.2	43.5	12.3	
Hori	227.999	QP	35.2	16.9	9.3	32.1	29.3	46.0	16.7	
Hori	288.010	QP	31.8	19.2	9.8	32.0	28.8	46.0	17.2	
Hori	360.005	QP	41.3	16.5	10.4	32.0	36.2	46.0	9.8	
Hori	372.005	QP	36.3	16.8	10.4	32.0	31.5	46.0	14.5	
Hori	480.007	QP	27.0	18.1	11.1	32.1	24.1	46.0	21.9	
Hori	1230.007	PK	48.9	24.8	2.3	34.0	42.0	73.9	31.9	
Hori	2390.000	PK	42.3	27.4	3.2	32.0	40.9	73.9	33.0	
Hori	4804.000	PK	41.5	31.5	4.3	31.3	46.0	73.9	27.9	Floor Noise
Hori	7206.000	PK	43.3	36.8	5.6	32.0	53.7	73.9	20.2	Floor Noise
Hori	9608.000	PK	42.5	38.8	6.4	32.4	55.3	73.9	18.6	Floor Noise
Hori	1230.007	AV	44.5	24.8	2.3	34.0	37.6	53.9	16.3	
Hori	2390.000	AV	29.7	27.4	3.2	32.0	28.3	53.9	25.6	
Hori	4804.000	AV	28.9	31.5	4.3	31.3	33.4	53.9	20.5	Floor Noise
Hori	7206.000	AV	31.3	36.8	5.6	32.0	41.7	73.9	32.2	Floor Noise
Hori	9608.000	AV	30.2	38.8	6.4	32.4	43.0	53.9	10.9	Floor Noise
Vert	216.018	QP	35.5	16.7	9.2	32.1	29.3	46.0	16.7	
Vert	227.999	QP	32.3	16.9	9.3	32.1	26.4	46.0	19.6	
Vert	288.026	QP	31.5	19.2	9.8	32.0	28.5	46.0	17.5	
Vert	359.500	QP	33.9	16.5	10.3	32.0	28.7	46.0	17.3	
Vert	372.005	QP	29.6	16.8	10.4	32.0	24.8	46.0	21.2	
Vert	480.005	QP	25.8	18.1	11.1	32.1	22.9	46.0	23.1	
Vert	1229.973	PK	46.6	24.8	2.3	34.0	39.7	73.9	34.2	
Vert	2390.000	PK	42.9	27.4	3.2	32.0	41.5	73.9	32.4	
Vert	4804.000	PK	42.4	31.5	4.3	31.3	46.9	73.9	27.0	Floor Noise
Vert	7206.000	PK	43.2	36.8	5.6	32.0	53.6	73.9	20.3	Floor Noise
Vert	9608.000	PK	41.8	38.8	6.4	32.4	54.6	73.9	19.3	Floor Noise
Vert	1229.973	AV	40.9	24.8	2.3	34.0	34.0	53.9	19.9	
Vert	2390.000	AV	30.0	27.4	3.2	32.0	28.6	53.9	25.3	
Vert	4804.000	AV	28.9	31.5	4.3	31.3	33.4	53.9	20.5	Floor Noise
Vert	7206.000	AV	31.4	36.8	5.6	32.0	41.8	53.9	12.1	Floor Noise
Vert	9608.000	AV	30.2	38.8	6.4	32.4	43.0	53.9	10.9	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-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).
Distance factor: 10 GHz - 26.5 GHz 20log (3.0 m / 1.0 m) = 9.5 dB

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2402.000	PK	95.0	27.4	3.2	32.0	93.6	-	-	Carrier
Hori	2400.000	PK	51.7	27.4	3.2	32.0	50.3	73.6	23.3	
Vert	2402.000	PK	96.0	27.4	3.2	32.0	94.6	-	-	Carrier
Vert	2400.000	PK	54.0	27.4	3.2	32.0	52.6	74.6	22.0	

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

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber	
Report No.	10792621H	
Date	May 19, 2015	May 20, 2015
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 51 % RH
Engineer	Keisuke Kawamura (1-26.5GHz)	Tsubasa Takayama (Below 1GHz)
Mode	Tx DH5 2441 MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	215.995	QP	37.4	16.7	9.2	32.1	31.2	43.5	12.3	
Hori	227.999	QP	35.4	16.9	9.3	32.1	29.5	46.0	16.5	
Hori	288.010	QP	31.8	19.2	9.8	32.0	28.8	46.0	17.2	
Hori	360.005	QP	41.0	16.5	10.4	32.0	35.9	46.0	10.1	
Hori	372.005	QP	36.4	16.8	10.4	32.0	31.6	46.0	14.4	
Hori	480.007	QP	26.6	18.1	11.1	32.1	23.7	46.0	22.3	
Hori	1230.007	PK	48.3	24.8	2.3	34.0	41.4	73.9	32.5	
Hori	4882.000	PK	41.2	31.8	4.4	31.3	46.1	73.9	27.8	Floor Noise
Hori	7323.000	PK	42.6	37.0	5.6	32.0	53.2	73.9	20.7	Floor Noise
Hori	9764.000	PK	42.8	38.9	6.5	32.5	55.7	73.9	18.2	Floor Noise
Hori	1230.007	AV	43.1	24.8	2.3	34.0	36.2	53.9	17.7	
Hori	4882.000	AV	29.0	31.8	4.4	31.3	33.9	53.9	20.0	Floor Noise
Hori	7323.000	AV	31.1	37.0	5.6	32.0	41.7	73.9	32.2	Floor Noise
Hori	9764.000	AV	29.8	38.9	6.5	32.5	42.7	53.9	11.2	Floor Noise
Vert	216.018	QP	35.2	16.7	9.2	32.1	29.0	46.0	17.0	
Vert	227.999	QP	32.1	16.9	9.3	32.1	26.2	46.0	19.8	
Vert	288.026	QP	31.5	19.2	9.8	32.0	28.5	46.0	17.5	
Vert	360.003	QP	34.0	16.5	10.4	32.0	28.9	46.0	17.1	
Vert	372.005	QP	30.2	16.8	10.4	32.0	25.4	46.0	20.6	
Vert	480.005	QP	26.0	18.1	11.1	32.1	23.1	46.0	22.9	
Vert	1230.030	PK	46.7	24.8	2.3	34.0	39.8	73.9	34.1	
Vert	4882.000	PK	41.0	31.8	4.4	31.3	45.9	73.9	28.0	Floor Noise
Vert	7323.000	PK	43.0	37.0	5.6	32.0	53.6	73.9	20.3	Floor Noise
Vert	9764.000	PK	42.3	38.9	6.5	32.5	55.2	73.9	18.7	Floor Noise
Vert	1230.030	AV	42.1	24.8	2.3	34.0	35.2	53.9	18.7	
Vert	4882.000	AV	29.1	31.8	4.4	31.3	34.0	53.9	19.9	Floor Noise
Vert	7323.000	AV	29.9	37.0	5.6	32.0	40.5	53.9	13.4	Floor Noise
Vert	9764.000	AV	30.6	38.9	6.5	32.5	43.5	53.9	10.4	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-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).
Distance factor: 10 GHz - 26.5 GHz 20log (3.0 m / 1.0 m) = 9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber	
Report No.	10792621H	
Date	May 19, 2015	May 20, 2015
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 51 % RH
Engineer	Keisuke Kawamura (1-26.5GHz)	Tsubasa Takayama (Below 1GHz)
Mode	Tx DH5 2480 MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	215.995	QP	37.6	16.7	9.2	32.1	31.4	43.5	12.1	
Hori	227.999	QP	35.1	16.9	9.3	32.1	29.2	46.0	16.8	
Hori	288.010	QP	32.0	19.2	9.8	32.0	29.0	46.0	17.0	
Hori	360.005	QP	41.0	16.5	10.4	32.0	35.9	46.0	10.1	
Hori	372.005	QP	36.4	16.8	10.4	32.0	31.6	46.0	14.4	
Hori	480.007	QP	26.6	18.1	11.1	32.1	23.7	46.0	22.3	
Hori	1230.023	PK	48.1	24.8	2.3	34.0	41.2	73.9	32.7	
Hori	2483.500	PK	65.2	27.6	3.2	32.0	64.0	73.9	9.9	
Hori	4960.000	PK	40.9	32.0	4.4	31.2	46.1	73.9	27.8	Floor Noise
Hori	7440.000	PK	42.3	37.2	5.7	32.1	53.1	73.9	20.8	Floor Noise
Hori	9920.000	PK	41.9	39.0	6.5	32.5	54.9	73.9	19.0	Floor Noise
Hori	1230.023	AV	42.5	24.8	2.3	34.0	35.6	53.9	18.3	
Hori	2483.500	AV	35.2	27.6	3.2	32.0	34.0	53.9	19.9	
Hori	4960.000	AV	28.9	32.0	4.4	31.2	34.1	53.9	19.8	Floor Noise
Hori	7440.000	AV	30.8	37.2	5.7	32.1	41.6	53.9	12.3	Floor Noise
Hori	9920.000	AV	30.2	39.0	6.5	32.5	43.2	53.9	10.7	Floor Noise
Vert	216.018	QP	35.2	16.7	9.2	32.1	29.0	46.0	17.0	
Vert	227.999	QP	32.0	16.9	9.3	32.1	26.1	46.0	19.9	
Vert	288.026	QP	31.4	19.2	9.8	32.0	28.4	46.0	17.6	
Vert	360.003	QP	34.2	16.5	10.4	32.0	29.1	46.0	16.9	
Vert	372.005	QP	30.0	16.8	10.4	32.0	25.2	46.0	20.8	
Vert	480.005	QP	26.3	18.1	11.1	32.1	23.4	46.0	22.6	
Vert	1230.005	PK	47.8	24.8	2.3	34.0	40.9	73.9	33.0	
Vert	2483.500	PK	65.9	27.6	3.2	32.0	64.7	73.9	9.2	
Vert	4960.000	PK	41.6	32.0	4.4	31.2	46.8	73.9	27.1	Floor Noise
Vert	7440.000	PK	42.5	37.2	5.7	32.1	53.3	73.9	20.6	Floor Noise
Vert	9920.000	PK	42.8	39.0	6.5	32.5	55.8	73.9	18.1	Floor Noise
Vert	1230.005	AV	42.3	24.8	2.3	34.0	35.4	53.9	18.5	
Vert	2483.500	AV	35.9	27.6	3.2	32.0	34.7	53.9	19.2	
Vert	4960.000	AV	29.2	32.0	4.4	31.2	34.4	53.9	19.5	Floor Noise
Vert	7440.000	AV	29.9	37.2	5.7	32.1	40.7	53.9	13.2	Floor Noise
Vert	9920.000	AV	30.0	39.0	6.5	32.5	43.0	53.9	10.9	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-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).

Distance factor: 10 GHz - 26.5 GHz 20log (3.0 m / 1. 0 m) = 9.5 dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber	
Report No.	10792621H	
Date	May 19, 2015	May 20, 2015
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 51 % RH
Engineer	Keisuke Kawamura (1-26.5GHz)	Tsubasa Takayama (Below 1GHz)
Mode	Tx 3DH5 2402 MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	215.994	QP	36.0	16.7	9.2	32.1	29.8	43.5	13.7	
Hori	227.998	QP	35.1	16.9	9.3	32.1	29.2	46.0	16.8	
Hori	299.982	QP	34.2	19.7	9.8	32.0	31.7	46.0	14.3	
Hori	360.005	QP	41.0	16.5	10.4	32.0	35.9	46.0	10.1	
Hori	372.005	QP	36.0	16.8	10.4	32.0	31.2	46.0	14.8	
Hori	449.272	QP	32.4	17.9	10.9	32.1	29.1	46.0	16.9	
Hori	1229.940	PK	48.4	24.8	2.3	34.0	41.5	73.9	32.4	
Hori	2390.000	PK	42.5	27.4	3.2	32.0	41.1	73.9	32.8	
Hori	4804.000	PK	42.0	31.5	4.3	31.3	46.5	73.9	27.4	Floor Noise
Hori	7206.000	PK	43.7	36.8	5.6	32.0	54.1	73.9	19.8	Floor Noise
Hori	9608.000	PK	42.3	38.8	6.4	32.4	55.1	73.9	18.8	Floor Noise
Hori	1229.940	AV	42.8	24.8	2.3	34.0	35.9	53.9	18.0	
Hori	2390.000	AV	29.9	27.4	3.2	32.0	28.5	53.9	25.4	
Hori	4804.000	AV	29.1	31.5	4.3	31.3	33.6	53.9	20.3	Floor Noise
Hori	7206.000	AV	31.1	36.8	5.6	32.0	41.5	53.9	12.4	Floor Noise
Hori	9608.000	AV	30.2	38.8	6.4	32.4	43.0	53.9	10.9	Floor Noise
Vert	216.020	QP	36.0	16.7	9.2	32.1	29.8	46.0	16.2	
Vert	228.012	QP	34.5	16.9	9.3	32.1	28.6	46.0	17.4	
Vert	299.950	QP	32.1	19.7	9.8	32.0	29.6	46.0	16.4	
Vert	360.003	QP	34.0	16.5	10.4	32.0	28.9	46.0	17.1	
Vert	372.005	QP	31.0	16.8	10.4	32.0	26.2	46.0	19.8	
Vert	480.005	QP	26.5	18.1	11.1	32.1	23.6	46.0	22.4	
Vert	1229.991	PK	48.0	24.8	2.3	34.0	41.1	73.9	32.8	
Vert	2390.000	PK	42.4	27.4	3.2	32.0	41.0	73.9	32.9	
Vert	4804.000	PK	41.1	31.5	4.3	31.3	45.6	73.9	28.3	Floor Noise
Vert	7206.000	PK	43.4	36.8	5.6	32.0	53.8	73.9	20.1	Floor Noise
Vert	9608.000	PK	42.3	38.8	6.4	32.4	55.1	73.9	18.8	Floor Noise
Vert	1229.991	AV	42.5	24.8	2.3	34.0	35.6	53.9	18.3	
Vert	2390.000	AV	30.1	27.4	3.2	32.0	28.7	53.9	25.2	
Vert	4804.000	AV	29.2	31.5	4.3	31.3	33.7	53.9	20.2	Floor Noise
Vert	7206.000	AV	31.0	36.8	5.6	32.0	41.4	53.9	12.5	Floor Noise
Vert	9608.000	AV	30.3	38.8	6.4	32.4	43.1	53.9	10.8	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-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).
Distance factor: 10 GHz - 26.5 GHz 20log (3.0 m / 1.0 m) = 9.5dB

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2402.000	PK	96.5	27.4	3.2	32.0	95.1	-	-	Carrier
Hori	2400.000	PK	52.7	27.4	3.2	32.0	51.3	75.1	23.8	
Vert	2402.000	PK	96.6	27.4	3.2	32.0	95.2	-	-	Carrier
Vert	2400.000	PK	54.2	27.4	3.2	32.0	52.8	75.2	22.4	

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

Radiated Spurious Emission

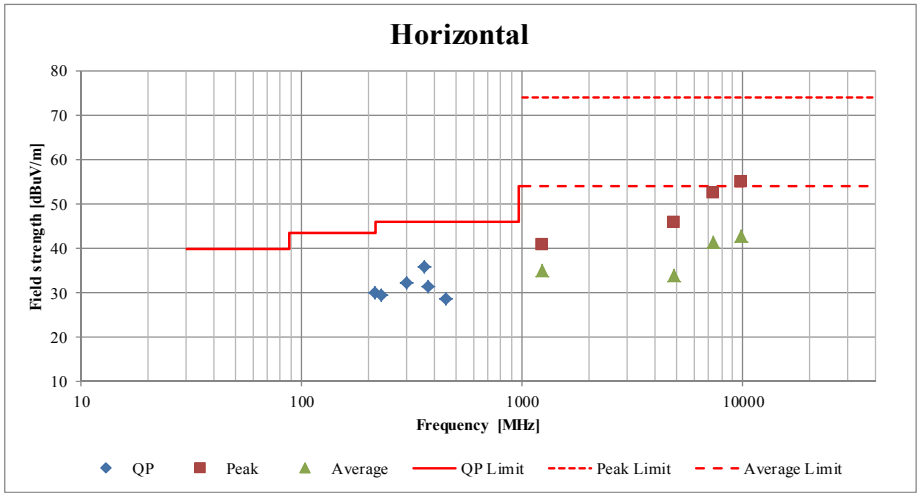
Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber	
Report No.	10792621H	
Date	May 20, 2015	May 20, 2015
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 51 % RH
Engineer	Keisuke Kawamura (1-26.5GHz)	Tsubasa Takayama (Below 1GHz)
Mode	Tx 3DH5 2441 MHz	

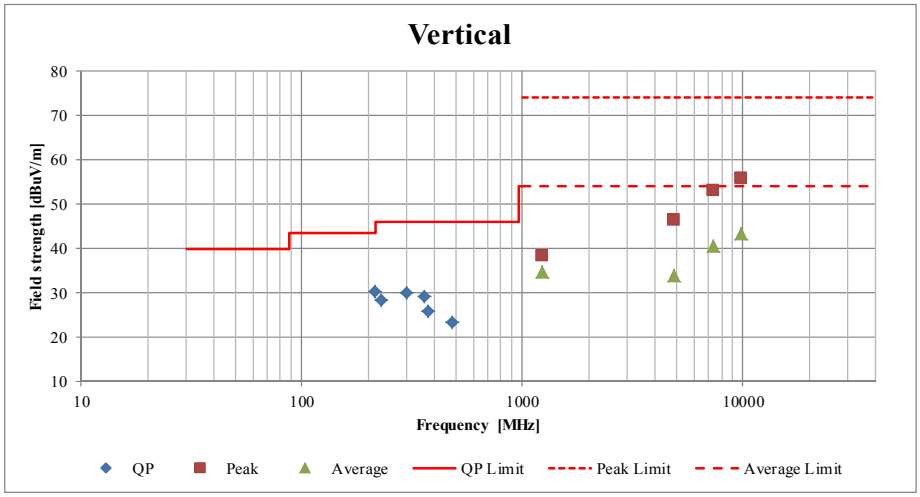
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	215.994	QP	36.2	16.7	9.2	32.1	30.0	43.5	13.5	
Hori	227.998	QP	35.5	16.9	9.3	32.1	29.6	46.0	16.4	
Hori	299.982	QP	34.7	19.7	9.8	32.0	32.2	46.0	13.8	
Hori	360.005	QP	41.0	16.5	10.4	32.0	35.9	46.0	10.1	
Hori	372.005	QP	36.2	16.8	10.4	32.0	31.4	46.0	14.6	
Hori	449.272	QP	31.8	17.9	10.9	32.1	28.5	46.0	17.5	
Hori	1230.007	PK	47.8	24.8	2.3	34.0	40.9	73.9	33.0	
Hori	4882.000	PK	40.8	31.8	4.4	31.3	45.7	73.9	28.2	Floor Noise
Hori	7323.000	PK	41.8	37.0	5.6	32.0	52.4	73.9	21.5	Floor Noise
Hori	9764.000	PK	42.0	38.9	6.5	32.5	54.9	73.9	19.0	Floor Noise
Hori	1230.007	AV	41.8	24.8	2.3	34.0	34.9	53.9	19.0	
Hori	4882.000	AV	29.0	31.8	4.4	31.3	33.9	53.9	20.0	Floor Noise
Hori	7323.000	AV	30.7	37.0	5.6	32.0	41.3	53.9	12.6	Floor Noise
Hori	9764.000	AV	29.8	38.9	6.5	32.5	42.7	53.9	11.2	Floor Noise
Vert	216.020	QP	36.4	16.7	9.2	32.1	30.2	46.0	15.8	
Vert	228.012	QP	34.2	16.9	9.3	32.1	28.3	46.0	17.7	
Vert	299.950	QP	32.5	19.7	9.8	32.0	30.0	46.0	16.1	
Vert	360.003	QP	34.2	16.5	10.4	32.0	29.1	46.0	16.9	
Vert	372.005	QP	30.6	16.8	10.4	32.0	25.8	46.0	20.2	
Vert	480.005	QP	26.3	18.1	11.1	32.1	23.4	46.0	22.6	
Vert	1230.030	PK	45.3	24.8	2.3	34.0	38.4	73.9	35.5	
Vert	4882.000	PK	41.5	31.8	4.4	31.3	46.4	73.9	27.5	Floor Noise
Vert	7323.000	PK	42.5	37.0	5.6	32.0	53.1	73.9	20.8	Floor Noise
Vert	9764.000	PK	43.0	38.9	6.5	32.5	55.9	73.9	18.0	Floor Noise
Vert	1230.030	AV	41.7	24.8	2.3	34.0	34.8	53.9	19.1	
Vert	4882.000	AV	29.1	31.8	4.4	31.3	34.0	53.9	19.9	Floor Noise
Vert	7323.000	AV	29.9	37.0	5.6	32.0	40.5	53.9	13.4	Floor Noise
Vert	9764.000	AV	30.3	38.9	6.5	32.5	43.2	53.9	10.7	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-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).
Distance factor: 10 GHz - 26.5 GHz 20log (3.0 m / 1.0 m) = 9.5dB

Radiated Spurious Emission
(Plot data, Worst case)

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber	
Report No.	10792621H	
Date	May 20, 2015	May 20, 2015
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 51 % RH
Engineer	Keisuke Kawamura (1-26.5GHz)	Tsubasa Takayama (Below 1GHz)
Mode	Tx 3DH5 2441 MHz	





Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Semi Anechoic Chamber	
Report No.	10792621H	
Date	May 20, 2015	May 20, 2015
Temperature / Humidity	23 deg. C / 58 % RH	23 deg. C / 51 % RH
Engineer	Keisuke Kawamura (1-26.5GHz)	Tsubasa Takayama (Below 1GHz)
Mode	Tx 3DH5 2480 MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	215.994	QP	36.3	16.7	9.2	32.1	30.1	43.5	13.4	
Hori	227.998	QP	35.5	16.9	9.3	32.1	29.6	46.0	16.4	
Hori	288.010	QP	32.0	19.2	9.8	32.0	29.0	46.0	17.0	
Hori	360.005	QP	40.8	16.5	10.4	32.0	35.7	46.0	10.3	
Hori	372.005	QP	36.2	16.8	10.4	32.0	31.4	46.0	14.6	
Hori	449.272	QP	31.2	17.9	10.9	32.1	27.9	46.0	18.1	
Hori	1230.018	PK	47.5	24.8	2.3	34.0	40.6	73.9	33.3	
Hori	2483.500	PK	66.1	27.6	3.2	32.0	64.9	73.9	9.0	
Hori	4960.000	PK	41.7	32.0	4.4	31.2	46.9	73.9	27.0	Floor Noise
Hori	7440.000	PK	42.5	37.2	5.7	32.1	53.3	73.9	20.6	Floor Noise
Hori	9920.000	PK	42.0	39.0	6.5	32.5	55.0	73.9	18.9	Floor Noise
Hori	1230.018	AV	41.8	24.8	2.3	34.0	34.9	53.9	19.0	
Hori	2483.500	AV	36.7	27.6	3.2	32.0	35.5	53.9	18.4	
Hori	4960.000	AV	29.7	32.0	4.4	31.2	34.9	53.9	19.0	Floor Noise
Hori	7440.000	AV	30.4	37.2	5.7	32.1	41.2	53.9	12.7	Floor Noise
Hori	9920.000	AV	30.3	39.0	6.5	32.5	43.3	53.9	10.6	Floor Noise
Vert	216.020	QP	36.7	16.7	9.2	32.1	30.5	46.0	15.5	
Vert	228.000	QP	34.2	16.9	9.3	32.1	28.3	46.0	17.7	
Vert	288.031	QP	32.3	19.2	9.8	32.0	29.3	46.0	16.7	
Vert	360.003	QP	34.2	16.5	10.4	32.0	29.1	46.0	16.9	
Vert	372.005	QP	30.2	16.8	10.4	32.0	25.4	46.0	20.6	
Vert	480.005	QP	26.3	18.1	11.1	32.1	23.4	46.0	22.6	
Vert	1229.998	PK	47.3	24.8	2.3	34.0	40.4	73.9	33.5	
Vert	2483.500	PK	66.0	27.6	3.2	32.0	64.8	73.9	9.1	
Vert	4960.000	PK	41.5	32.0	4.4	31.2	46.7	73.9	27.2	Floor Noise
Vert	7440.000	PK	42.5	37.2	5.7	32.1	53.3	73.9	20.6	Floor Noise
Vert	9920.000	PK	41.9	39.0	6.5	32.5	54.9	73.9	19.0	Floor Noise
Vert	1229.998	AV	40.4	24.8	2.3	34.0	33.5	53.9	20.4	
Vert	2483.500	AV	36.5	27.6	3.2	32.0	35.3	53.9	18.6	
Vert	4960.000	AV	28.9	32.0	4.4	31.2	34.1	53.9	19.8	Floor Noise
Vert	7440.000	AV	30.0	37.2	5.7	32.1	40.8	53.9	13.1	Floor Noise
Vert	9920.000	AV	29.9	39.0	6.5	32.5	42.9	53.9	11.0	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-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).

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