RADIO TEST REPORT

Test Report No. : 10221964H-A

Applicant	:	**FUJITSU TEN LIMITED**
Type of Equipment	:	**Car Navigation**
Model No.	:	**FT0061A**
FCC ID	:	**BABFT0061A**
Test regulation	:	**FCC Part 15 Subpart C: 2014**
Test Result	:	**Complied**

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

Date of test: March 10 to 15, 2014

Representative test engineer:
Yutaka Yoshida
Engineer
Consumer Technology Division

Approved by:
Takahiro Hatakeda
Leader
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.: 10221964H-A

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10221964H-A	April 10, 2014	-	-

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

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SECTION 1: Customer information

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

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

2.1 Identification of E.U.T.

Type of Equipment	:	Car Navigation
Model No.	:	FT0061A
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC 12.0V
Receipt Date of Sample	:	March 6, 2014
Country of Mass-production	:	INDIA
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab

2.2 Product Description

General Specification

Clock frequency(ies) in the system	:	792MHz

Radio Specification

[Bluetooth (Ver. 3.0 with EDR function)]

Radio Type	:	Transceiver
Frequency of Operation	:	2402-2480MHz
Modulation	:	FHSS
Power Supply (radio part input)	:	DC 3.3V
Antenna type	:	Inverted F Antenna
Antenna Gain	:	3.69dBi Peak

[GPS]

Radio Type	:	Receiver
Frequency of Operation	:	1575.42MHz

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part 15 Subpart C: 2014, final revised on March 6, 2014 and effective April 7, 2014
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

* The revision on March 6, 2014 does not affect the test specification applied to the EUT.
* The EUT complies with FCC Part 15 Subpart B: 2014, final revised on March 6, 2014 and effective April 7, 2014.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	**FCC:** ANSI C63.4:2003 7. AC powerline conducted emission measurements **IC:** RSS-Gen 7.2.4	**FCC:** Section 15.207 **IC:** RSS-Gen 7.2.4	N/A	N/A *1)	-
Carrier Frequency Separation	**FCC:** FCC Public Notice DA 00-705 **IC:** -	**FCC:** Section15.247(a)(1) **IC:** RSS-210 A8.1 (b)	See data.	Complied	Conducted
20dB Bandwidth	**FCC:** FCC Public Notice DA 00-705 **IC:** -	**FCC:** Section15.247(a)(1) **IC:** RSS-210 A8.1 (a)		Complied	Conducted
Number of Hopping Frequency	**FCC:** FCC Public Notice DA 00-705 **IC:** -	**FCC:** Section15.247(a)(1)(iii) **IC:** RSS-210 A8.1 (d)		Complied	Conducted
Dwell time	**FCC:** FCC Public Notice DA 00-705 **IC:** -	**FCC:** Section15.247(a)(1)(iii) **IC:** RSS-210 A8.1 (d)		Complied	Conducted
Maximum Peak Output Power	**FCC:** FCC Public Notice DA 00-705 **IC:** RSS-Gen 4.8	**FCC:** Section15.247(a)(b)(1) **IC:** RSS-210 A8.4 (2)		Complied	Conducted
Spurious Emission & Band Edge Compliance	**FCC:** FCC Public Notice DA 00-705 **IC:** RSS-Gen 4.9	**FCC:** Section15.247(d) **IC:** RSS-210 A8.5 RSS-Gen 6 and 7.2.3	8.1dB 3145.603MHz, AV, Vert.	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: 2003 is also referred.

FCC 15.31 (e)
The EUT is a battery-operated device and test was performed with the full-charged battery. Therefore, this EUT complies with the requirement.

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

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Bandwidth	**IC:** RSS-Gen 4.6.1	**IC:** RSS-Gen 4.6.1	N/A	-	Conducted

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

3.4 Uncertainty

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

Test room (semi-anechoic chamber)	**Radiated emission (10m*)(±dB)**		
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz
No.1	4.0dB	5.1dB	4.7dB
No.2	-	-	-
No.3	-	-	-
No.4	-	-	-

*10m = Measurement distance

Test room (semi-anechoic chamber)	**Radiated emission**						
	(3m*)(±dB)				**(1m*)(±dB)**		**(0.5m*)(±dB)**
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz	1GHz -10GHz	10GHz -18GHz	18GHz -26.5GHz	26.5GHz -40GHz
No.1	4.0dB	5.1dB	5.0dB	5.1dB	6.0dB	4.9dB	4.3dB
No.2	3.9dB	5.2dB	5.0dB	4.9dB	5.9dB	4.7dB	4.2dB
No.3	4.3dB	5.1dB	5.2dB	5.2dB	6.0dB	4.8dB	4.2dB
No.4	4.6dB	5.2dB	5.0dB	5.2dB	6.0dB	5.7dB	4.2dB

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

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

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

Radiated emission test(3m)
The data listed in this test report has enough margin, more than the site margin.

3.5 Test Location

UL Japan, Inc. Ise HQ 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

	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	4.0 x 4.5 m	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	-	8.0 x 4.6 x 2.8m	2.4 x 2.4m	-
No.11 measurement room	-	-	6.2 x 4.7 x 3.0m	4.8 x 4.6m	-

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

3.6 Data of EMI, Test instruments, and Test set up

Refer to APPENDIX.

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

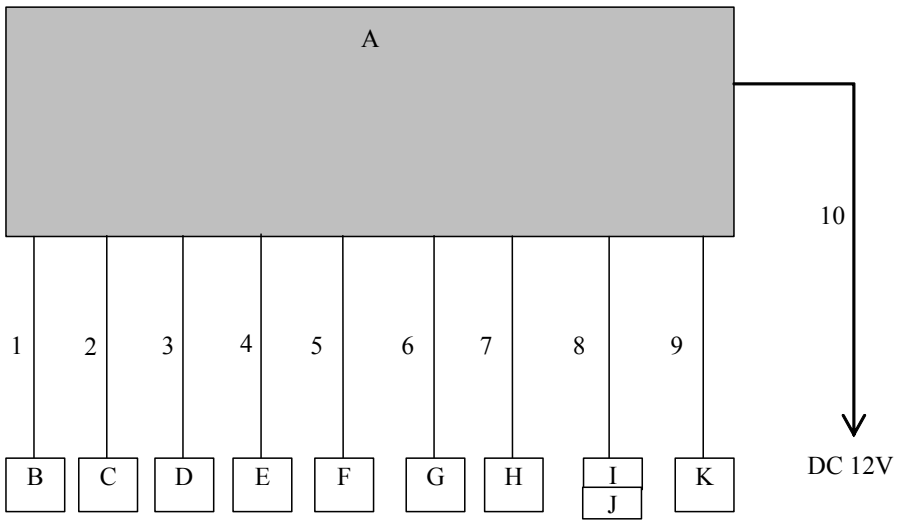
4.1 Operating Mode(s)

Bluetooth (BT): Transmitting (Tx), Payload: PRBS9
*EUT does not have Inquiry mode.

Details of Operating Mode(s)

Test Item	Mode	Tested frequency
20dB Bandwidth Spurious Emission (Conducted/Radiated)	Tx (Hopping off) DH5, 3DH5	2402MHz 2441MHz 2480MHz
Maximum Peak Output Power	Tx (Hopping off) DH5, 2DH5, 3DH5	2402MHz 2441MHz 2480MHz
Carrier Frequency Separation	Tx (Hopping on) DH5, 3DH5	2402MHz 2441MHz 2480MHz
Number of Hopping Frequency	Tx (Hopping on) DH5, 3DH5	-
Dwell time	Tx (Hopping on), -DH1, DH3, DH5 -3DH1, 3DH3, 3DH5	-
Band Edge Compliance (Conducted)	Tx DH5, 3DH5 -Hopping on -Hopping off	2402MHz 2480MHz
99% Occupied Bandwidth	Tx DH5, 3DH5 -Hopping on -Hopping off	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) *We removed 2DH mode (2 Mb/s EDR: pi/4DQPSK) except 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: Same as production model Software: Diag. mode(BT Certification mode) *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	Car Navigation	FT0061A	100028305-0002 *1) 100028106-0001 *2)	FUJITSU TEN	EUT
B	GPS Antenna	86860-22090	-	Aisin	-
C	Microphone	86730-20030	-	KOJIMA INDUSTRIES	-
D	Microphone SW	86730-20030	-	KOJIMA INDUSTRIES	-
E	Rear Camera	86790-20070	2000125A	FUJITSU TEN	-
F	Speaker	E505SSP	-	FUJITSU TEN	-
G	Speaker	E505SSP	-	FUJITSU TEN	-
H	Steering SW	84250-28150	811-4A70	TOKAI RIKA	-
I	USB connector Box	86190-48030	90867	Panasonic	-
J	USB memory	8GB-3.0	-	Silicon Power	-
K	FM Terminal	86300-72020	-	FUJITSU TEN	-

*1) Used for Spurious Emission (Radiated) test only
*2) Used for all tests except for Spurious Emission (Radiated) test

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Antenna Cable	1.4	Shielded	Shielded	-
2	Signal Cable	4.9	Unshielded	Unshielded	-
3	Signal Cable	4.9	Unshielded	Unshielded	-
4	Signal Cable	2.5	Unshielded	Unshielded	-
5	Signal Cable	2.5	Unshielded	Unshielded	-
6	Signal Cable	2.5	Unshielded	Unshielded	-
7	Signal Cable	2.5	Unshielded	Unshielded	-
8	USB Cable	2.2	Shielded	Shielded	-
9	Antenna Cable	0.4	Shielded	Shielded	-
10	DC Cable	4.0	Unshielded	Unshielded	-

SECTION 5: Radiated Spurious Emission

Test Procedure
EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, raised 0.8m 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 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.
The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Test Antennas are used as below;

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

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

20dBc was applied to the frequency over the limit of FCC 15.209 / Table 5 of RSS-Gen 7.2.5 (IC) and outside the restricted band of FCC15.205 / Table 3 of RSS-Gen 7.2.2 (IC).

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

*1) Although 00-705 accepts VBW=10Hz for AV measurements, it was confirmed that superfluous smoothing was not performed."
*2) Distance Factor: 20 x log (3.0m/1.0m) = 9.5dB

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 : 30M-25GHz
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	3MHz	30kHz	100kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth	Enough width to display 20dB Bandwidth	1 to 3% of Span	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	3MHz	30kHz	100kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Number of Hopping Frequency	30MHz	300kHz	1MHz	Auto	Peak	Max Hold	Spectrum Analyzer
Dwell Time	Zero Span	100kHz, 1MHz	300kHz, 3MHz	As necessary capture the entire dwell time per hopping channel	Peak	Max Hold	Spectrum Analyzer
Conducted Spurious Emission *2)	9kHz to 150kHz	200Hz	620Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150kHz to 30MHz	9.1kHz	27kHz				
	30MHz to 25GHz (Less or equal to 5GHz)	100kHz	300kHz				
Conducted Spurious Emission Band Edge compliance	10MHz	100kHz	300kHz	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 not detected as shown in the chart.(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=9.1kHz)
*3) Reference data

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

Test data : APPENDIX
Test result : Pass

APPENDIX 1: Data of EMI test

20dB Bandwidth and Carrier Frequency Separation

Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida
Mode	Tx (Hopping on) DH5/3DH5

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.959	1.000	>= 0.639
DH5	2441.0	0.961	1.000	>= 0.641
DH5	2480.0	0.980	1.000	>= 0.653
3DH5	2402.0	1.286	1.000	>= 0.857
3DH5	2441.0	1.284	1.000	>= 0.856
3DH5	2480.0	1.286	1.000	>= 0.857

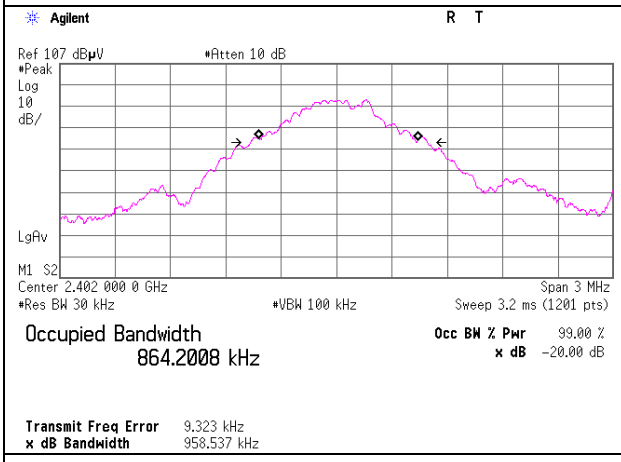
Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).
No limit applies to 20dB Bandwidth.

20dB Bandwidth and Carrier Frequency Separation

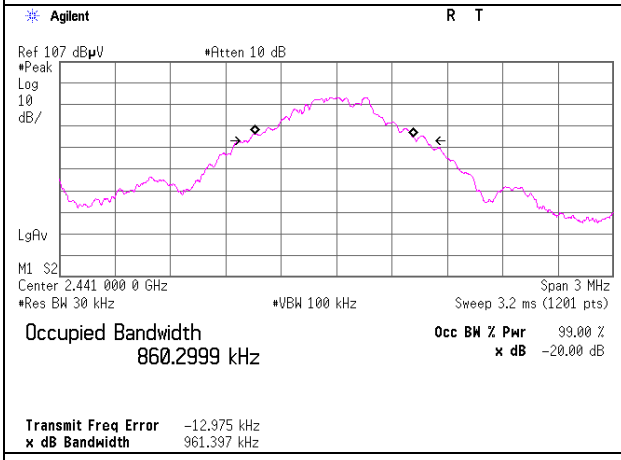
Tx DH5

20dB Bandwidth

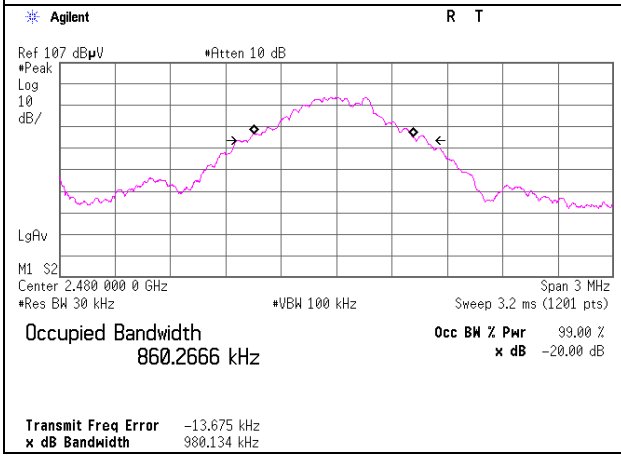
2402MHz



2441MHz

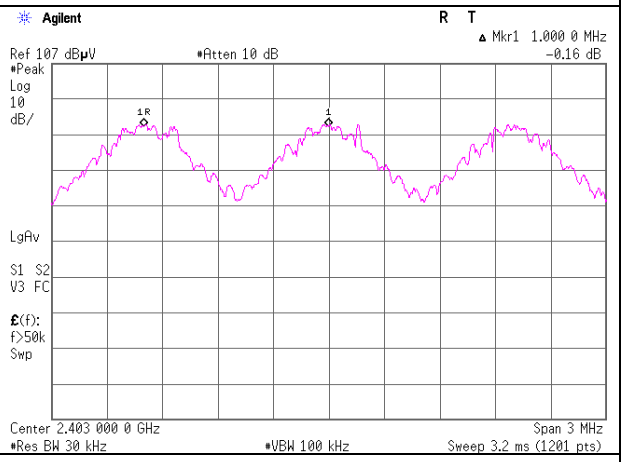


2480MHz



Carrier Frequency Separation

2402MHz



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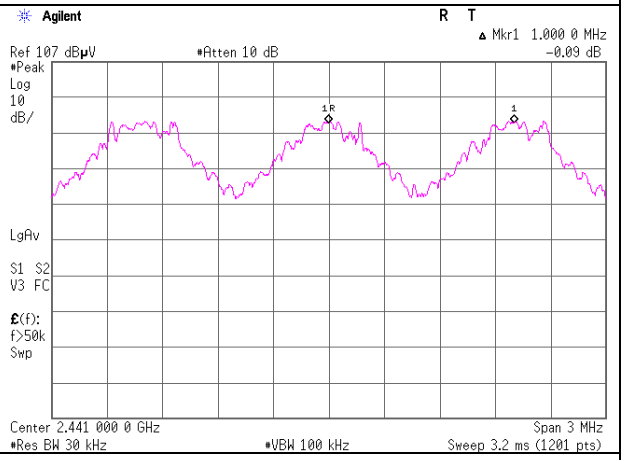
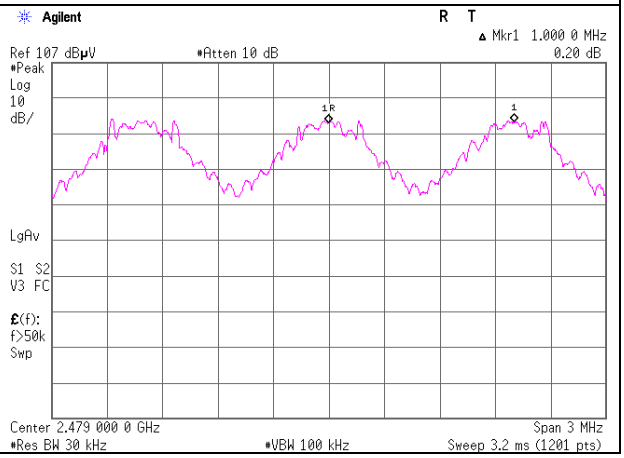


2480MHz

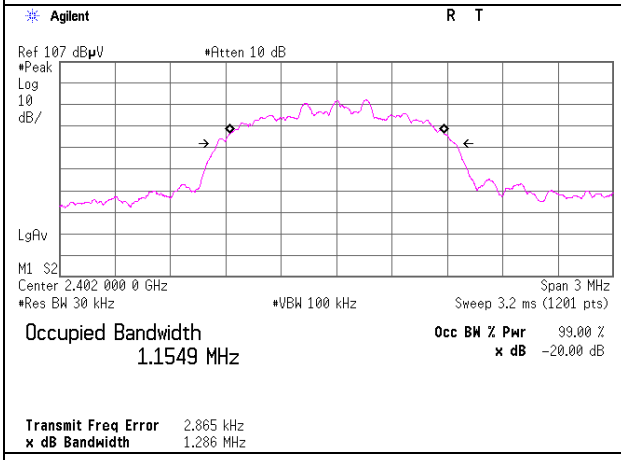


20dB Bandwidth and Carrier Frequency Separation

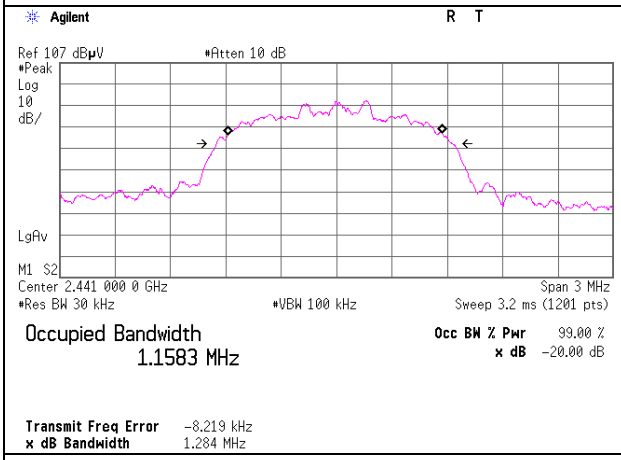
Tx 3DH5

20dB Bandwidth

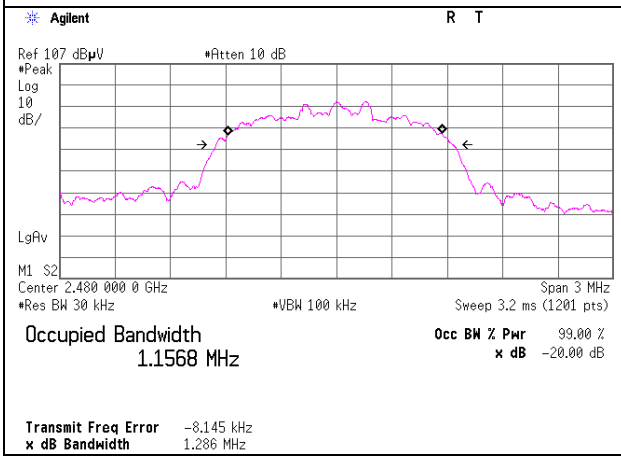
2402MHz



2441MHz

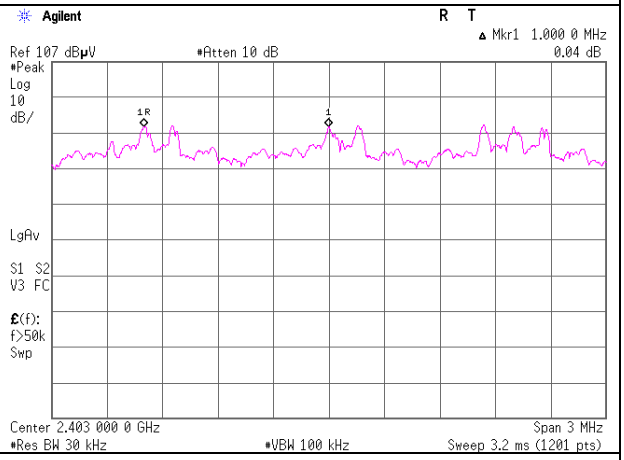


2480MHz

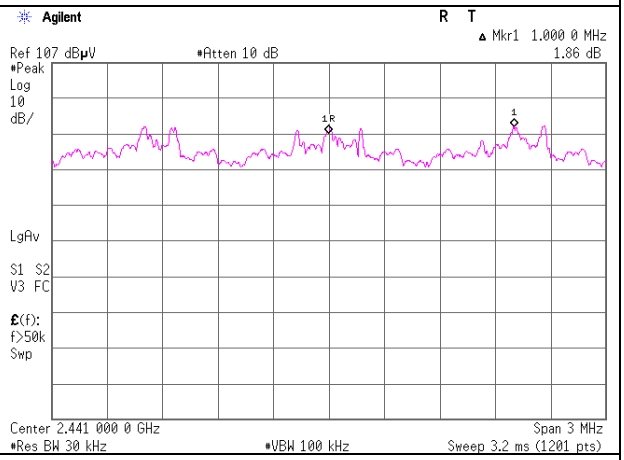


Carrier Frequency Separation

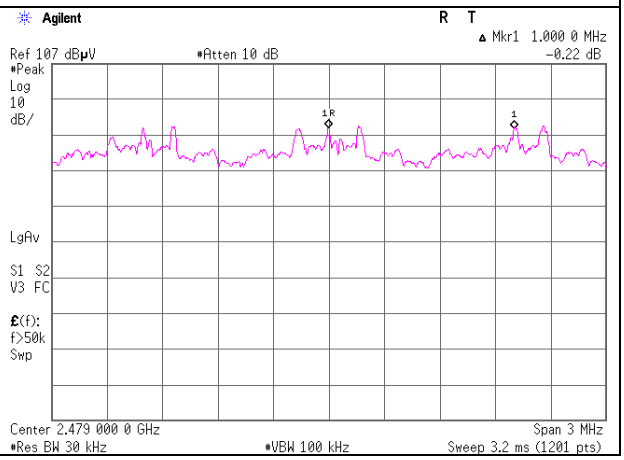
2402MHz



2441MHz



2480MHz



Number of Hopping Frequency

Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida
Mode	Tx (Hopping on) DH5/3DH5

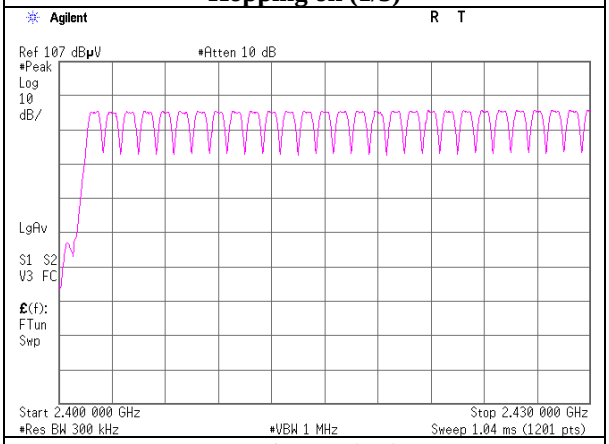
Mode	Number of channel [times]	Limit [times]
DH5	79	>= 15
3DH5	79	>= 15

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

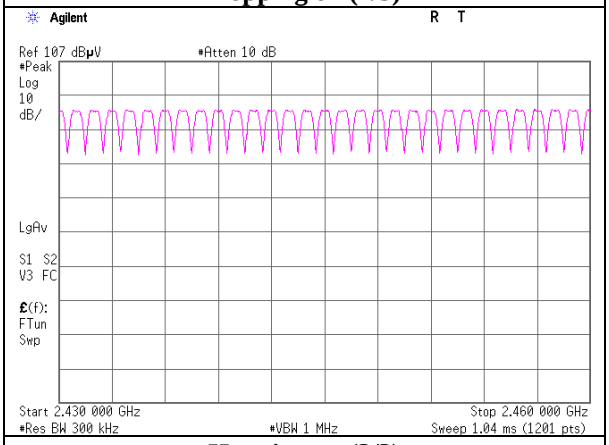
Number of Hopping Frequency

Tx DH5

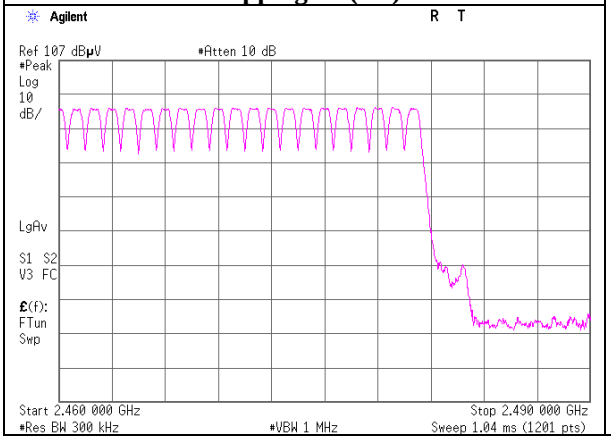
Hopping on (1/3)



Hopping on (2/3)



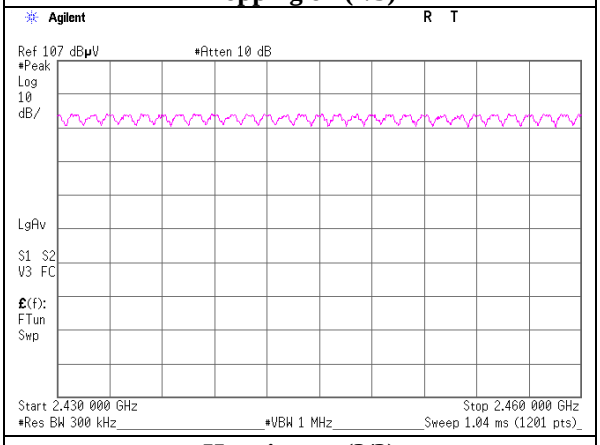
Hopping on (3/3)



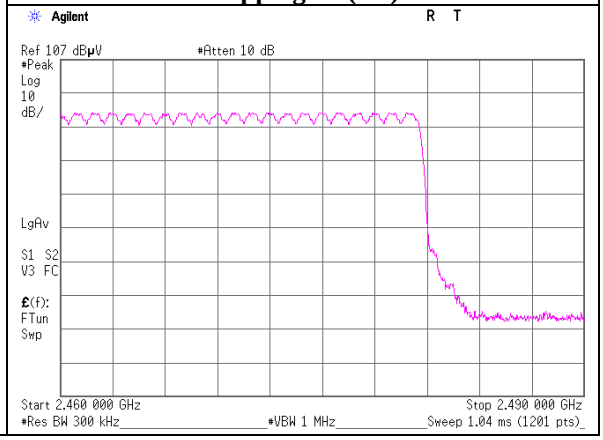
Tx 3DH5

Hopping on (1/3)

Hopping on (2/3)



Hopping on (3/3)



Dwell time

Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida
Mode	Tx (Hopping on) DH5/3DH5

Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	50.8 times / 5 sec. x 31.6 sec. = 322 times	0.413	133	400
DH3	25.4 times / 5 sec. x 31.6 sec. = 161 times	1.674	270	400
DH5	17.0 times / 5 sec. x 31.6 sec. = 108 times	2.933	317	400
3DH1	50.8 times / 5 sec. x 31.6 sec. = 322 times	0.428	138	400
3DH3	25.4 times / 5 sec. x 31.6 sec. = 161 times	1.682	271	400
3DH5	17.0 times / 5 sec. x 31.6 sec. = 108 times	2.933	317	400

Sample Calculation
Result = Number of transmission x Length of transmition time

*Average data of 5 tests.(except Inquiry)

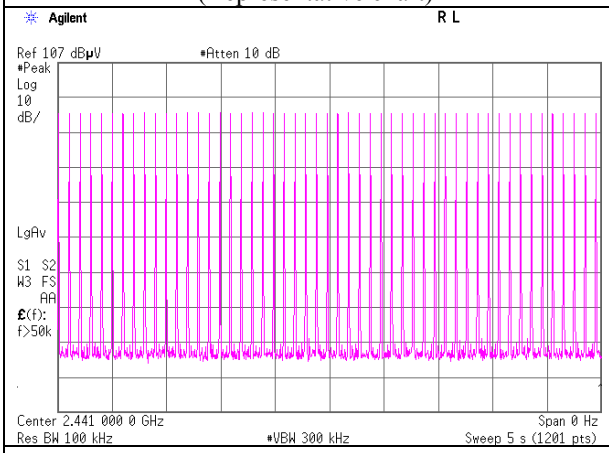
Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	51	51	50	51	51	50.8
DH3	26	25	25	26	25	25.4
DH5	17	17	17	17	17	17
3DH1	51	50	51	51	51	50.8
3DH3	25	26	25	25	26	25.4
3DH5	17	17	17	17	17	17

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

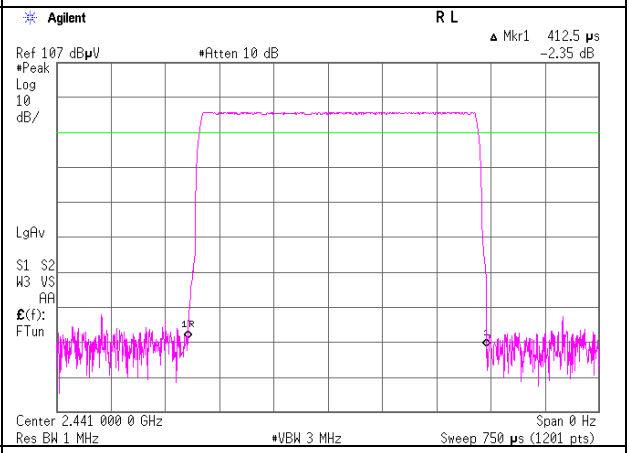
This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in N x 0.4s, where N is the number of channels being used in the hopping sequence ($20 \leq N \leq 79$), is always less than 0.4s regardless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

Dwell time

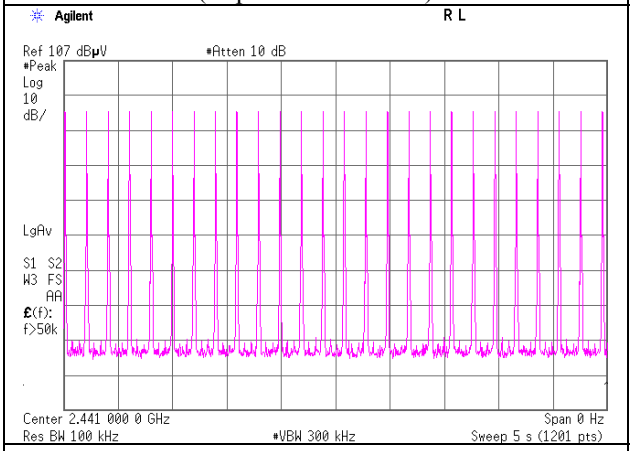
DH1 (1/2)
(Representative chart)



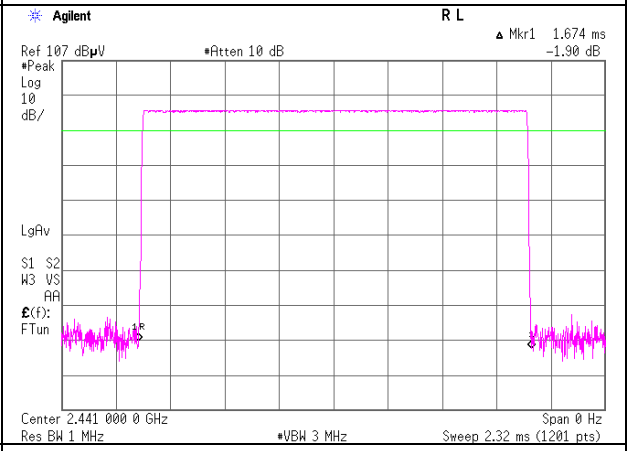
DH1 (2/2)



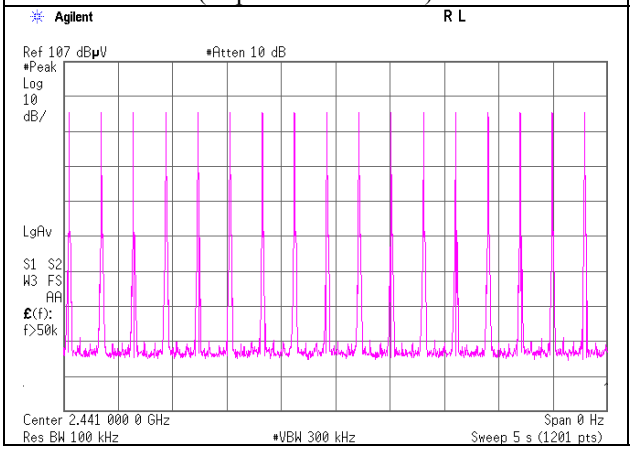
DH3 (1/2)
(Representative chart)



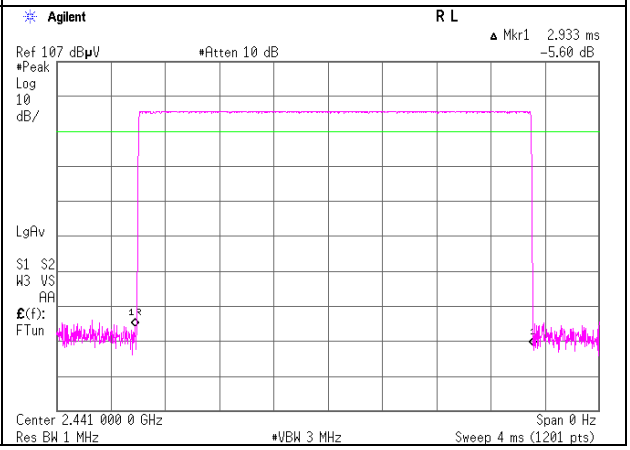
DH3 (2/2)



DH5 (1/2)
(Representative chart)

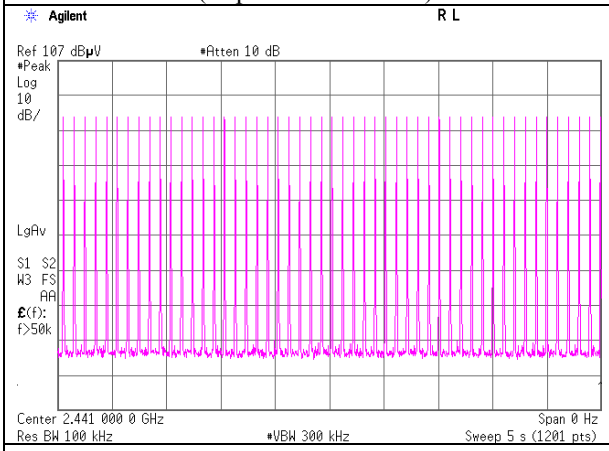


DH5 (2/2)

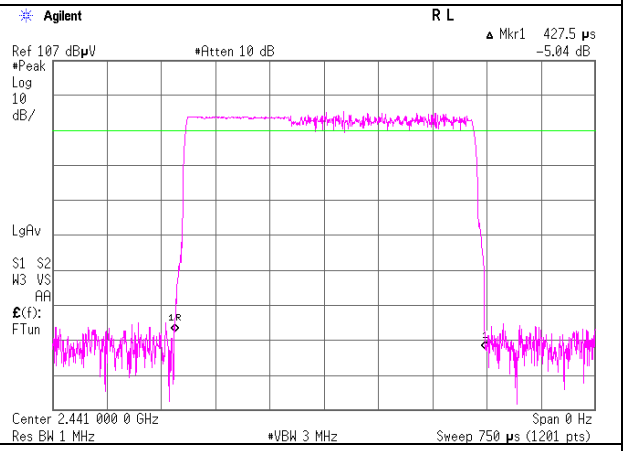


Dwell time

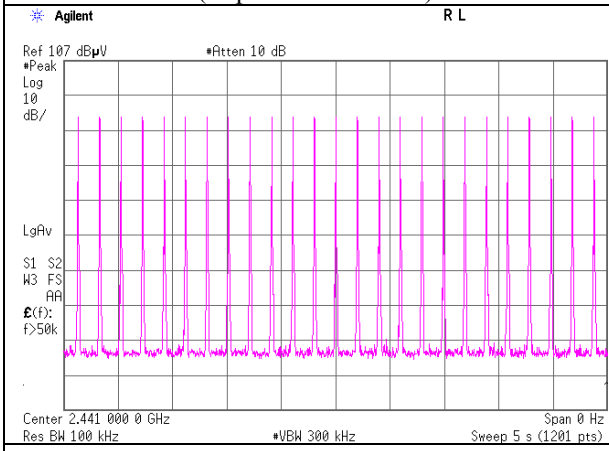
3DH1 (1/2)
(Representative chart)



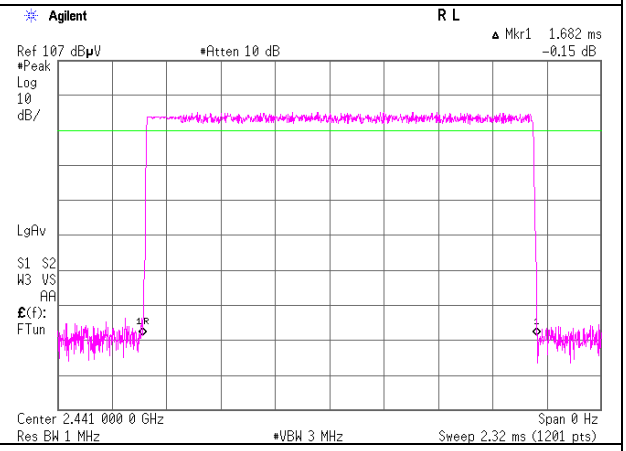
3DH1 (2/2)



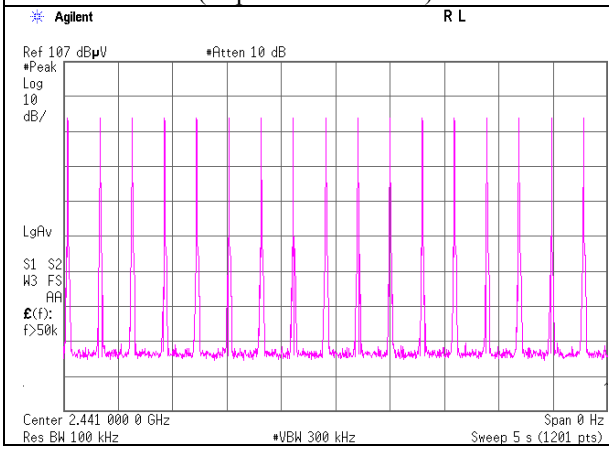
3DH3 (1/2)
(Representative chart)



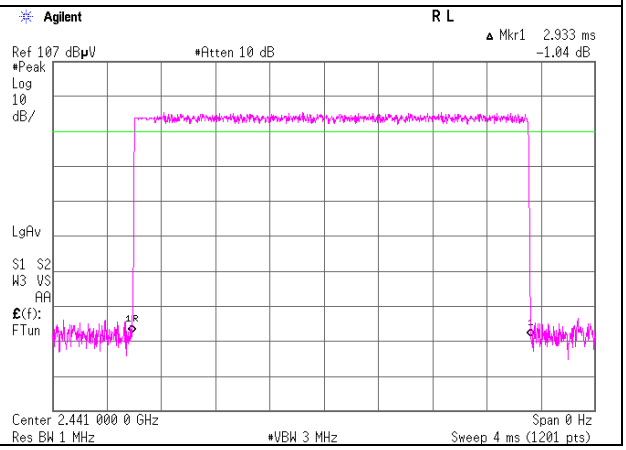
3DH3 (2/2)



3DH5 (1/2)
(Representative chart)



3DH5 (2/2)



Maximum Peak Output Power

Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida
Mode	Tx (Hopping off) DH5/2DH5/3DH5

Mode	Freq.	Reading	Cable Loss	Atten.	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
DH5	2402.0	-14.36	1.98	10.08	-2.30	0.59	20.96	125	23.26
DH5	2441.0	-13.93	1.99	10.08	-1.86	0.65	20.96	125	22.82
DH5	2480.0	-13.51	2.00	10.08	-1.43	0.72	20.96	125	22.39
2DH5	2402.0	-14.73	1.98	10.08	-2.67	0.54	20.96	125	23.63
2DH5	2441.0	-14.52	1.99	10.08	-2.45	0.57	20.96	125	23.41
2DH5	2480.0	-14.16	2.00	10.08	-2.08	0.62	20.96	125	23.04
3DH5	2402.0	-14.34	1.98	10.08	-2.28	0.59	20.96	125	23.24
3DH5	2441.0	-14.10	1.99	10.08	-2.03	0.63	20.96	125	22.99
3DH5	2480.0	-13.91	2.00	10.08	-1.83	0.66	20.96	125	22.79

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

Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not influence on the output power and bandwidth of the EUT.
As this device had AFH mode and frequency separation could not meet the requirement of over 20dB BW without 2/3 relaxation, 125mW power limit was applied to it.

Average Output Power
(Reference data for SAR testing)

Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg. C / 20% RH
Engineer	Yutaka Yoshida
Mode	Tx (Hopping off) DH5/2DH5/3DH5

Mode	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Result [mW]
DH5	2402.0	-16.17	1.98	10.08	-4.11	0.39
DH5	2441.0	-15.73	1.99	10.08	-3.66	0.43
DH5	2480.0	-15.34	2.00	10.08	-3.26	0.47
2DH5	2402.0	-18.85	1.98	10.08	-6.79	0.21
2DH5	2441.0	-18.56	1.99	10.08	-6.49	0.22
2DH5	2480.0	-18.37	2.00	10.08	-6.29	0.23
3DH5	2402.0	-18.87	1.98	10.08	-6.81	0.21
3DH5	2441.0	-18.58	1.99	10.08	-6.51	0.22
3DH5	2480.0	-18.39	2.00	10.08	-6.31	0.23

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Radiated Spurious Emission

Test place	Ise HQ EMC Lab. No.2 Semi Anechoic Chamber	
Report No.	10221964H	
Date	03/14/2014	03/15/2014
Temperature/ Humidity	23 deg. C / 28% RH	22 deg. C / 23% RH
Engineer	Shinya Watanabe (1-26.5GHz)	Takumi Shimada (30-1000MHz)
Mode	Tx, DH5 2402MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	111.032	QP	41.0	11.7	7.5	28.4	31.8	43.5	11.7	
Hori	223.320	QP	23.0	16.8	8.3	27.7	20.4	46.0	25.6	
Hori	406.324	QP	35.8	17.3	9.2	28.3	34.0	46.0	12.0	
Hori	420.780	QP	26.1	17.5	9.2	28.4	24.4	46.0	21.6	
Hori	677.200	QP	32.3	20.1	10.3	28.7	34.0	46.0	12.0	
Hori	847.932	QP	30.2	22.0	10.9	28.0	35.1	46.0	10.9	
Hori	884.816	QP	30.7	22.1	11.1	27.9	36.0	46.0	10.0	
Hori	2390.000	PK	45.5	27.0	2.4	34.7	40.2	73.9	33.7	
Hori	3145.603	PK	51.3	28.3	2.9	34.3	48.2	73.9	25.7	
Hori	2390.000	AV	31.8	27.0	2.4	34.7	26.5	53.9	27.4	
Hori	3145.603	AV	45.9	28.3	2.9	34.3	42.8	53.9	11.1	
Vert	111.022	QP	41.1	11.7	7.5	28.4	31.9	43.5	11.6	
Vert	272.180	QP	23.8	18.2	8.6	27.7	22.9	46.0	23.1	
Vert	470.172	QP	28.1	17.9	9.5	28.7	26.8	46.0	19.2	
Vert	544.480	QP	35.8	18.8	9.6	28.8	35.4	46.0	10.6	
Vert	677.200	QP	30.6	20.1	10.3	28.7	32.3	46.0	13.7	
Vert	847.933	QP	28.9	22.0	10.9	28.0	33.8	46.0	12.2	
Vert	884.790	QP	28.9	22.1	11.1	27.9	34.2	46.0	11.8	
Vert	2390.000	PK	45.3	27.0	2.4	34.7	40.0	73.9	33.9	
Vert	3145.603	PK	51.5	28.3	2.9	34.3	48.4	73.9	25.5	
Vert	2390.000	AV	31.8	27.0	2.4	34.7	26.5	53.9	27.4	
Vert	3145.603	AV	46.8	28.3	2.9	34.3	43.7	53.9	10.2	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

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

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	94.1	27.0	2.4	34.7	88.8	-	-	Carrier
Hori	2400.000	PK	45.7	27.0	2.4	34.7	40.4	68.8	28.4	
Vert	2402.000	PK	92.2	27.0	2.4	34.7	86.9	-	-	Carrier
Vert	2400.000	PK	43.9	27.0	2.4	34.7	38.6	66.9	28.3	

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

Radiated Spurious Emission

Test place	Ise HQ EMC Lab. No.2 Semi Anechoic Chamber	
Report No.	10221964H	
Date	03/14/2014	03/15/2014
Temperature/ Humidity	23 deg. C / 28% RH	22 deg. C / 23% RH
Engineer	Shinya Watanabe (1-26.5GHz)	Takumi Shimada (30-1000MHz)
Mode	Tx, DH5 2441MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	111.028	QP	41.2	11.7	7.5	28.4	32.0	43.5	11.5	
Hori	370.080	QP	28.8	16.4	9.0	28.1	26.1	46.0	19.9	
Hori	406.304	QP	35.3	17.3	9.2	28.3	33.5	46.0	12.5	
Hori	677.184	QP	31.8	20.1	10.3	28.7	33.5	46.0	12.5	
Hori	847.944	QP	30.4	22.0	10.9	28.0	35.3	46.0	10.7	
Hori	884.820	QP	30.7	22.1	11.1	27.9	36.0	46.0	10.0	
Hori	3145.603	PK	51.4	28.3	2.9	34.3	48.3	73.9	25.6	
Hori	4882.000	PK	45.1	32.0	4.4	33.9	47.6	73.9	26.3	
Hori	3145.603	AV	46.3	28.3	2.9	34.3	43.2	53.9	10.7	
Hori	4882.000	AV	32.6	32.0	4.4	33.9	35.1	53.9	18.8	
Vert	111.000	QP	41.6	11.6	7.5	28.4	32.3	43.5	11.2	
Vert	518.120	QP	27.8	18.4	9.6	28.8	27.0	46.0	19.0	
Vert	677.200	QP	30.6	20.1	10.3	28.7	32.3	46.0	13.7	
Vert	847.940	QP	29.1	22.0	10.9	28.0	34.0	46.0	12.0	
Vert	884.790	QP	28.7	22.1	11.1	27.9	34.0	46.0	12.0	
Vert	958.536	QP	27.8	22.9	11.3	27.6	34.4	46.0	11.6	
Vert	3145.603	PK	52.3	28.3	2.9	34.3	49.2	73.9	24.7	
Vert	4882.000	PK	47.2	32.0	4.4	33.9	49.7	73.9	24.2	
Vert	3145.603	AV	48.9	28.3	2.9	34.3	45.8	53.9	8.1	
Vert	4882.000	AV	37.0	32.0	4.4	33.9	39.5	53.9	14.4	

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

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

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

Radiated Spurious Emission

Test place	Ise HQ EMC Lab. No.2 Semi Anechoic Chamber	
Report No.	10221964H	
Date	03/14/2014	03/15/2014
Temperature/ Humidity	23 deg. C / 28% RH	22 deg. C / 23% RH
Engineer	Shinya Watanabe (1-26.5GHz)	Takumi Shimada (30-1000MHz)
Mode	Tx, DH5 2480MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	406.328	QP	36.8	17.3	9.2	28.3	35.0	46.0	11.0	
Hori	677.200	QP	32.0	20.1	10.3	28.7	33.7	46.0	12.3	
Hori	847.940	QP	30.3	22.0	10.9	28.0	35.2	46.0	10.8	
Hori	866.350	QP	30.5	22.0	11.0	28.0	35.5	46.0	10.5	
Hori	884.800	QP	31.1	22.1	11.1	27.9	36.4	46.0	9.6	
Hori	2483.500	PK	47.2	26.9	2.5	34.7	41.9	73.9	32.0	
Hori	3145.603	PK	49.2	28.3	2.9	34.3	46.1	73.9	27.8	
Hori	2483.500	AV	33.9	26.9	2.5	34.7	28.6	53.9	25.3	
Hori	3145.603	AV	42.9	28.3	2.9	34.3	39.8	53.9	14.1	
Vert	111.020	QP	41.1	11.7	7.5	28.4	31.9	43.5	11.6	
Vert	406.308	QP	30.1	17.3	9.2	28.3	28.3	46.0	17.7	
Vert	677.182	QP	30.0	20.1	10.3	28.7	31.7	46.0	14.3	
Vert	847.950	QP	28.9	22.0	10.9	28.0	33.8	46.0	12.2	
Vert	866.368	QP	27.9	22.0	11.0	28.0	32.9	46.0	13.1	
Vert	884.796	QP	27.9	22.1	11.1	27.9	33.2	46.0	12.8	
Vert	2483.500	PK	46.1	26.9	2.5	34.7	40.8	73.9	33.1	
Vert	3145.603	PK	51.7	28.3	2.9	34.3	48.6	73.9	25.3	
Vert	2483.500	AV	33.1	26.9	2.5	34.7	27.8	53.9	26.1	
Vert	3145.603	AV	46.9	28.3	2.9	34.3	43.8	53.9	10.1	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

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

Radiated Spurious Emission

Test place	Ise HQ EMC Lab. No.2 Semi Anechoic Chamber	
Report No.	10221964H	
Date	03/14/2014	03/15/2014
Temperature/ Humidity	23 deg. C / 28% RH	22 deg. C / 23% RH
Engineer	Shinya Watanabe (1-26.5GHz)	Takumi Shimada (30-1000MHz)
Mode	Tx, 3DH5 2402MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	111.022	QP	40.3	11.7	7.5	28.4	31.1	43.5	12.4	
Hori	370.090	QP	29.1	16.4	9.0	28.1	26.4	46.0	19.6	
Hori	406.324	QP	36.2	17.3	9.2	28.3	34.4	46.0	11.6	
Hori	677.200	QP	32.2	20.1	10.3	28.7	33.9	46.0	12.1	
Hori	847.950	QP	30.1	22.0	10.9	28.0	35.0	46.0	11.0	
Hori	884.820	QP	30.9	22.1	11.1	27.9	36.2	46.0	9.8	
Hori	2390.000	PK	45.7	27.0	2.4	34.7	40.4	73.9	33.5	
Hori	3145.603	PK	49.3	28.3	2.9	34.3	46.2	73.9	27.7	
Hori	2390.000	AV	31.8	27.0	2.4	34.7	26.5	53.9	27.4	
Hori	3145.603	AV	43.1	28.3	2.9	34.3	40.0	53.9	13.9	
Vert	111.024	QP	40.7	11.7	7.5	28.4	31.5	43.5	12.0	
Vert	406.316	QP	30.6	17.3	9.2	28.3	28.8	46.0	17.2	
Vert	518.112	QP	27.5	18.4	9.6	28.8	26.7	46.0	19.3	
Vert	677.206	QP	31.0	20.1	10.3	28.7	32.7	46.0	13.3	
Vert	847.940	QP	29.0	22.0	10.9	28.0	33.9	46.0	12.1	
Vert	884.800	QP	28.3	22.1	11.1	27.9	33.6	46.0	12.4	
Vert	2390.000	PK	45.2	27.0	2.4	34.7	39.9	73.9	34.0	
Vert	3145.603	PK	50.7	28.3	2.9	34.3	47.6	73.9	26.3	
Vert	2390.000	AV	31.8	27.0	2.4	34.7	26.5	53.9	27.4	
Vert	3145.603	AV	46.2	28.3	2.9	34.3	43.1	53.9	10.8	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

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

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2402.000	PK	89.2	27.0	2.4	34.7	83.9	-	-	Carrier
Hori	2400.000	PK	41.9	27.0	2.4	34.7	36.6	63.9	27.3	
Vert	2402.000	PK	90.9	27.0	2.4	34.7	85.6	-	-	Carrier
Vert	2400.000	PK	42.9	27.0	2.4	34.7	37.6	65.6	28.0	

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

Radiated Spurious Emission

Test place	Ise HQ EMC Lab. No.2 Semi Anechoic Chamber	
Report No.	10221964H	
Date	03/14/2014	03/15/2014
Temperature/ Humidity	23 deg. C / 28% RH	22 deg. C / 23% RH
Engineer	Shinya Watanabe (1-26.5GHz)	Takumi Shimada (30-1000MHz)
Mode	Tx, 3DH5 2441MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	111.030	QP	40.9	11.7	7.5	28.4	31.7	43.5	11.8	
Hori	406.340	QP	36.0	17.3	9.2	28.3	34.2	46.0	11.8	
Hori	677.210	QP	32.4	20.1	10.3	28.7	34.1	46.0	11.9	
Hori	847.930	QP	30.2	22.0	10.9	28.0	35.1	46.0	10.9	
Hori	866.370	QP	30.4	22.0	11.0	28.0	35.4	46.0	10.6	
Hori	884.810	QP	31.1	22.1	11.1	27.9	36.4	46.0	9.6	
Hori	3145.603	PK	49.9	28.3	2.9	34.3	46.8	73.9	27.1	
Hori	3145.603	AV	43.8	28.3	2.9	34.3	40.7	53.9	13.2	
Vert	111.014	QP	41.1	11.7	7.5	28.4	31.9	43.5	11.6	
Vert	406.350	QP	28.5	17.3	9.2	28.3	26.7	46.0	19.3	
Vert	677.220	QP	30.1	20.1	10.3	28.7	31.8	46.0	14.2	
Vert	847.944	QP	29.2	22.0	10.9	28.0	34.1	46.0	11.9	
Vert	866.376	QP	28.2	22.0	11.0	28.0	33.2	46.0	12.8	
Vert	884.824	QP	28.2	22.1	11.1	27.9	33.5	46.0	12.5	
Vert	3145.603	PK	50.9	28.3	2.9	34.3	47.8	73.9	26.1	
Vert	3145.603	AV	45.4	28.3	2.9	34.3	42.3	53.9	11.6	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

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

Radiated Spurious Emission

Test place	Ise HQ EMC Lab. No.2 Semi Anechoic Chamber	
Report No.	10221964H	
Date	03/14/2014	03/15/2014
Temperature/ Humidity	23 deg. C / 28% RH	22 deg. C / 23% RH
Engineer	Shinya Watanabe (1-26.5GHz)	Takumi Shimada (30-1000MHz)
Mode	Tx, 3DH5 2480MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	111.016	QP	38.2	11.7	7.5	28.4	29.0	43.5	14.5	
Hori	406.320	QP	36.2	17.3	9.2	28.3	34.4	46.0	11.6	
Hori	677.190	QP	31.9	20.1	10.3	28.7	33.6	46.0	12.4	
Hori	847.950	QP	30.0	22.0	10.9	28.0	34.9	46.0	11.1	
Hori	866.370	QP	30.4	22.0	11.0	28.0	35.4	46.0	10.6	
Hori	884.800	QP	31.0	22.1	11.1	27.9	36.3	46.0	9.7	
Hori	2483.500	PK	47.1	26.9	2.5	34.7	41.8	73.9	32.1	
Hori	3145.603	PK	49.5	28.3	2.9	34.3	46.4	73.9	27.5	
Hori	2483.500	AV	32.7	26.9	2.5	34.7	27.4	53.9	26.5	
Hori	3145.603	AV	43.4	28.3	2.9	34.3	40.3	53.9	13.6	
Vert	111.008	QP	38.4	11.7	7.5	28.4	29.2	43.5	14.3	
Vert	406.324	QP	29.2	17.3	9.2	28.3	27.4	46.0	18.6	
Vert	569.300	QP	32.4	19.1	9.8	28.8	32.5	46.0	13.5	
Vert	677.192	QP	30.3	20.1	10.3	28.7	32.0	46.0	14.0	
Vert	847.960	QP	28.8	22.0	10.9	28.0	33.7	46.0	12.3	
Vert	866.380	QP	27.8	22.0	11.0	28.0	32.8	46.0	13.2	
Vert	884.800	QP	28.2	22.1	11.1	27.9	33.5	46.0	12.5	
Vert	2483.500	PK	46.5	26.9	2.5	34.7	41.2	73.9	32.7	
Vert	3145.603	PK	51.2	28.3	2.9	34.3	48.1	73.9	25.8	
Vert	2483.500	AV	32.6	26.9	2.5	34.7	27.3	53.9	26.6	
Vert	3145.603	AV	46.7	28.3	2.9	34.3	43.6	53.9	10.3	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

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

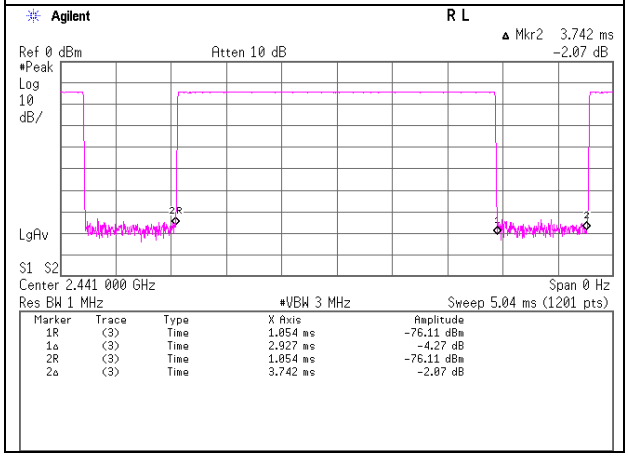
Duty Cycle

Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg. C / 20% RH
Engineer	Yutaka Yoshida
Mode	Tx (Hopping off) DH5/3DH5

DH5

Tx on =2.927ms

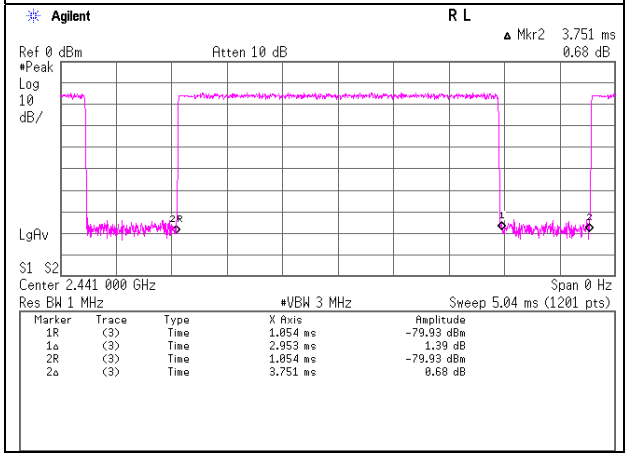
Tx on+Tx off =3.742ms



3DH5

Tx on =2.953ms

Tx on+Tx off =3.751ms



Dwell time factor

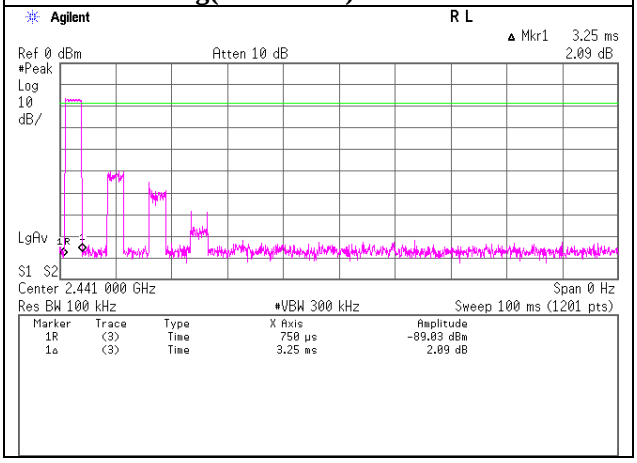
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg. C / 20% RH
Engineer	Yutaka Yoshida
Mode	Tx (Hopping off) DH5/3DH5

DH5

Worst 100ms

Dwell time factor =

20log(3.25*2/100) = -23.74dB

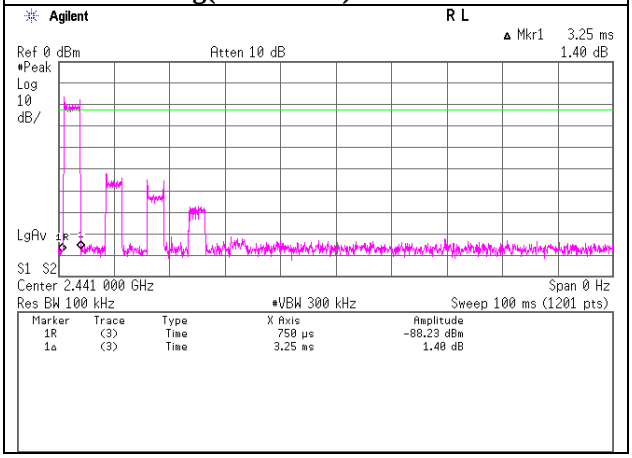


3DH5

Worst 100ms

Dwell time factor =

20log(3.25*2/100) = -23.74dB



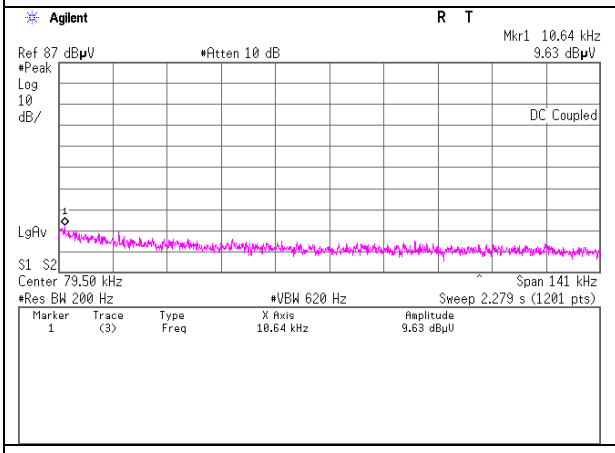
*Dwell time factor was not used for Spurious emission test.

Conducted Spurious Emission

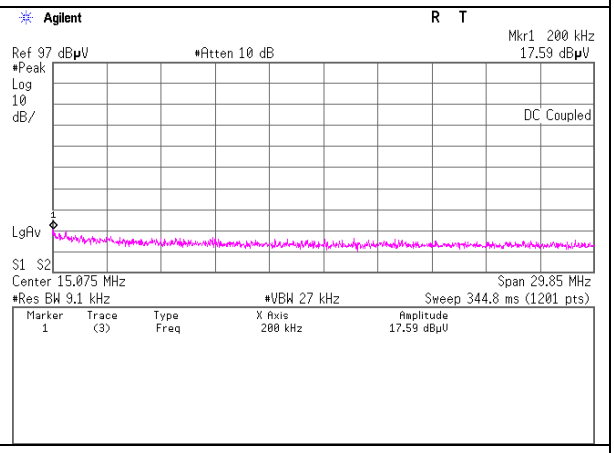
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx DH5 2402MHz

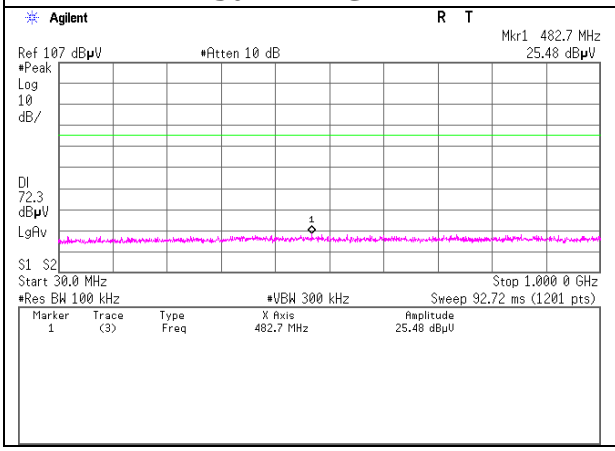
9kHz-150kHz



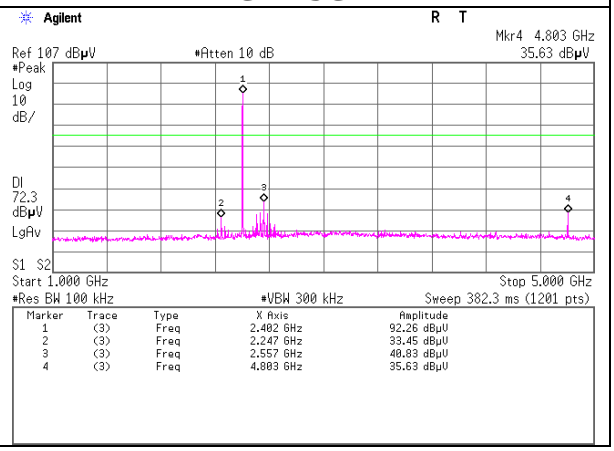
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz

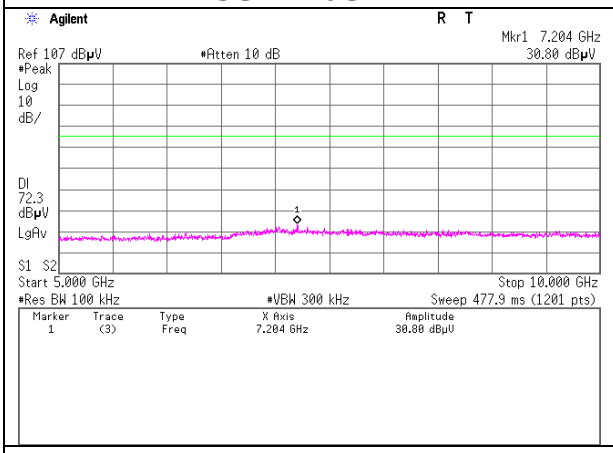


Conducted Spurious Emission

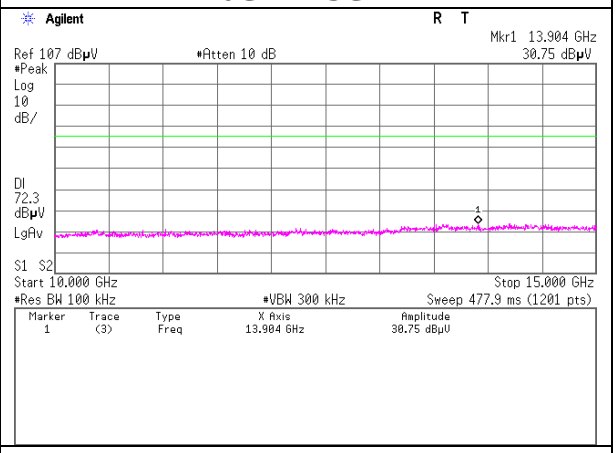
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx DH5 2402MHz

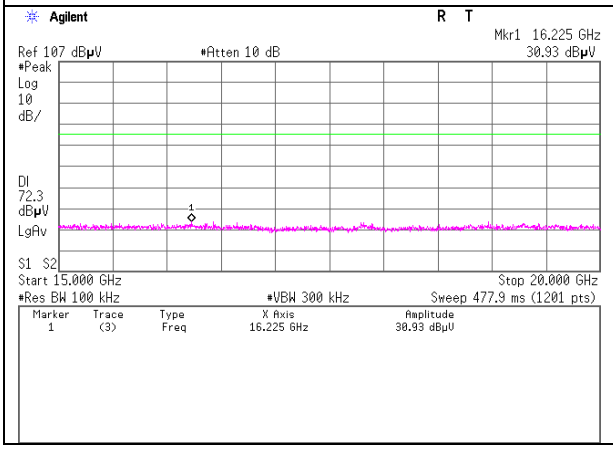
5GHz-10GHz



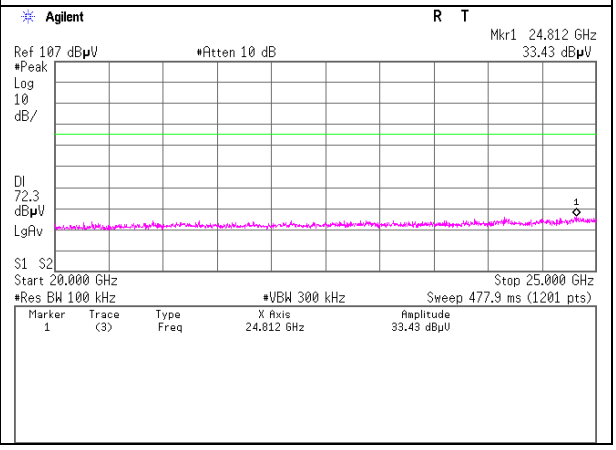
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

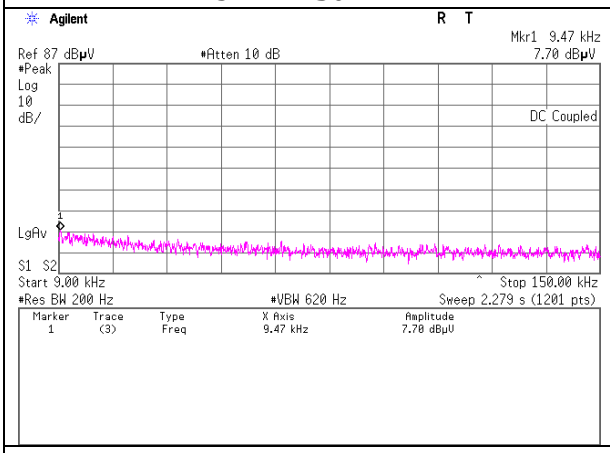


Conducted Spurious Emission

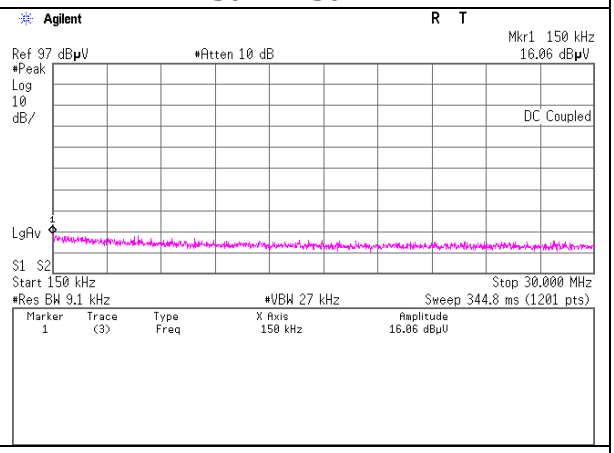
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx DH5 2441MHz

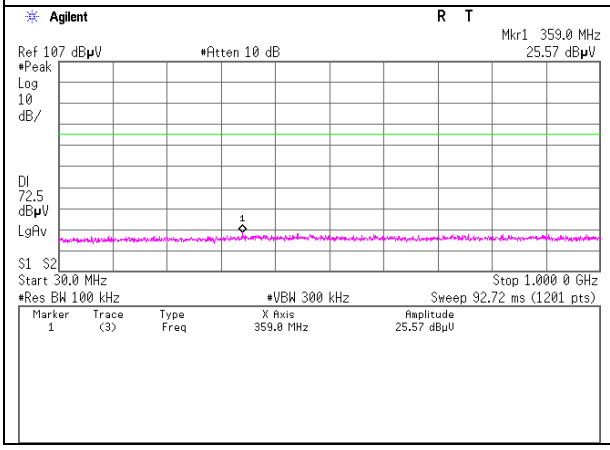
9kHz-150kHz



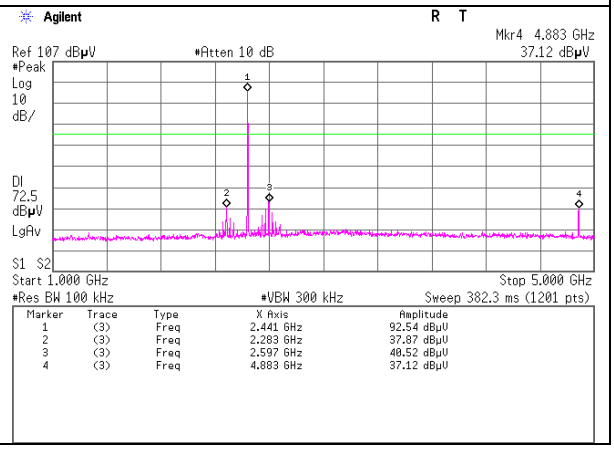
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz

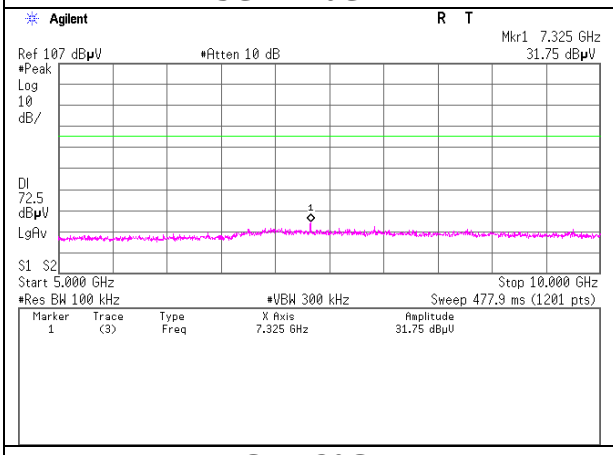


Conducted Spurious Emission

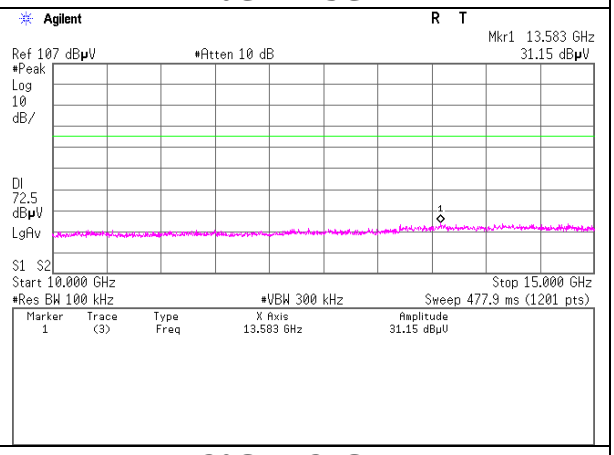
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx DH5 2441MHz

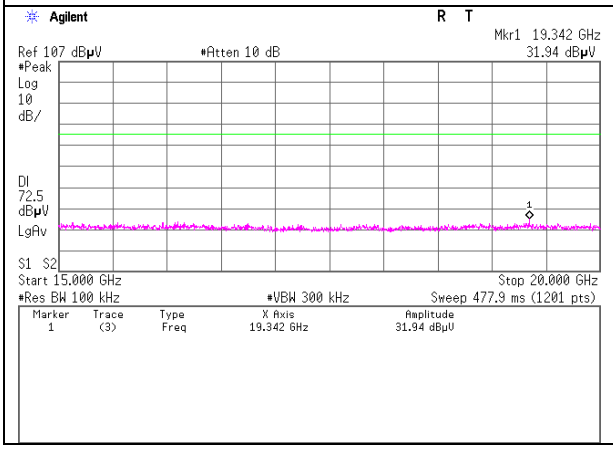
5GHz-10GHz



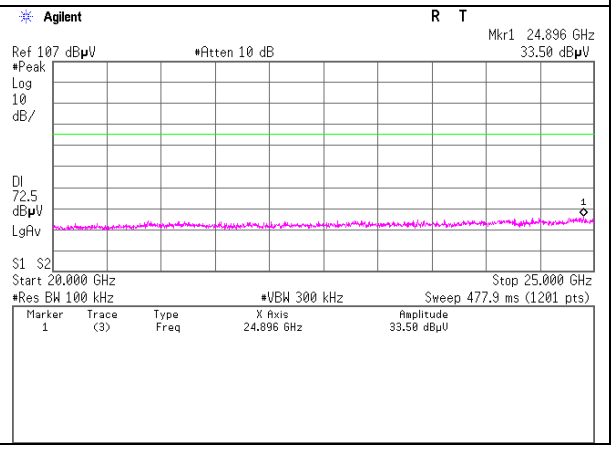
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

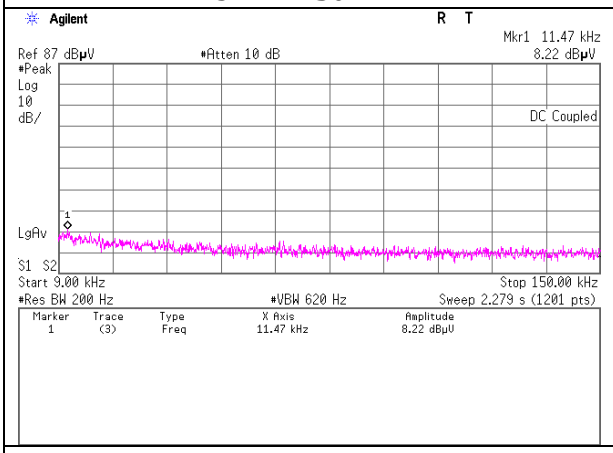


Conducted Spurious Emission

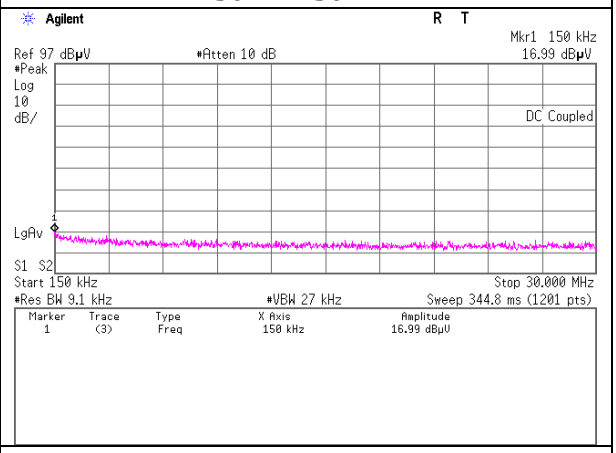
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx DH5 2480MHz

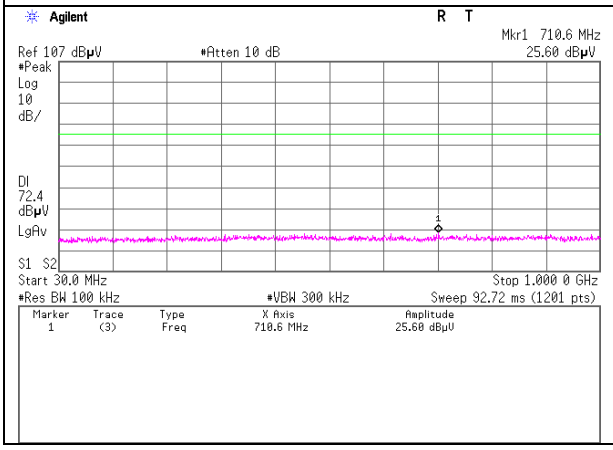
9kHz-150kHz



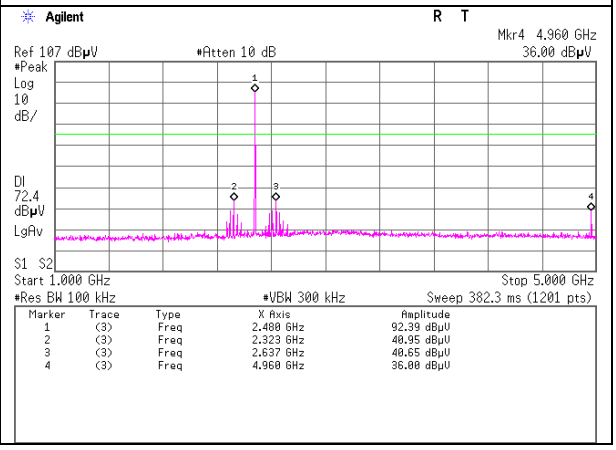
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz

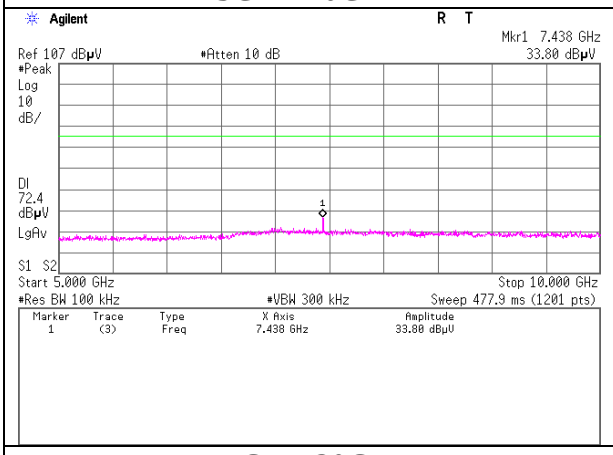


Conducted Spurious Emission

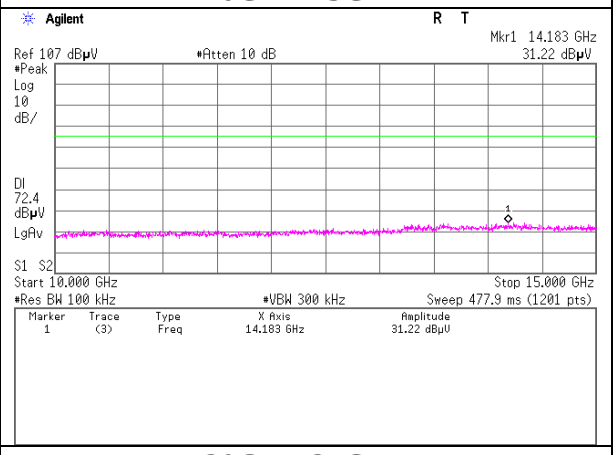
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx DH5 2480MHz

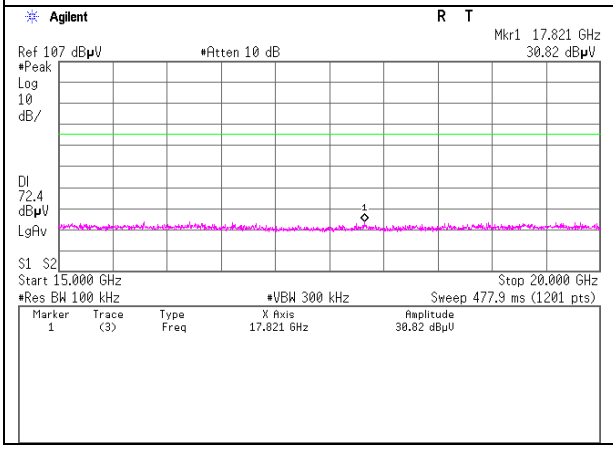
5GHz-10GHz



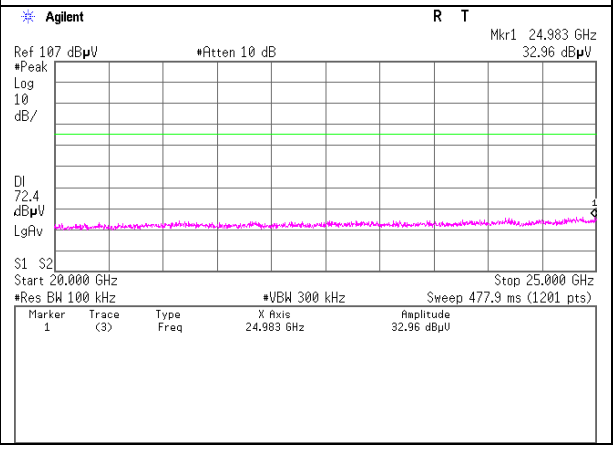
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

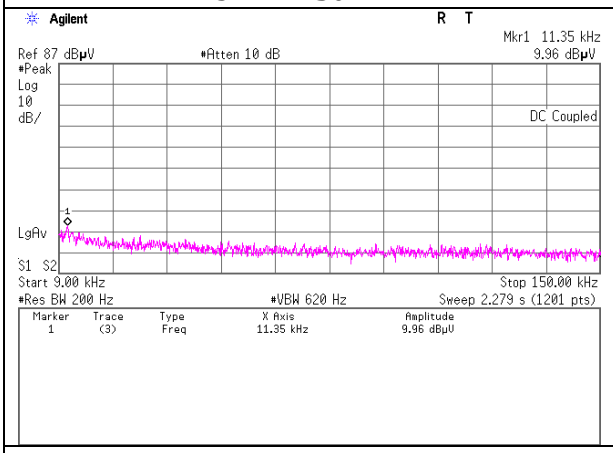


Conducted Spurious Emission

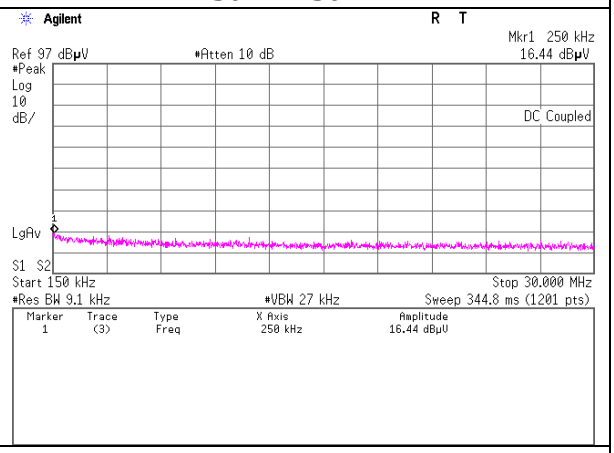
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx 3DH5 2402MHz

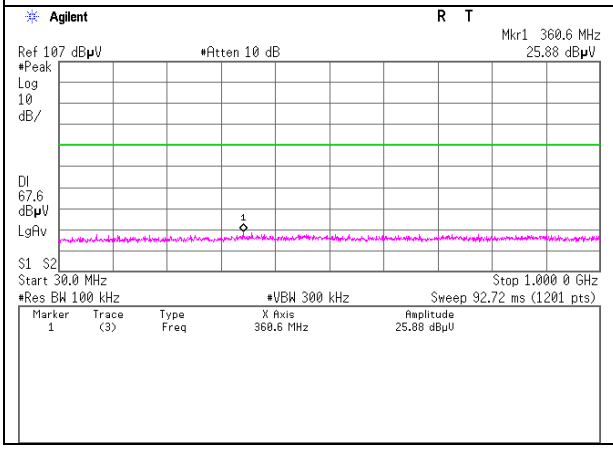
9kHz-150kHz



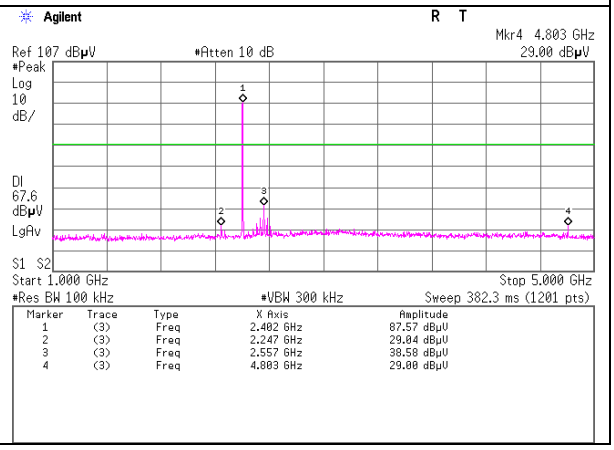
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz

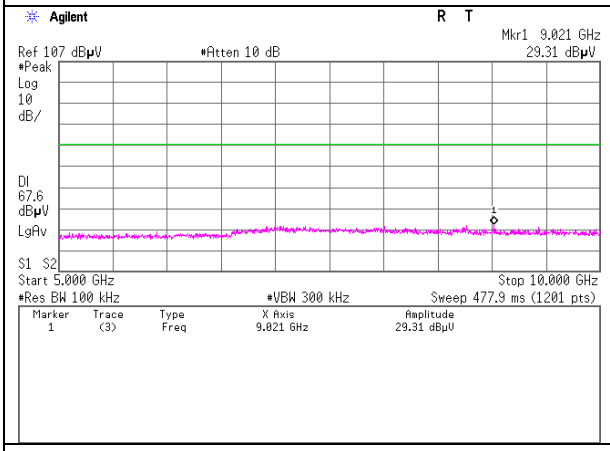


Conducted Spurious Emission

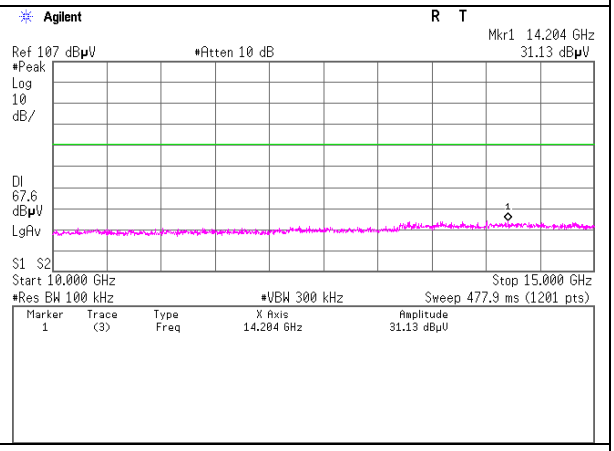
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx 3DH5 2402MHz

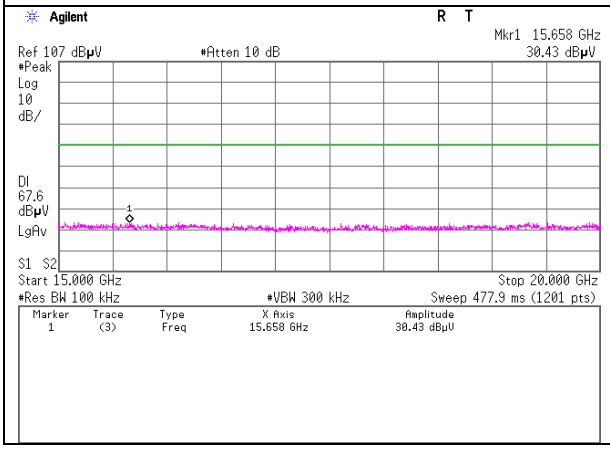
5GHz-10GHz



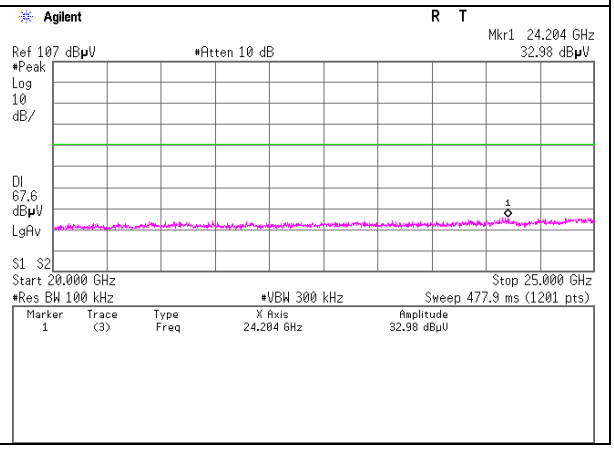
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

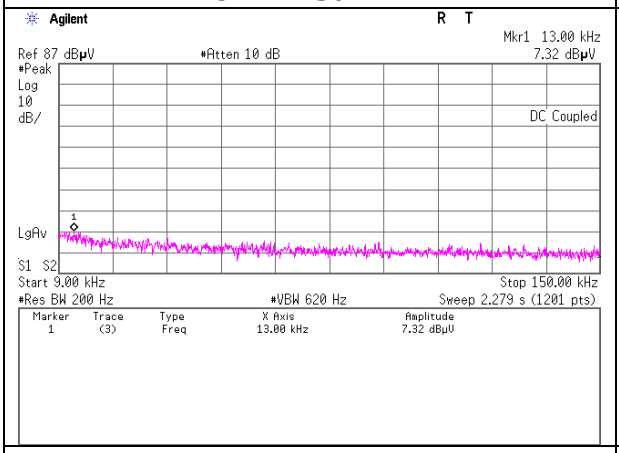


Conducted Spurious Emission

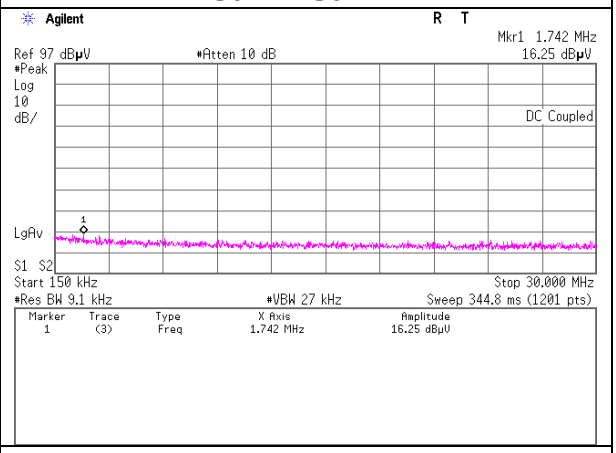
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx 3DH5 2441MHz

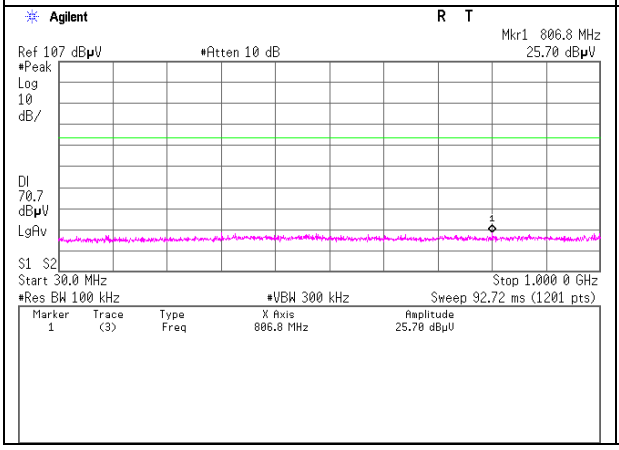
9kHz-150kHz



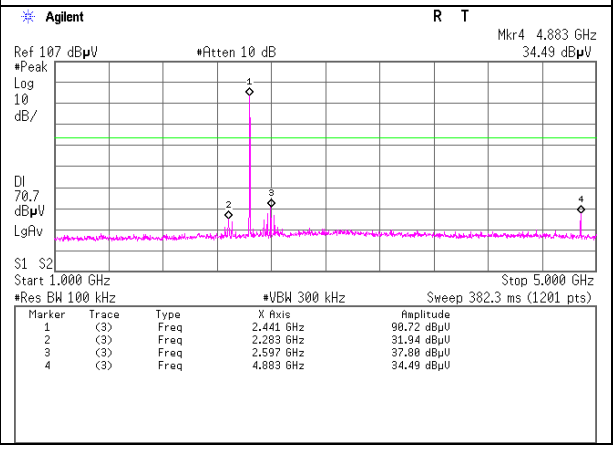
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz



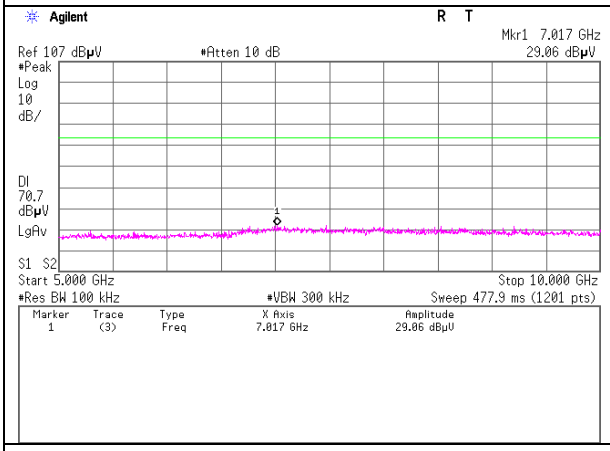
UL Japan, Inc.
Ise HQ EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Conducted Spurious Emission

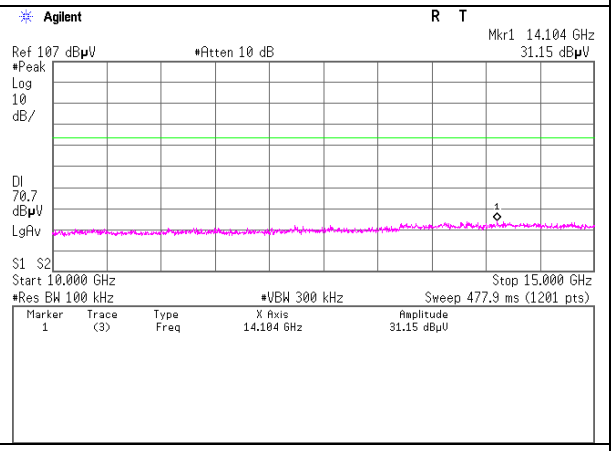
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx 3DH5 2441MHz

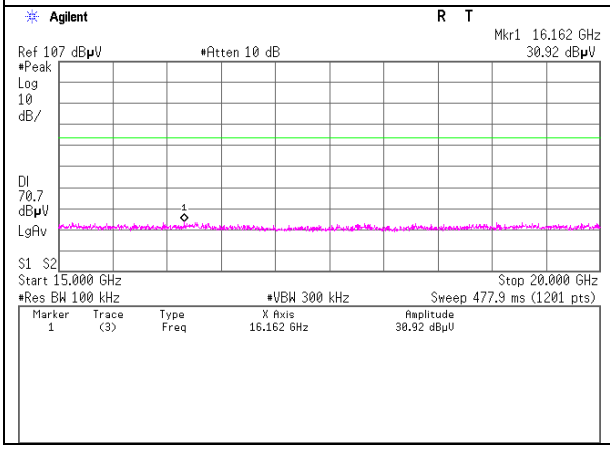
5GHz-10GHz



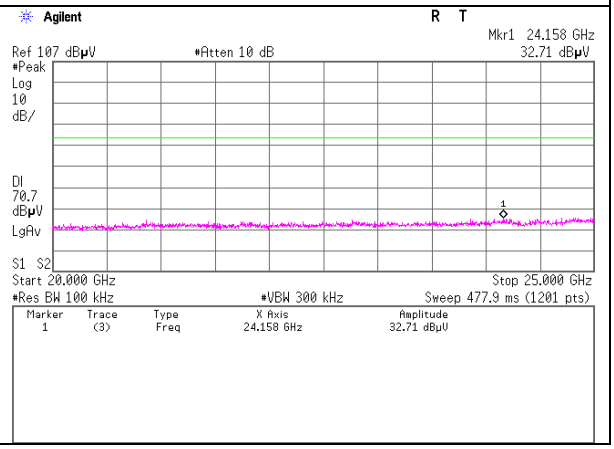
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

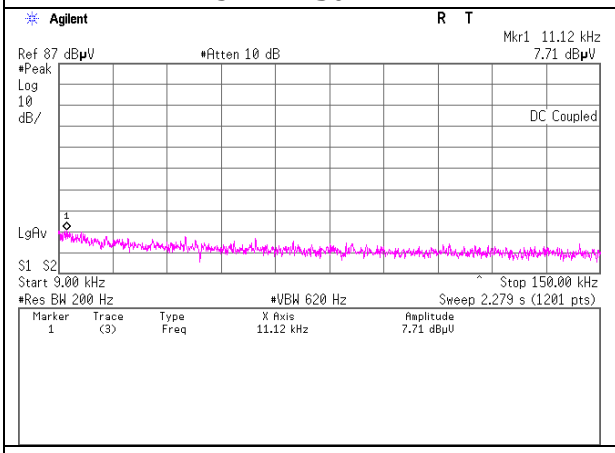


Conducted Spurious Emission

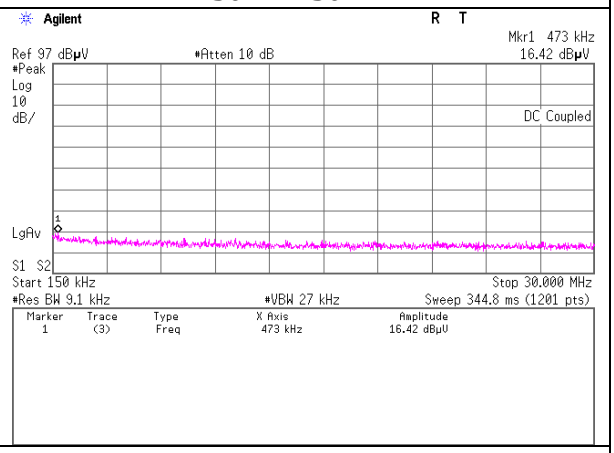
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx 3DH5 2480MHz

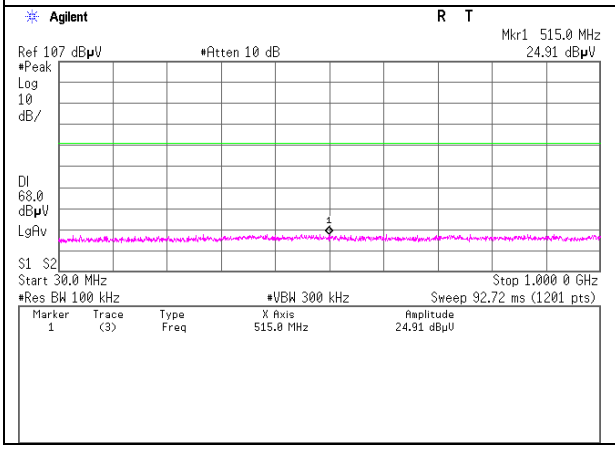
9kHz-150kHz



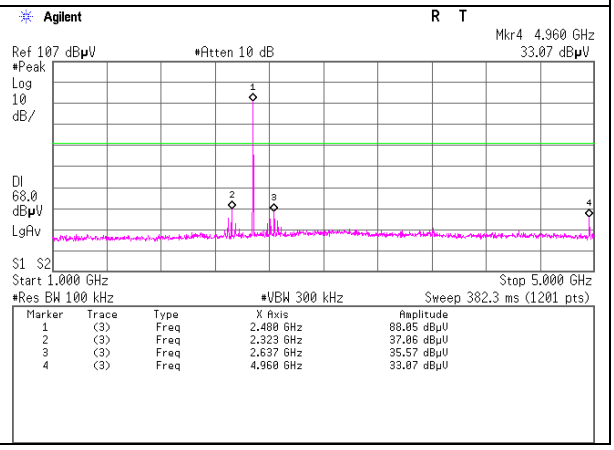
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz



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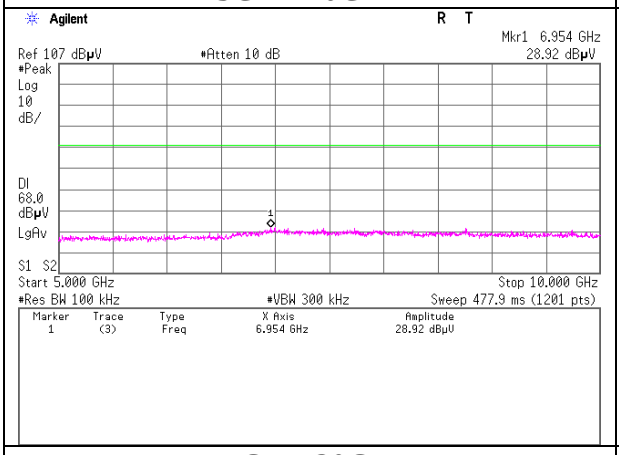
Conducted Spurious Emission

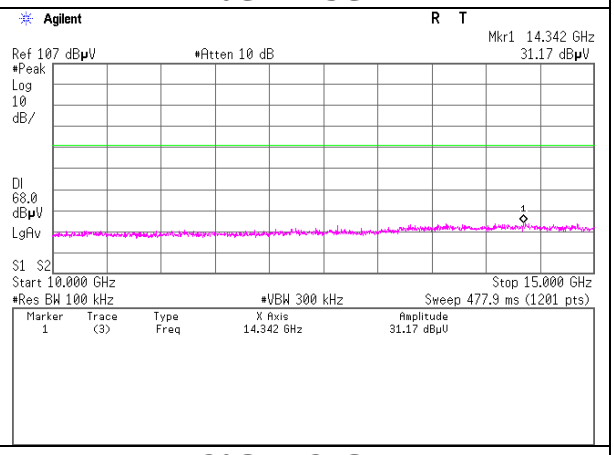
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx 3DH5 2480MHz

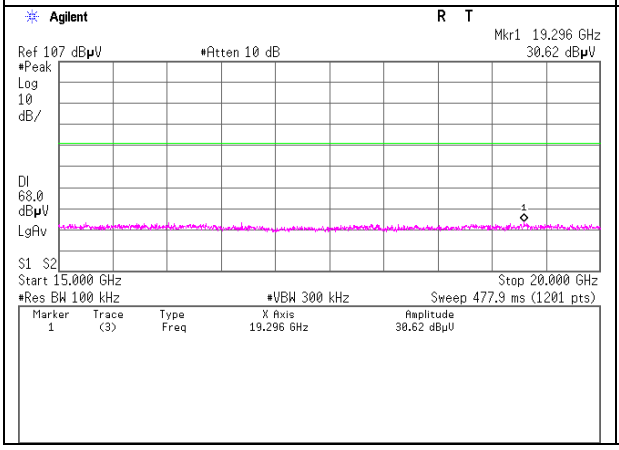
5GHz-10GHz



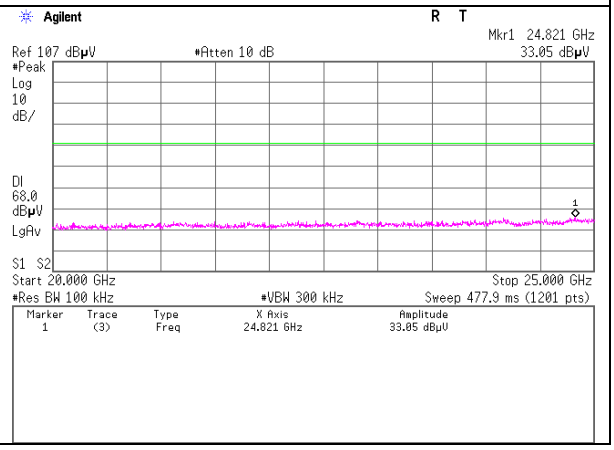
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

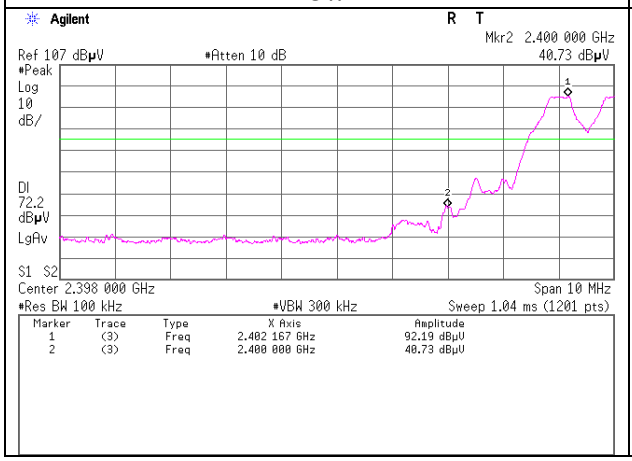


Conducted Emission Band Edge compliance

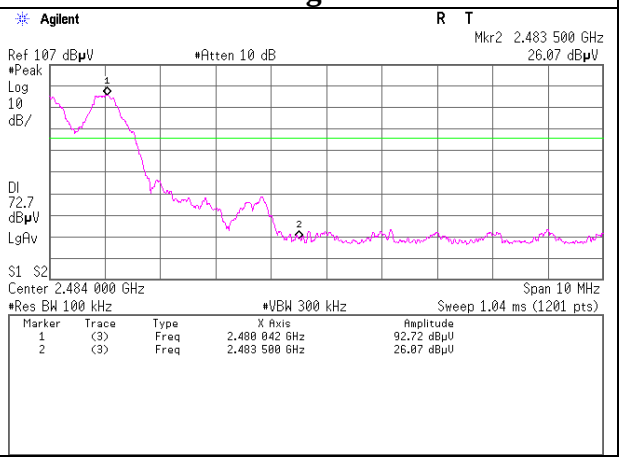
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx DH5, Hopping on

Low

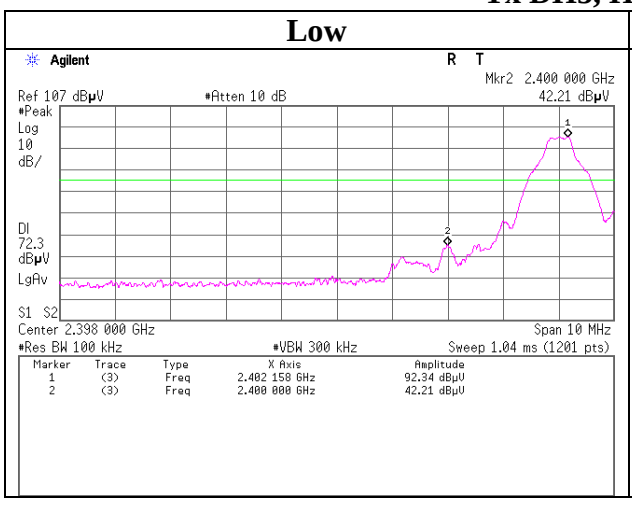


High

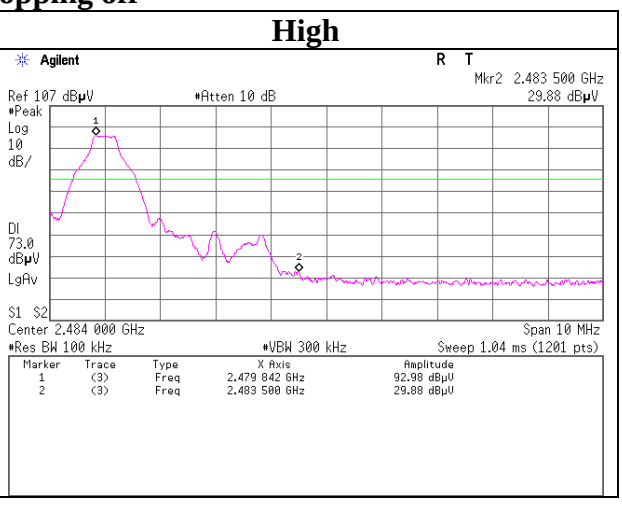


Tx DH5, Hopping off

Low



High

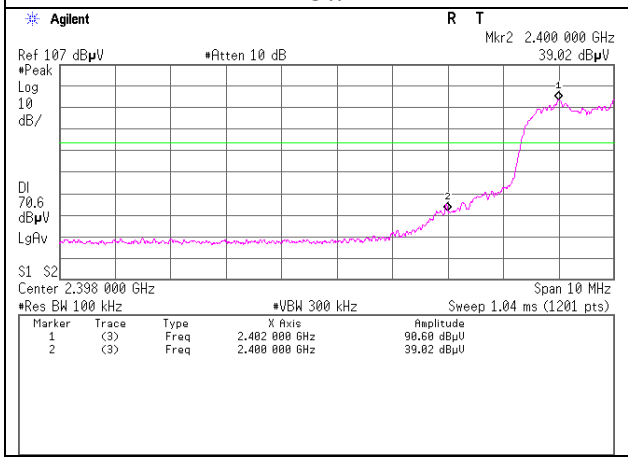


Conducted Emission Band Edge compliance

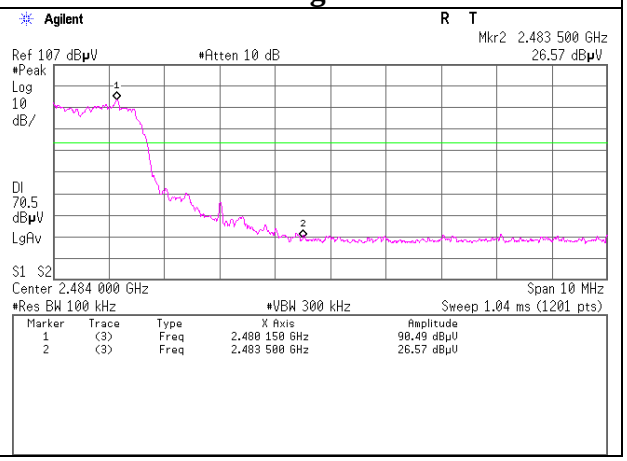
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx 3DH5, Hopping on

Low

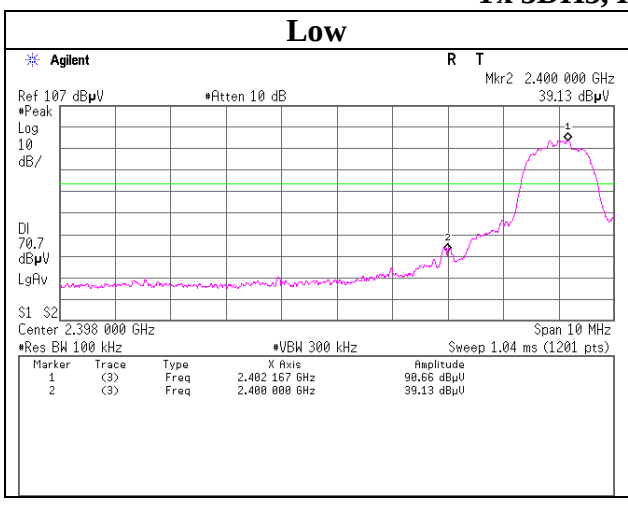


High

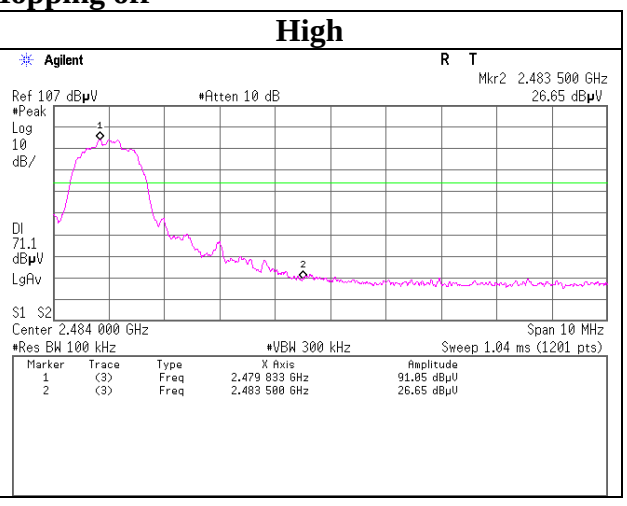


Tx 3DH5, Hopping off

Low



High

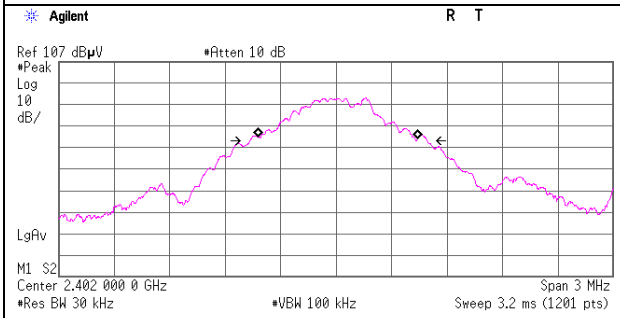


99%Occupied Bandwidth

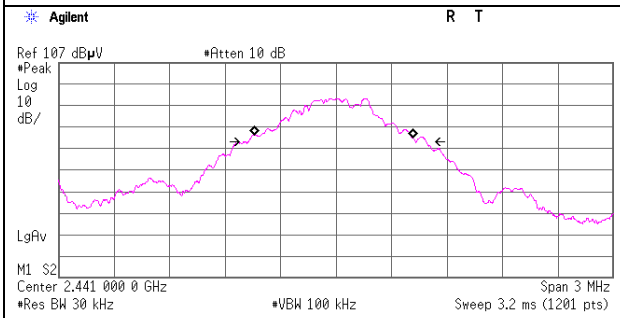
Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx DH5, Hopping off

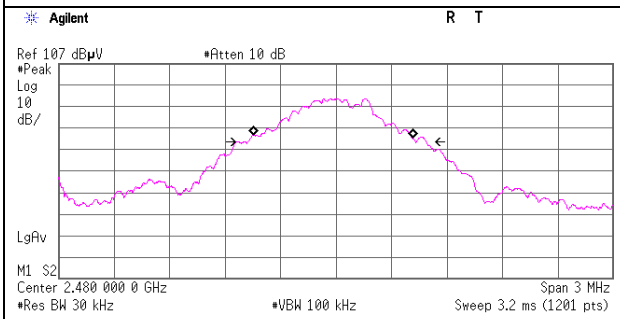
2402MHz



2441MHz

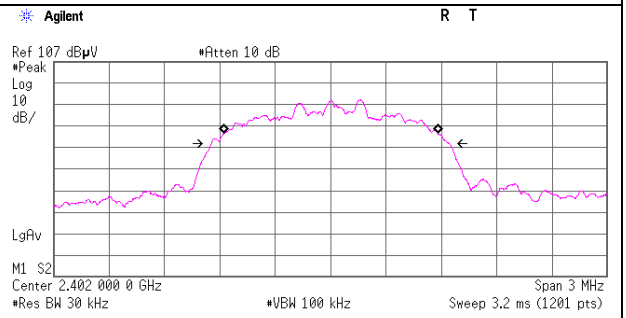


2480MHz

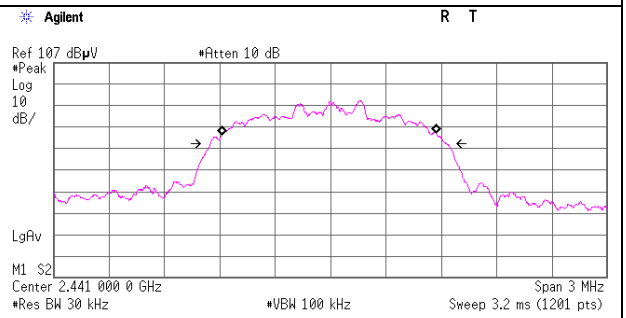


Tx 3DH5, Hopping off

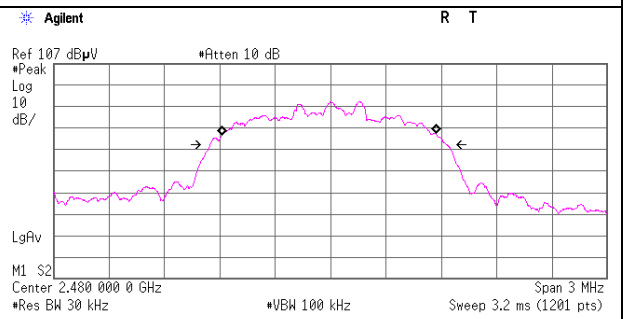
2402MHz



2441MHz



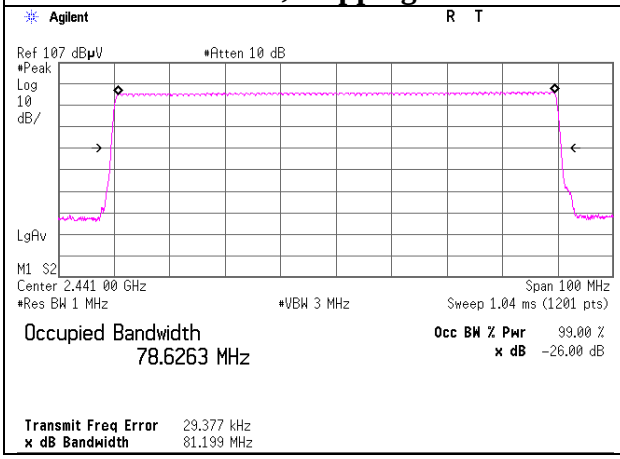
2480MHz



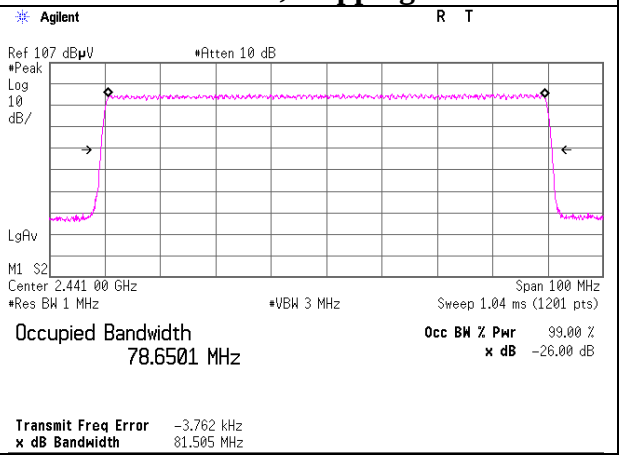
99% Occupied Bandwidth

Test place	Ise HQ EMC Lab. No.11 Measurement Room
Report No.	10221964H
Date	03/10/2014
Temperature/ Humidity	22deg.C / 20% RH
Engineer	Yutaka Yoshida

Tx DH5, Hopping on



Tx 3DH5, Hopping on



APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MSA-13	Spectrum Analyzer	Agilent	E4440A	MY46185823	AT/RE	2013/06/14 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2013/10/15 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2013/10/15 * 12
MCC-144	Microwave Cable	Junkosha	MWX221	1207S407	AT	2013/08/19 * 12
MAT-20	Attenuator(10dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	AT	2014/01/29 * 12
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	AT	2013/12/17 * 12
MMM-17	DIGIITAL HiTESTER	Hioki	3805	070900530	AT	2014/01/22 * 12
MDPS-20	REGULATED DC POWER SUPPLY	TEXIO	PW16-5ADP	171116437	AT	Pre Check
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2013/06/30 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2014/02/20 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2014/02/21 * 12
MCC-166	Microwave Cable	Junkosha	MWX221	1303S120(1m) / 1311S167(5m)	RE	2013/11/27 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2014/01/21 * 12
MHA-02	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	RE	2014/02/21 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2013/05/30 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2013/06/11 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2013/10/13 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2013/10/13 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2014/02/20 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2013/11/26 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2013/09/12 * 12

The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

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

Test Item: RE: Radiated Emission
AT: Antenna Terminal Conducted test