



# RADIO TEST REPORT

Test Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
Type of Equipment : Bluetooth Audio System  
Model No. : MEX-BT3700U  
FCC ID : AK8MEXBT3700  
Test regulation : FCC Part15 Subpart C: 2008  
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 limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.

Date of test: October 15, 17 and November 25, 2008

Tested by: W. Kojima & T. Arai  
Wataru Kojima & Tatsuya Arai

Approved by: T. Amamura  
Toyokazu Imamura  
Engineer of Yamakita EMC Lab.

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**YAMAKITA EMC LAB.**

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MF060b (18.06.07)

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## 1 Applicant information

Company Name : Sony Corporation  
Address : 1-7-1 Konan, Minato-ku, Tokyo, 108-0075 Japan  
Telephone Number : +81-3-5769-5650  
Facsimile Number : +81-3-5769-5915  
Contact Person : Kengo Nakamura

## 2 Equipment under test (E.U.T.)

### 2.1 Identification of E.U.T.

Type of Equipment : Bluetooth Audio System  
Model No. : MEX-BT3700U  
Serial No. : 4  
Rating : DC12V  
Country of Mass-production : Thailand  
Receipt Date of Sample : September 17, 2008  
Condition of EUT : Engineering 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: MEX-BT3700U (referred to as the EUT in this report) is a Bluetooth Audio System.

Bluetooth specification:

Equipment type : Transceiver  
Frequency of operation : 2402-2480MHz  
Bandwidth & channel spacing : 79MHz & 1MHz  
Type of modulation : FHSS  
Antenna type : Monopole  
Antenna connector type : U-FL  
Antenna gain with cable loss : -0.01dBi  
ITU code : F1D  
Operation temperature range : -20 to +60 deg.C.

Clock frequencies: 32.768kHz, 4MHz, 7.92MHz, 8.664MHz, 9.00MHz, 16.9344MHz

Model: MEX-BT3750U is a similar model of the EUT. The difference is as follows:

Model	Radio Receiving band
MEX-BT3700U	FM, MW (Step frequency: Fixed)
MEX-BT3750U	FM, MW (Step frequency: Switchable)

FCC Part15.31 (e)

The equipment provides the Bluetooth transmitter with stable power supply (DC 3.3 V), therefore, the equipment complies power supply regulation.

FCC Part15.203 Antenna requirement

The equipment and its antenna comply with this requirement since this antenna is built in the equipment and it cannot be replaced by end users.

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### 3 Test specification, procedures and results

#### 3.1 Test specification

Test specification : FCC Part15 Subpart C: 2008, final revised on May 19, 2008  
 Title : FCC 47CFR Part15 Radio Frequency Device, Subpart C Intentional Radiators  
 Section 15.207 Conducted limits  
 Section 15.209 Radiated emission limits, general requirements  
 Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz,  
 and 5725-5850MHz

The EUT complies with FCC Part15 Subpart B: 2008, final revised on May 19, 2008. Refer to the test report 29BE0117-YK-G.

#### 3.2 Procedures & results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.4:2003 7. AC powerline conducted emission measurements	FCC Section 15.207	-	N/A *1)	N/A	N/A
Carrier frequency separation	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (a)(1)	Conducted	N/A	*See data.	Complied
20dB bandwidth	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (a)(1)	Conducted	N/A		Complied
Number of hopping frequency	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (a)(1)(iii)	Conducted	N/A		Complied
Dwell time	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (a)(1)(iii)	Conducted	N/A		Complied
Maximum peak output power	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (b)(1)	Conducted	N/A		Complied
Band edge compliance & Spurious emission	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (d) Section15.209	Conducted/ Radiated	N/A		5.2dB (30.54MHz, QP, Vertical, Tx 2480MHz)

Note: UL Japan's EMI Work Procedures No.QPM05 and QPM15.

\*1) The test is not applicable since the EUT has no AC mains.

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### 3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99%)	ANSI C63.4:2003 13. Measurement of intentional radiators RSS-Gen 4.6.1	RSS-Gen 4.6.1	Conducted	-	Complied

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

### 3.4 Uncertainty

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

	No.1 open site (±)	No.2 open site (±)	No.1 anechoic chamber (±)
<b>Radiated emission (3m)</b>			
30-300MHz	4.5 dB	4.4 dB	4.5 dB
300-1000MHz	4.3 dB	4.3 dB	4.3 dB
1GHz<	5.7 dB	5.7 dB	5.7 dB

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

Antenna port conducted test	(±)
Below 1GHz	0.4dB
1GHz and above	0.7dB

### 3.5 Test location

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Telephone number : +81 465 77 1011

Facsimile number : +81 465 77 2112

NVLAP Lab. code : 200441-0

No. 1 test site has been fully described in a report submitted to FCC office, and accepted on July 23, 2008 (Registration No.: 95486).

IC Registration No. : 2973B-1

No. 2 test site has been fully described in a report submitted to FCC office, and accepted on February 27, 2008 (Registration No.: 466226).

IC Registration No. : 2973B-3

No. 1 anechoic chamber has been fully described in a report submitted to FCC office, and accepted on October 22, 2008 (Registration No.: 95967).

IC Registration No. : 2973B-2

Test room	Width x Depth x Height (m)	Test room	Width x Depth x Height (m)
No.1 shielded room	8.0 x 5.0 x 2.5	No.1 Semi-anechoic chamber	10.0 x 7.5 x 5.7
No.2 shielded room	5.0 x 4.0 x 2.5		
No.3 shielded room	4.0 x 5.0 x 2.7		

Open test site	Maximum measurement distance
No.1 open test site	30m
No.2 open test site	10m

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## 4 System test configuration

### 4.1 Operating mode

The system was configured in typical fashion (as a customer would normally use it) for testing.

Test item	Operating mode	Tested frequency
Carrier frequency separation	Transmitting Hopping ON (DH5)/Inquiry, Payload: PRBS9	-
20dB bandwidth	Transmitting Hopping OFF (DH5)/Inquiry, Payload: PRBS9	2402MHz, 2441MHz, 2480MHz
Number of hopping frequency	Transmitting Hopping ON (DH5)/Inquiry, Payload: PRBS9	-
Dwell time	Transmitting (Hopping ON) -DH1 -DH3 -DH5	-
	-Inquiry	
Maximum peak output power	Transmitting Hopping OFF (DH5)/Inquiry, Payload: PRBS9 -DH5	2402MHz, 2441MHz, 2480MHz
Band edge compliance & Spurious emission (Conducted) (Radiated)	Transmitting (DH5), Payload: PRBS9 -Hopping ON/Inquiry -Hopping OFF	Band edge compliance: 2402MHz, 2480MHz Spurious emission: 2402MHz, 2441MHz, 2480MHz
	Transmitting (DH5), Payload: PRBS9	
99% occupied bandwidth	Transmitting (DH5), Payload: PRBS9 -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 (except Dwell time test)

\*Remarks: 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. However, the limit level 125mW of AFH mode was used for the test.

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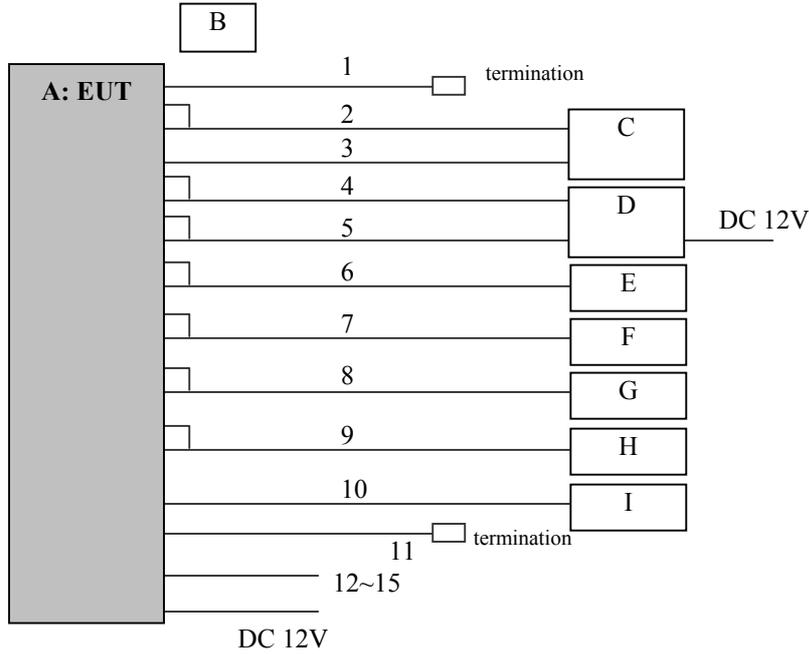
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4.2 Configuration and peripherals



\* Test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Bluetooth Audio System	MEX-BT3700U	4	SONY	EUT
B	Remote Controller	RM-X151	-	SONY	-
C	Compact Disc Changer	CDX-T67	22634	SONY	-
D	Power Amplifier	XM-423SL	020456	SONY	-
E	Speaker 1	XS-F1611	-	SONY	-
F	Speaker 2	XS-F1611	-	SONY	-
G	Speaker 3	1-544-814-31	-	AIWA	-
H	Speaker 4	1-544-814-31	-	AIWA	-
I	Wired Remote Controller	RM-X4S	-	SONY	-

\*1) DC power supply (Model No.: PAN35-10A) was used for DC 12V input.

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**List of cables used**

No.	Name	Length (m)	Shield	
			Cable	Connector
1	FM antenna Cable	1.0	Shielded	Shielded
2	Audio Cable	5.5	Unshielded	Shielded
3	BUS Control IN cable	5.5	Shielded	Shielded
4	Audio Cable	5.5	Unshielded	Shielded
5	Audio Cable	5.5	Unshielded	Shielded
6	Speaker Cable	2.2	Unshielded	Unshielded
7	Speaker Cable	2.2	Unshielded	Unshielded
8	Speaker Cable	2.2	Unshielded	Unshielded
9	Speaker Cable	2.2	Unshielded	Unshielded
10	REMOTE IN Cable	2.0	Unshielded	Unshielded
11	AUX Cable	1.8	Unshielded	Unshielded
12	Illumination cable	2.0	Unshielded	Unshielded
13	ANT Control Cable	2.0	Unshielded	Unshielded
14	Car telephone Cable	2.0	Unshielded	Unshielded
15	Amp Remote Cable	2.0	Unshielded	Unshielded

\* All cables used for the measurement are exclusive use or marketed.

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## 5 Carrier frequency separation

### Test procedure

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass

Date: October 17, 2008

Test engineer : Tatsuya Arai

## 6 20dB bandwidth & Occupied bandwidth (99%)

### Test procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.

The channel separation in Hopping mode and Inquiry mode was separated by 25kHz and 2/3 of the 20dB bandwidth.

Summary of the test results: Pass

Date: November 25, 2008

Test engineer : Tatsuya Arai

## 7 Number of hopping frequency

### Test procedure

The Number of Hopping Frequency was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass

Date: October 17, 2008

Test engineer : Tatsuya Arai

## 8 Dwell time

### Test procedure

The Dwell time was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass

Date: October 17, 2008

Test engineer : Tatsuya Arai

## 9 Maximum peak output power

### Test procedure

The Maximum Peak Output Power was measured with a power meter connected to the antenna port.

Summary of the test results: Pass

Date: October 17, 2008

Test engineer : Tatsuya Arai

## 10 Out of band emissions (Antenna port conducted)

### Test procedure

The Out of Band Emissions was measured with a spectrum analyzer connected to the antenna port.

In any 100kHz bandwidth outside the frequency 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 conducted measurement.

Summary of the test results: Pass

Date: October 17, 2008

Test engineer : Tatsuya Arai

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## 11 Out of band emissions (Radiated)

### 11.1 Operating environment

The test was carried out in No.1 anechoic chamber.

### 11.2 Test configuration

EUT was placed on a urethane platform of nominal size, 0.5m by 1.0m, raised 80cm above the conducting ground plane to prevent the reflection influence. The configuration was set in accordance with ANSI C63.4: 2003. Photographs of the set up are shown in Appendix 1.

### 11.3 Test conditions

Frequency range : 30MHz - 26GHz  
Test distance : 3m

### 11.4 Test procedure

The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3m. The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization. Measurements were performed with QP, PK, and AV detector.

The radiated emission measurements were made with the following detector function of the test receiver.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
Detector IF Bandwidth	QP: BW 120kHz	PK: RBW: 1MHz/VBW: 1MHz AV *1): RBW: 1MHz/VBW: See data
Measuring antenna	Biconical (30-300MHz) Logperiodic (300MHz-1GHz)	Horn

\*1) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

The EUT was tested in the direction normally used.

### 11.5 Band edge

Band edge level at 2390MHz, 2400MHz and 2483.5MHz is below the limits of FCC 15.209. Refer to the data of radiated emission.

### 11.6 Results

Summary of the test results : Pass  
No noise was detected above the 5<sup>th</sup> order harmonics.

Date: October 15, 2008

Test engineer : Wataru Kojima

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### **APPENDIX 1: Photographs of test setup**

Page 12 : Radiated emission

### **APPENDIX 2: Test data**

Page 13 : Carrier frequency separation  
Page 14 - 15 : 20dB bandwidth  
Page 16 - 18 : Number of hopping frequency  
Page 19 - 26 : Dwell time  
Page 27 : Maximum peak output power  
Page 28 - 37 : Out of band emissions (Antenna port conducted)  
Page 38 - 46 : Out of band emissions (Radiated)  
Page 47 : Duty cycle  
Page 48 - 49 : Occupied bandwidth

### **APPENDIX 3: Test instruments**

Page 50 : Test instruments

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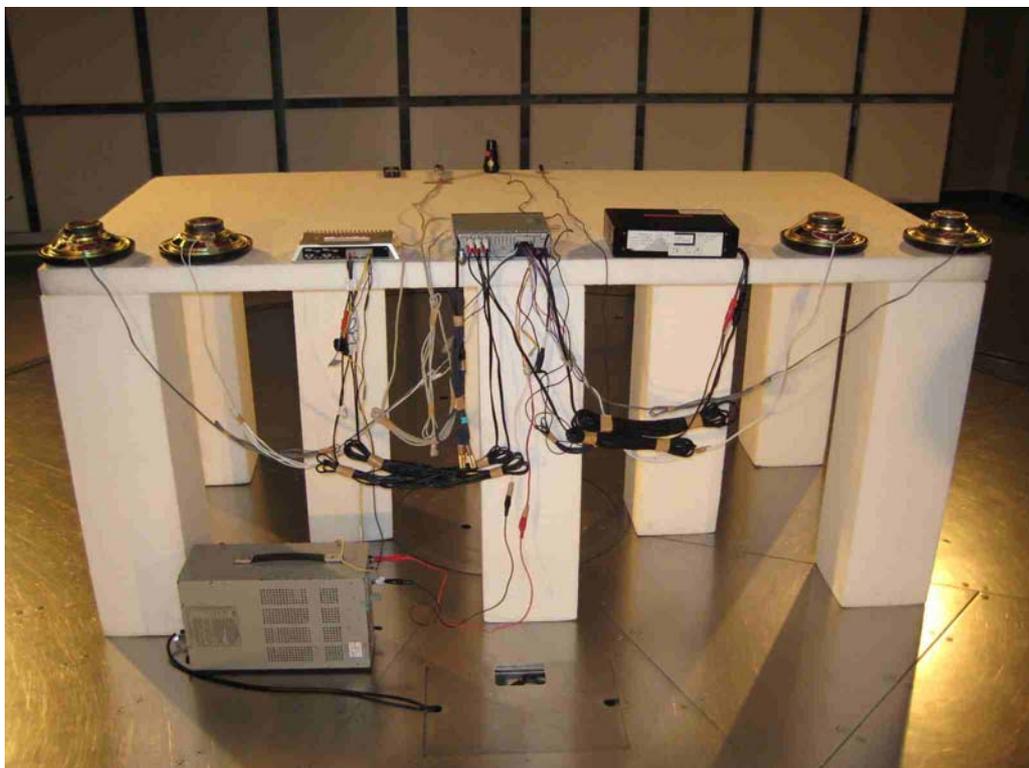
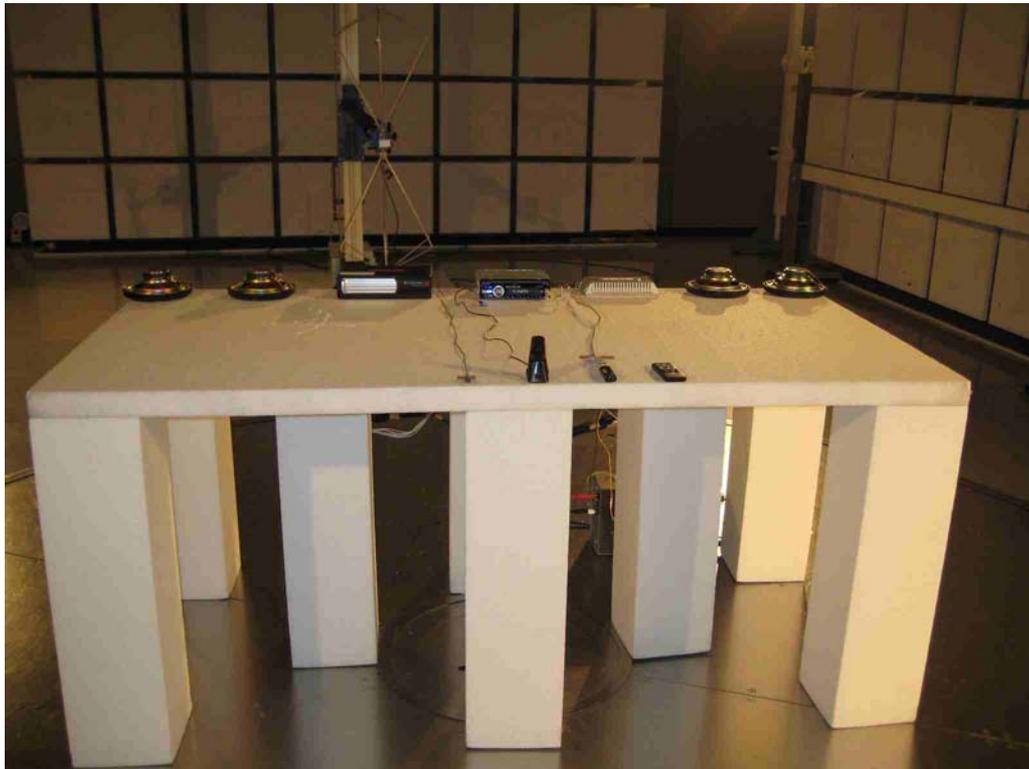
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**Radiated emission**



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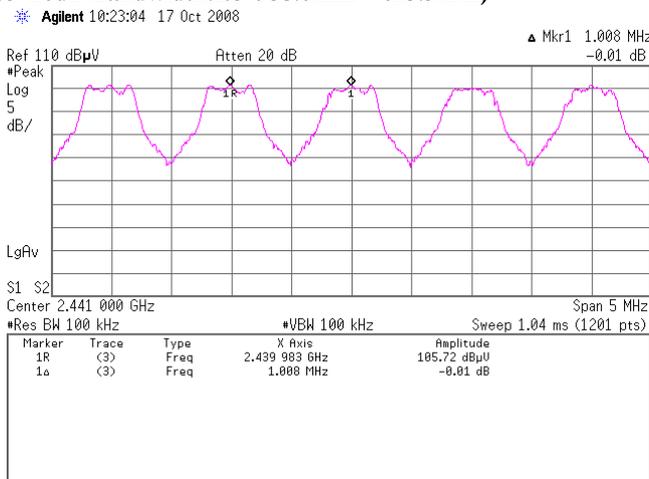
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### Channel Separation (Regulation: FCC 15.247(a)(1))

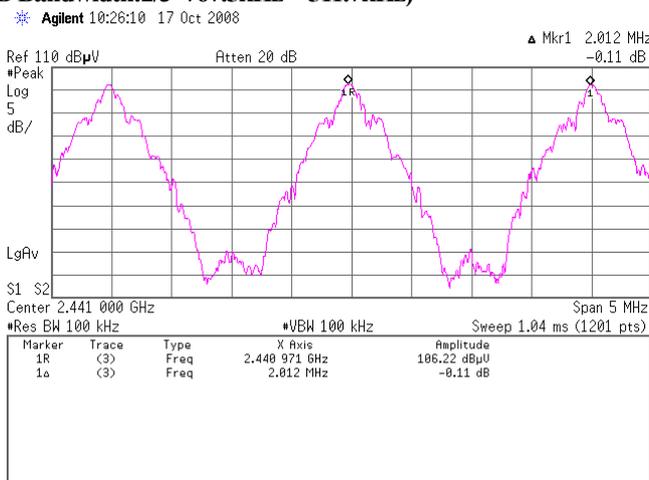
UL Japan, Inc. Yamakita EMC lab. No.4 shielded room  
 Date: 2008.10.17  
 Temp/Humid.: 24 deg. C. / 53 %  
 Engineer: Tatsuya Arai  
 Test mode: Transmitting

Limit:  $\geq 25\text{kHz}$  or  $2/3 * 20\text{dB Bandwidth}$  (Power: No greater than 125mW)

#### 1. Hopping, DH5: 1.008MHz ( $2/3 * 20\text{dB Bandwidth}: 2/3 * 935.0\text{kHz} = 623.3\text{kHz}$ )



#### 2. Inquiry: 2.012MHz ( $2/3 * 20\text{dB Bandwidth}: 2/3 * 767.5\text{kHz} = 511.7\text{kHz}$ )



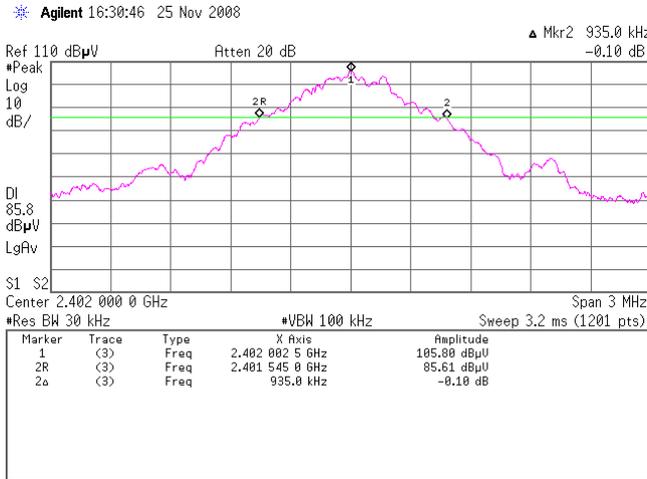
**20dB Bandwidth (Regulation: FCC 15.247(a)(1))**

UL Japan, Inc. Yamakita EMC lab.  
 Date:  
 Temp/Humid.:  
 Engineer:  
 Test mode:

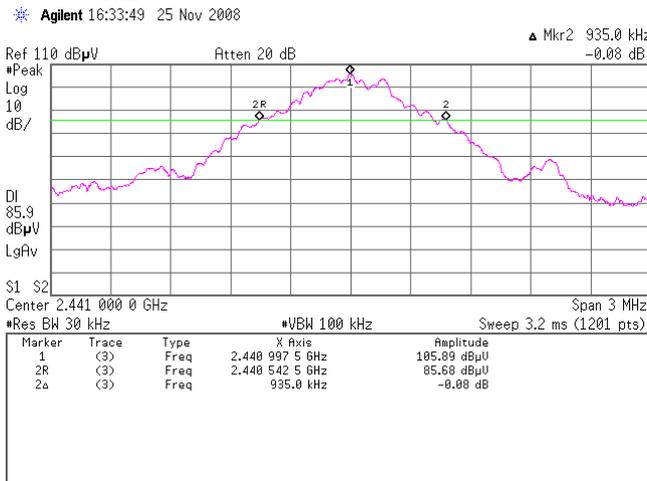
No.2 shielded room  
 2008.11.25  
 20 deg. C. / 41 %  
 Tatsuya Arai  
 Transmitting

[Hopping off, DHS]

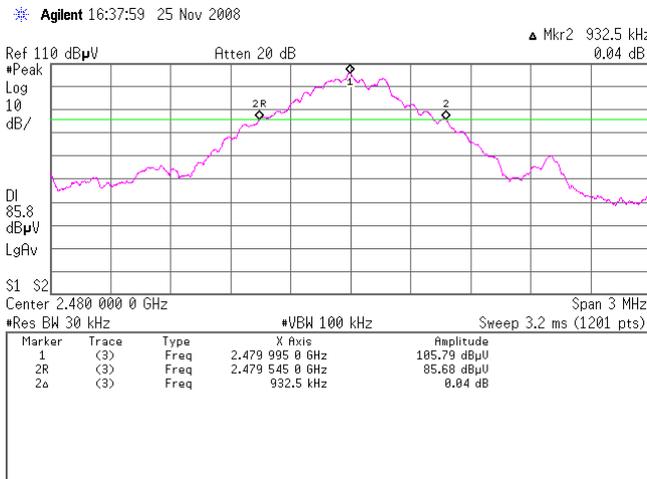
1. ch : 2402MHz/20dB Bandwidth: 935.0kHz



2. ch : 2441MHz/20dB Bandwidth: 935.0kHz

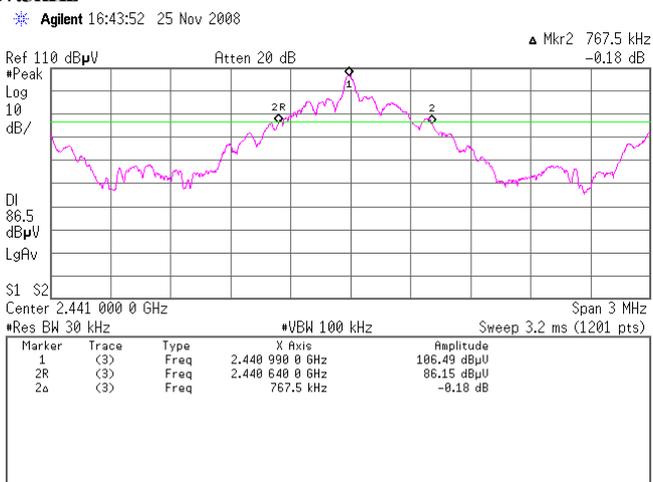


3. ch : 2480MHz/20dB Bandwidth: 932.5kHz



[Inquiry]

4. Inquiry /20dB Bandwidth: 767.5kHz

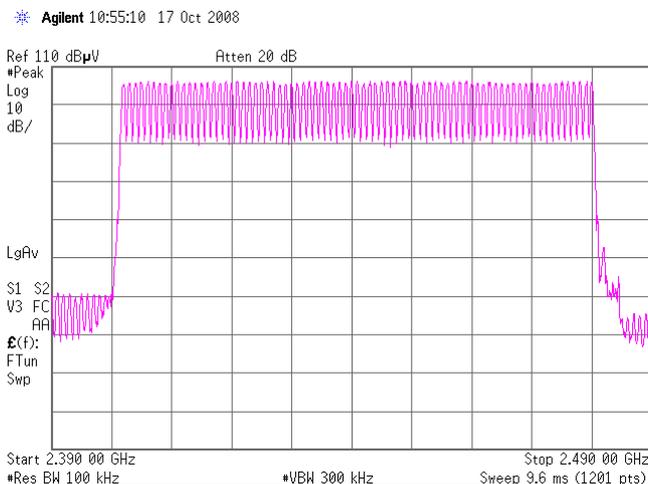


### Channel Utilization (Regulation: FCC 15.247(a)(1)(iii))

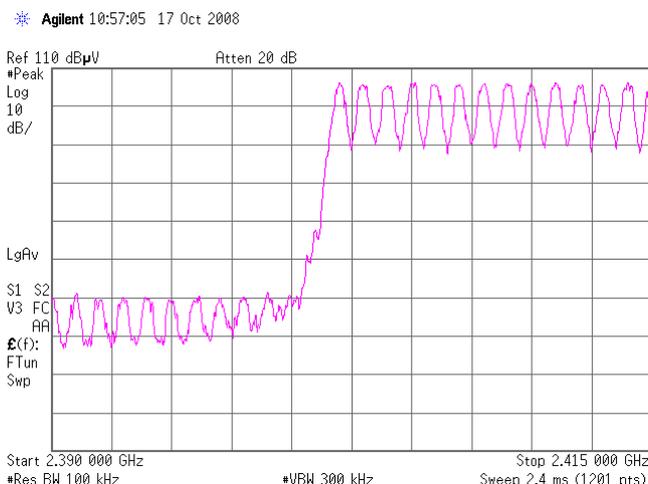
UL Japan, Inc. Yamakita EMC lab. No.4 shielded room  
Date: 2008.10.17  
Temp./Humid.: 24 deg. C. / 53 %  
Engineer: Tatsuya Arai  
Test mode: Transmitting

#### Hopping, DH5: 79ch

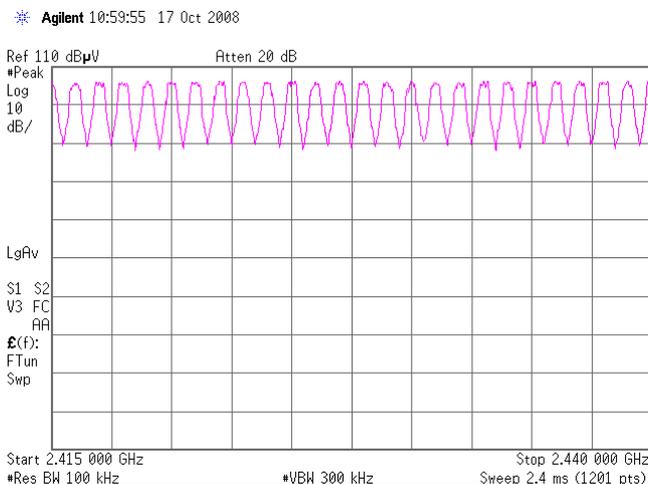
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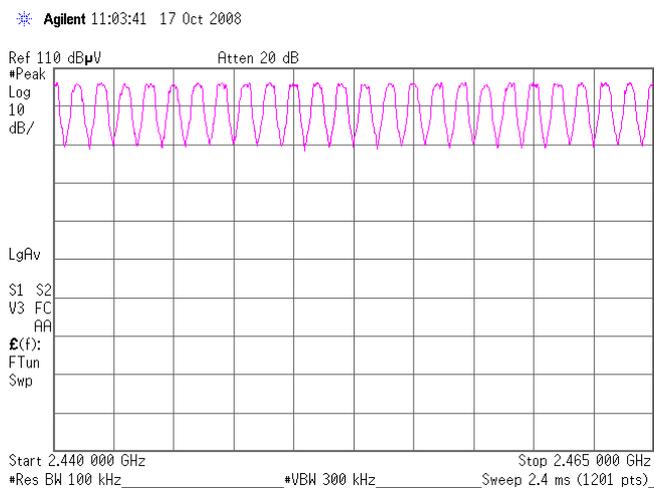
2.



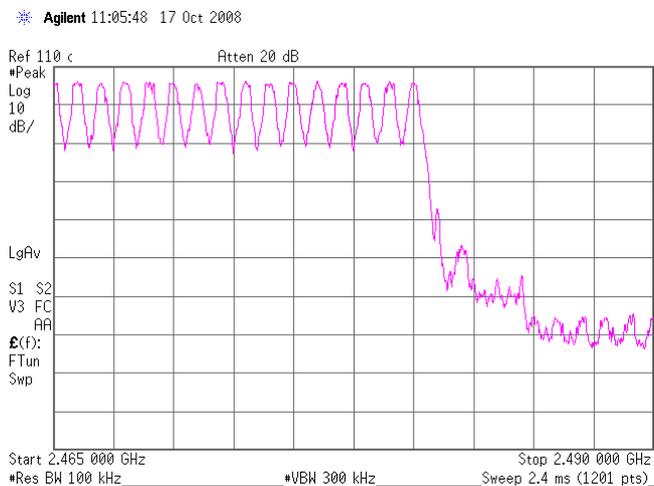
3.



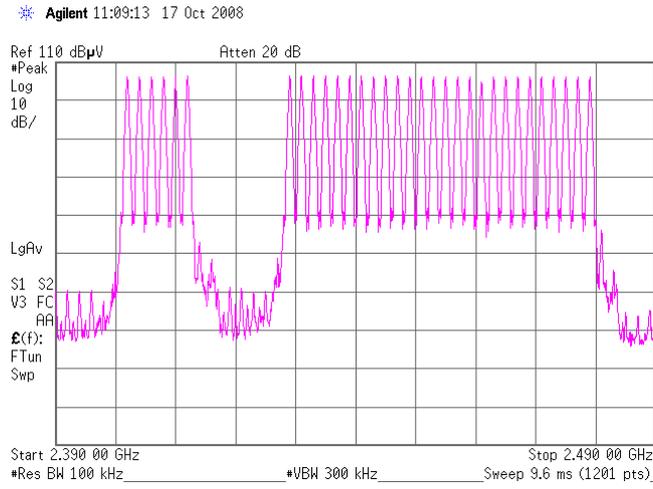
4.



5.



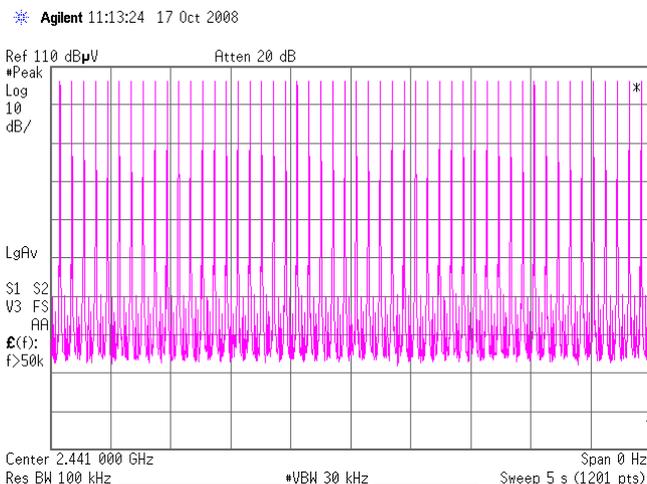
1. Inquiry: 32ch



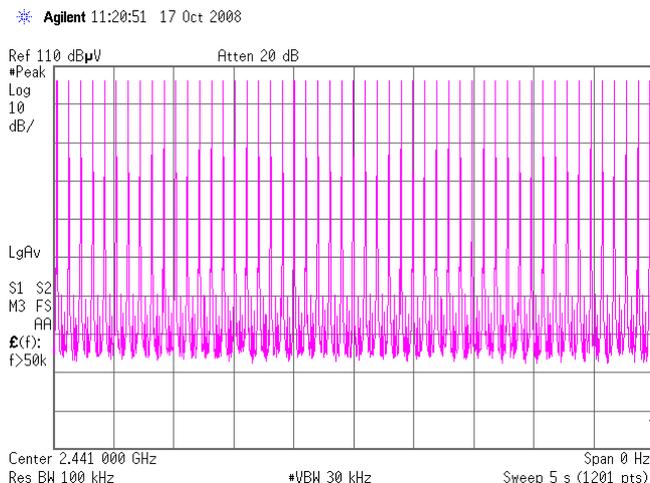
### Dwell Time (Regulation: FCC 15.247(a)(1)(iii))

UL Japan, Inc. Yamakita EMC lab. No.4 shielded room  
Date: 2008.10.17  
Temp./Humid.: 24 deg. C. / 53 %  
Engineer: Tatsuya Arai  
Test mode: Transmitting

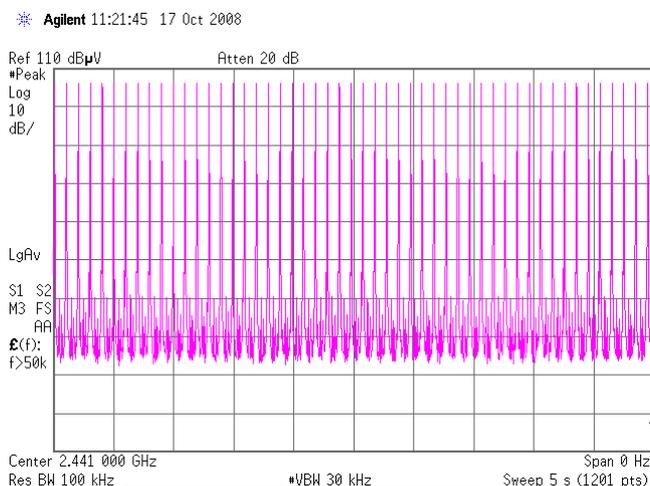
#### Hopping (DH1): Count 1



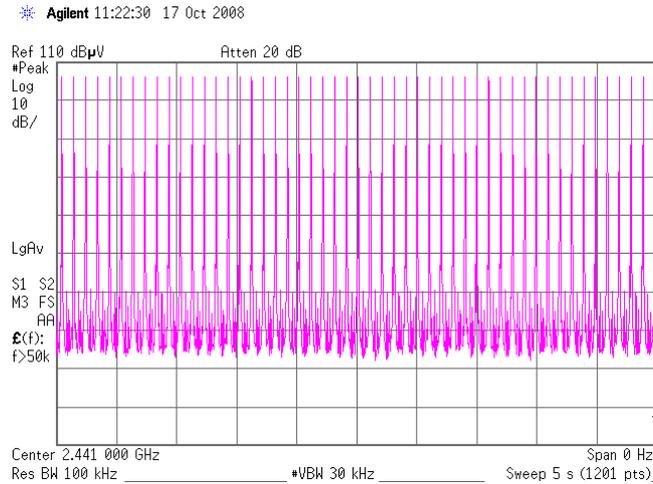
#### Count 2



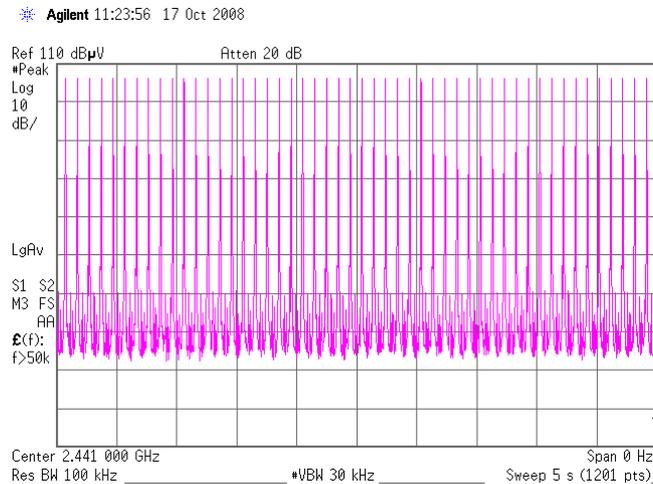
#### Count 3



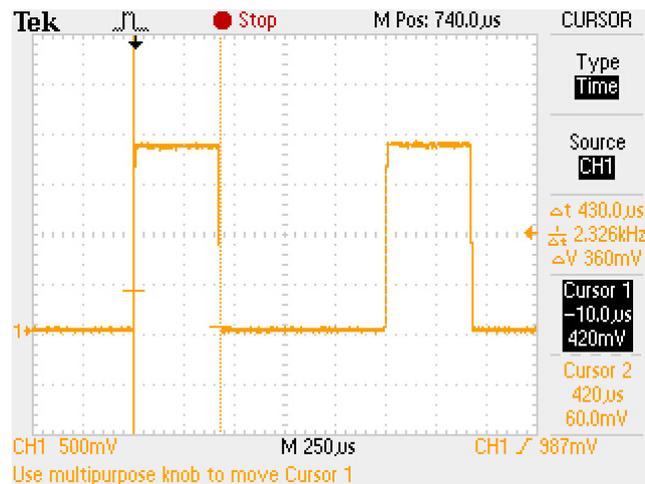
**Count 4**



**Count 5**

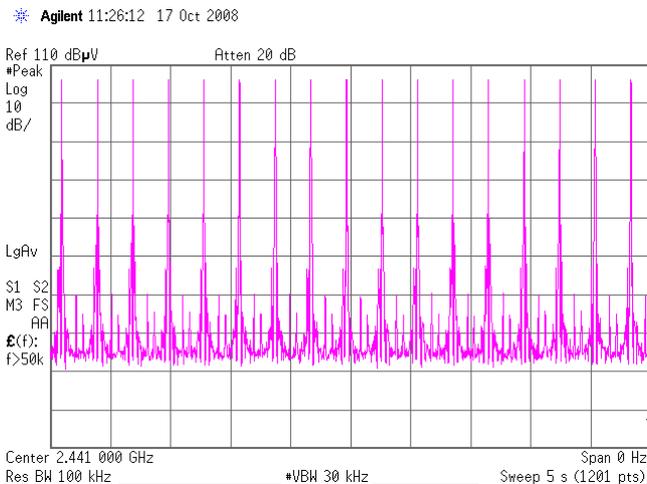


**Duty cycle(Hopping DH1)**

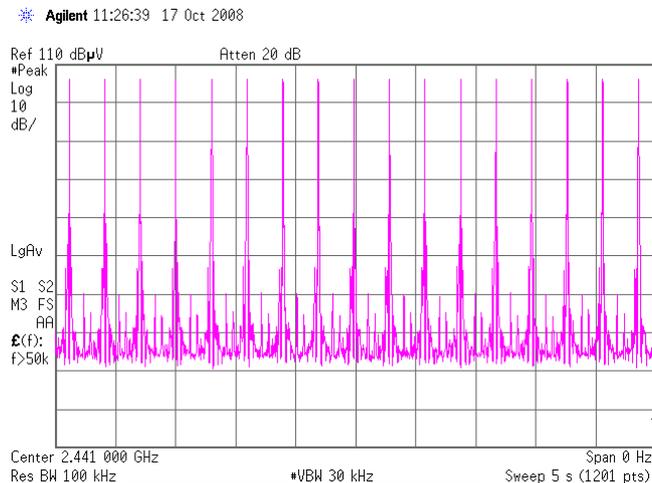


**Average times of rising in 5 sec. of sweep = (51+ 51 + 51 + 51+ 50) / 5 = 50.8**  
**Average times of rising in 1 sec. = 50.8 / 5s = 10.16**  
**Average times of rising in 0.4x = 0.4 \* 79ch \* 10.16 = 321.06**  
**Dwell time = 321.06 \* 0.430 = 138.06 [ms]**  
**Limit : Dwell Time < 0.4[s]**

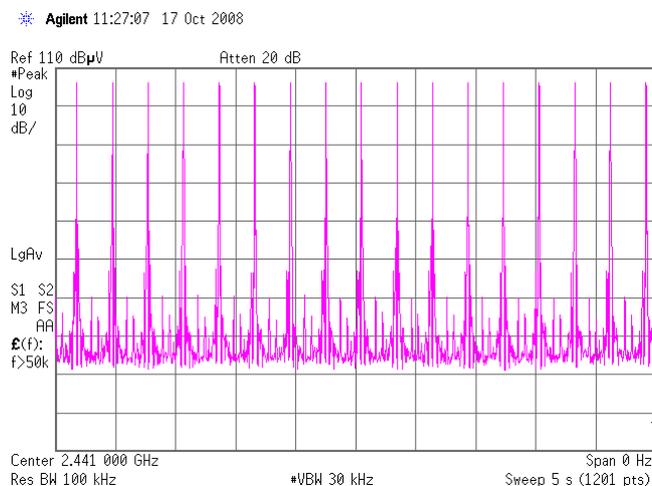
**Hopping (DH3):**  
**Count 1**



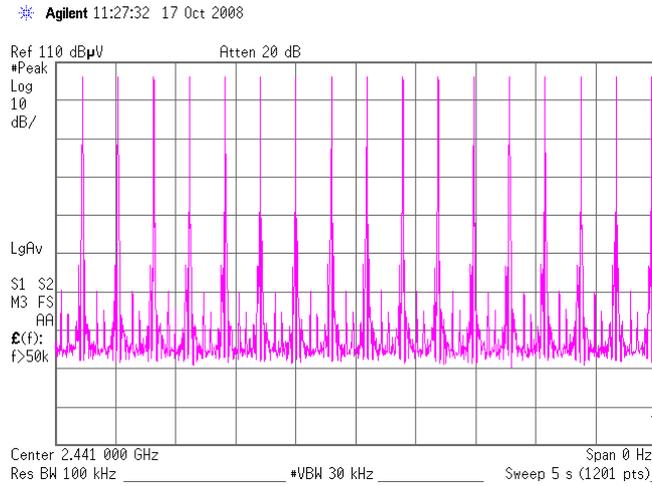
**Count 2**



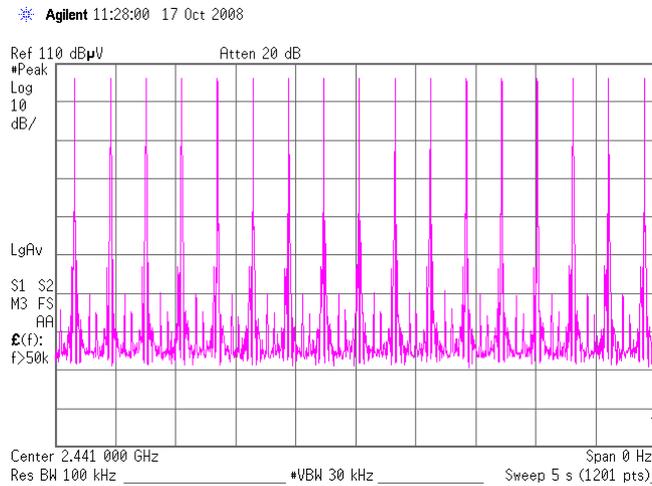
**Count 3**



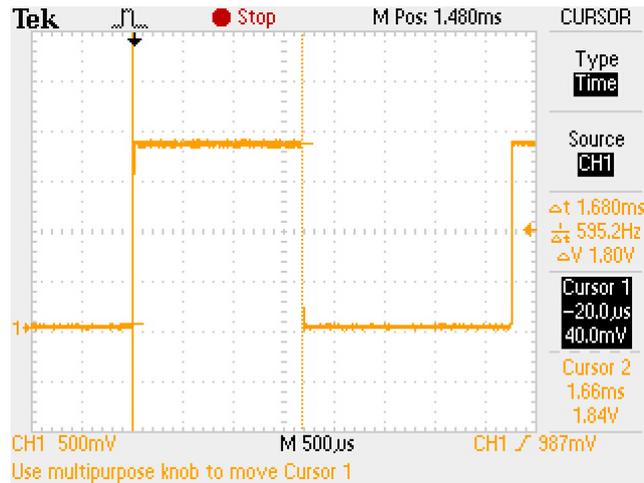
**Count 4**



**Count 5**

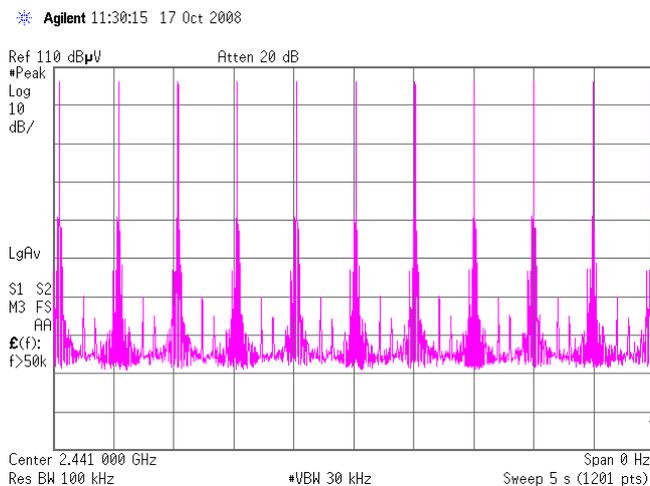


**Duty cycle(Hopping DH3)**

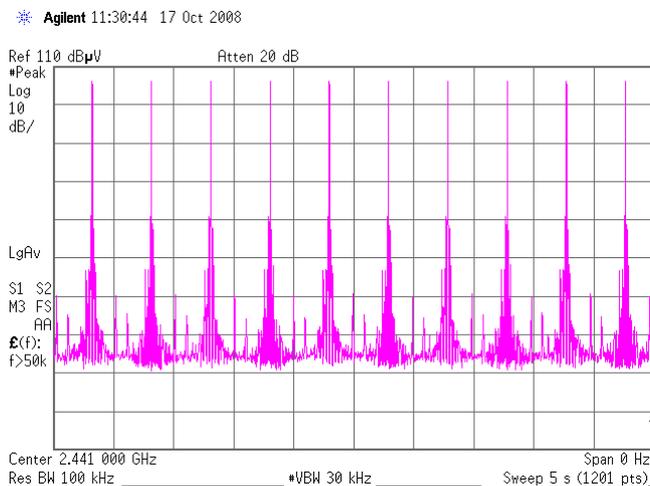


Average times of rising in 5 sec. of sweep =  $(17 + 17 + 17 + 17 + 17) / 5 = 17$   
 Average times of rising in 1 sec. =  $17 / 5s = 3.4$   
 Average times of rising in 0.4x =  $0.4 * 79ch * 3.4 = 107.44$   
 Dwell time =  $107.44 * 1.68 = 180.50 [ms]$   
 Limit : Dwell Time < 0.4[s]

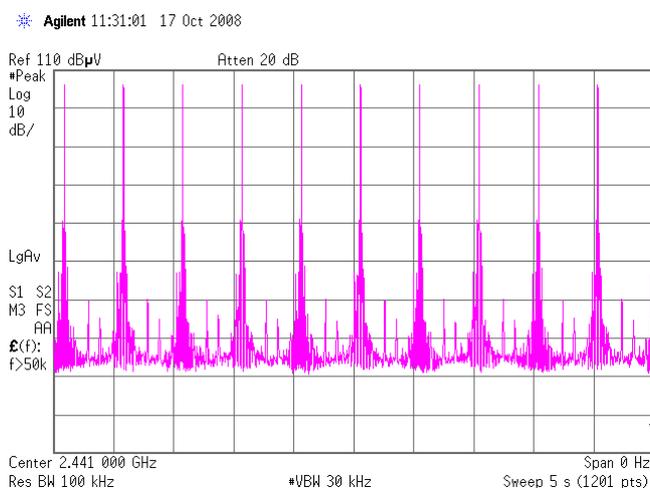
**Hopping (DH5):**  
**Count 1**



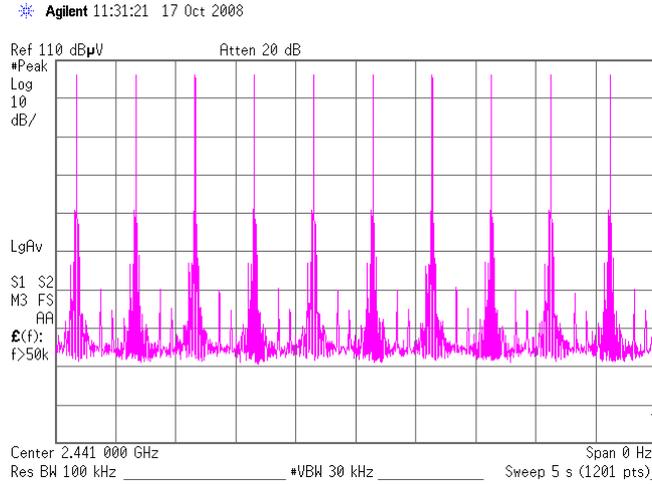
**Count 2**



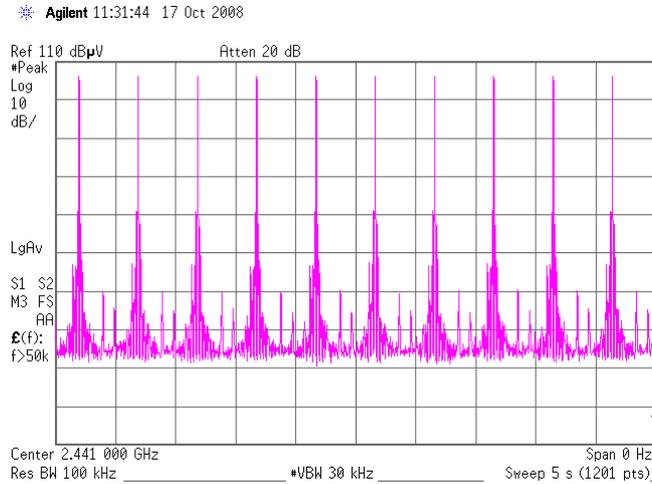
**Count 3**



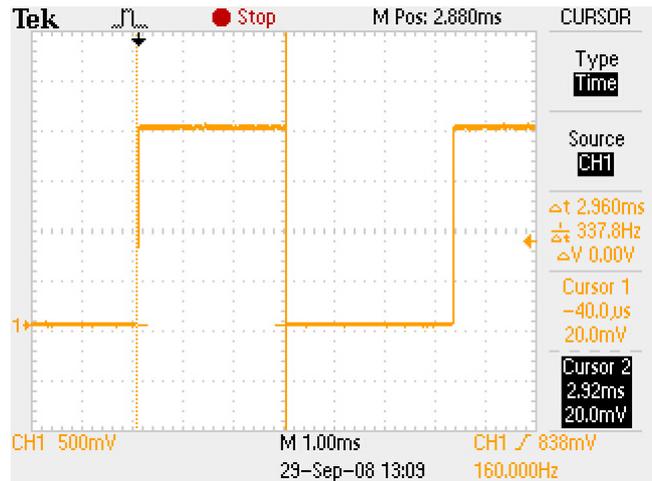
**Count 4**



**Count 5**

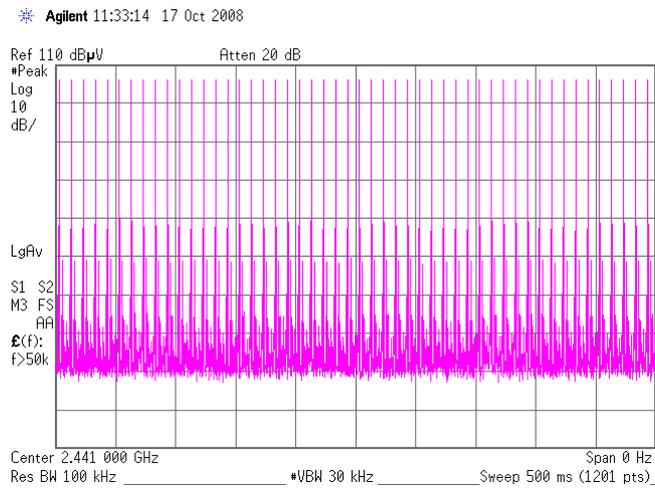


**Duty cycle(Hopping DH5)**

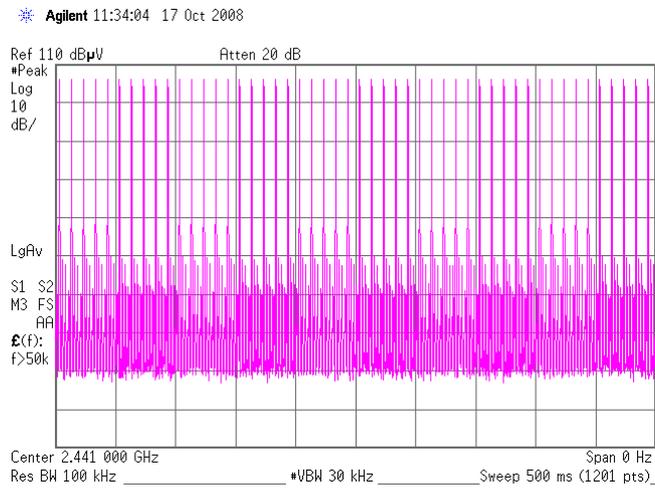


Average times of rising in 5 sec. of sweep =  $(11 + 10 + 10 + 10 + 10) / 5 = 10.2$   
 Average times of rising in 1 sec. =  $10.2 / 5s = 2.04$   
 Average times of rising in 0.4x =  $0.4 * 79ch * 2.04 = 64.46$   
 Dwell time =  $64.46 * 2.960 = 190.80 [ms]$   
 Limit : Dwell Time < 0.4[s]

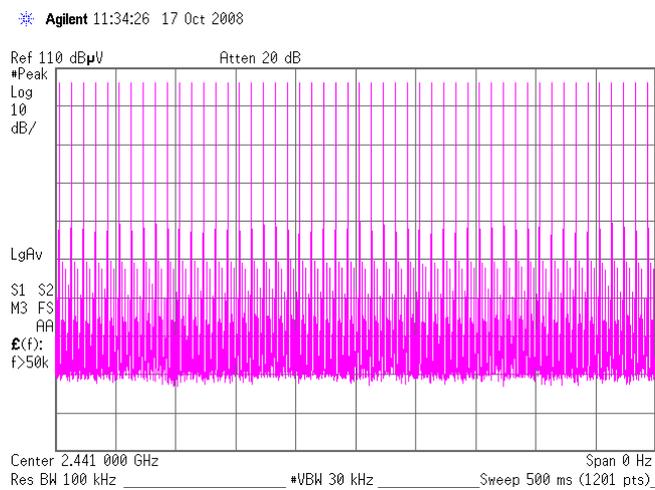
**Inquiry:**  
**Count 1**



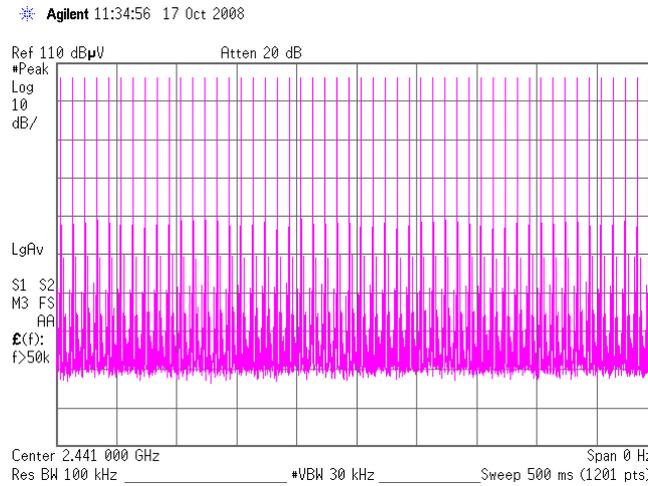
**Count 2**



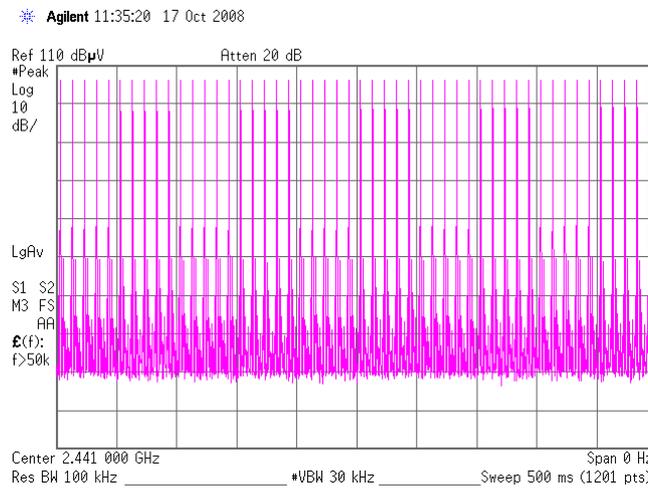
**Count 3**



**Count 4**



**Count 5**



**Duty cycle(Inquiry)**



Average times of rising in 0.5 sec. of sweep =  $(50 + 50 + 50 + 50 + 50) / 5 = 50.0$   
 Average times of rising in 1 sec. =  $50.0 / 0.5s = 100.0$   
 Average times of rising in 0.4x =  $0.4 * 32ch * 100.0 = 1280.0$   
 Dwell time =  $1280.0 * 0.124 = 158.72 [ms]$   
 Limit : Dwell Time < 0.4[s]

Company: Sony Corporation  
Kind of Equipment: Bluetooth Audio System  
Serial No.: 4

Report No.: 29BE0117-YK-E  
Model No.: MEX-BT3700U  
Power: DC12V

## Maximum Peak Conducted Output Power (Regulation: FCC 15.247(b)(1))

UL Japan, Inc Yamakita EMC lab.  
No.4 Shielded Room

DATE: 2008.10.17  
TEMP./HUMID.: 24deg.C/53%  
TEST MODE: Transmitting

ENGINEER: Tatsuya Arai

DH5

CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]	Limit (125mW) [dBm]	MARGIN [dB]
Low	2402.00	-0.91	1.20	0.29	20.96	20.67
Mid	2441.00	-0.81	1.14	0.33	20.96	20.63
High	2480.00	-0.93	1.20	0.27	20.96	20.69
Inquiry	-	-0.80	1.14	0.34	20.96	20.62

Limit: 125mW=20.96dBm

P/M: Power Meter

CABLE LOSS:KCC-D21

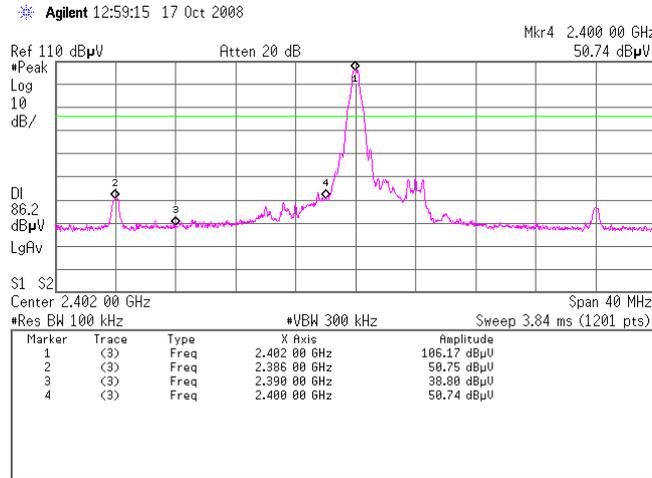
**Out of Band Emission (Antenna Terminal Conducted) (Regulation: FCC 15.247(d))**

UL Japan, Inc. Yamakita EMC lab. No.4 shielded room  
 Date: 2008.10.17  
 Temp/Humid.: 24 deg. C. / 53 %  
 Engineer: Tatsuya Arai  
 Test mode: Transmitting

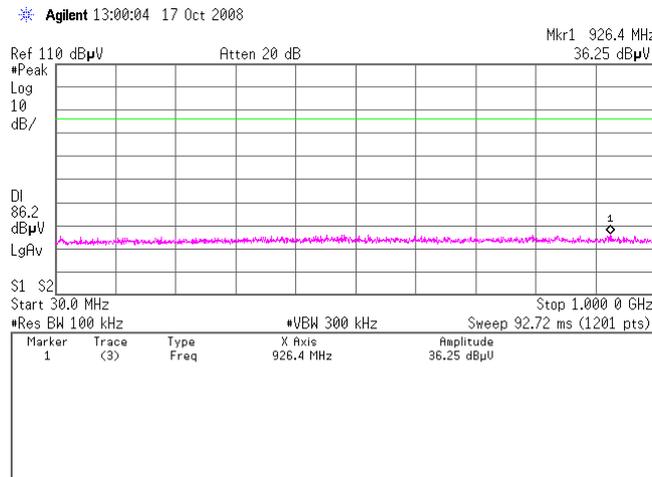
[Transmitting DH5]

Ch:2402MHz

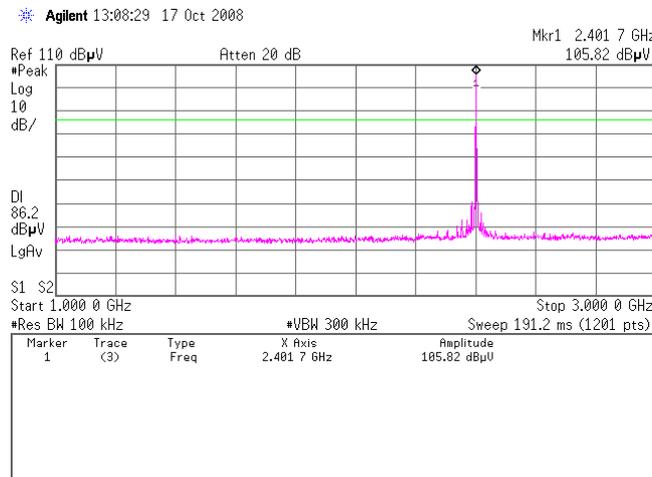
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2.

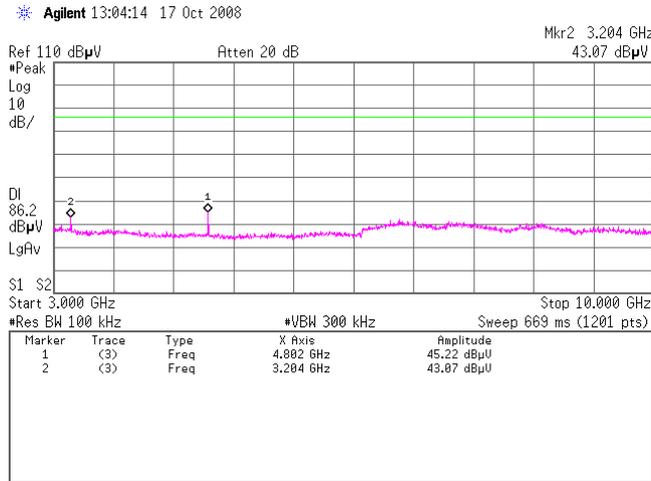


3.

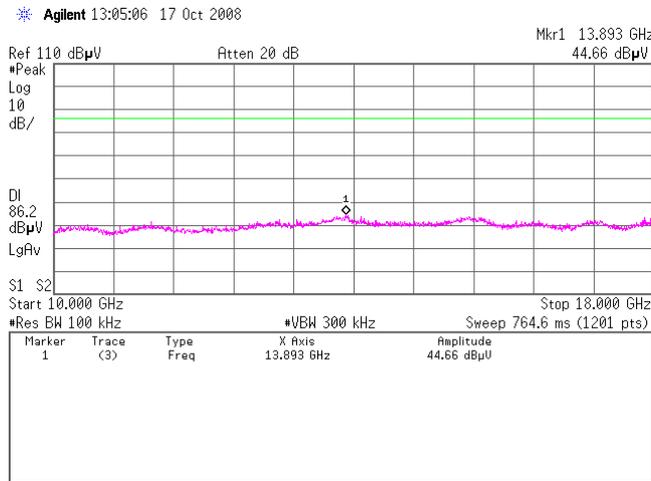


[Transmitting DH5]  
Ch:2402MHz

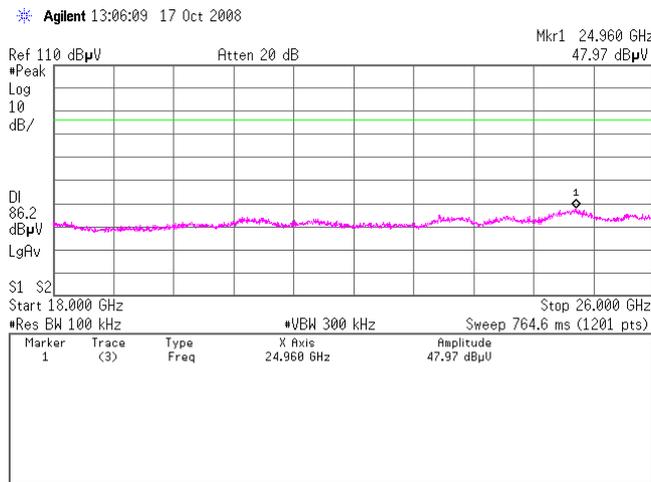
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5.

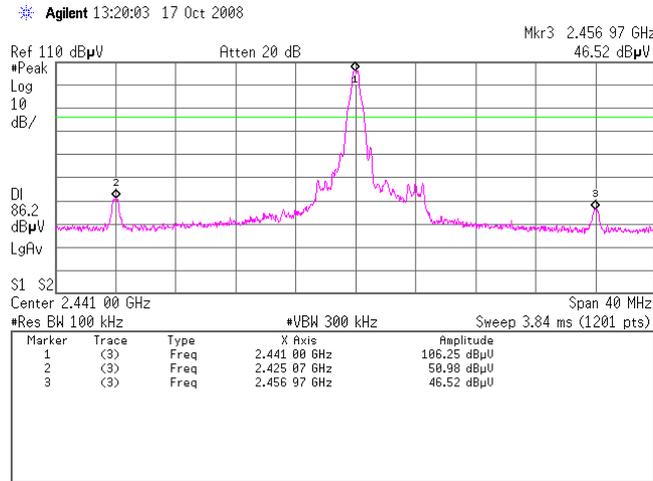


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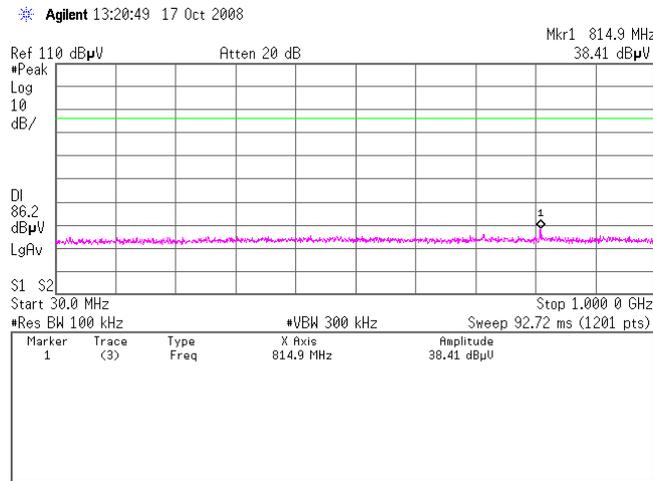


[Transmitting DH5]  
Ch:2441MHz

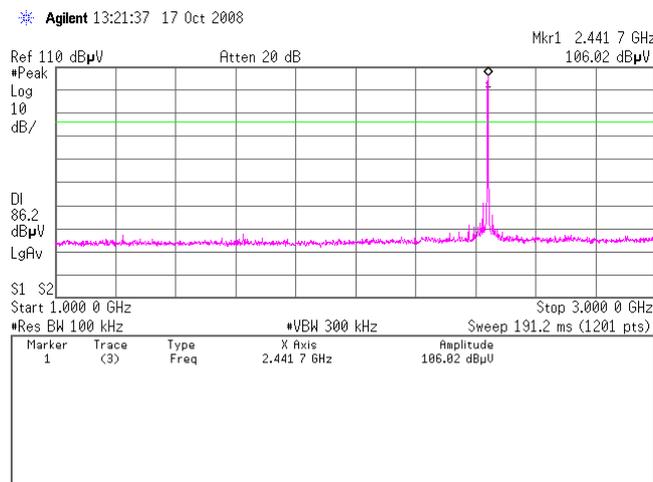
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2.

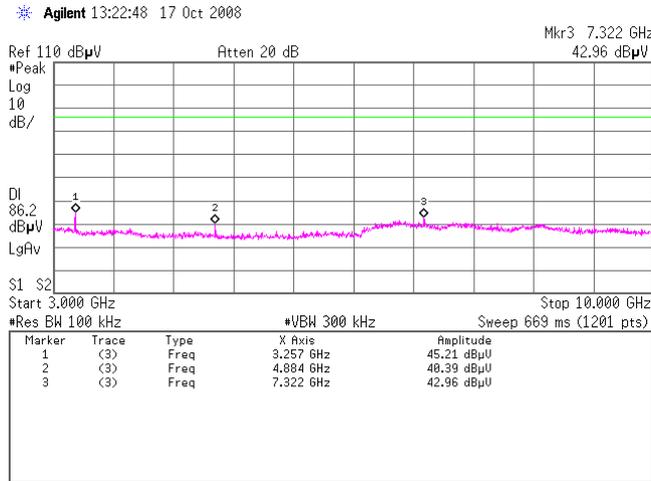


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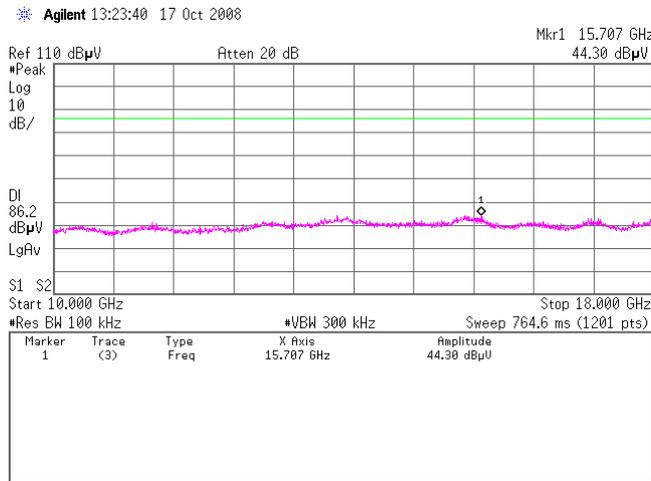


[Transmitting DH5]  
Ch:2441MHz

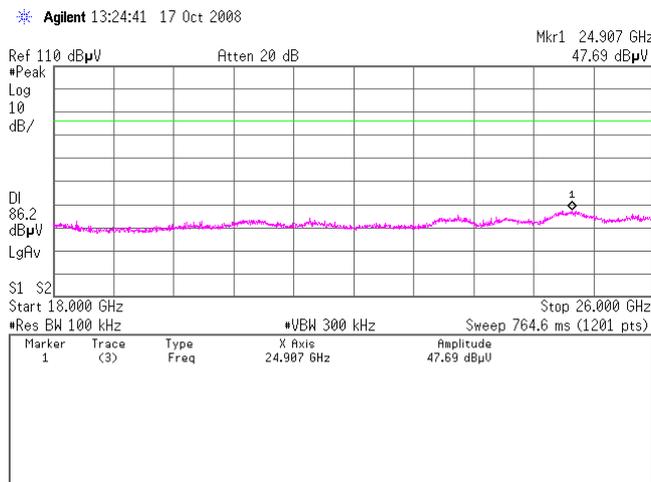
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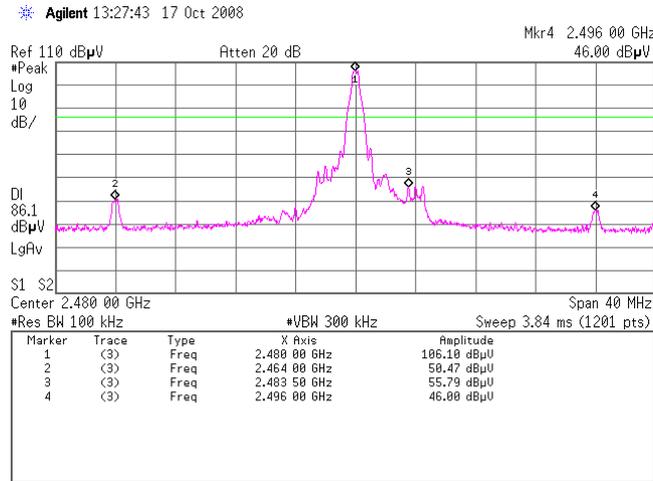


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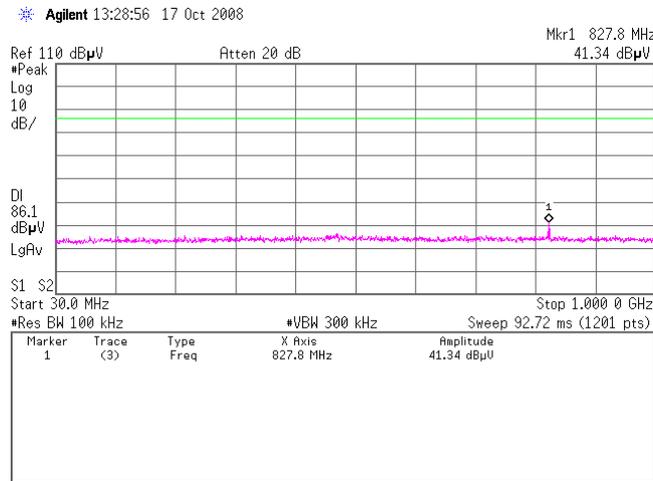


[Transmitting DH5]  
Ch:2480MHz

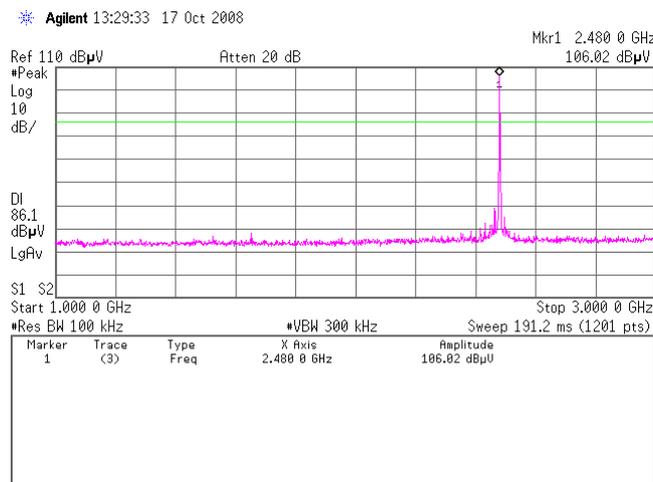
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2.

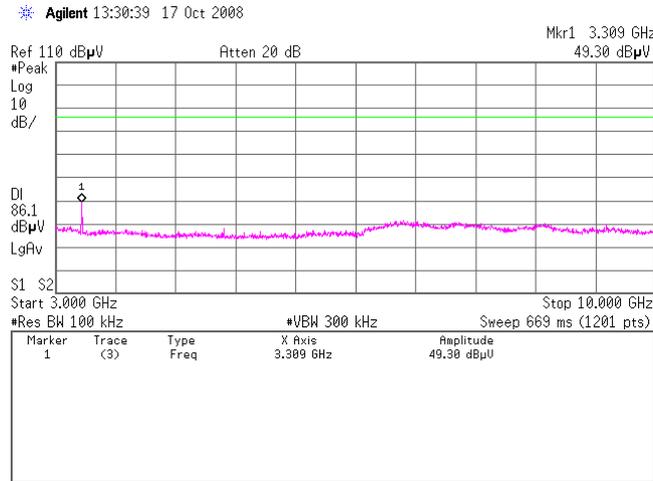


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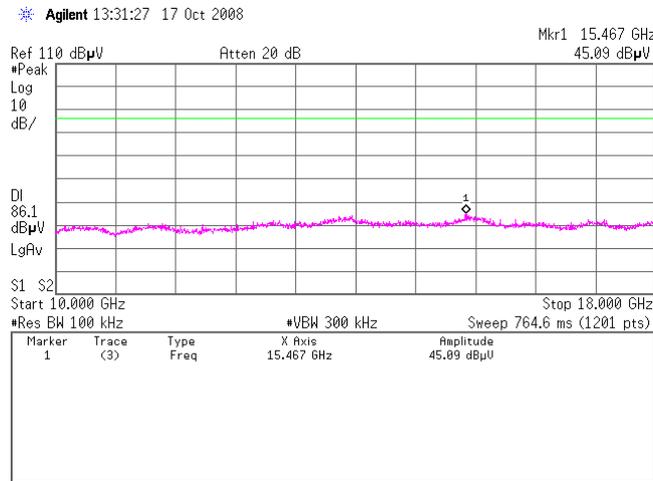


[Transmitting DH5]  
Ch:2480MHz

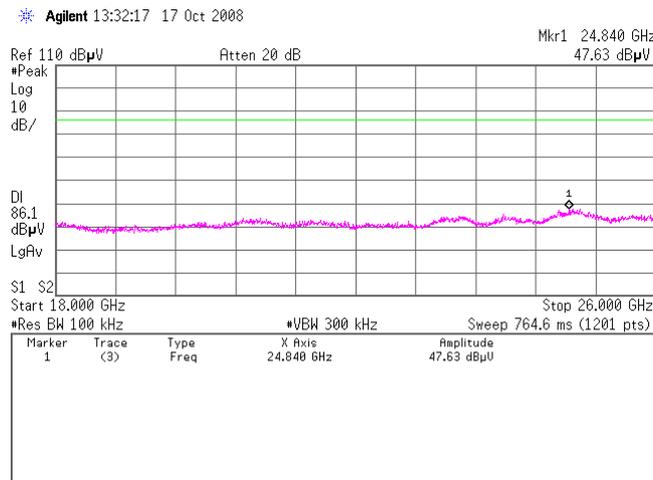
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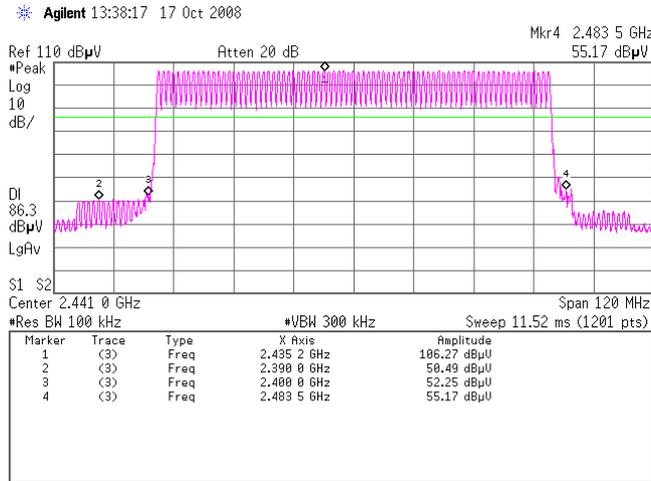


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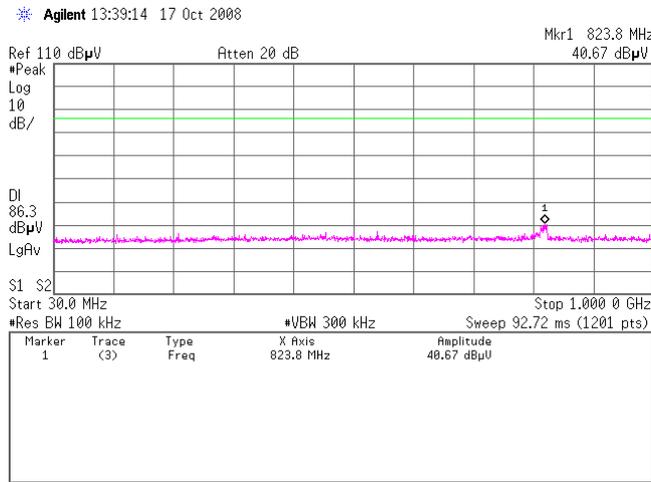


[Transmitting DH5]  
Hopping

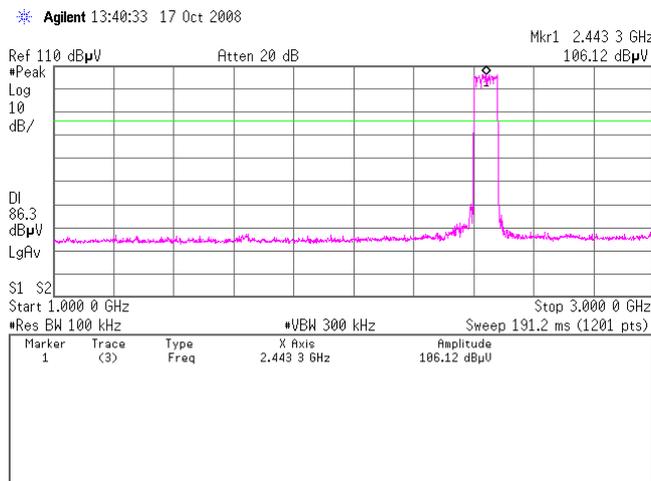
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2.

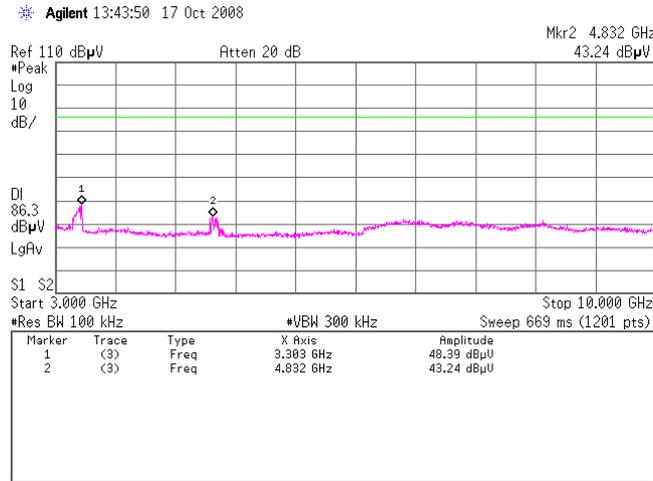


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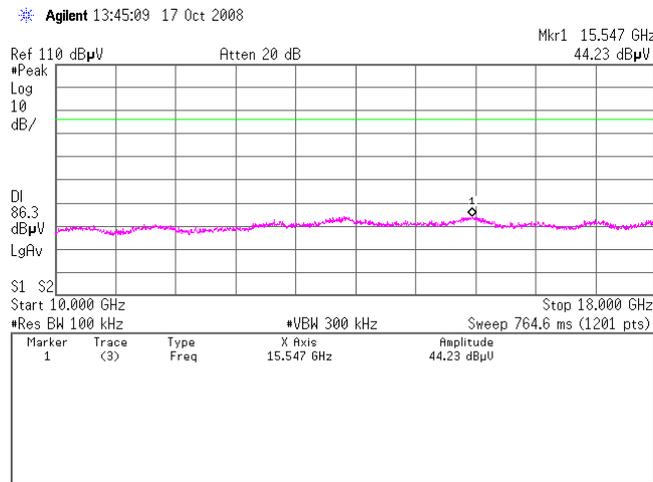


[Transmitting DH5]  
Hopping

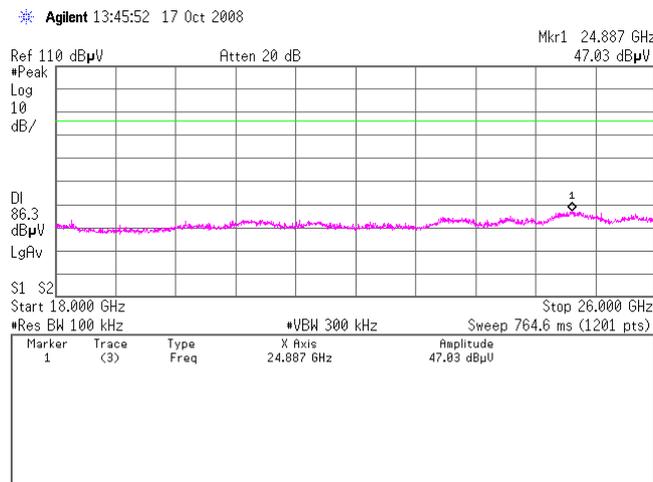
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5.

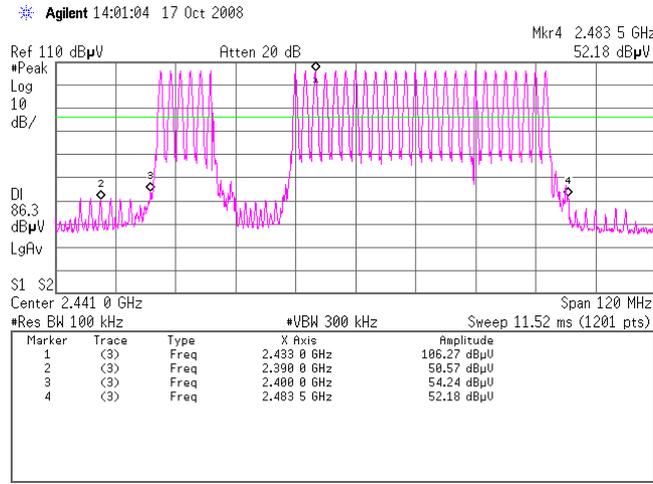


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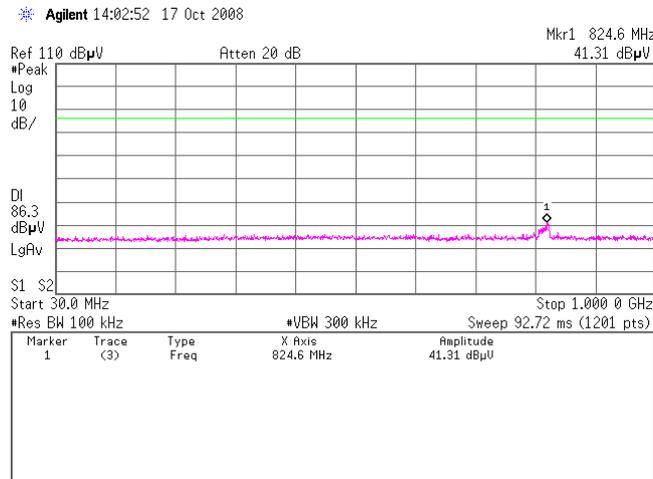


[Transmitting]  
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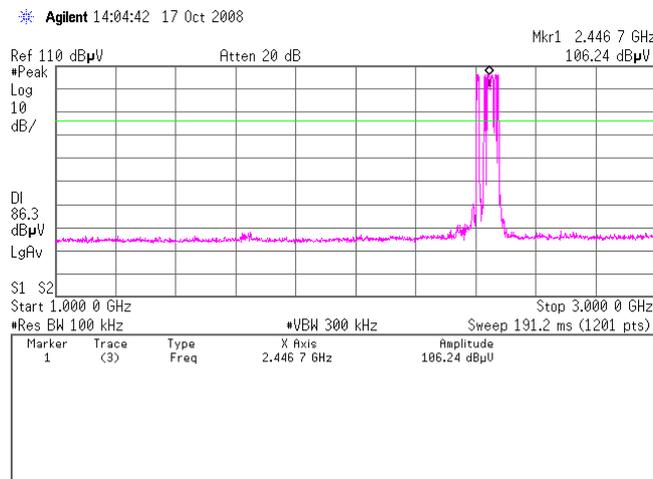
1.



2.

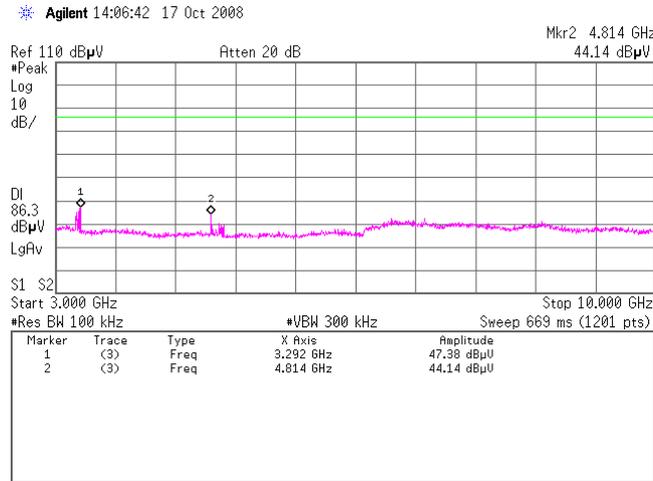


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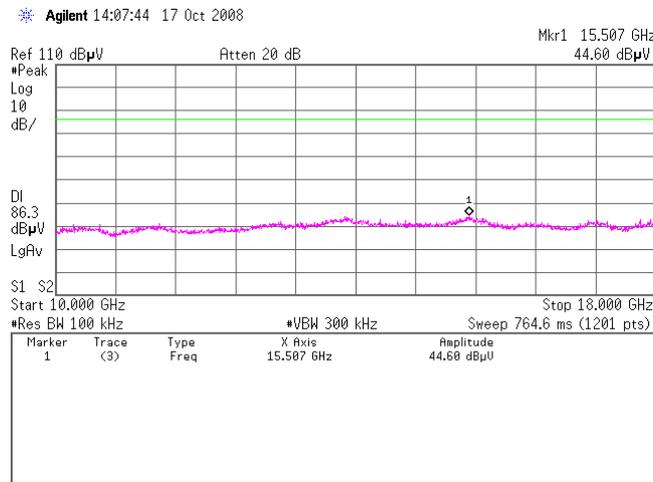


[Transmitting]  
Inquiry

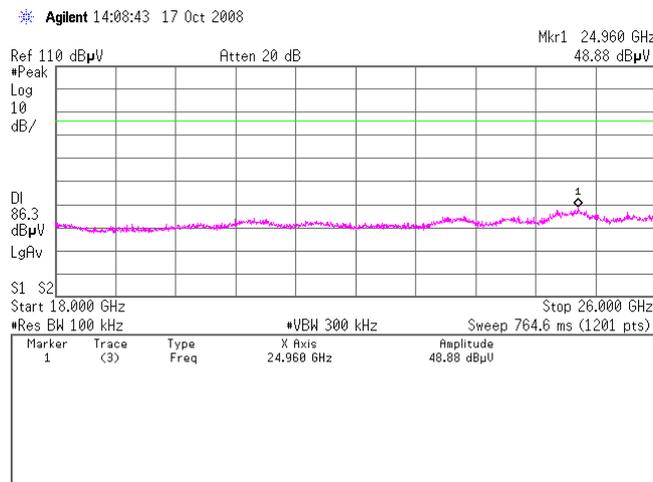
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5.



6.



# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
Kind of Equipment : Bluetooth Audio System  
Model No. : MEX-BT3700U  
Serial No. : 4  
Power : DC12V  
Mode : Transmitting (2402MHz)  
Remarks : DH5  
Date : 10/15/2008  
Test Distance : 3 m  
Temperature : 22 °C  
Humidity : 66 %  
Regulation : FCC Part15C § 15.209

Engineer : Wataru Kojima

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
			HOR [dB μ V]	VER [dB μ V]					HOR [dB μ V/m]	VER [dB μ V/m]	HOR [dB]	VER [dB]		
1.	30.54	BB	26.9	36.2	18.6	27.7	1.1	6.0	24.9	34.2	40.0	15.1	5.8	
2.	288.00	BB	32.5	30.1	19.6	27.3	3.7	6.0	34.5	32.1	46.0	11.5	13.9	
3.	303.99	BB	31.0	25.1	14.7	27.3	3.8	6.0	28.2	22.3	46.0	17.8	23.7	

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KBA-03 (BBA9106) 30-300MHz/KLA-03 (USLP9143) 300-1000MHz

■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-08 (MH648A) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
Kind of Equipment : Bluetooth Audio System  
Model No. : MEX-BT3700U  
Serial No. : 4  
Power : DC12V  
Mode : Transmitting (2441MHz)  
Remarks : DH5  
Date : 10/15/2008  
Test Distance : 3 m  
Temperature : 22 °C  
Humidity : 66 %  
Regulation : FCC Part15C § 15.209

Engineer : Wataru Kojima

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
			HOR [dB μ V]	VER [dB μ V]					HOR [dB μ V/m]	VER [dB μ V/m]	HOR [dB]	VER [dB]		
1.	30.54	BB	35.5	35.3	18.6	27.7	1.1	6.0	33.5	33.3	40.0	6.5	6.7	
2.	288.02	BB	31.5	29.9	19.6	27.3	3.7	6.0	33.5	31.9	46.0	12.5	14.1	
3.	303.98	BB	30.5	24.9	14.7	27.3	3.8	6.0	27.7	22.1	46.0	18.3	23.9	

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KBA-03 (BBA9106) 30-300MHz/KLA-03 (USLP9143) 300-1000MHz

■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-08 (MH648A) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
Kind of Equipment : Bluetooth Audio System  
Model No. : MEX-BT3700U  
Serial No. : 4  
Power : DC12V  
Mode : Transmitting (2480MHz)  
Remarks : DH5  
Date : 10/15/2008  
Test Distance : 3 m  
Temperature : 22 °C  
Humidity : 66 %  
Regulation : FCC Part15C § 15.209

Engineer : Wataru Kojima

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER	HOR [dB]	VER		
1.	30.54	BB	25.8	36.8	18.6	27.7	1.1	6.0	23.8	34.8	40.0	16.2	5.2	
2.	288.02	BB	33.6	30.5	19.6	27.3	3.7	6.0	35.6	32.5	46.0	10.4	13.5	
3.	315.00	BB	31.2	24.5	14.9	27.3	3.9	6.0	28.7	22.0	46.0	17.3	24.0	

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KBA-03 (BBA9106) 30-300MHz/KLA-03 (USLP9143) 300-1000MHz

■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-08 (MH648A) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
 Kind of Equipment : Bluetooth Audio System  
 Model No. : MEX-BT3700U  
 Serial No. : 4  
 Power : DC12V  
 Mode : Transmitting (2402MHz)  
 Remarks : PK (RBW:1MHz, VBW:1MHz)  
 Date : 10/15/2008  
 Test Distance : 3 m  
 Temperature : 22 °C  
 Humidity : 66 %  
 Regulation : FCC Part15C § 15.209 (PK Detection)

Engineer : Wataru Kojima

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER		HOR [dB]	VER
1.	1426.41	BB	45.7	43.3	24.9	37.8	3.4	0.0	36.2	33.8	74.0	37.8	40.2
2.	1602.34	BB	48.3	52.6	25.9	37.5	3.6	0.0	40.3	44.6	74.0	33.7	29.4
3.	2390.00	BB	44.4	44.2	28.8	37.2	4.4	0.0	40.4	40.2	74.0	33.6	33.8
4.	2400.00	BB	52.5	57.2	28.8	37.2	4.5	0.0	48.6	53.3	74.0	25.4	20.7
5.	4804.00	BB	43.4	41.9	33.6	36.5	5.9	0.0	46.4	44.9	74.0	27.6	29.1
6.	7206.00	BB	43.9	43.8	36.1	36.7	7.1	0.0	50.4	50.3	74.0	23.6	23.7
7.	9608.00	BB	44.2	44.4	37.6	36.7	8.2	0.0	53.3	53.5	74.0	20.7	20.5

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KHA-01 (SAS-200 571)

■ CABLE: KCC-D16/D17 ■ PREAMP: KAF-02 (8449B) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
 Kind of Equipment : Bluetooth Audio System  
 Model No. : MEX-BT3700U  
 Serial No. : 4  
 Power : DC12V  
 Mode : Transmitting (2402MHz)  
 Remarks : AV (RBW:1MHz, VBW:200Hz)  
 Date : 10/15/2008  
 Test Distance : 3 m  
 Temperature : 22 °C  
 Humidity : 66 %  
 Regulation : FCC Part15C § 15. 209 (AV Detection)

Engineer : Wataru Kojima

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER		HOR [dB]	VER
1.	1426.41	BB	31.5	31.6	24.9	37.8	3.4	0.0	22.0	22.1	54.0	32.0	31.9
2.	1602.34	BB	44.0	49.4	25.9	37.5	3.6	0.0	36.0	41.4	54.0	18.0	12.6
3.	2390.00	BB	30.8	31.0	28.8	37.2	4.4	0.0	26.8	27.0	54.0	27.2	27.0
4.	2400.00	BB	42.5	48.8	28.8	37.2	4.5	0.0	38.6	44.9	54.0	15.4	9.1
5.	4804.00	BB	29.3	29.6	33.6	36.5	5.9	0.0	32.3	32.6	54.0	21.7	21.4
6.	7206.00	BB	30.9	30.9	36.1	36.7	7.1	0.0	37.4	37.4	54.0	16.6	16.6
7.	9608.00	BB	30.7	31.1	37.6	36.7	8.2	0.0	39.8	40.2	54.0	14.2	13.8

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KHA-01 (SAS-200 571)

■ CABLE: KCC-D16/D17 ■ PREAMP: KAF-02 (8449B) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
 Kind of Equipment : Bluetooth Audio System  
 Model No. : MEX-BT3700U  
 Serial No. : 4  
 Power : DC12V  
 Mode : Transmitting (2441MHz)  
 Remarks : PK (RBW:1MHz, VBW:1MHz)  
 Date : 10/15/2008  
 Test Distance : 3 m  
 Temperature : 22 °C Engineer : Wataru Kojima  
 Humidity : 66 %  
 Regulation : FCC Part15C § 15.209 (PK Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER		HOR [dB]	VER
1.	1426.39	BB	45.1	45.3	24.9	37.8	3.4	0.0	35.6	35.8	74.0	38.4	38.2
2.	1628.01	BB	48.6	51.3	26.1	37.5	3.6	0.0	40.8	43.5	74.0	33.2	30.5
3.	4882.00	BB	43.5	42.9	33.8	36.5	6.0	0.0	46.8	46.2	74.0	27.2	27.8
4.	7323.00	BB	43.5	44.1	36.2	36.7	7.1	0.0	50.1	50.7	74.0	23.9	23.3
5.	9764.00	BB	44.7	43.6	37.6	36.7	8.2	0.0	53.8	52.7	74.0	20.2	21.3

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA:KHA-01 (SAS-200 571)

■ CABLE:KCC-D16/D17 ■ PREAMP:KAF-02 (8449B) ■ EMI RECEIVER:KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
 Kind of Equipment : Bluetooth Audio System  
 Model No. : MEX-BT3700U  
 Serial No. : 4  
 Power : DC12V  
 Mode : Transmitting (2441MHz)  
 Remarks : AV (RBW:1MHz, VBW:200Hz)  
 Date : 10/15/2008  
 Test Distance : 3 m  
 Temperature : 22 °C Engineer : Wataru Kojima  
 Humidity : 66 %  
 Regulation : FCC Part15C § 15.209 (AV Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER		HOR [dB]	VER
1.	1426.39	BB	36.1	31.8	24.9	37.8	3.4	0.0	26.6	22.3	54.0	27.4	31.7
2.	1628.01	BB	41.5	47.5	26.1	37.5	3.6	0.0	33.7	39.7	54.0	20.3	14.3
3.	4882.00	BB	29.2	29.4	33.8	36.5	6.0	0.0	32.5	32.7	54.0	21.5	21.3
4.	7323.00	BB	30.8	30.8	36.2	36.7	7.1	0.0	37.4	37.4	54.0	16.6	16.6
5.	9764.00	BB	31.1	31.0	37.6	36.7	8.2	0.0	40.2	40.1	54.0	13.8	13.9

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA:KHA-01 (SAS-200 571)

■ CABLE:KCC-D16/D17 ■ PREAMP:KAF-02 (8449B) ■ EMI RECEIVER:KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
Kind of Equipment : Bluetooth Audio System  
Model No. : MEX-BT3700U  
Serial No. : 4  
Power : DC12V  
Mode : Transmitting (2480MHz)  
Remarks : PK (RBW:1MHz, VBW:1MHz)  
Date : 10/15/2008  
Test Distance : 3 m  
Temperature : 22 °C Engineer : Wataru Kojima  
Humidity : 66 %  
Regulation : FCC Part15C § 15.209 (PK Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER		HOR [dB]	VER
1.	1426.42	BB	44.8	45.3	24.9	37.8	3.4	0.0	35.3	35.8	74.0	38.7	38.2
2.	1654.01	BB	48.2	51.9	26.3	37.5	3.7	0.0	40.7	44.4	74.0	33.3	29.6
3.	2483.50	BB	46.2	48.7	28.8	37.2	4.5	0.0	42.3	44.8	74.0	31.7	29.2
4.	4960.00	BB	42.7	42.8	34.1	36.5	6.0	0.0	46.3	46.4	74.0	27.7	27.6
5.	7440.00	BB	43.7	43.9	36.3	36.7	7.1	0.0	50.4	50.6	74.0	23.6	23.4
6.	9920.00	BB	43.4	44.3	37.6	36.7	8.3	0.0	52.6	53.5	74.0	21.4	20.5

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KHA-01 (SAS-200 571)

■ CABLE: KCC-D16/D17 ■ PREAMP: KAF-02 (8449B) ■ EMI RECEIVER: KTR-01 (ESI40)

Page:

# DATA OF RADIATION TEST

UL Japan, Inc.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 29BE0117-YK-E

Applicant : Sony Corporation  
 Kind of Equipment : Bluetooth Audio System  
 Model No. : MEX-BT3700U  
 Serial No. : 4  
 Power : DC12V  
 Mode : Transmitting (2480MHz)  
 Remarks : AV (RBW:1MHz, VBW:200Hz)  
 Date : 10/15/2008  
 Test Distance : 3 m  
 Temperature : 22 °C Engineer : Wataru Kojima  
 Humidity : 66 %  
 Regulation : FCC Part15C § 15.209 (AV Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER		HOR [dB]	VER
1.	1426.42	BB	31.5	31.6	24.9	37.8	3.4	0.0	22.0	22.1	54.0	32.0	31.9
2.	1654.01	BB	44.2	48.0	26.3	37.5	3.7	0.0	36.7	40.5	54.0	17.3	13.5
3.	2483.50	BB	34.0	38.3	28.8	37.2	4.5	0.0	30.1	34.4	54.0	23.9	19.6
4.	4960.00	BB	29.0	29.1	34.1	36.5	6.0	0.0	32.6	32.7	54.0	21.4	21.3
5.	7440.00	BB	30.6	30.6	36.3	36.7	7.1	0.0	37.3	37.3	54.0	16.7	16.7
6.	9920.00	BB	30.3	30.9	37.6	36.7	8.3	0.0	39.5	40.1	54.0	14.5	13.9

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KHA-01 (SAS-200 571)

■ CABLE: KCC-D16/D17 ■ PREAMP: KAF-02 (8449B) ■ EMI RECEIVER: KTR-01 (ES140)

## Duty Cycle

COMPANY : Sony Corporation  
EQUIPMENT : Bluetooth Audio System  
MODEL NUMBER: MEX-BT3700U  
SERIAL NUMBER: 4  
POWER : DC12V

REPORT NO : 29BE0117-YK-E  
DATE : 2008/10/15  
TEMP./HUMI : 22deg.C./66%  
TEST MODE : Tx2402MHz  
ENGINEER : Wataru Kojima

[DH5]



Duty Cycle: 6.28ms

AV Detector VBW:  $1000 / 6.28\text{ms} = 159.24\text{Hz} \rightarrow 200\text{Hz}$

- \* All the measured noise was pulse emission.
- \* Duty cycle was within 100msec.

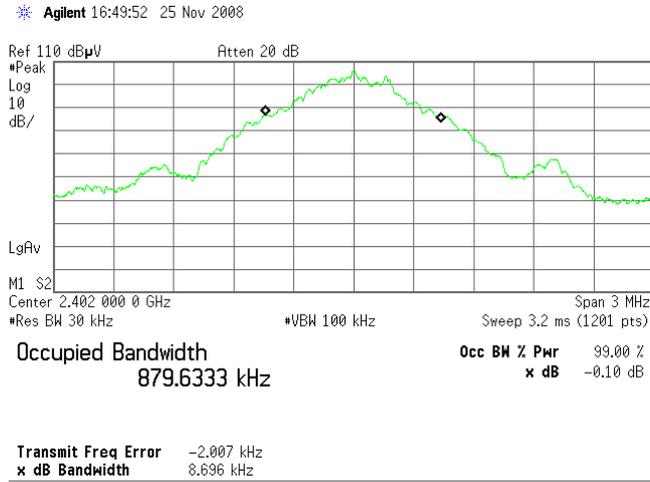
This purpose of the Duty Cycle calculation measures the pulse timing that we ensure Spectrum Analyzer can detect the pulse emission correctly. Therefore, if the pulse train can happen by 50msec(20Hz) or less, the average value measurement by setting the repetition frequency is done more correctly than VBW=10Hz that DA 00-705 accepts for AV detect. For instance, if pulse cycle is every 10msec, we set VBW = 100Hz(=1000/10) in order not to overlook a pulse unexpectedly.

**Occupied Bandwidth (99%) (Regulation: RSS-Gen 4.6.1)**

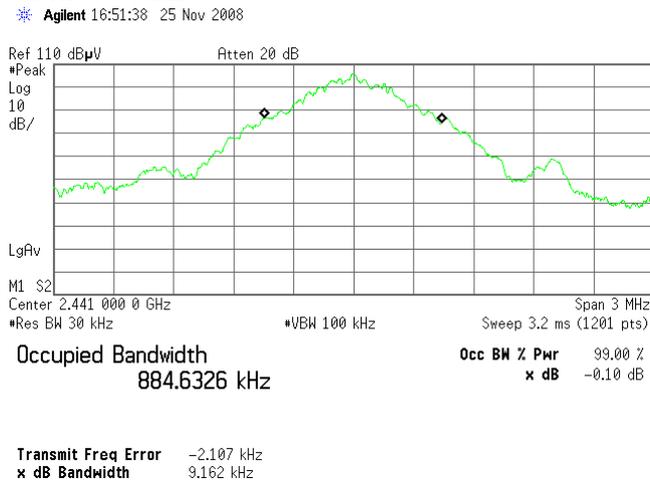
UL Japan, Inc. Yamakita EMC lab. No.2 shielded room  
 Date: 2008.11.25  
 Temp./Humid.: 20 deg. C. / 41 %  
 Engineer: Tatsuya Arai  
 Test mode: Transmitting

[Hopping off, DHS]

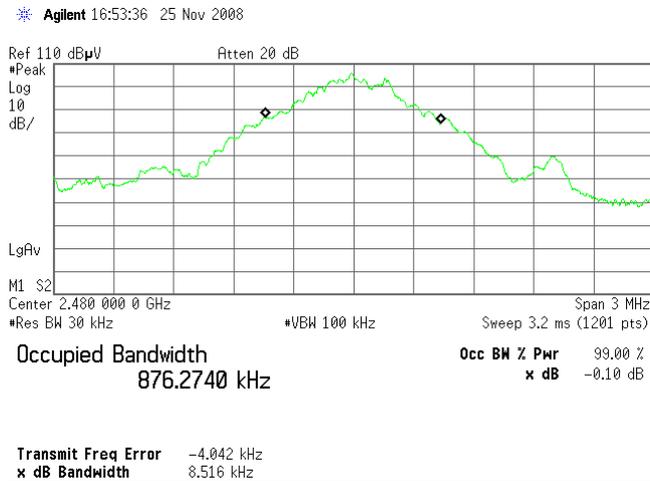
1. ch : 2402MHz/Occupied Bandwidth: 879.6kHz



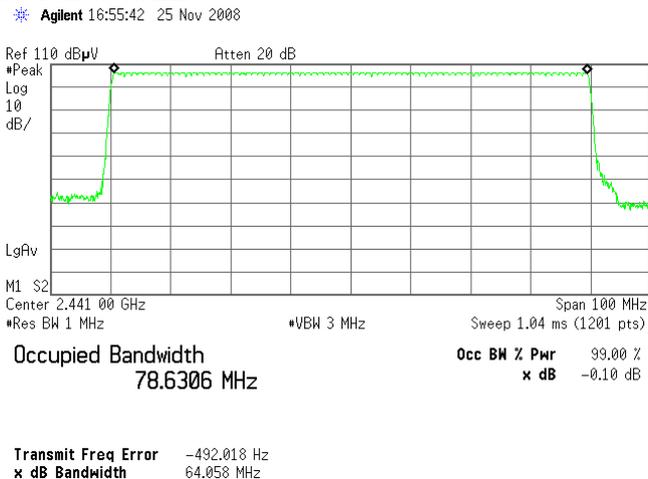
2. ch : 2441MHz/Occupied Bandwidth: 884.6kHz



3. ch : 2480MHz/Occupied Bandwidth: 876.3kHz



**4. Hopping, DH5/Occupied Bandwidth: 78.6MHz**



### APPENDIX 3 Test Instruments

#### EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
KSA-08	Spectrum Analyzer	Agilent	E4446A	MY46180525	AT 1,2,3,4,6	2008/01/11 * 12
KCC-D21	Microwave Cable	Hirose Electric	U.FL-2LP-066J1-A-(200)	-	AT all	Pre Check
KPM-05	Power meter	Agilent	E4417A	GB41290718	AT 5	2008/03/21 * 12
KPSS-01	Power sensor	Agilent	E9327A	US40440544	AT 5	2008/03/27 * 12
KDT-01	Coaxial Crystal Detector	Agilent	8473C	1822A05320	AT 4	Pre Check
KOSC-01	Oscilloscope	Tektronix	TDS-2022B	C050588	AT 4	2008/05/07 * 12
KOS-07	Humidity Indicator	Custom	CTH-190	K-07	AT all	2008/10/21 * 12
YA-RE	Radiated emission(software)	UL Japan	RE(Ver.1.5)	-	RE	-
KAEC-01	Anechoic Chamber	JSE	Semi 3m	1	RE	2008/08/06 * 12
KAF-08	Pre Amplifier	Anritsu	MH648A	M90147	RE	2008/06/03 * 12
KAT6-01	Attenuator	INMET	18N-6dB	-	RE	2008/03/17 * 12
KBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1926	RE	2007/12/27 * 12
KCC-30/31/32/34/KRM-03	Coaxial Cable/RF Relay Matrix	Fujikura/Suhner/TSJ	5D-2W/S04272B/RFM-E421	-/01055	RE	2008/10/22 * 12
KLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	170	RE	2007/12/27 * 12
KOS-02	Humidity Indicator	Custom	CTH-190	K-02	RE	2008/07/07 * 12
KSA-09	Spectrum Analyzer	Advantest	R3265	15060334	RE	2008/07/07 * 12
KTR-01	Test Receiver	Rohde & Schwarz	ES140	100054/040	RE	2008/04/18 * 12
KTR-04	Test Receiver	Rohde & Schwarz	ESVS10	825475/006	RE	2008/10/20 * 12
KJM-01	Measure	TAJIMA	GL19-55	-	RE	-
KAF-02	Pre Amplifier	Hewlett Packard	8449B	3008A01268	RE	2008/04/11 * 12
KCC-D16/D17	Coaxial Cable	INSULATED WIRE INC	KPS-1501-200-KPS/S/KPS-1501-2000-KPS	04202005	RE	2008/02/21 * 12
KHA-01	Horn Antenna	A.H.Systems	SAS-200/571	354	RE	2008/08/11 * 12
KHA-03	Horn Antenna	EMCO	3160-09	1239	RE	2008/04/30 * 12

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

All equipment is calibrated with traceable calibrations . Each calibration is traceable to the national or international standards .

Test Item :

RE: Out of Band Emission (Radiated)

AT: Antenna terminal conducted test

1: Carrier Frequency Separation

2: 20dB Bandwidth

3: Number of Hopping Frequency

4: Dwell time

5: Maximum Peak Output Power

6: Out of Band Emission (Conducted)

\*Some calibrations were performed after the tested dates , however those test equipment have been controlled by means of an unbroken chains of calibrations .