RADIO TEST REPORT

Test Report No.: 28IE0091-YK-A

Applicant	:	**Pioneer Corporation**
Type of Equipment	:	**CAR AUDIO with built in Bluetooth**
Model No.	:	**86120-48G30**
FCC ID	:	**AJDK021**
Test regulation	:	**FCC Part15 Subpart C: 2008**
Test result	:	**Complied**

1. This test report shall not be reproduced except 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: April 17, 22, 23 and 24, 2008

Tested by: Tatsuya Arai & Akira Sato

Fumiaki Matsuo

Approved by: Toyokazu Imamura
Engineer of Yamakita EMC Lab.

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1 Applicant information

Company Name	:	Pioneer Corporation
Address	:	25-1 Nishi-machi, Yamada-aza, Kawagoe-shi, Saitama, 350-8555, JAPAN
Telephone Number	:	+81 49 228 6298
Facsimile Number	:	+81 49 228 6496
Contact Person	:	Ippei Okajima

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

2.1 Identification of E.U.T.

Type of Equipment	:	CAR AUDIO with built in Bluetooth
Model No.	:	86120-48G30
Serial No.	:	Refer to 4.2 in this report.
Rating	:	DC13.2V
Country of Mass-production	:	Japan
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.
Receipt Date of Sample	:	April 16, 2008

2.2 Product description

Model: 86120-48G30 (referred to as the EUT in this report) is a CAR AUDIO with built in Bluetooth.

The difference between the EUT and its derived models:

Model	86120-48G30	86120-48G20	86120-0E160	86120-0E150	86120-48G10	86120-0E140
Country of mass-production	Japan	Japan	USA	USA	Japan	USA
Unit	DVD changer	DVD changer	DVD changer	DVD changer	CD changer	CD changer
Amplifier made by	Not Pioneer	Pioneer	Not Pioneer	Pioneer	Pioneer	Pioneer

Equipment type	:	Transceiver
Frequency of operation	:	2402-2480MHz
Clock frequency	:	System microcomputer: 24MHz, 16.9344MHz External communication clock: 49.152MHz Audio master clock: 24.576MHz DC-DC converter: 390 or 430kHz RDS decoder: 4.332MHz DSP clock: 38.1024MHz SDRAM clock: 121.5MHz, 101.6064MHz, 106.47168MHz, 33.8688MHz SPI: 4MHz Mecha microcomputer: 27MHz, 16.9344MHz FM/AM tuner: 74.1MHz (1st IF: 10.7MHz, 2nd IF: 700kHz, 2nd local: 11.4MHz) XM tuner: 4.75MHz (Decoder: 24.265MHz), Grill microcomputer: 38kHz Bluetooth module: 29.75MHz (CPU clock: 26MHz to 120MHz)
Bandwidth & channel spacing	:	79MHz & 1MHz
Type of modulation	:	FHSS
Antenna model & type	:	Dielectric patch antenna (made by TDK): CABPB1240E
Antenna gain with cable loss	:	+2.0dBi
Antenna connector type	:	U.FL (manufactured by Hirose)
ITU code	:	F1D, G1D
Operation temperature range	:	-20 to +65 deg.C. -40 to +85 deg.C. (Module)

FCC Part15.31 (e)
The equipment provides the Bluetooth module 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.

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 revision on May 19, 2008 does not influence the test specification applied to the EUT.

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	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (d)	Radiated	N/A		Complied
Spurious Emission	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.209 & Section15.247 (d)	Conducted/ Radiated	N/A	1.4dB (41.08MHz, Vertical, Tx 2402MHz, DH5)	Complied

*1) The test is not applicable since the EUT has no AC mains.
Note: UL Japan's EMI Work Procedures No.QPM05 and QPM15.

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 (±)
Radiated emission (3m)			
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 report meets the limits unless the uncertainty is taken into consideration.

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

3.5 Test location

UL Japan, Inc. Yamakita EMC Lab.
907, Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken 258-0124 JAPAN
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 August 26, 2005 (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 November 2, 2005 (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

4 System test configuration

4.1 Justification

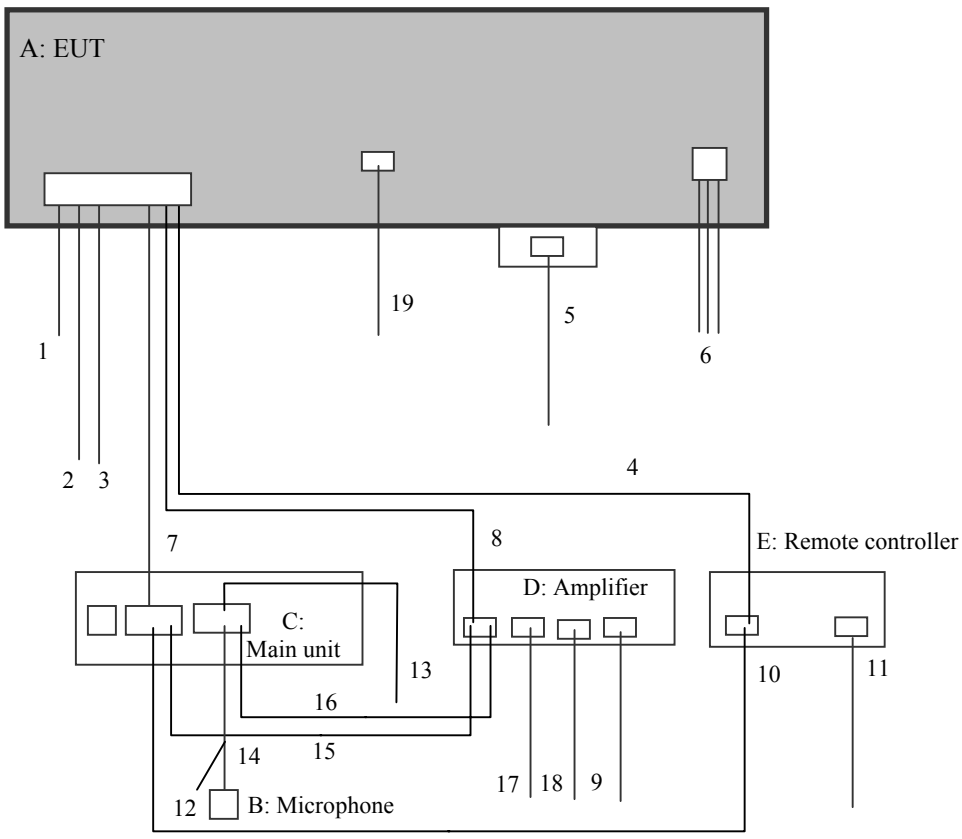
The system was configured in typical fashion (as a customer would normally use it) for testing.

Test item	Operating mode	Tested frequency
Carrier frequency separation	Transmitting Hopping ON (DH5/3DH5)/Inquiry, Payload: PRBS9	-
20dB bandwidth	Transmitting Hopping OFF (DH5/3DH5)/Inquiry, Payload: PRBS9	2402MHz, 2441MHz, 2480MHz
Number of hopping frequency	Transmitting Hopping ON (DH5/3DH5)/Inquiry, Payload: PRBS9	-
Dwell time	Transmitting (Hopping ON) -DH1 -DH3 -DH5 -3DH1 -3DH3 -3DH5	-
	-Inquiry	
Maximum peak output power	Transmitting Hopping OFF (DH5/3DH5)/Inquiry, Payload: PRBS9 -DH5 -2DH5 -3DH5	2402MHz, 2441MHz, 2480MHz
Spurious emission & Band edge compliance (Conducted)	Transmitting (DH5/3DH5), Payload: PRBS9 -Hopping ON/Inquiry -Hopping OFF	Spurious emission: 2402MHz, 2441MHz, 2480MHz (Tx) Band edge compliance: 2402MHz, 2480MHz
(Radiated)	Transmitting (DH5/3DH5), Payload: PRBS9	
99% occupied bandwidth	Transmitting (DH5/3DH5), 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 125mWof AFH mode was used due to the overlap of the bandwidth.

4.2 Configuration of tested system



* Test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	CAR AUDIO with built in Bluetooth	86120-48G30	*2)	PIONEER	EUT
B	Microphone	86730-48010	-	KOJIMA PRESS	-
C	Main unit	86431-48030	86805-48070	DENSO	-
D	Amplifier	86100-48150	K3GL204	PIONEER	-
E	Remote controller	84780-48010	0676	DENSO	-

*1) DC power supply (Model No.: PAN35-10A) was used for DC 12V input.
*2) Out of Band emission (Radiated): K3HB007, other test: K2GK036

List of cables used *3)

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	External audio cable	1.0	Unshielded	Unshielded	(x8)
2	ADIM cable	2.0	Unshielded	Unshielded	(x2), Black, Brown
3	DC cable	2.0	Unshielded	Unshielded	(x4)
4	Communication cable (MOST)	2.0	Shielded	Unshielded	(x2)
5	Air conditioner cable	1.1	Shielded	Unshielded	-
6	Radio antenna cable	0.15	Shielded	Unshielded	-
7	NTSC cable	2.0	Unshielded	Unshielded	-
8	Communication cable (MOST)	2.0	Shielded	Unshielded	(x2), Black , Blue
9	DC cable	0.8	Unshielded	Unshielded	(x4)
10	Communication cable (MOST)	1.0	Shielded	Unshielded	(x2)
11	DC cable	0.6	Unshielded	Unshielded	(x5)
12	Ground cable	0.2	Unshielded	Unshielded	-
13	DC cable	0.6	Unshielded	Unshielded	(x7)
14	Microphone cable	2.5	Shielded	Unshielded	(x3)
15	Communication cable (MOST)	1.0	Unshielded	Unshielded	Pink
16	Speed pulse cable	1.0	Unshielded	Unshielded	Black
17	Speaker cable	0.8	Unshielded	Unshielded	(x10)
18	Speaker cable	0.8	Unshielded	Unshielded	(x12)
19	GPS antenna cable	0.4	Shielded	Unshielded	-

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

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 : April 23, 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 : April 23, 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 : April 23, 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 : April 24, 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 : April 24, 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 : April 24, 2008 Test engineer : Tatsuya Arai

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 - 26.5GHz
Test distance : 3m (30MHz-18GHz), 1m (18-26.5GHz)

11.4 Test procedure

The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3m or 1m. 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.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
Detector IF Bandwidth	QP: BW 120kHz	PK: RBW: 1MHz/VBW: 1MHz AV RBW: 1MHz/VBW: 300Hz, 10Hz (See data)
Measuring antenna	Biconical (30-300MHz) Logperiodic (300MHz-1GHz)	Horn

The EUT was tested in the direction normally used.

11.5 Band edge

Band edge level at 2390MHz and 2483.5MHz is below the limits of FCC 15.209 and band edge level at 2400MHz is below the 20dBc. Refer to the data.

11.6 Results

Summary of the test results : Pass *No noise was detected above the 5th order harmonics.

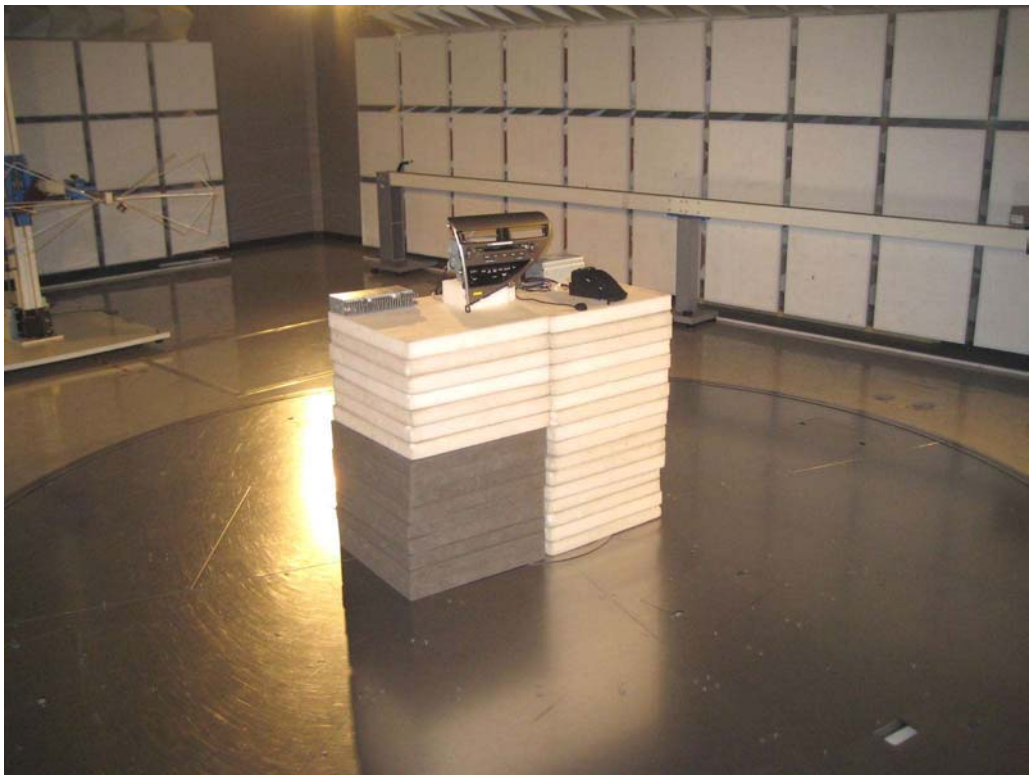
Date : April 17 and 22, 2008 Test engineer : Fumiaki Matsuo and Akira Sato

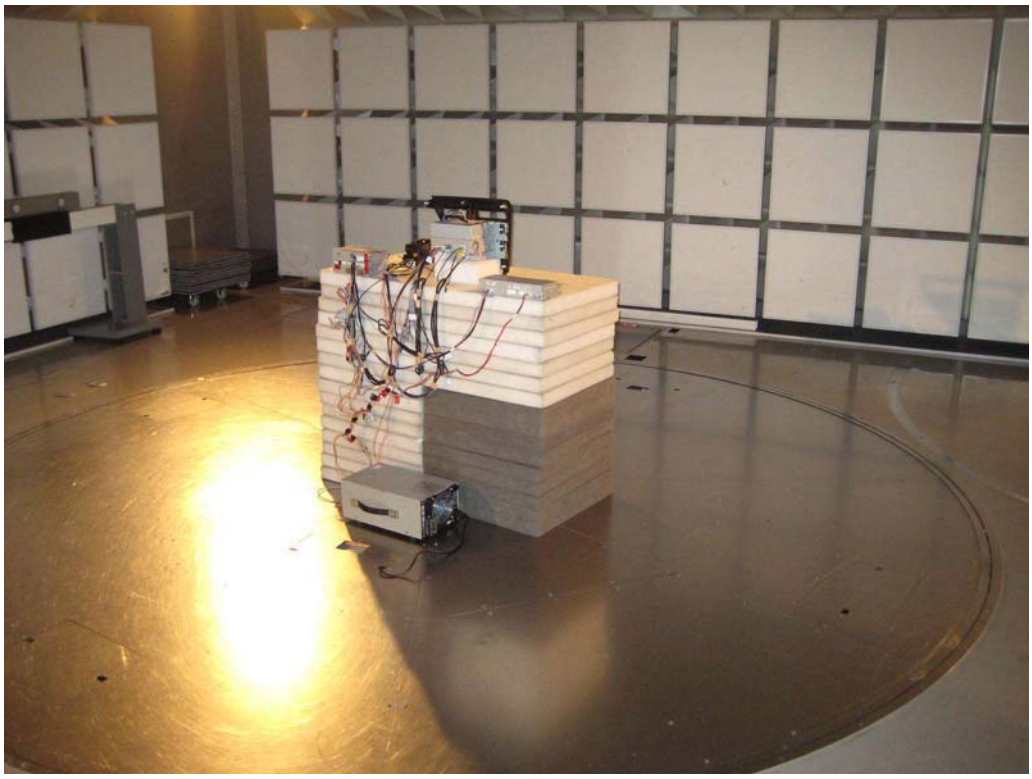
APPENDIX 1: Photographs of test setup

APPENDIX 2: Test Data

APPENDIX 3: Test instruments

Radiated emission



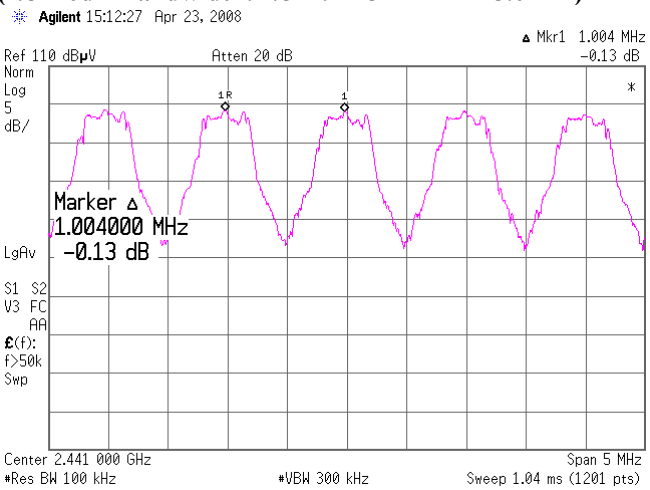


Channel Separation (Regulation: FCC 15.247(a)(1))

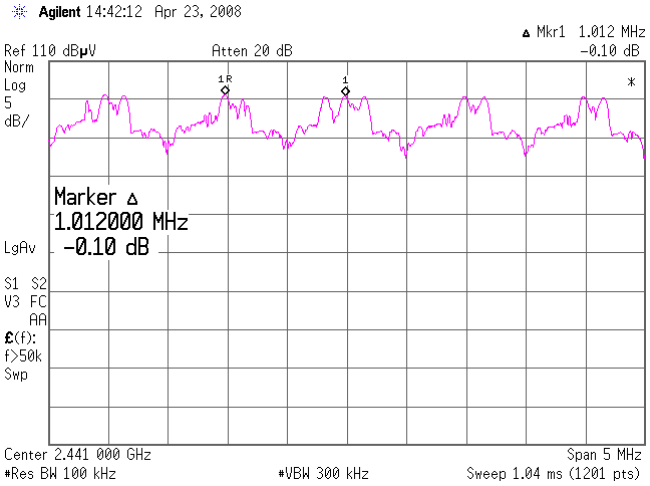
UL Japan, Inc. Yamakita No.2 Shielded Room
Date: 2008.4.23
Temp./Humid.: 25deg.C./46%
Engineer: Tatsuya Arai
Test mode: Transmitting

Limit: ≥25kHz or 2/3 * 20dB Bandwidth (Power: No greater than 125mW)

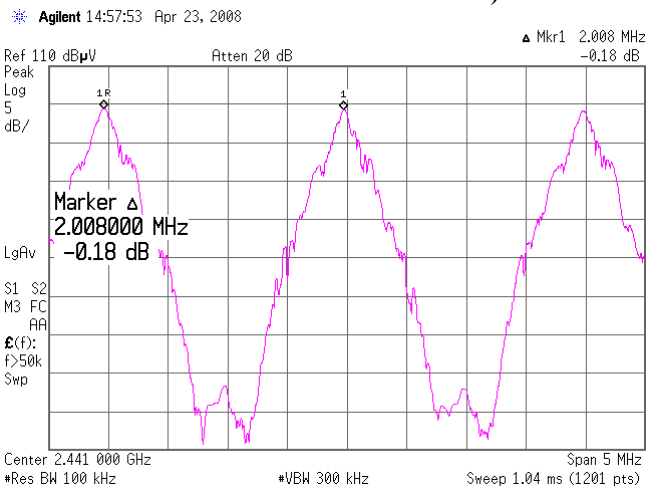
1. Hopping, DH5: 1.004MHz (2/3*20dB Bandwidth: 2/3*1.1175MHz = 745.0kHz)



2. Hopping, 3DH5: 1.012MHz (2/3*20dB Bandwidth: 2/3*1.3875MHz = 925.0kHz)



3. Inquiry: 2.008MHz (2/3*20dB Bandwidth:2/3*1.0850MHz = 723.3kHz)

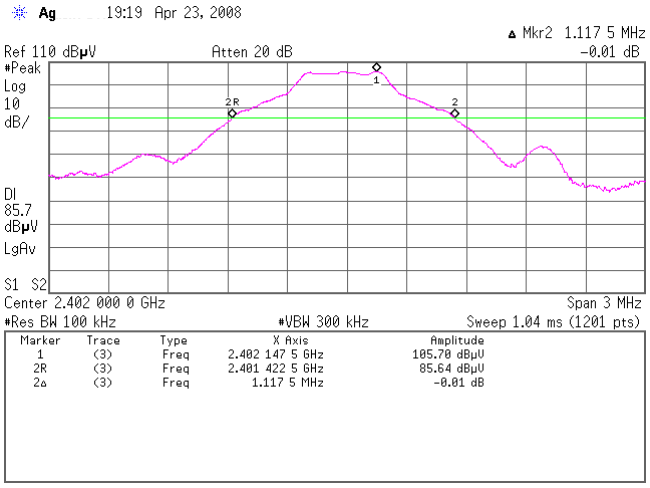


20dB Bandwidth (Regulation: FCC 15.247(a)(1))

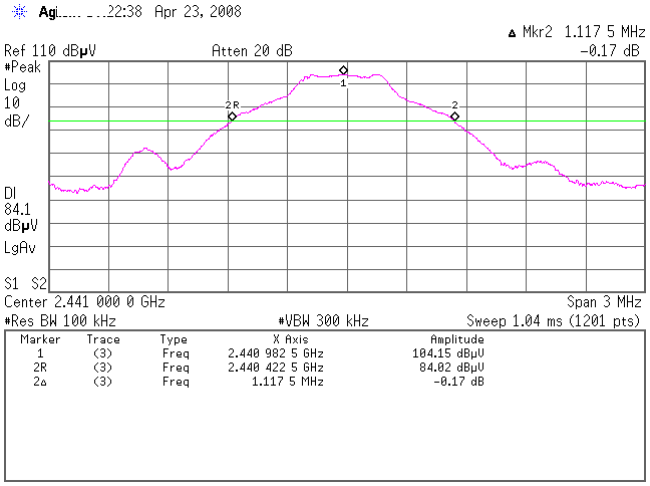
UL Japan, Inc. Yamakita No.2 Shielded Room
Date: 2008.4.23
Temp./Humid.: 25deg.C./46%
Engineer: Tatsuya Arai
Test mode: Transmitting

[Hopping off, DH5]

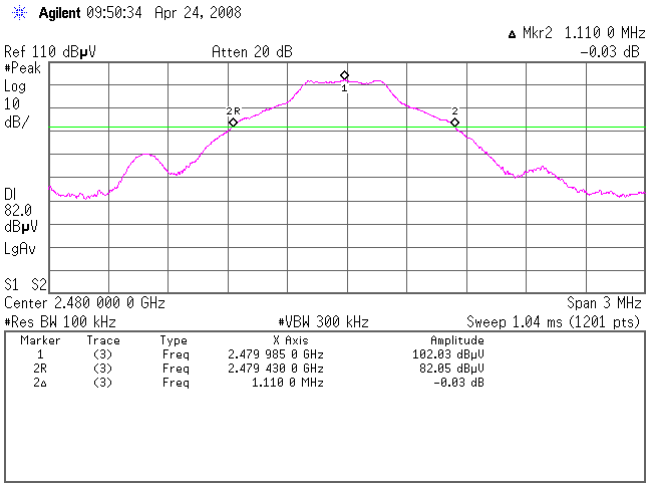
1. ch : 2402MHz/20dB Bandwidth:1.1175MHz



2. ch : 2441MHz/20dB Bandwidth:1.1175MHz

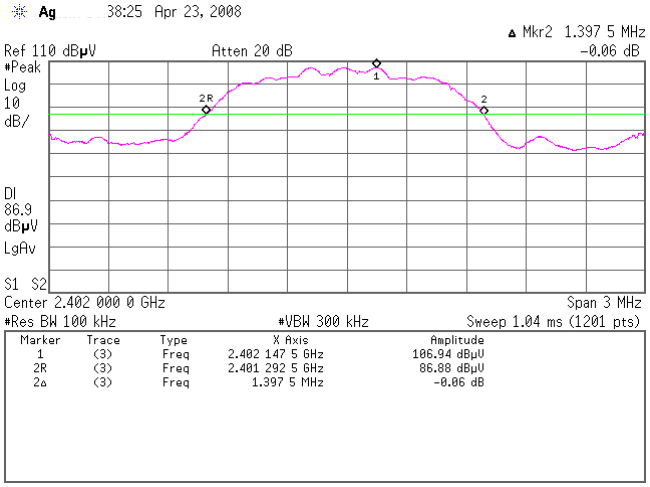


3. ch : 2480MHz/20dB Bandwidth:1.1100MHz

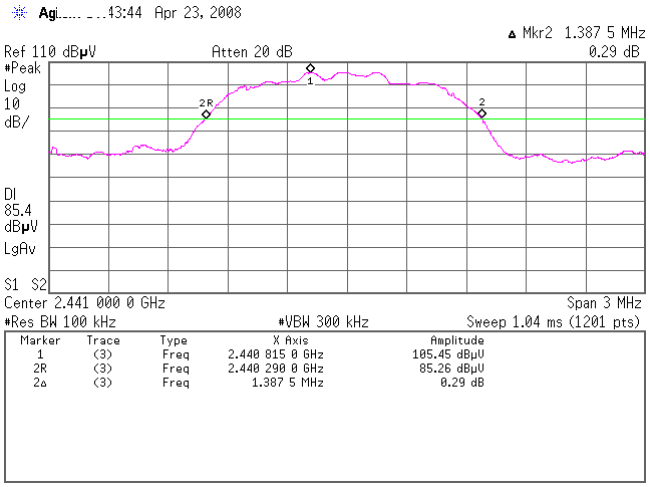


[Hopping off, 3DH5]

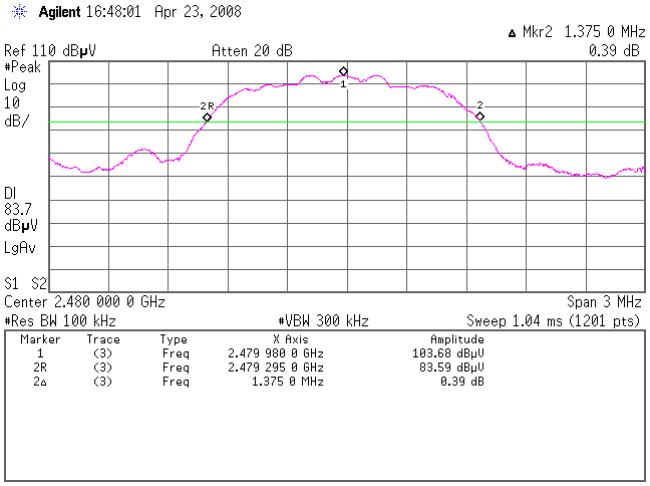
4. ch : 2402MHz/20dB Bandwidth:1.3975MHz



5. ch : 2441MHz/20dB Bandwidth:1.3875MHz

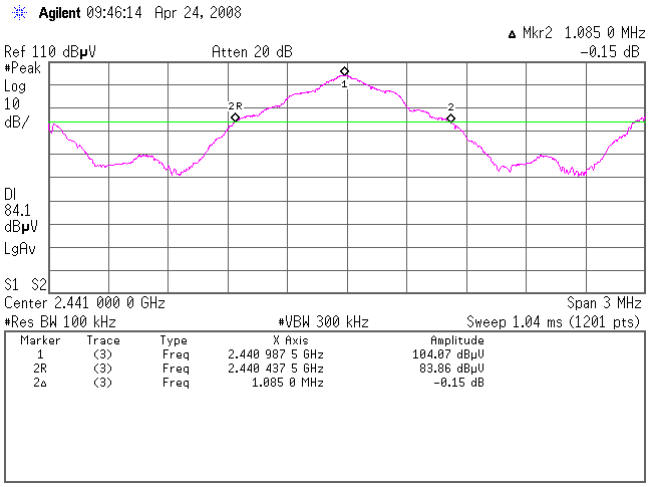


6. ch : 2480MHz/20dB Bandwidth:1.3750MHz



[Inquiry]

7. Inauiry/20dB Bandwidth:1.0850MHz

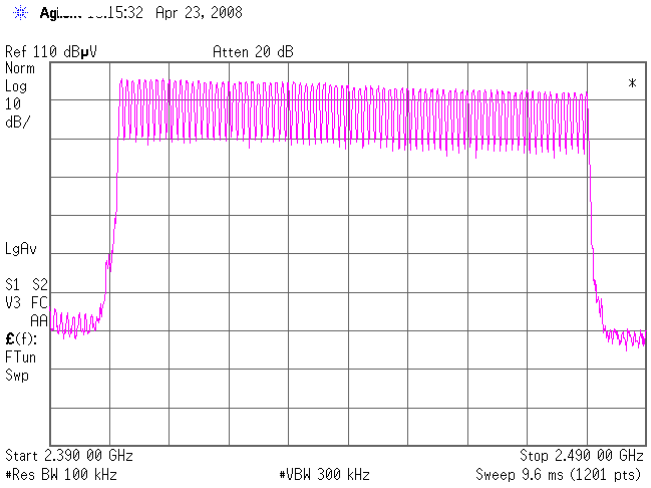


Channel Utilization (Regulation: FCC 15.247(a)(1)(iii))

UL Japan, Inc. Yamakita No.2 Shielded Room
Date: 2008.4.23
Temp./Humid.: 25deg.C./46%
Engineer: Tatsuya Arai
Test mode: Transmitting

Hopping, DH5: 79ch

1.



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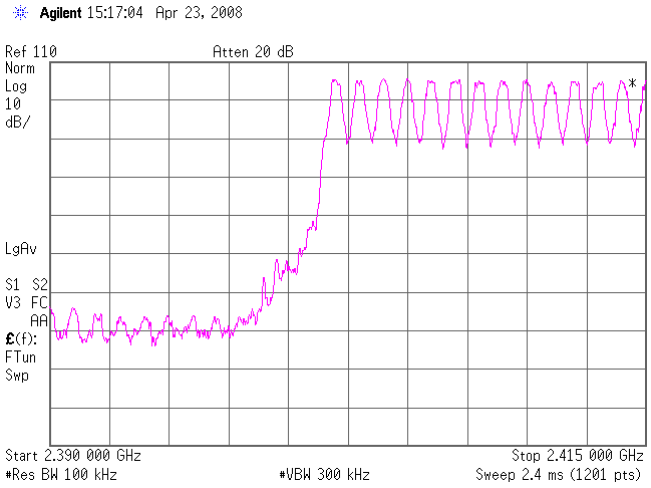

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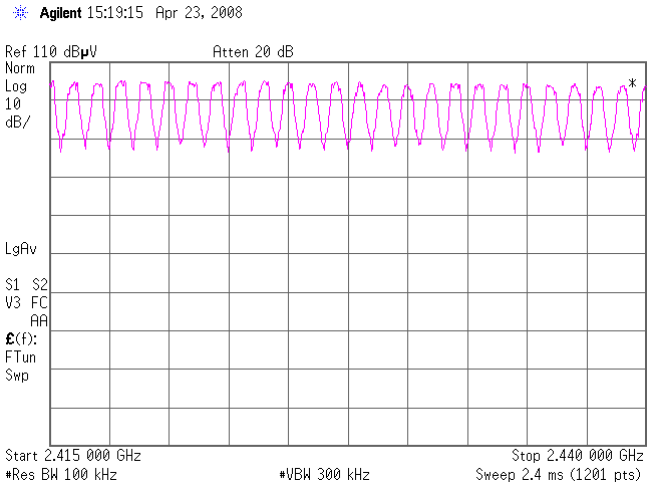

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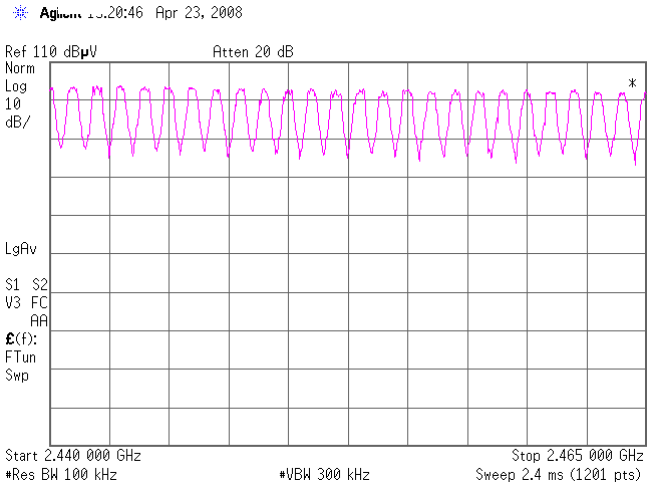
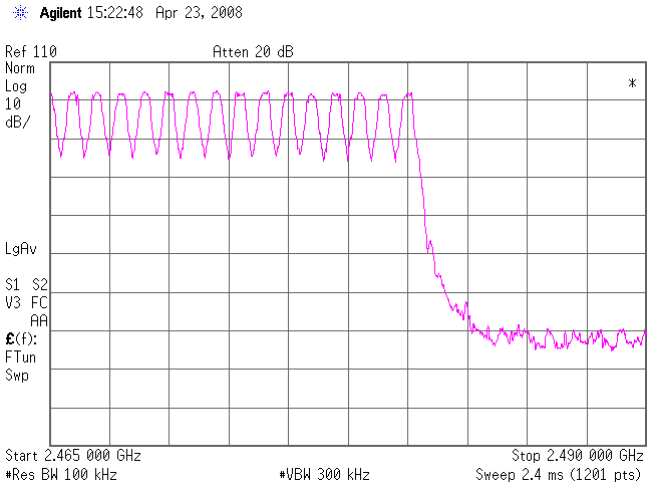
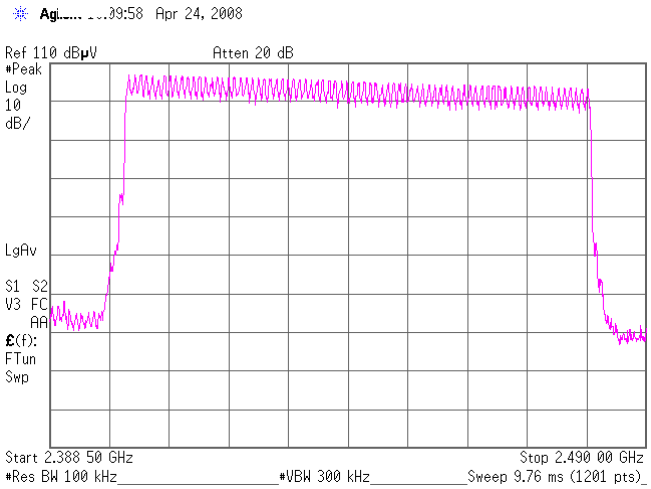

Agilent 15:20:46 Apr 23, 2008
Ref 110 dBµV
Atten 20 dB
Norm
Log
10
dB/
LgAv
S1 S2
V3 FC
AA
£(f):
FTun
Swp
Start 2.440 000 GHz
Stop 2.465 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.4 ms (1201 pts)

5.


Agilent 15:22:48 Apr 23, 2008
Ref 110
Atten 20 dB
Norm
Log
10
dB/
LgAv
S1 S2
V3 FC
AA
£(f):
FTun
Swp
Start 2.465 000 GHz
Stop 2.490 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.4 ms (1201 pts)

Hopping, 3DH5: 79ch

1.



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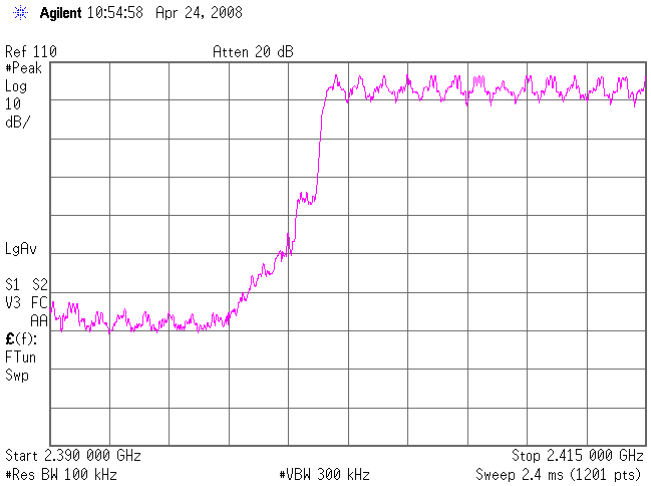

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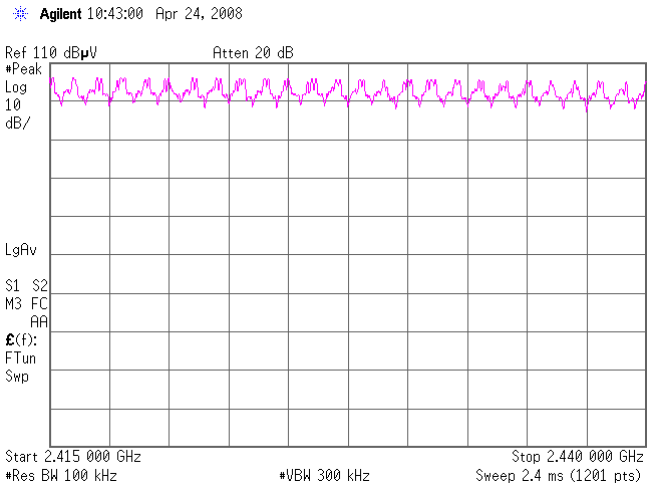
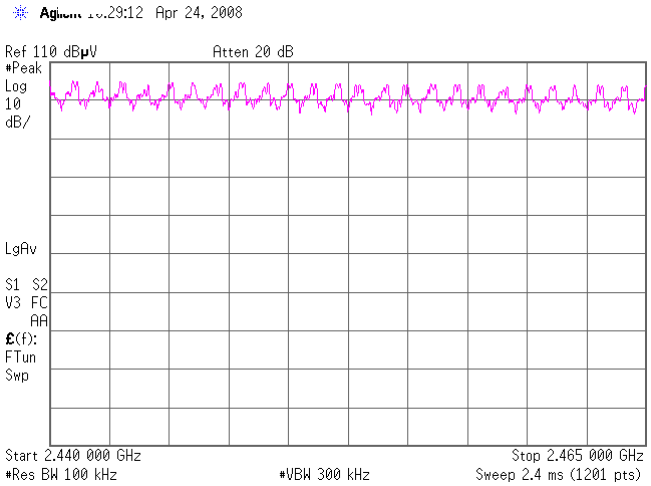
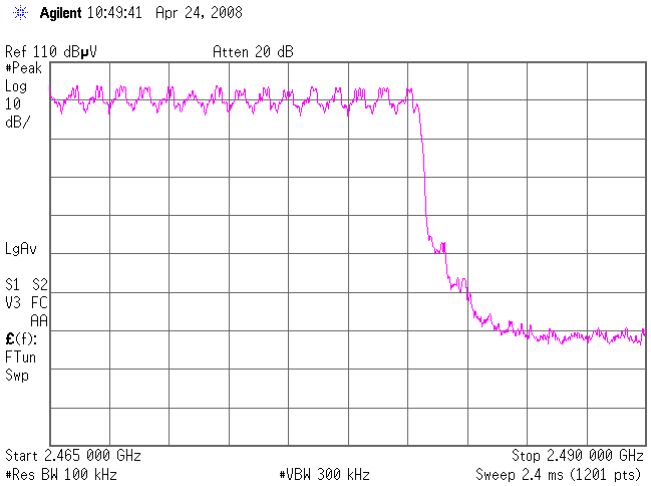


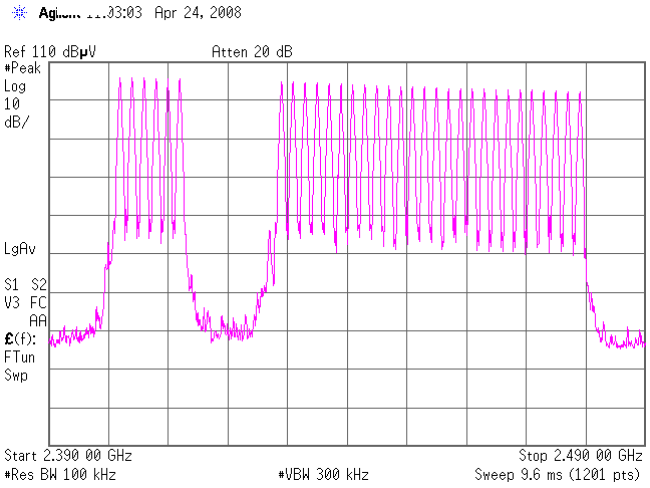
4.


Agilent 10:29:12 Apr 24, 2008
Ref 110 dBµV
Atten 20 dB
#Peak
Log
10
dB/
LgAv
S1 S2
V3 FC
AA
£(f):
FTun
Swp
Start 2.440 000 GHz
Stop 2.465 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.4 ms (1201 pts)

5.


Agilent 10:49:41 Apr 24, 2008
Ref 110 dBµV
Atten 20 dB
#Peak
Log
10
dB/
LgAv
S1 S2
V3 FC
AA
£(f):
FTun
Swp
Start 2.465 000 GHz
Stop 2.490 000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.4 ms (1201 pts)

1. Inquiry: 32ch

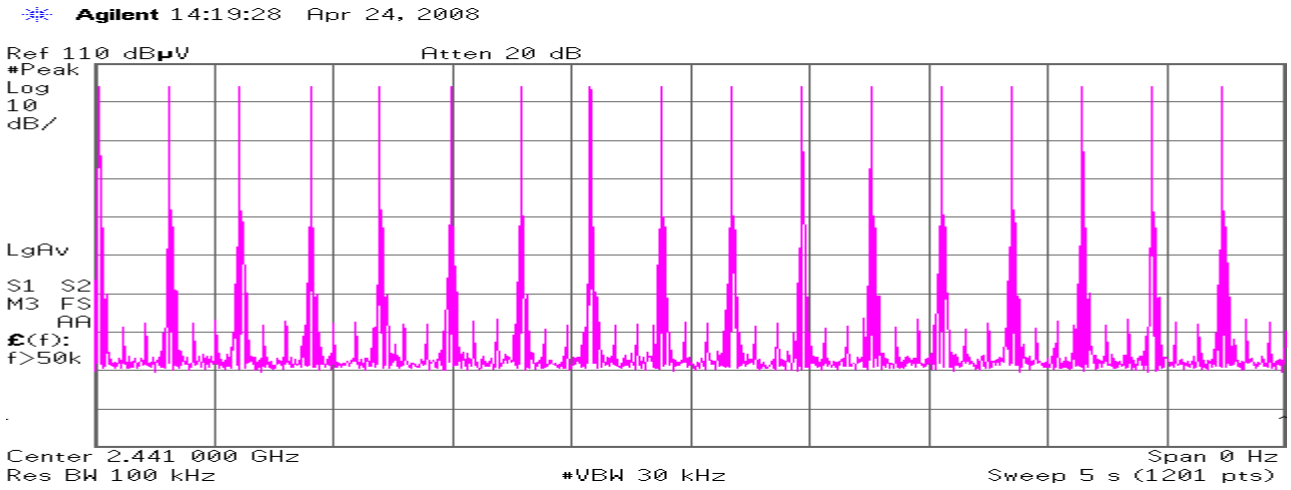


Dwell Time (Regulation: FCC 15.247(a)(1)(iii))

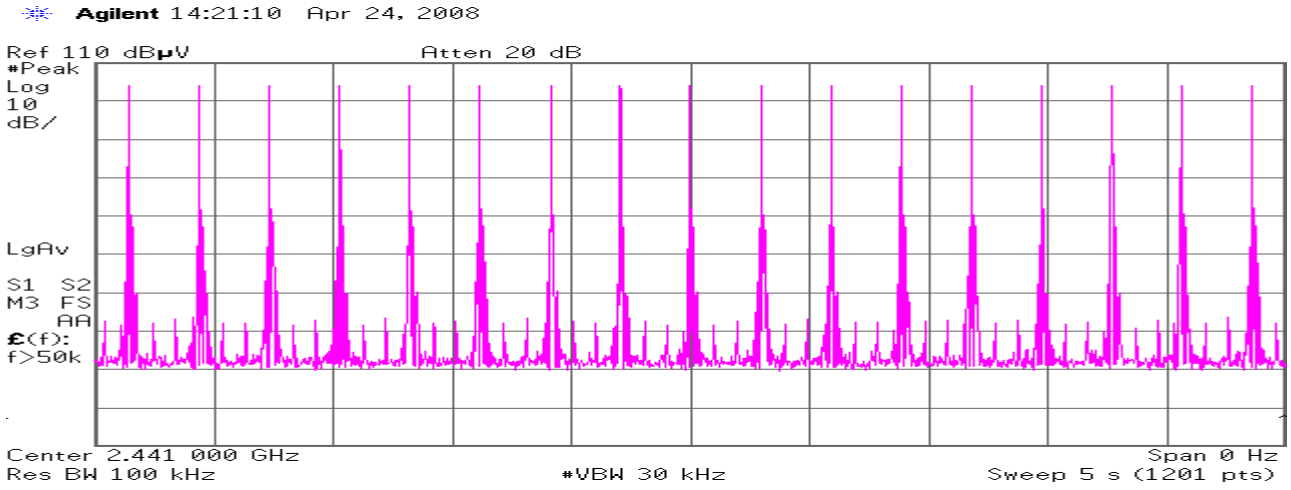
UL Japan, Inc. Yamakita No.2 Shielded Room
Date: 2008.4.24
Temp./Humid.: 24deg.C./49%
Engineer: Tatsuya Arai
Test mode: Transmitting

Hopping (DH1):

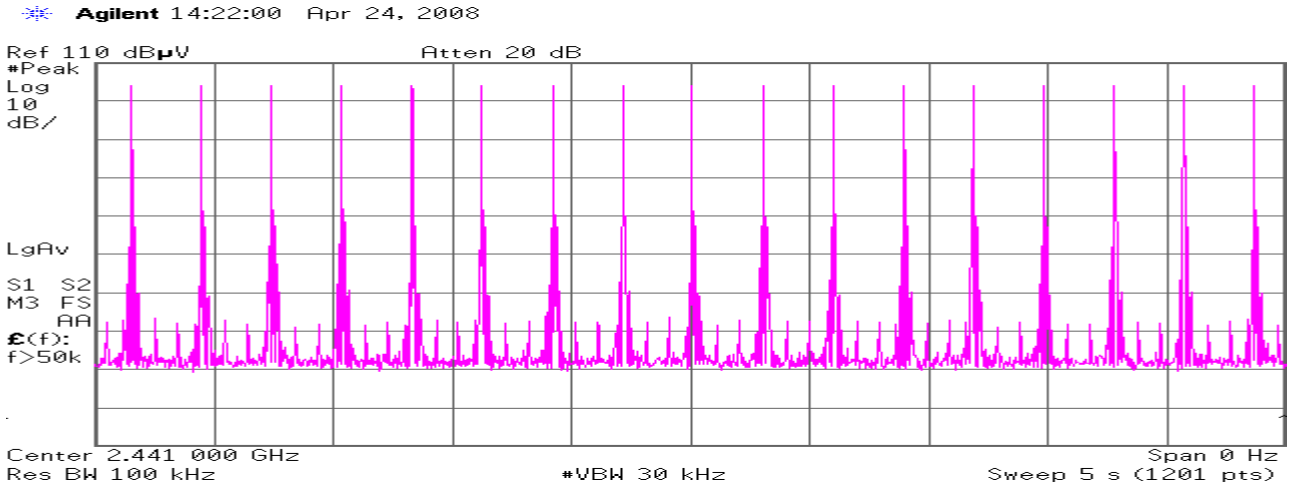
Count 1



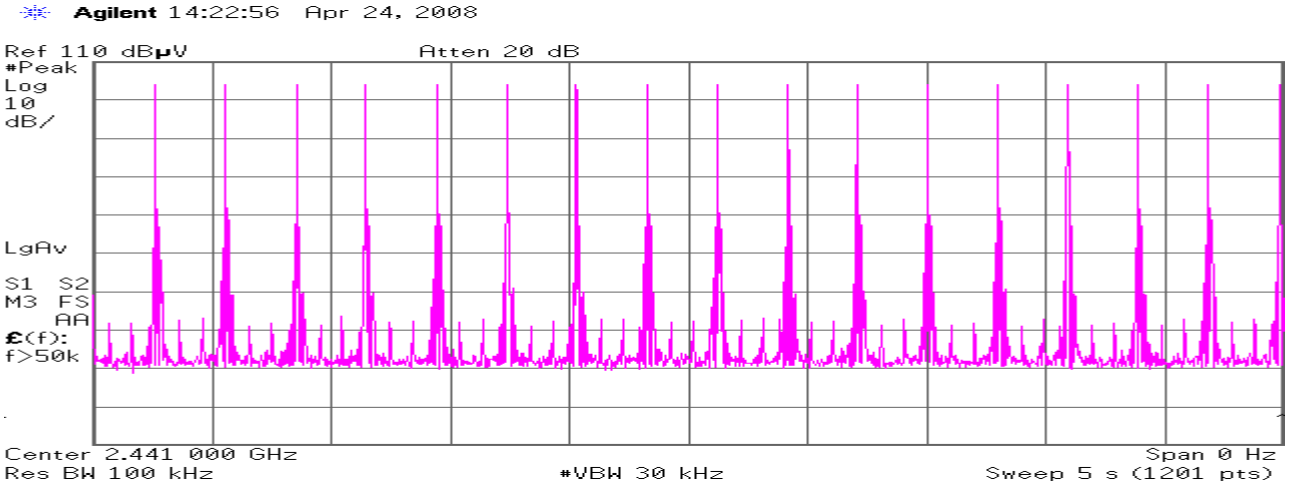
Count 2



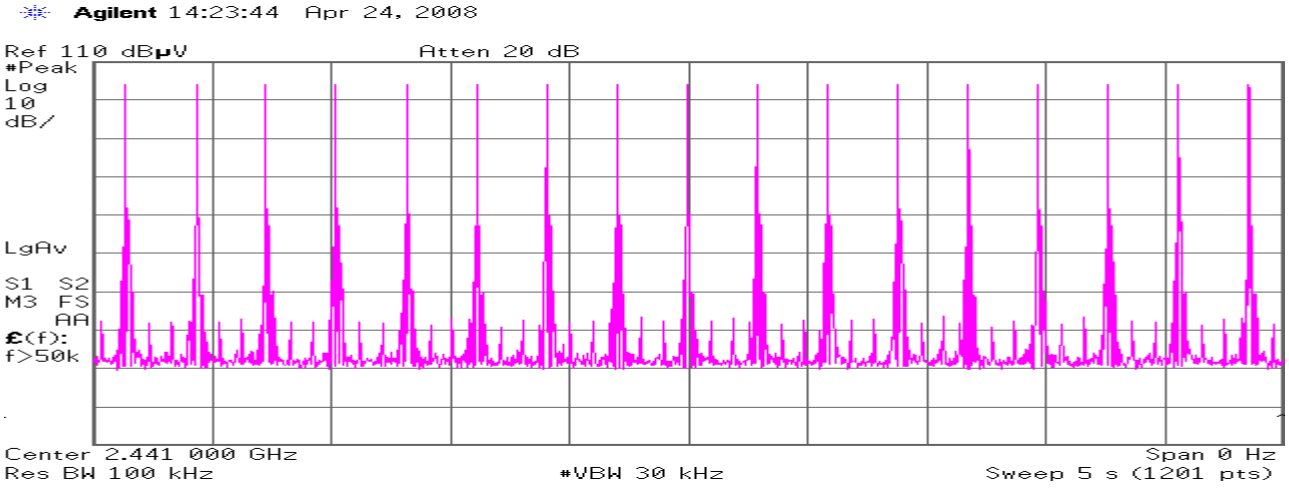
Count 3



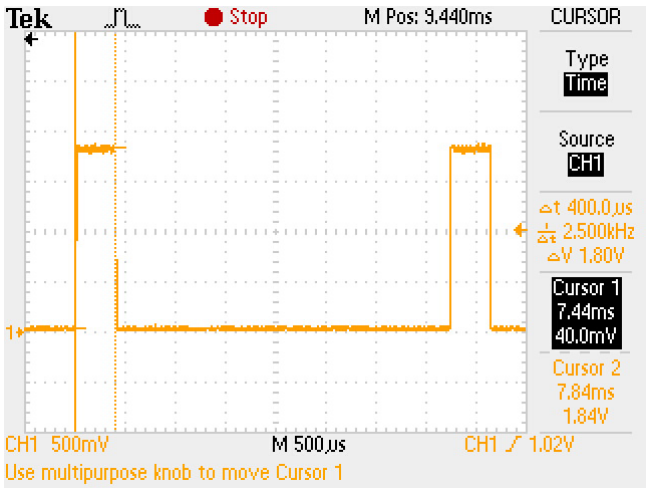
Count 4



Count 5



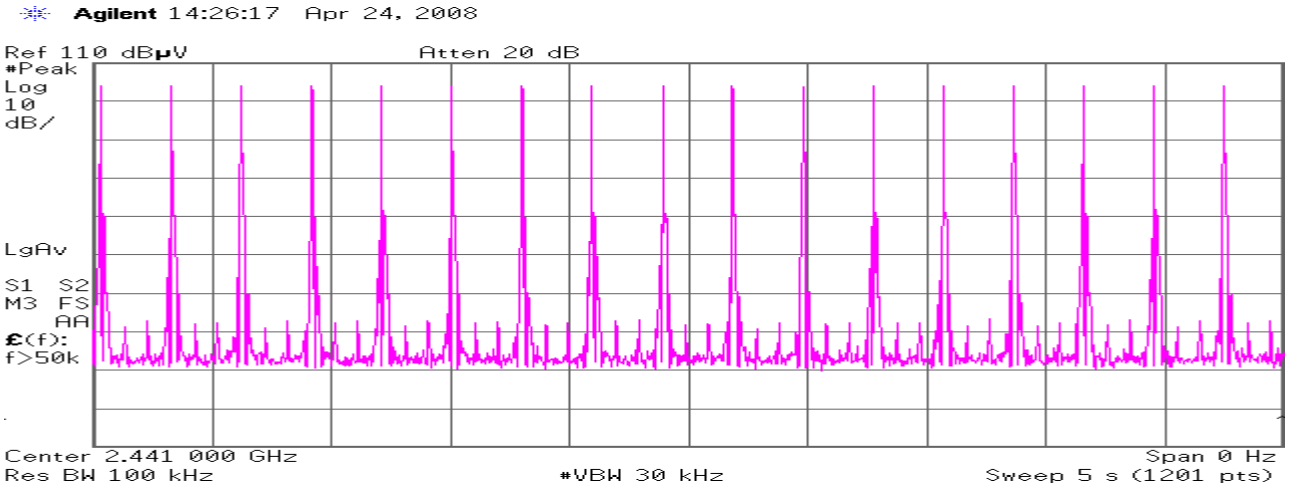
Duty cycle(Hopping DH1)



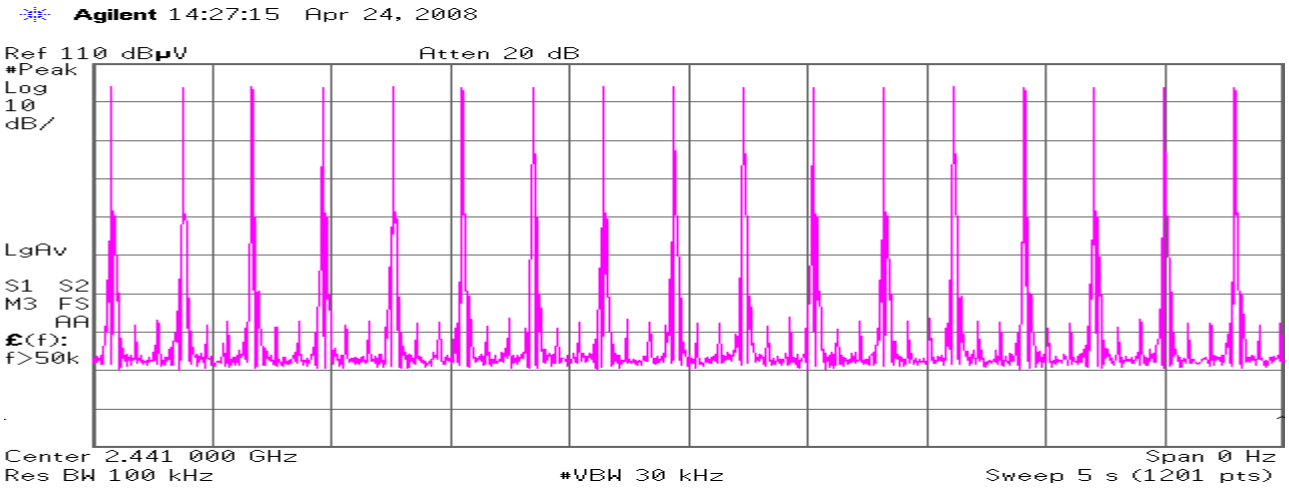
Average times of rising in 5 sec. of sweep = (17+ 17 + 17 + 17 + 17) / 5 = 17.0
Average times of rising in 1 sec. = 17.0 / 5s = 3.4
Average times of rising in 0.4x = 0.4 * 79ch * 3.4 = 107.44
Dwell time = 107.44 * 0.400 = 42.98 [ms]
Limit : Dwell Time < 0.4[s]

Hopping (DH3):

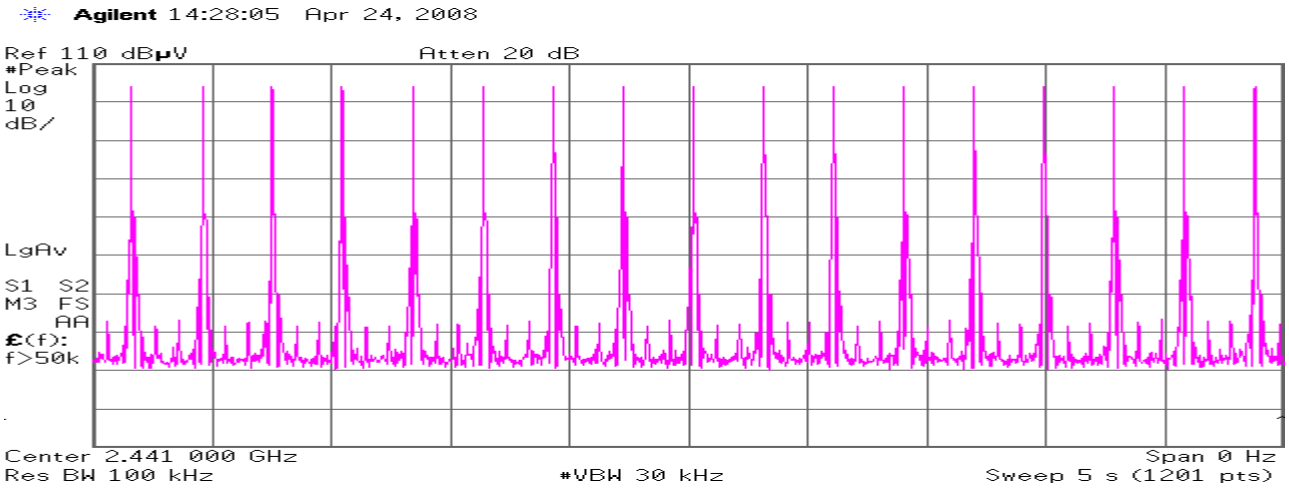
Count 1



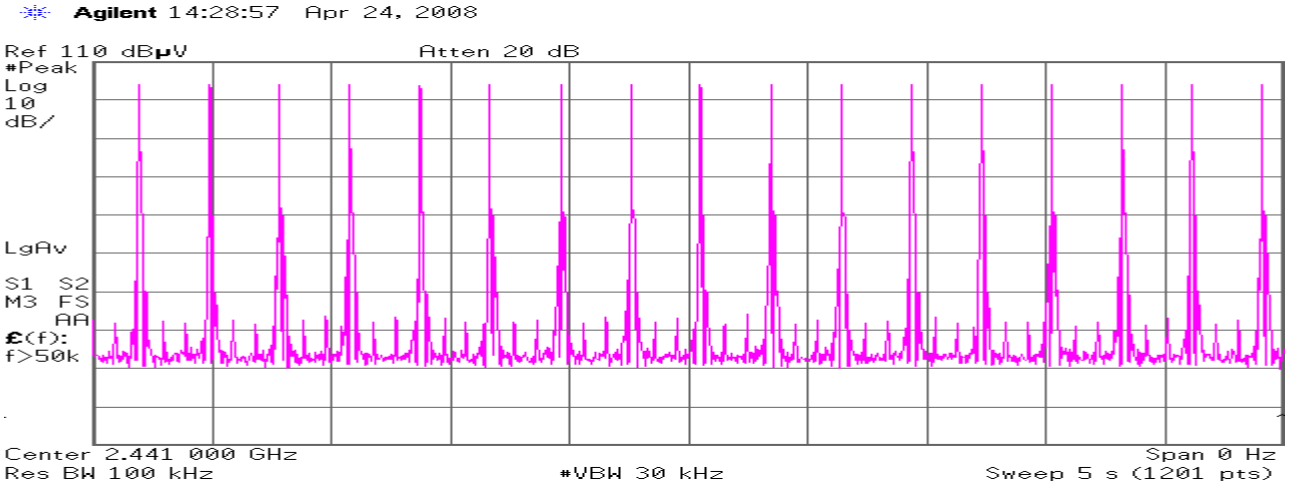
Count 2



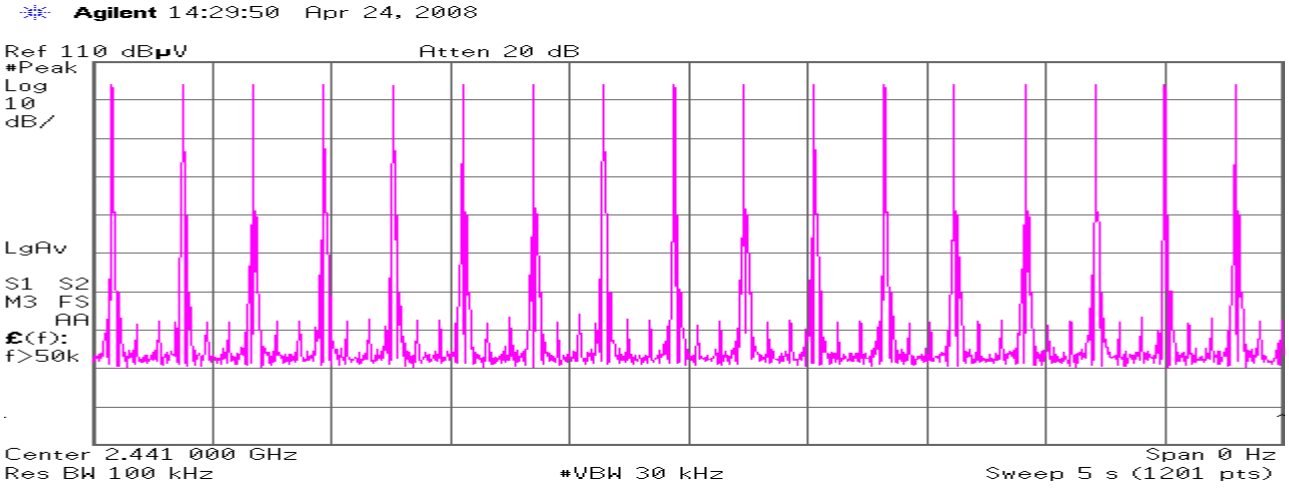
Count 3



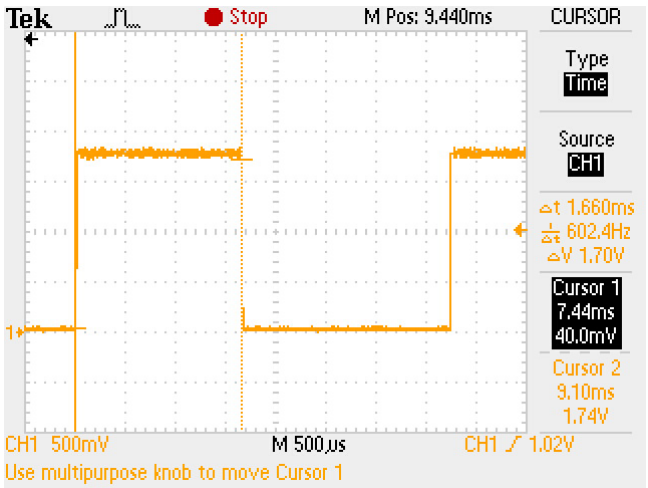
Count 4



Count 5



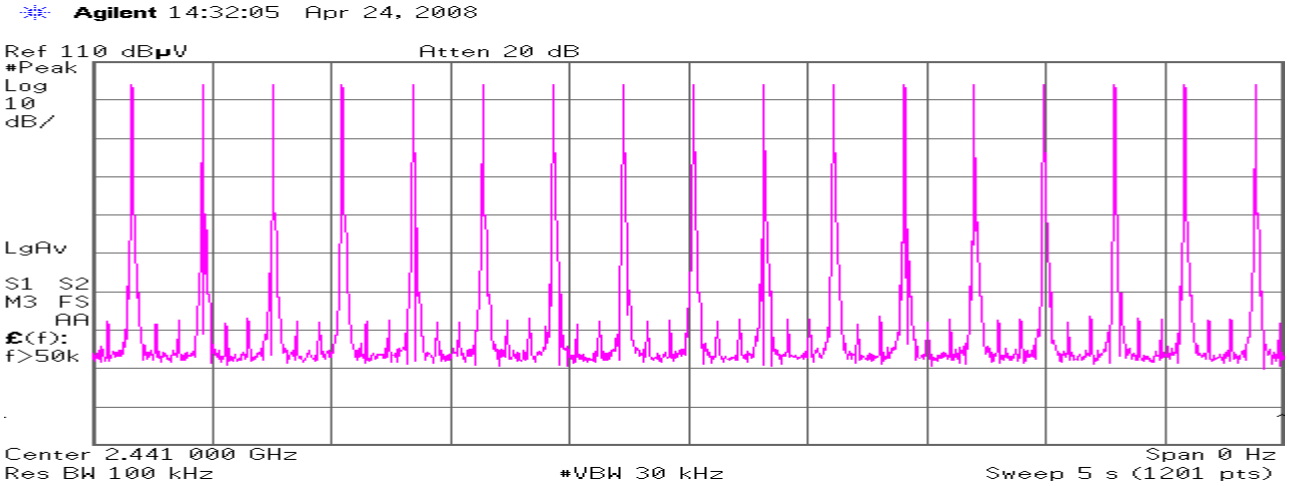
Duty cycle(Hopping DH3)



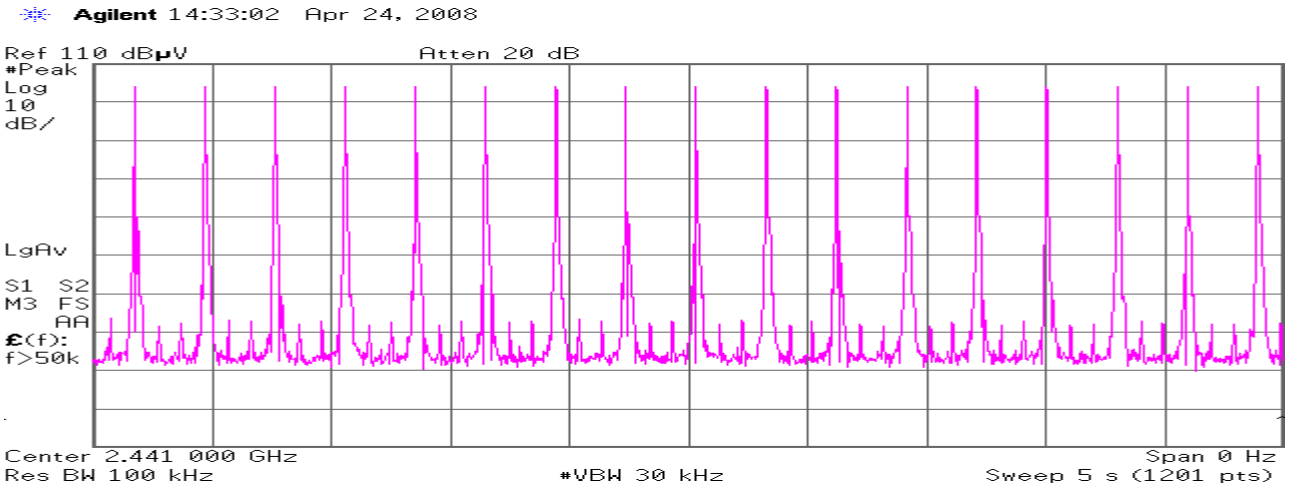
Average times of rising in 5 sec. of sweep = (17 + 17 + 17+ 17 + 17) / 5 = 17.0
Average times of rising in 1 sec. = 17.0 / 5s = 3.4
Average times of rising in 0.4x = 0.4 * 79ch * 3.4 = 107.44
Dwell time = 107.44 * 1.66 = 178.35 [ms]
Limit : Dwell Time < 0.4[s]

Hopping (DH5):

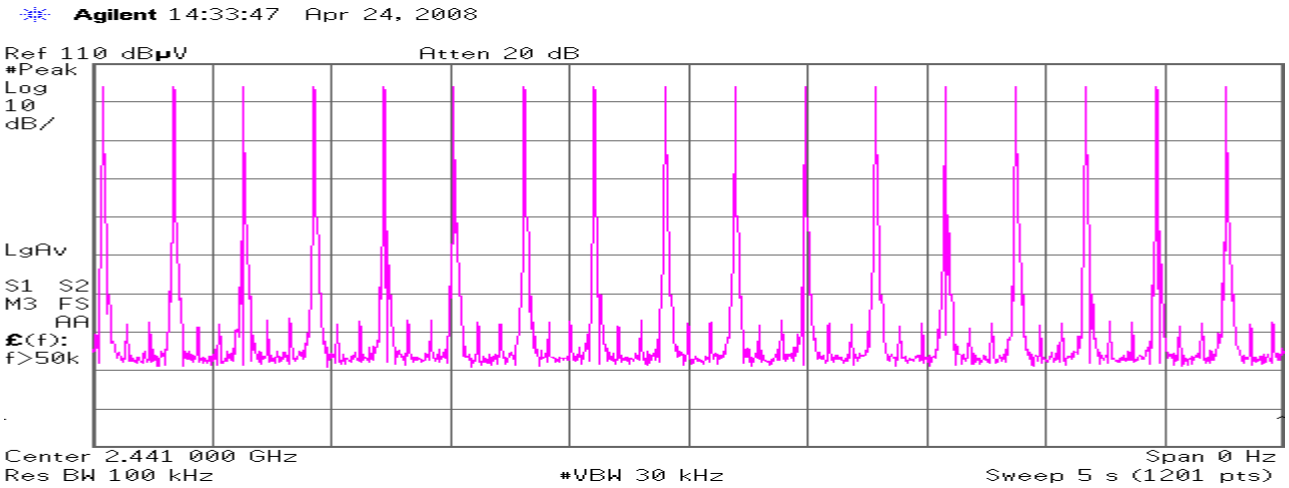
Count 1



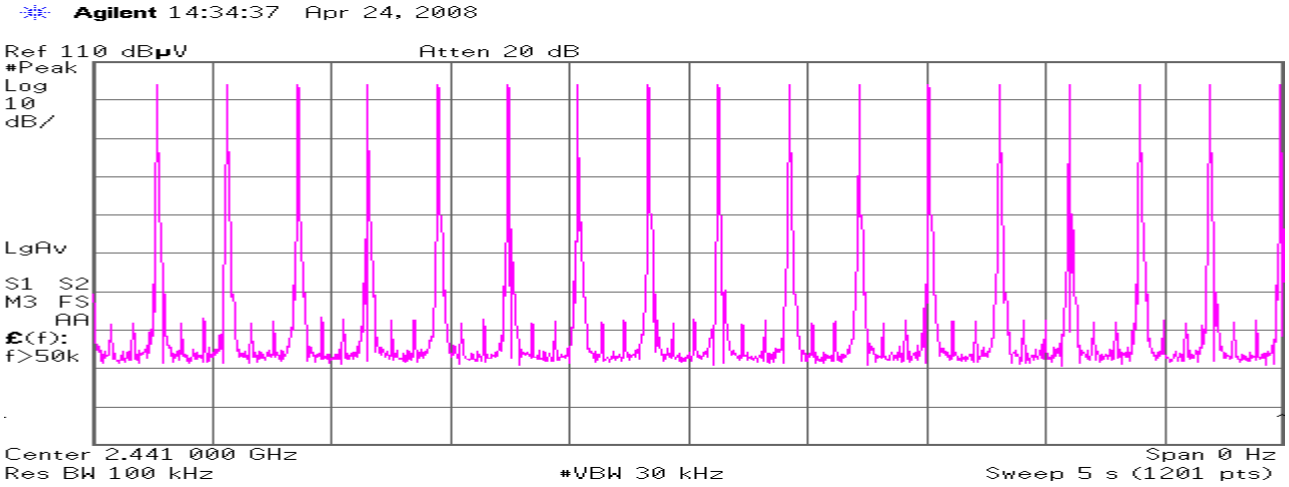
Count 2



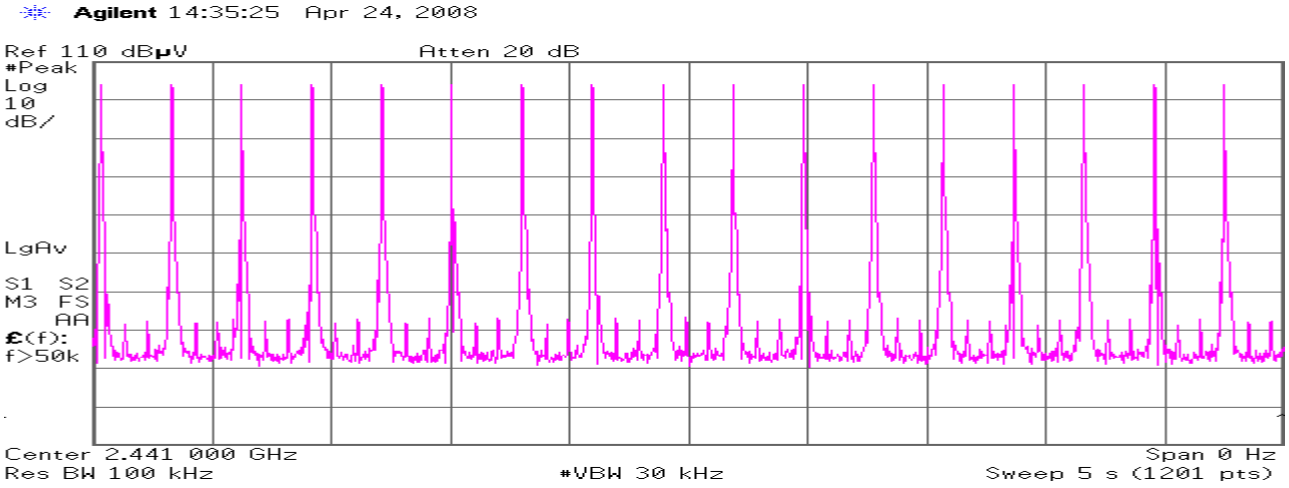
Count 3



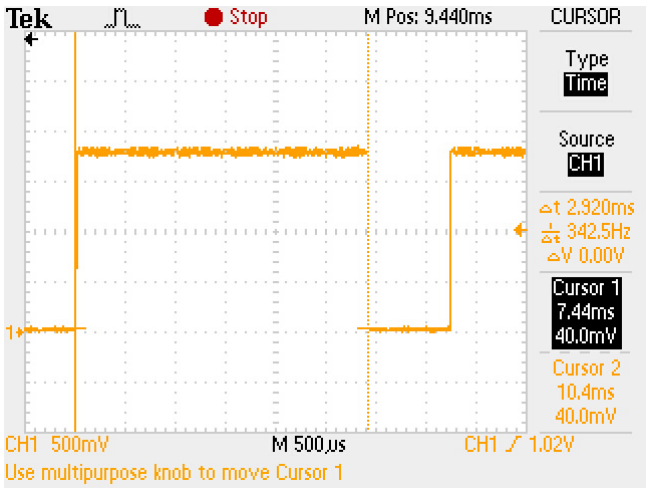
Count 4



Count 5



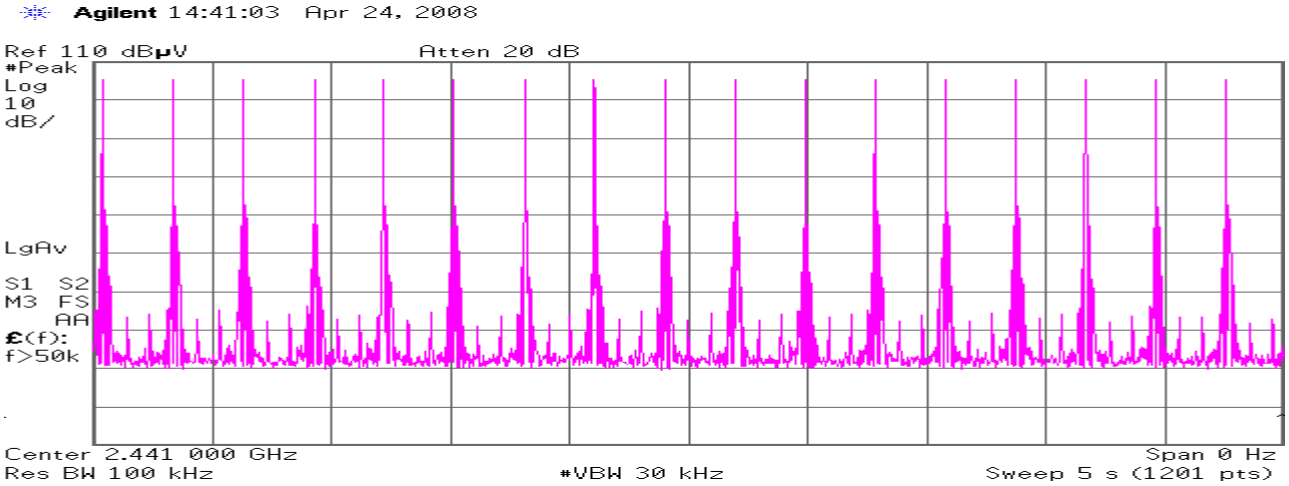
Duty cycle(Hopping DH5)



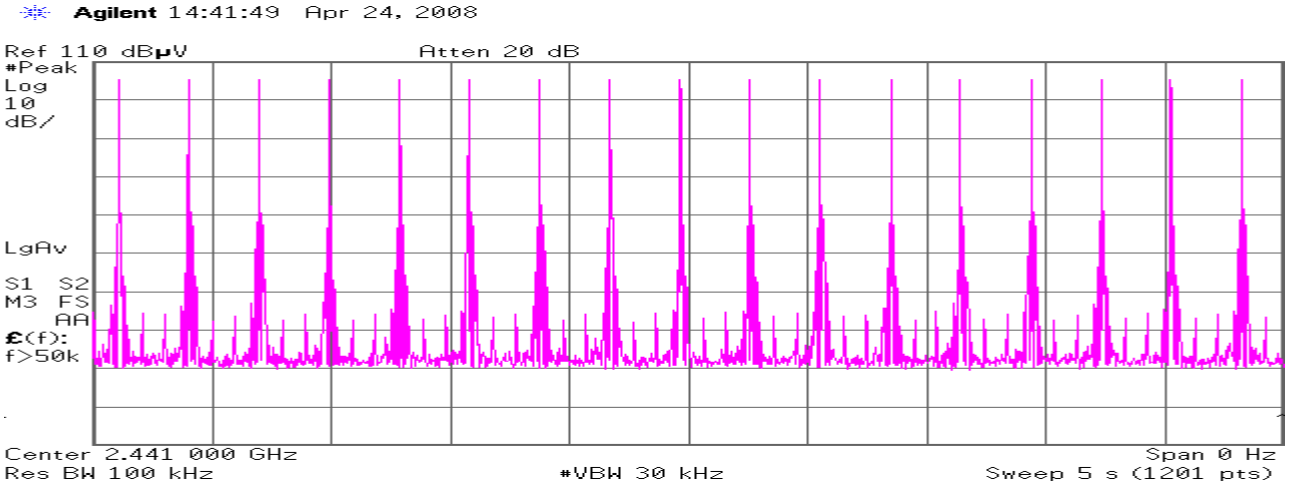
Average times of rising in 5 sec. of sweep = (17 + 17 + 17 + 17 + 17) / 5 = 17.0
Average times of rising in 1 sec. = 17.0 / 5s = 3.4
Average times of rising in 0.4x = 0.4 * 79ch * 3.4 = 107.44
Dwell time = 107.44 * 2.92 = 313.72 [ms]
Limit : Dwell Time < 0.4[s]

Hopping (3DH1):

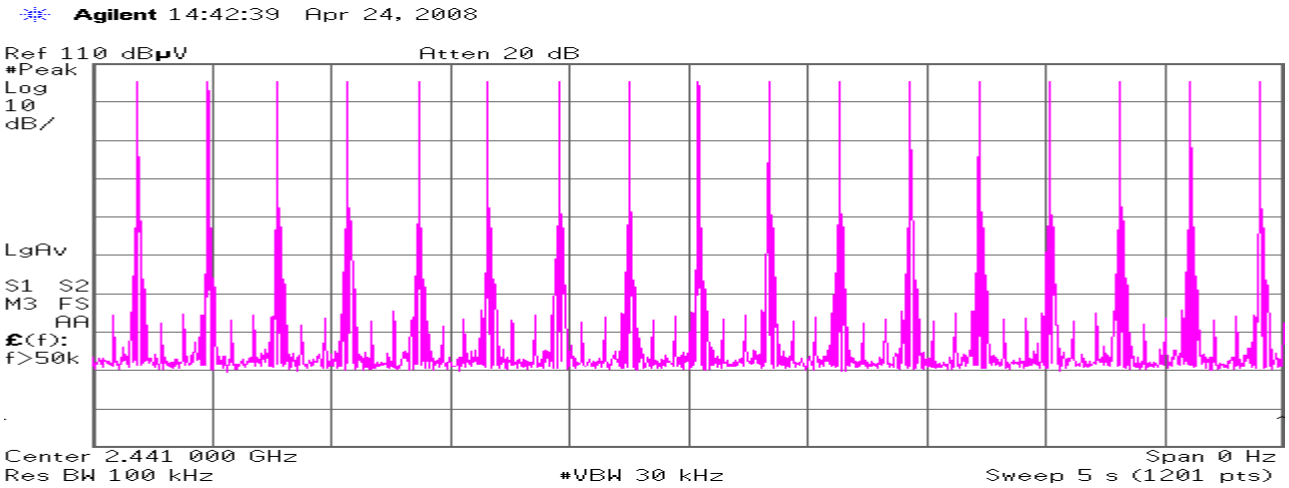
Count 1



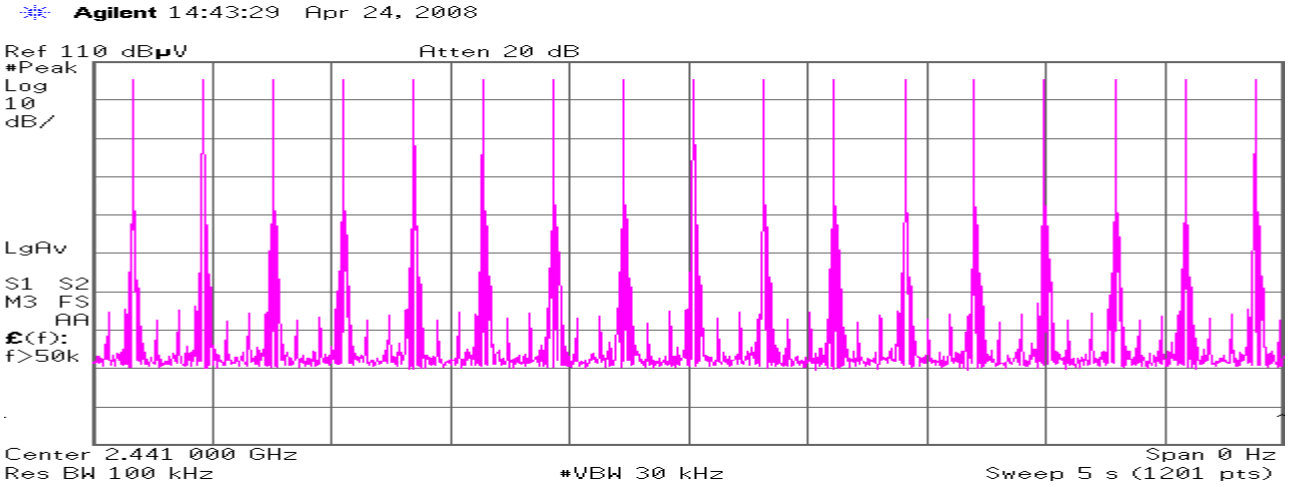
Count 2



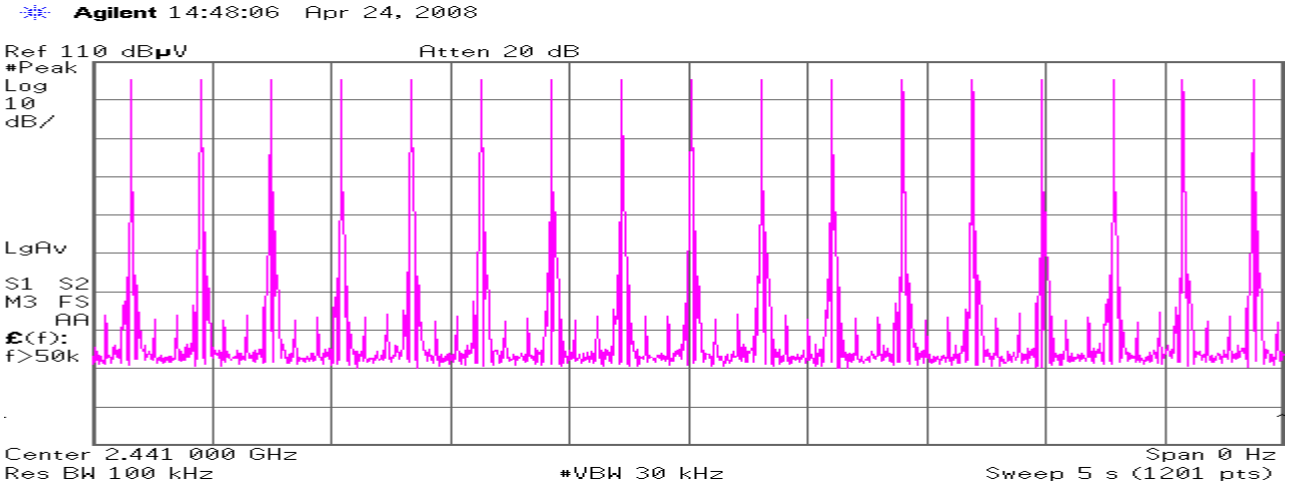
Count 3



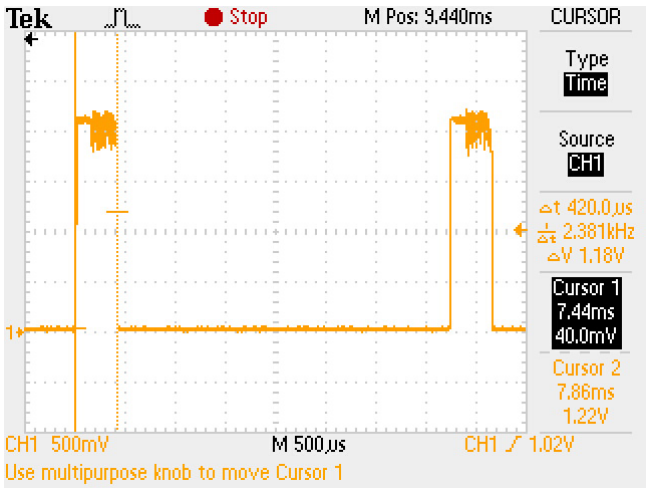
Count 4



Count 5



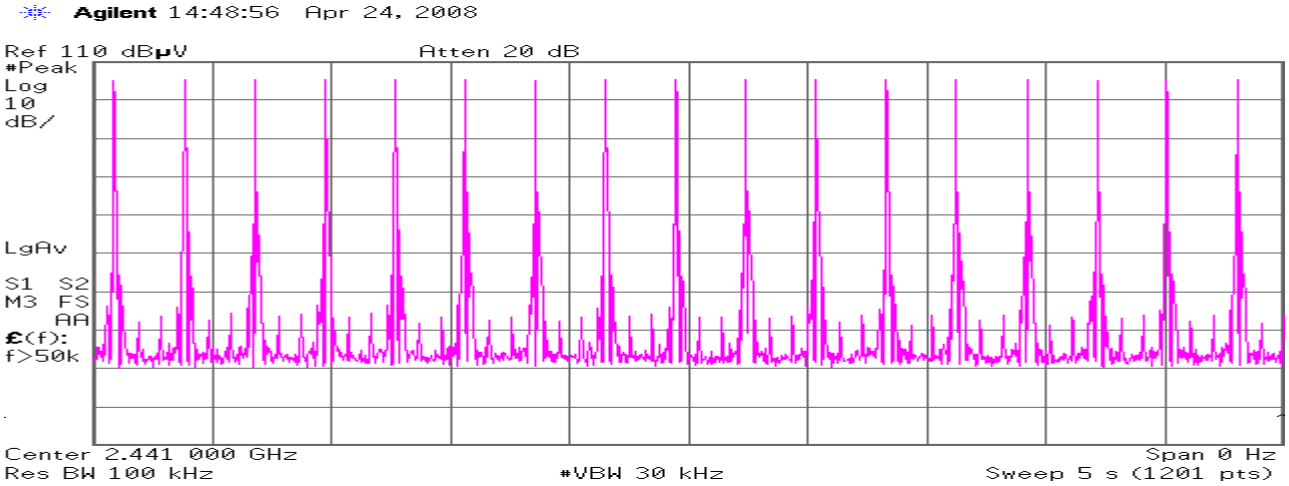
Duty cycle(Hopping 3DH1)



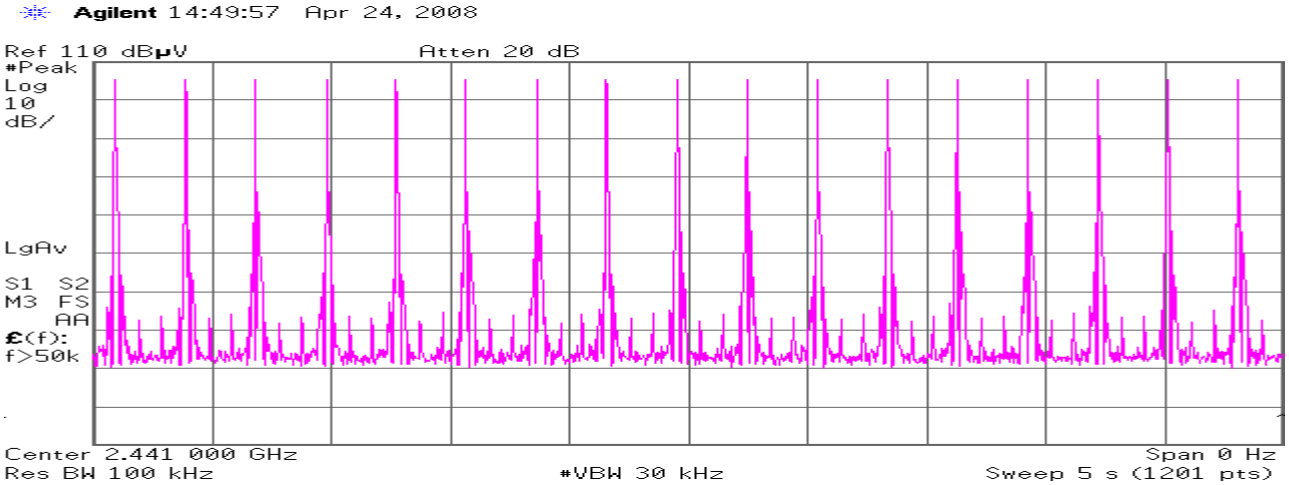
Average times of rising in 5 sec. of sweep = (17 + 17 + 17 + 17 + 17) / 5 = 17.0
Average times of rising in 1 sec. = 17.0 / 5s = 3.4
Average times of rising in 0.4x = 0.4 * 79ch * 3.4 = 107.44
Dwell time = 107.44 * 0.42 = 45.12 [ms]
Limit : Dwell Time < 0.4[s]

Hopping (3DH3):

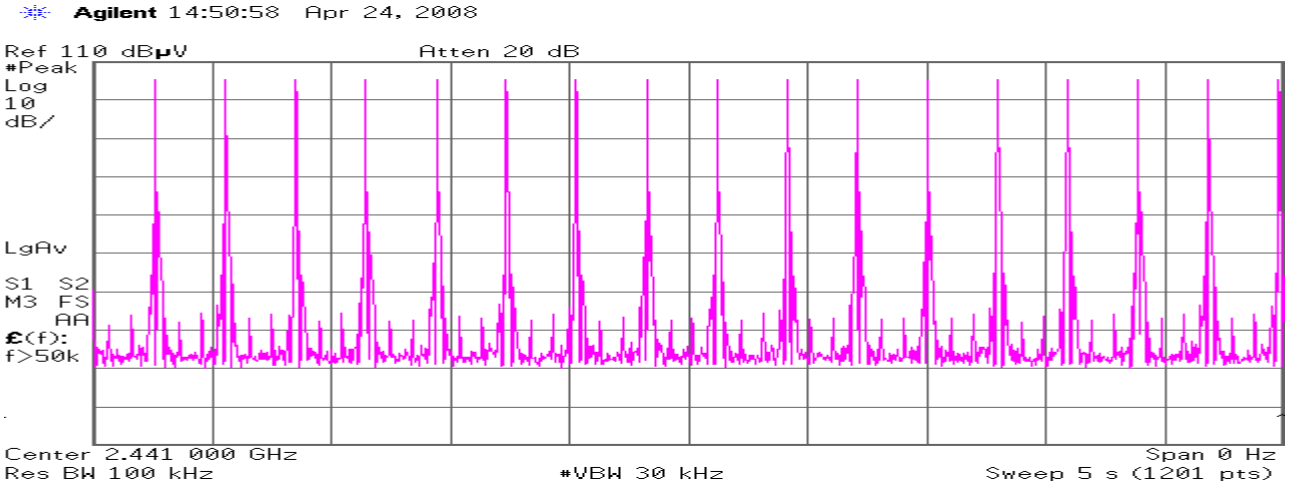
Count 1



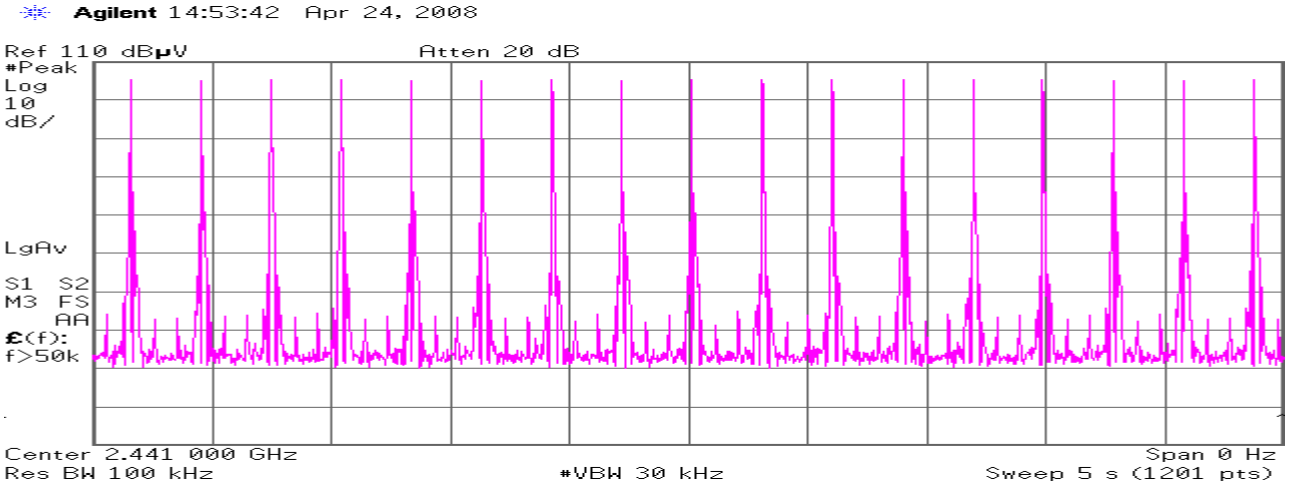
Count 2



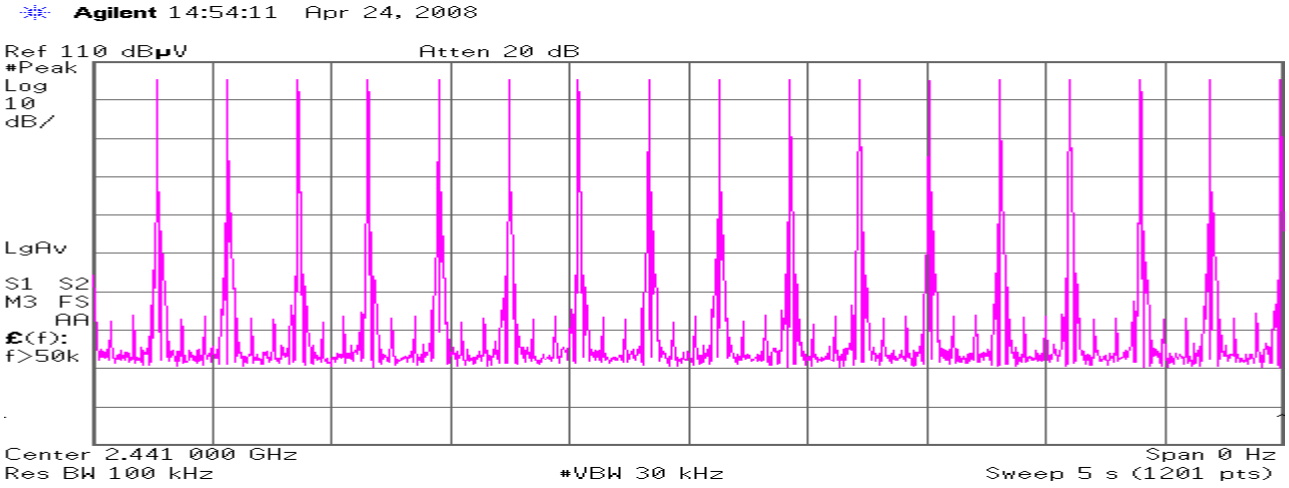
Count 3



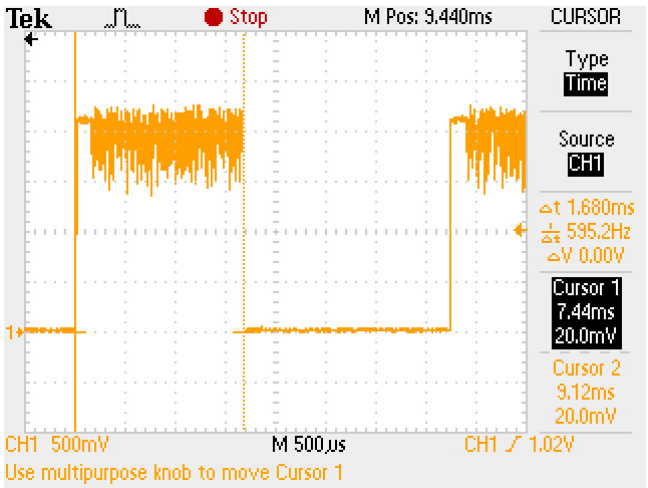
Count 4



Count 5



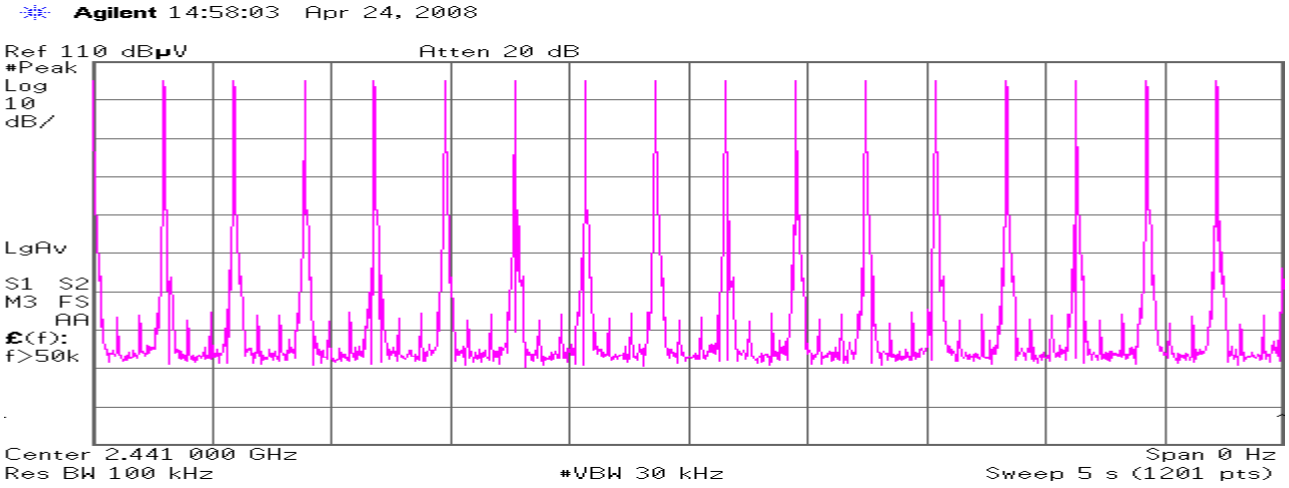
Duty cycle(Hopping 3DH3)



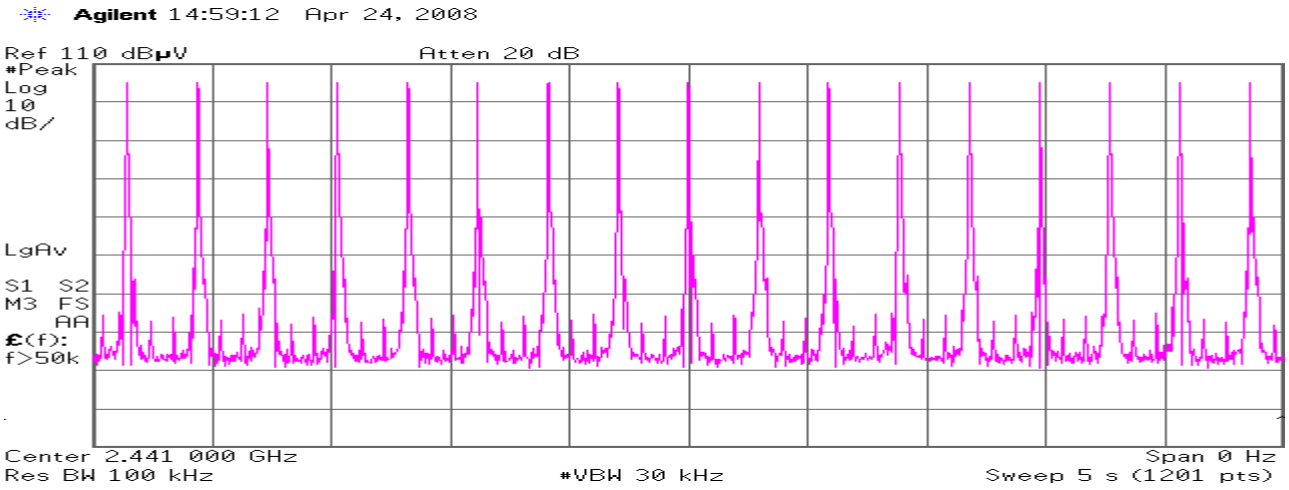
Average times of rising in 5 sec. of sweep = (17 + 17 + 17 + 17 + 17) / 5 = 17.0
Average times of rising in 1 sec. = 17.0 / 5s = 3.4
Average times of rising in 0.4x = 0.4 * 79ch * 3.4 = 107.44
Dwell time = 107.44 * 1.68 = 180.50 [ms]
Limit : Dwell Time < 0.4[s]

Hopping (3DH5):

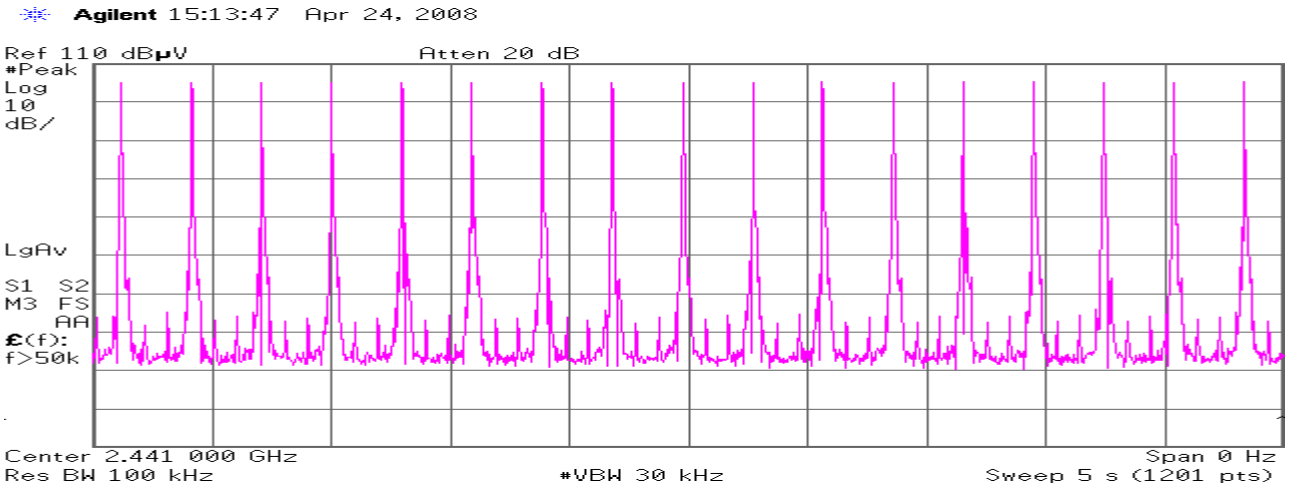
Count 1



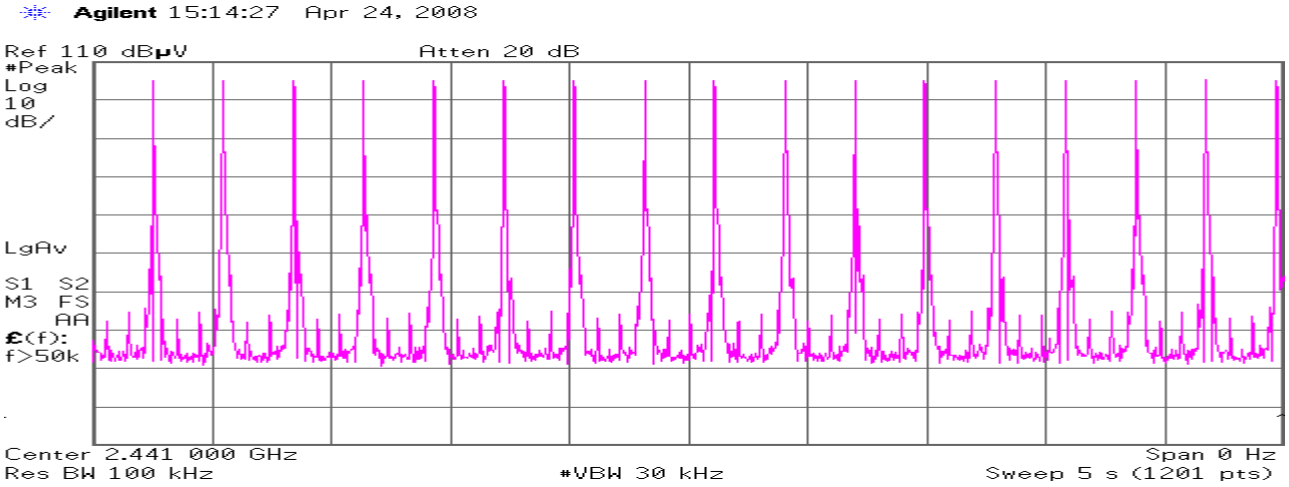
Count 2



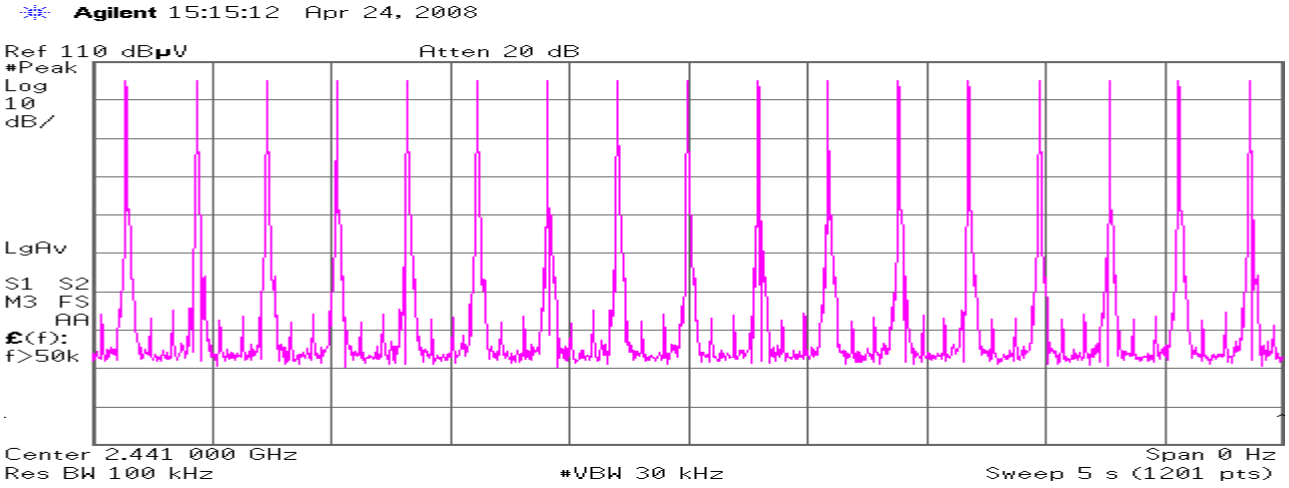
Count 3



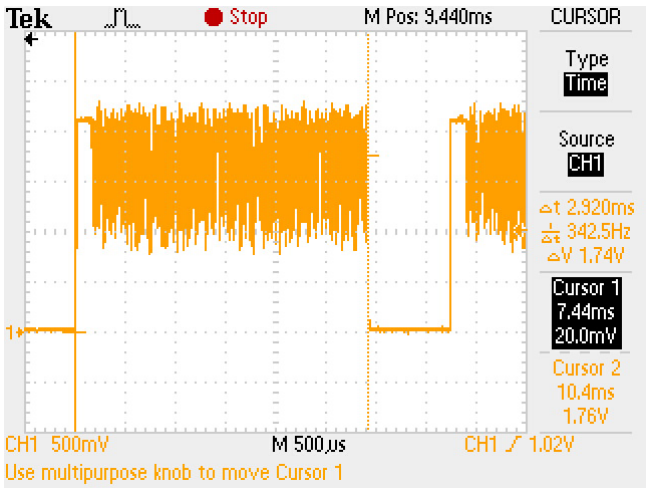
Count 4



Count 5



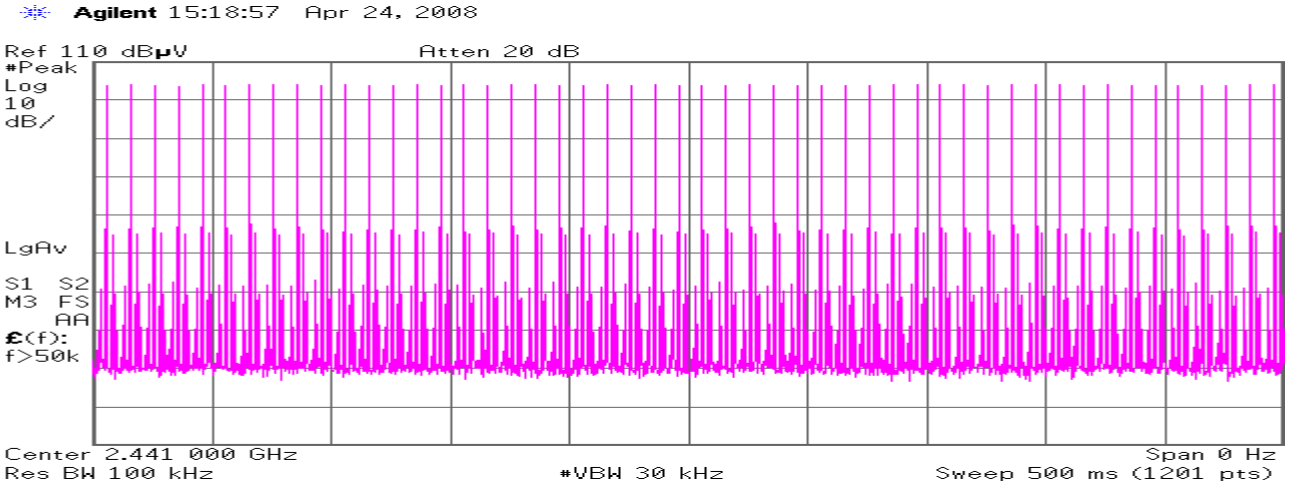
Duty cycle(Hopping 3DH5)



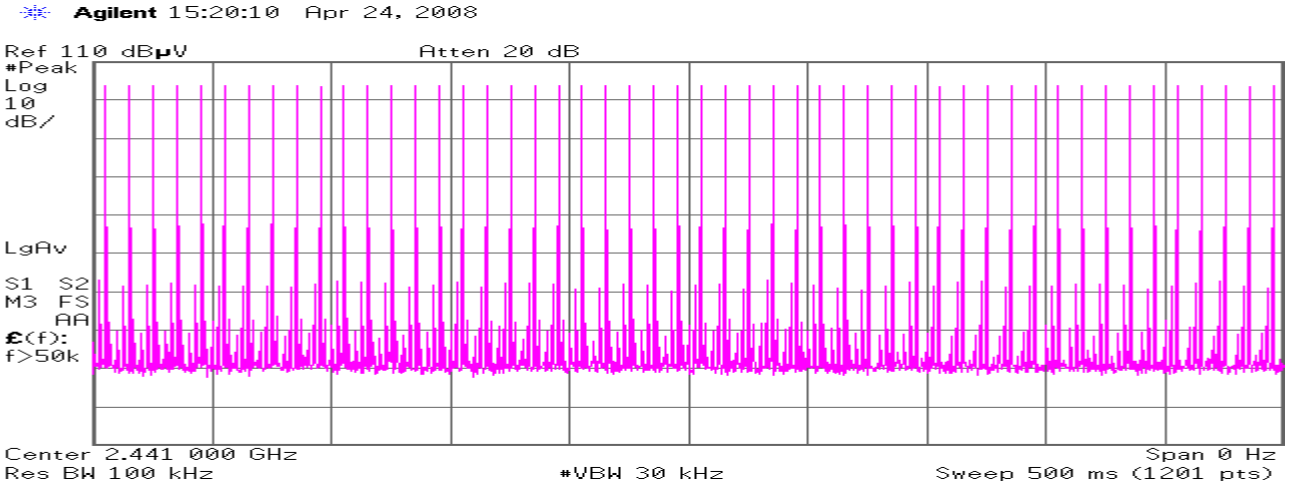
Average times of rising in 5 sec. of sweep = (17 + 17 + 17 + 17 + 17) / 5 = 17.0
Average times of rising in 1 sec. = 17.0 / 5s = 3.4
Average times of rising in 0.4x = 0.4 * 79ch * 3.4 = 107.44
Dwell time = 107.44 * 2.92 = 313.72 [ms]
Limit : Dwell Time < 0.4[s]

Inquiry:

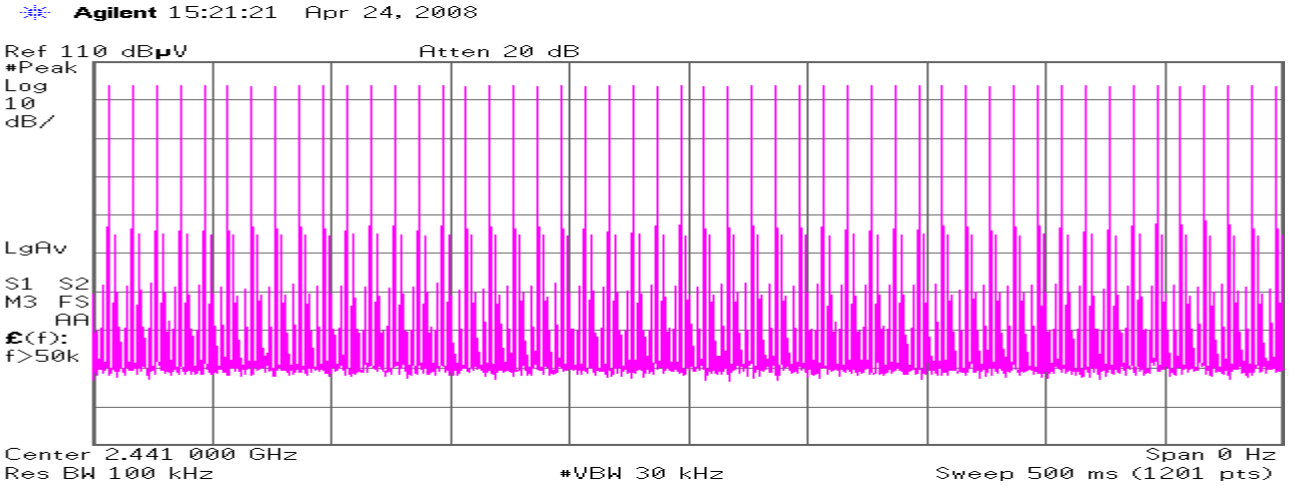
Count 1



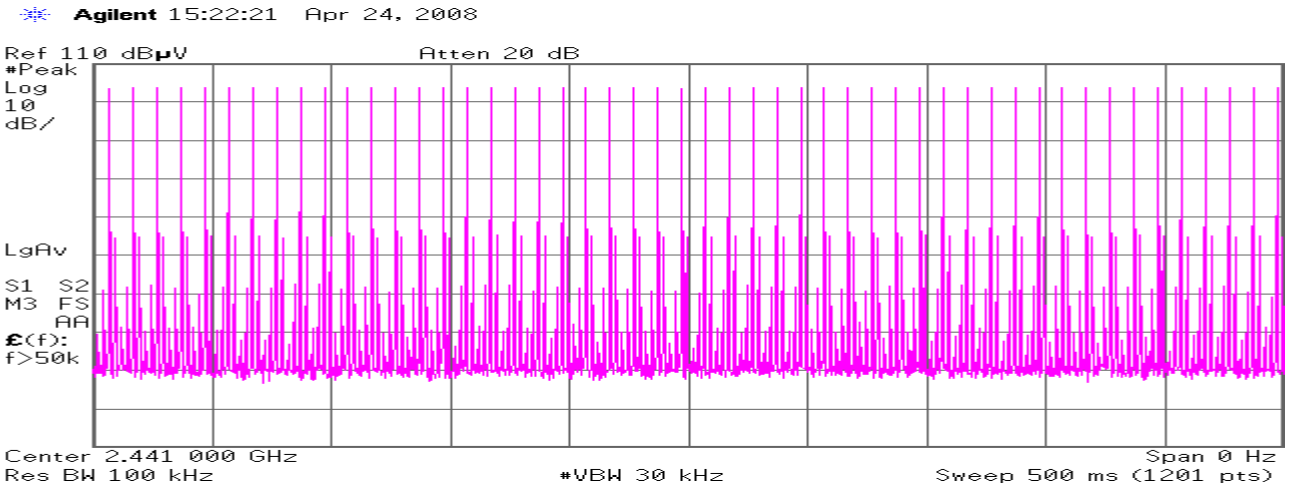
Count 2



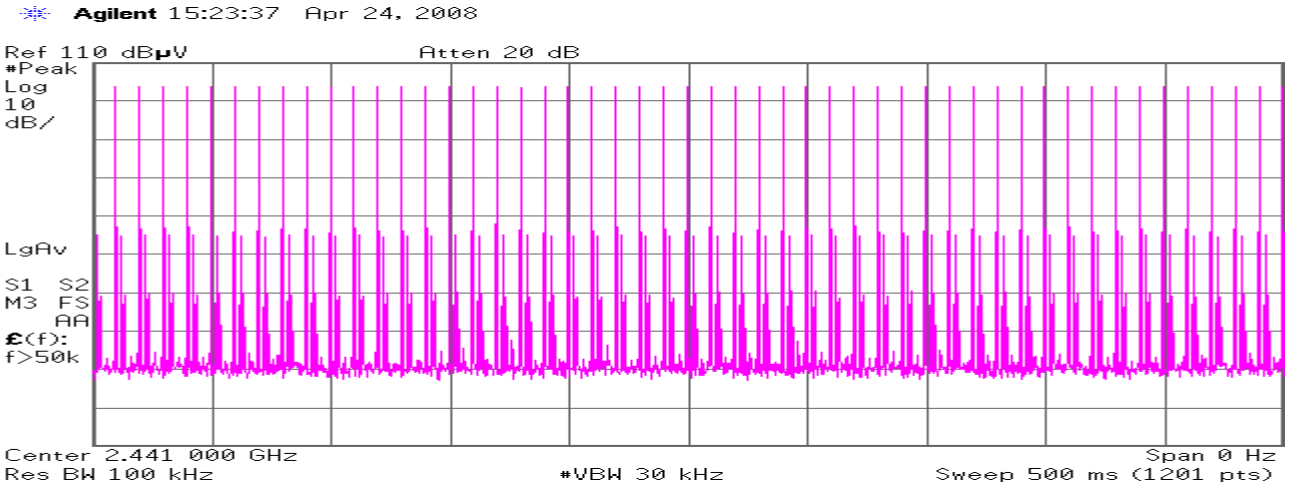
Count 3



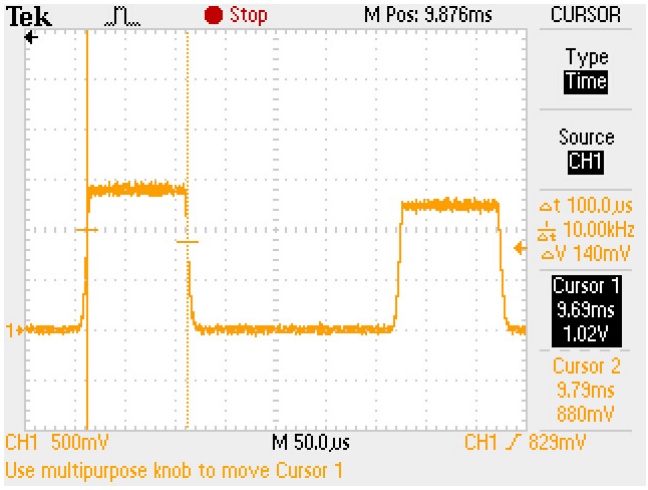
Count 4



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 * 0.100 = 128.0 [ms]
Limit : Dwell Time < 0.4[s]

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

UL Japan, Inc.
YAMAKITA No.2 Shielded Room

DATE : 2008.4.24
TEMP./HUMI : 24deg.C/49%
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	-0.94	3.23	2.29	20.96	18.67
Mid	2441.00	-2.54	3.25	0.71	20.96	20.25
High	2480.00	-4.68	3.27	-1.41	20.96	22.37
Inquiry	-	-0.96	3.25	2.29	20.96	18.67

Limit: 125mW=20.96dBm
P/M: Power Meter
CABLE LOSS:Customer's cable + KCC-D5

2DH5

CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]	Limit (125mW) [dBm]	MARGIN [dB]
Low	2402.00	0.70	3.23	3.93	20.96	17.03
Mid	2441.00	-0.67	3.25	2.58	20.96	18.38
High	2480.00	-2.44	3.27	0.83	20.96	20.13

Limit: 125mW=20.96dBm
P/M: Power Meter
CABLE LOSS:Customer's cable + KCC-D5

3DH5

CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]	Limit (125mW) [dBm]	MARGIN [dB]
Low	2402.00	0.69	3.23	3.92	20.96	17.04
Mid	2441.00	-0.67	3.25	2.58	20.96	18.38
High	2480.00	-2.27	3.27	1.00	20.96	19.96

Limit: 125mW=20.96dBm
P/M: Power Meter
CABLE LOSS:Customer's cable + KCC-D5

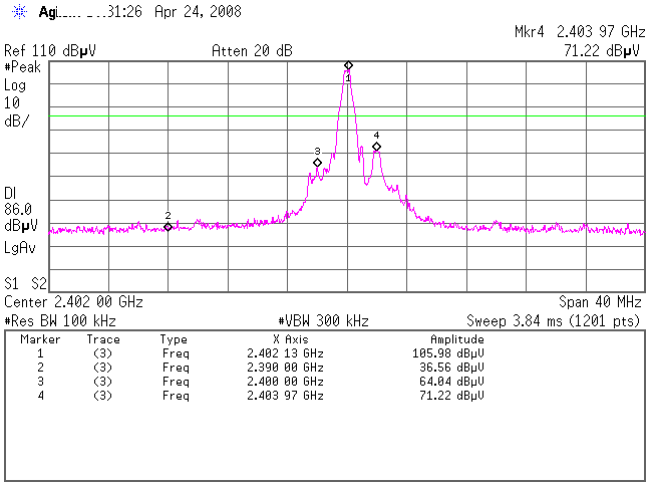
Out of Band Emission (Antenna Terminal Conducted) (Regulation: FCC 15.247(d))

UL Japan, Inc. Yamakita No.2 Shielded Room
Date: 2008.4.24
Temp./Humid.: 24deg.C./49%
Engineer: Tatsuya Arai
Test mode: Transmitting

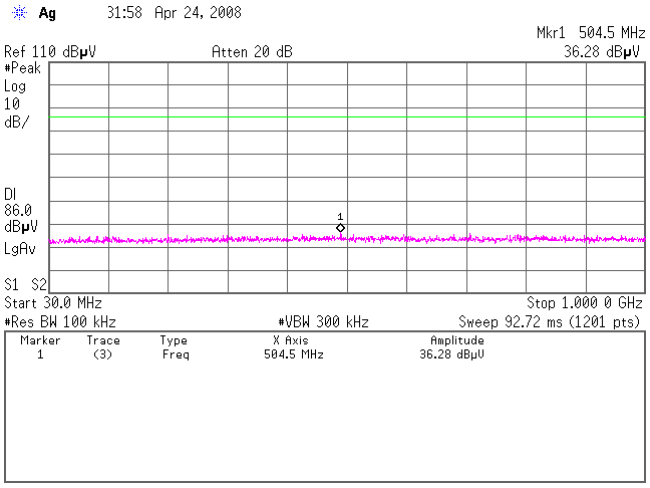
[Transmitting DH5]

Ch:2402MHz

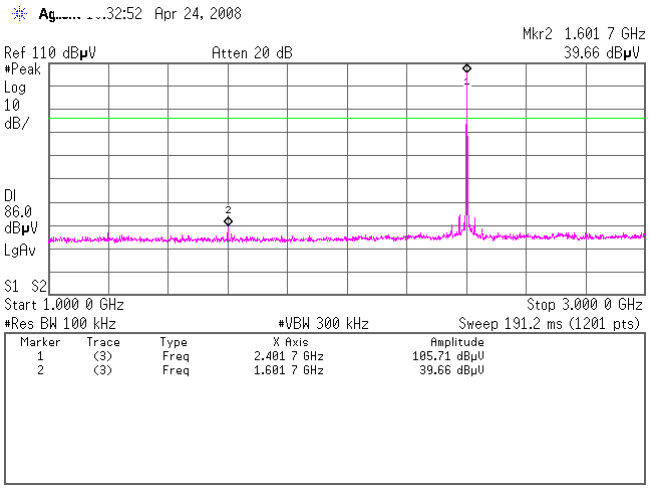
1.



2.



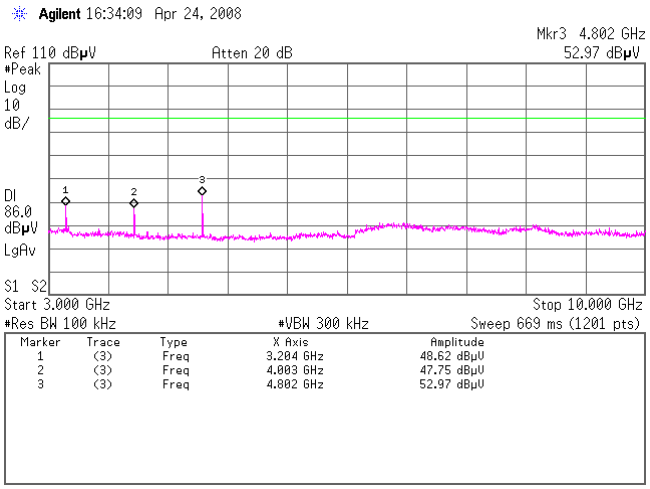
3.



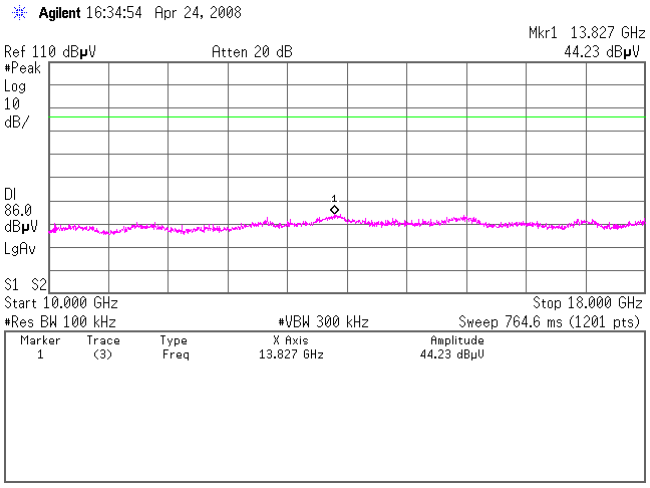
[Transmitting DH5]

Ch:2402MHz

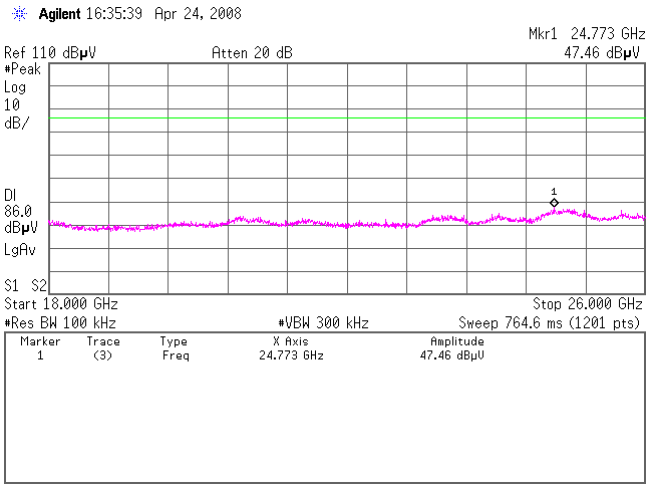
4.



5.



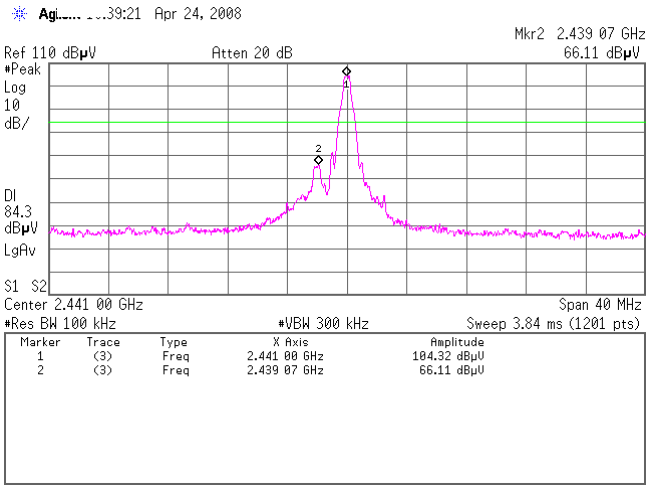
6.



[Transmitting DH5]

Ch:2441MHz

1.



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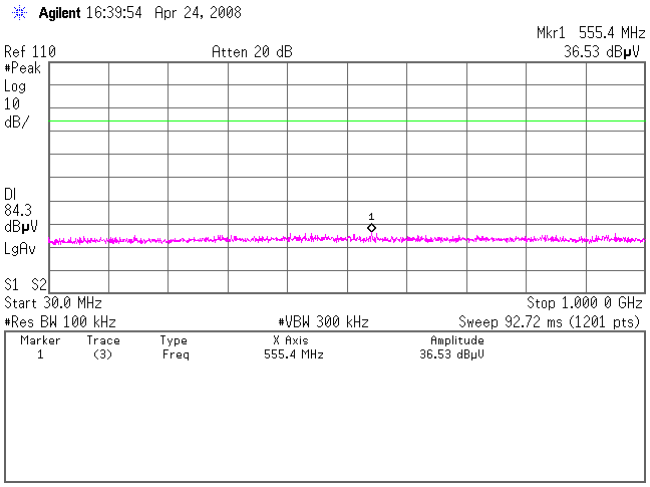

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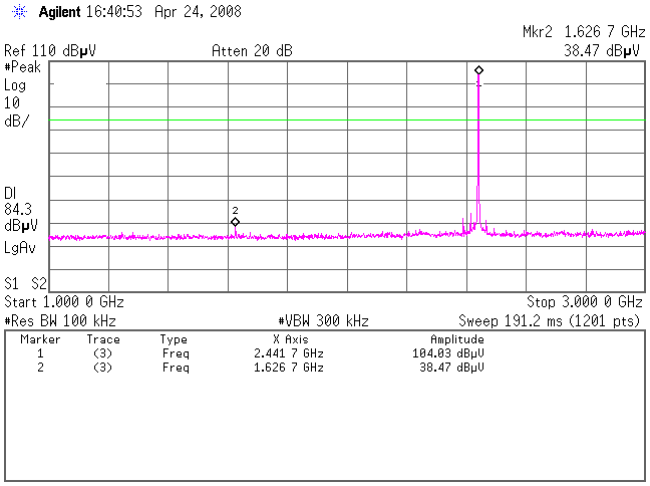
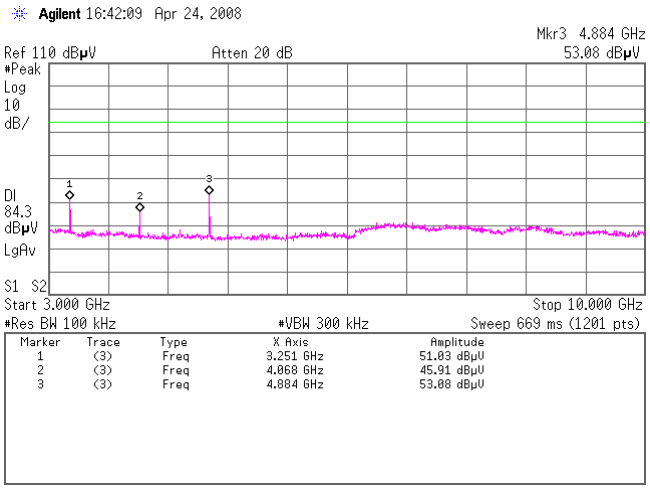
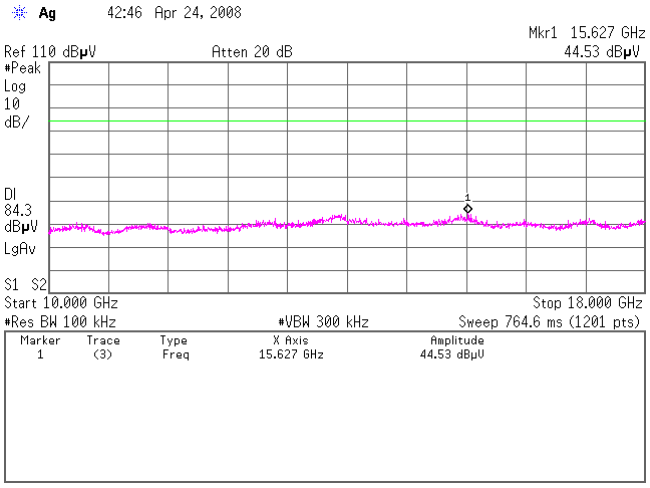


[Transmitting DH5]
Ch:2441MHz

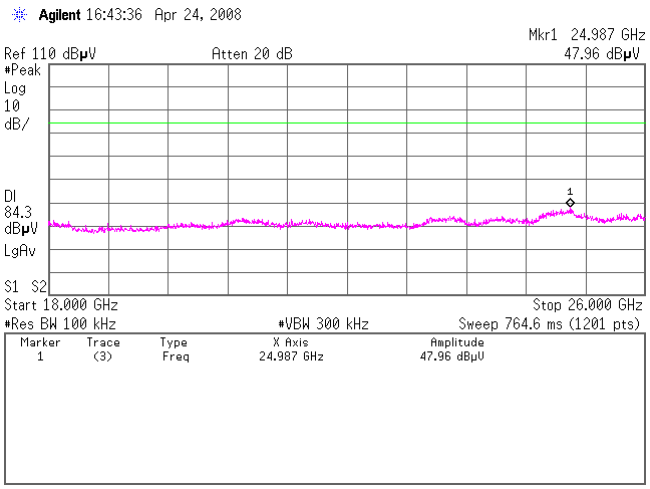
4.



5.



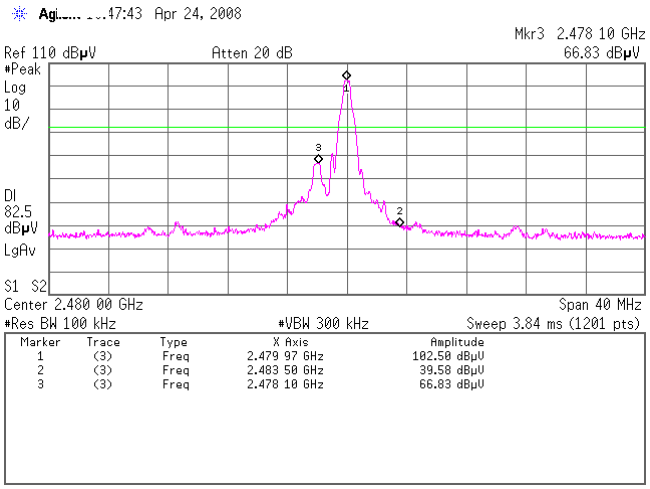
6.



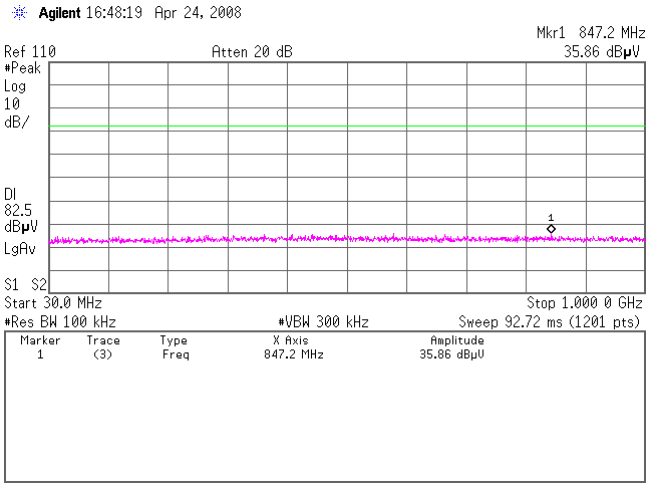
[Transmitting DH5]

Ch:2480MHz

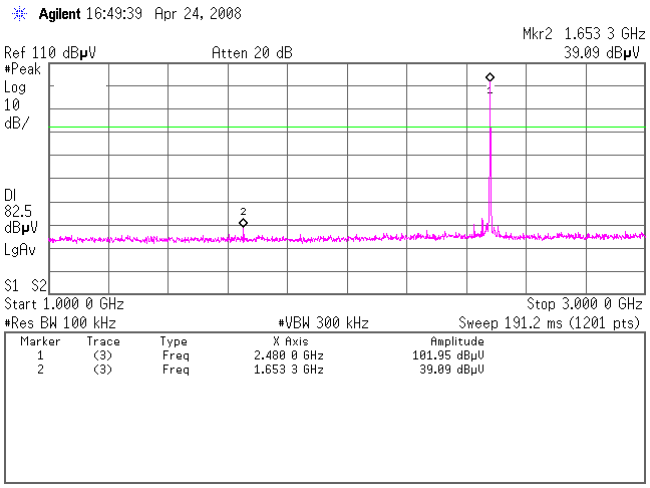
1.



2.



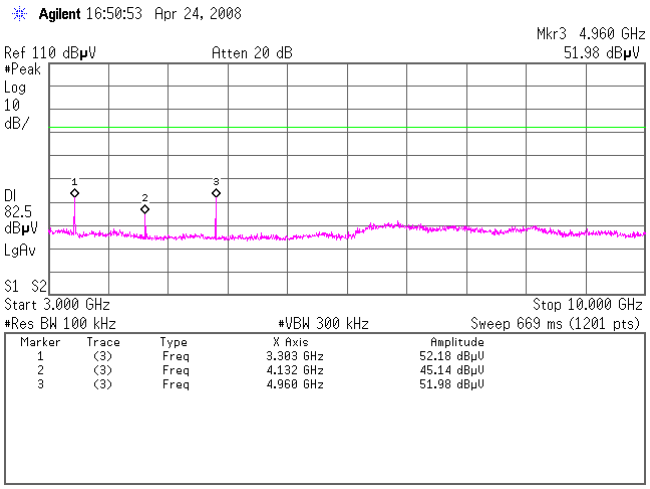
3.



[Transmitting DH5]

Ch:2480MHz

4.



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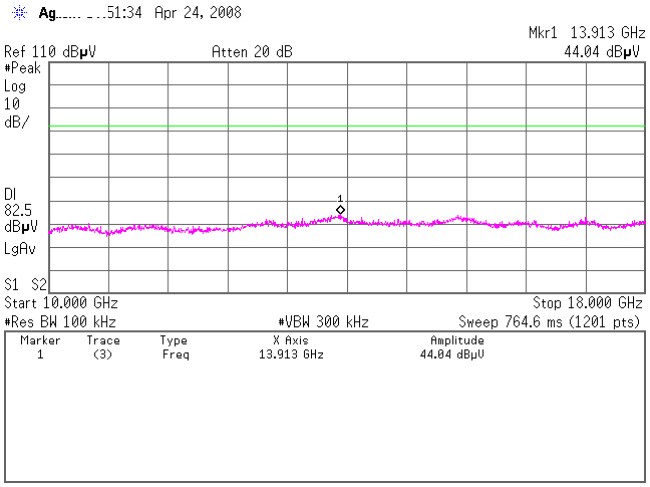
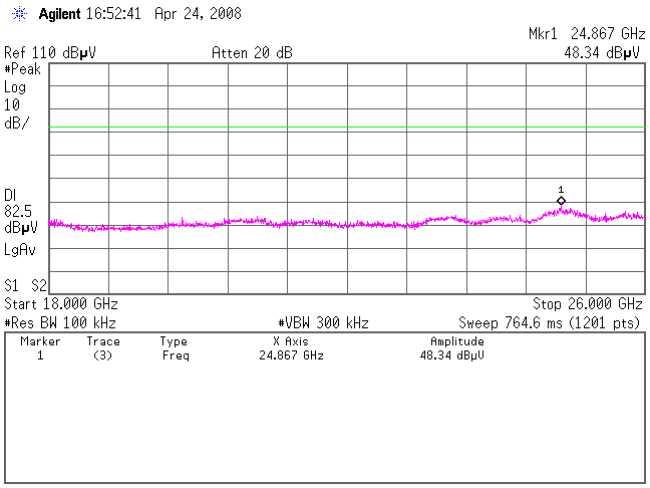


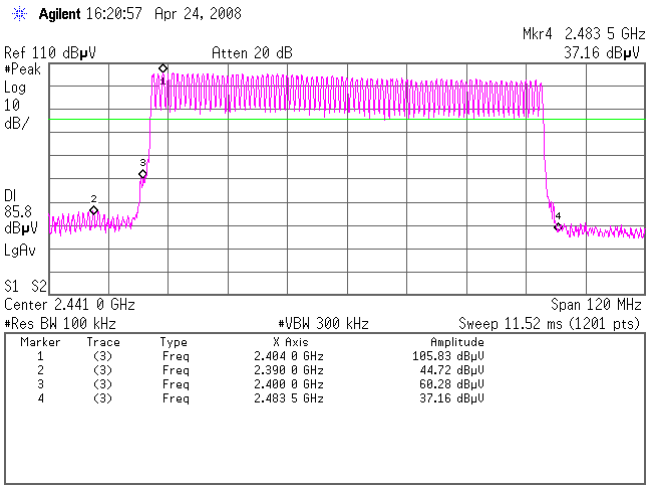
6.



[Transmitting DH5]

Hopping

1.



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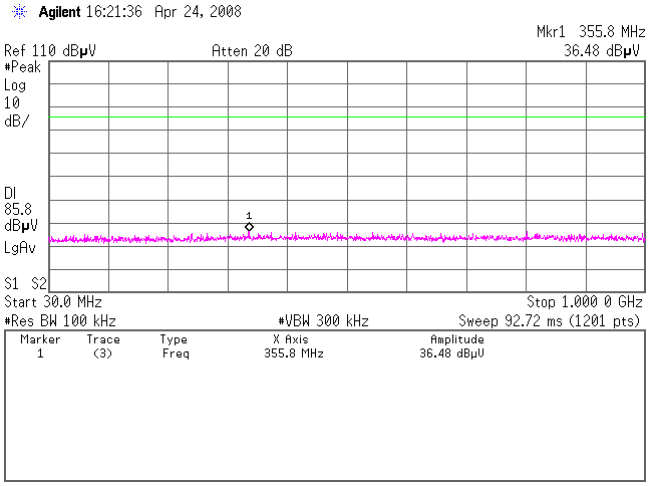

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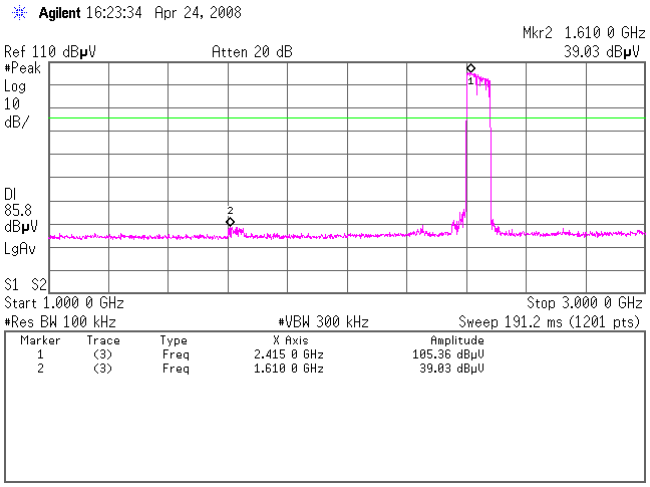
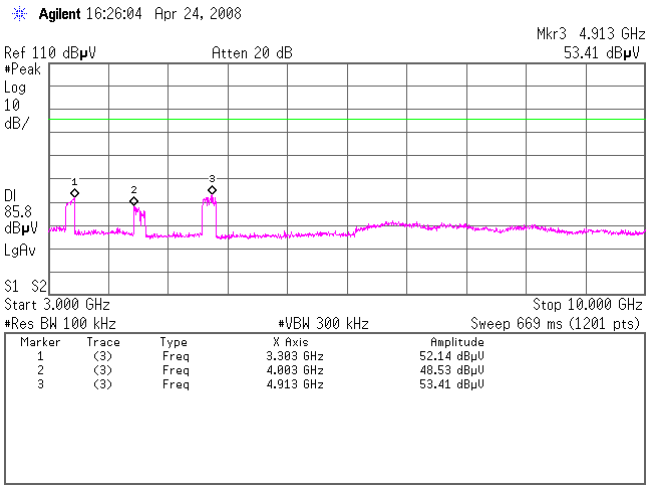


[Transmitting DH5]

Hopping

4.



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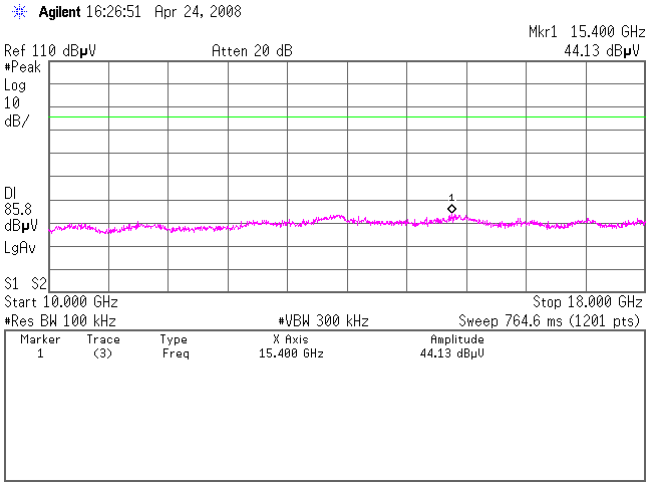

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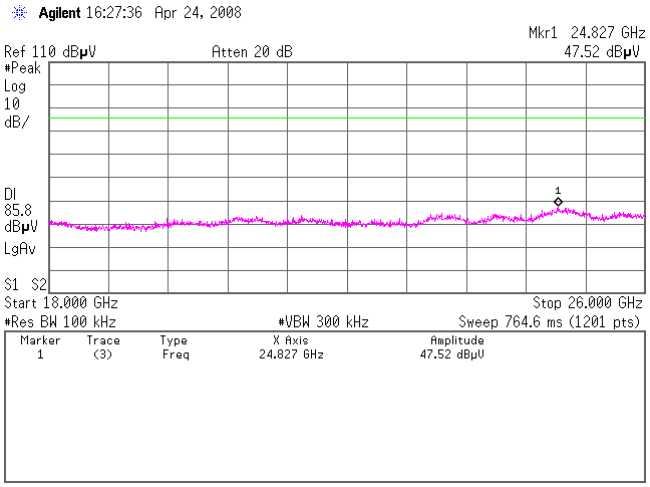
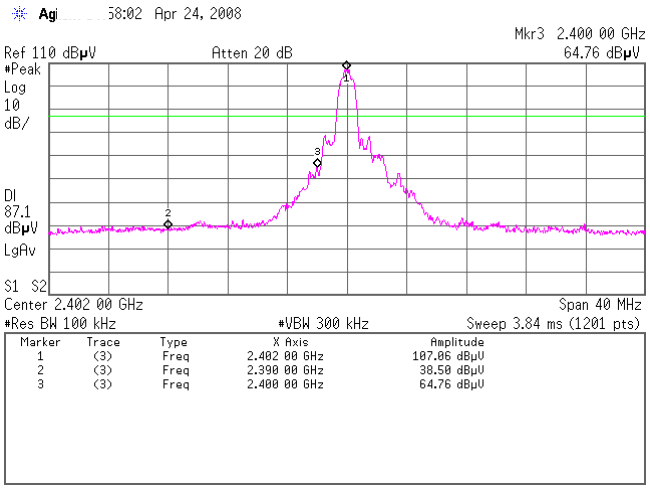


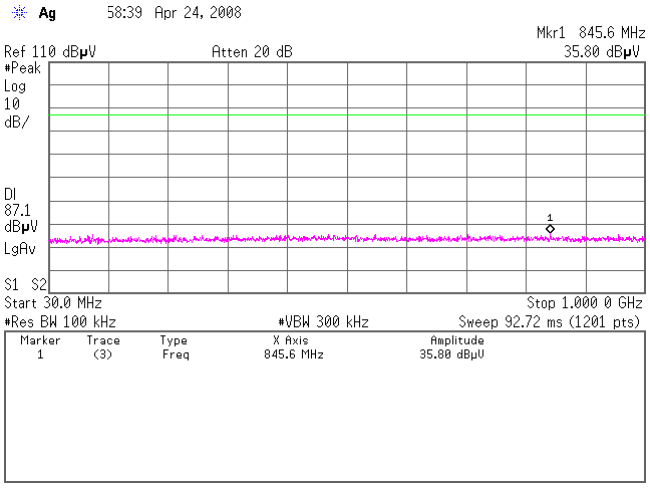
[Transmitting 3DH5]

Ch:2402MHz

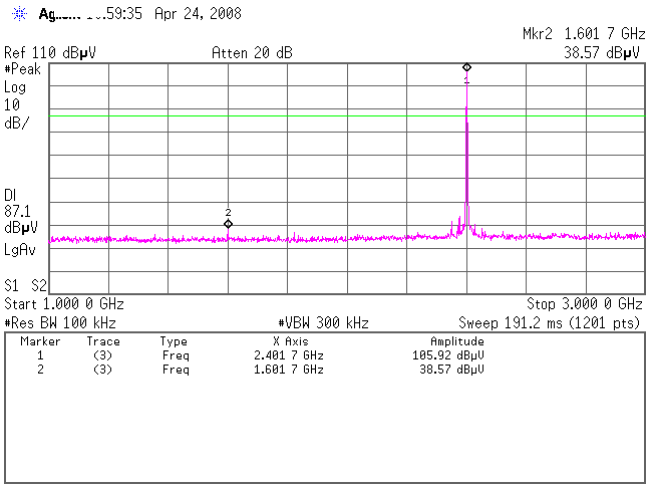
1.



2.



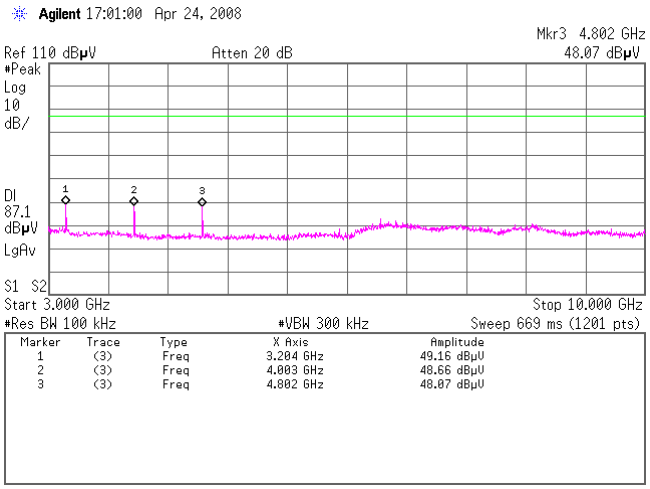
3.



[Transmitting 3DH5]

Ch:2402MHz

4.



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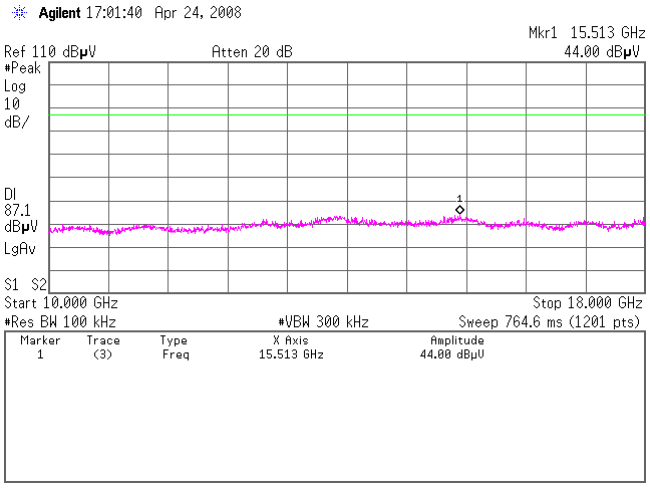
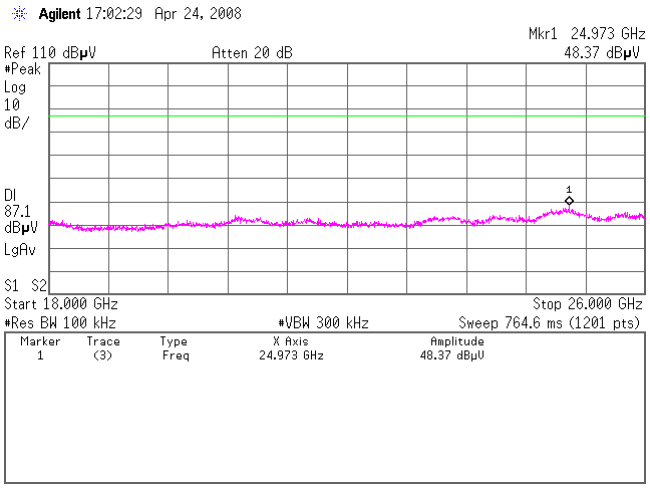


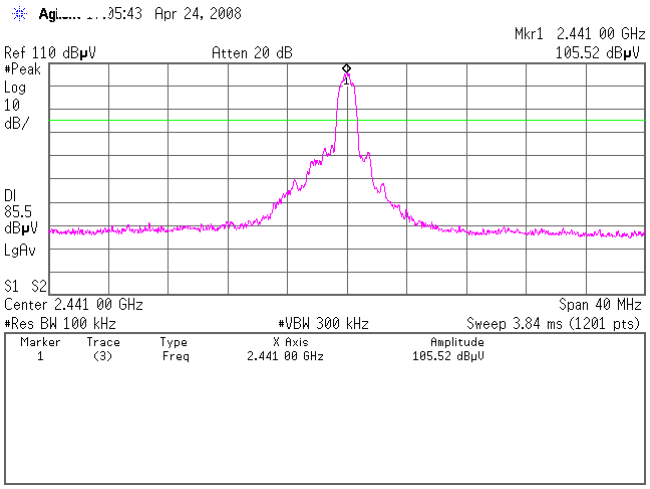
6.



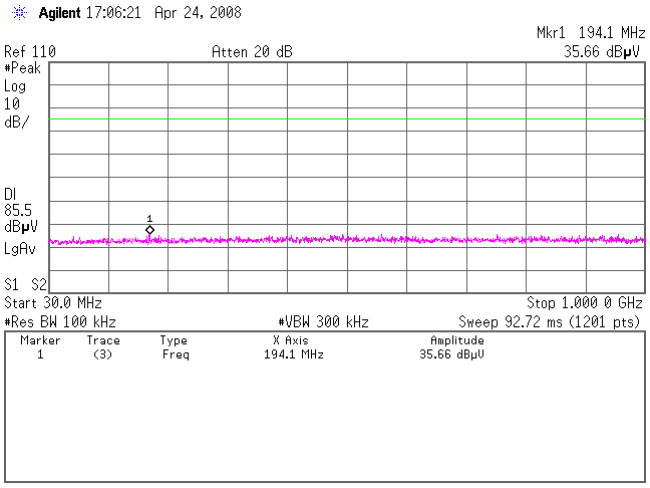
[Transmitting 3DH5]

Ch:2441MHz

1.



2.



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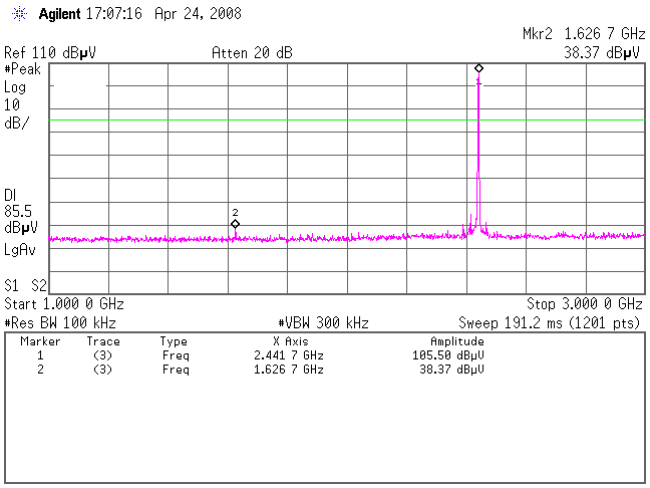
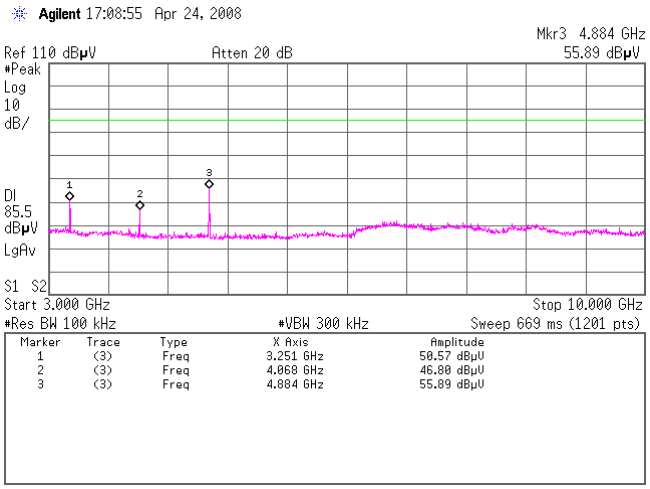


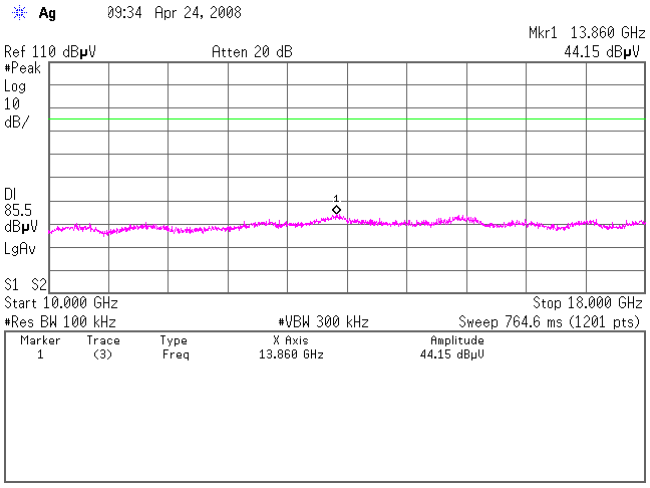
[Transmitting 3DH5]

Ch:2441MHz

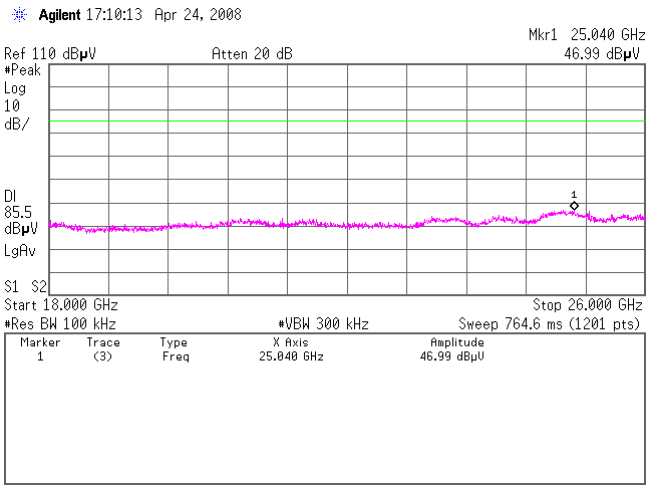
4.



5.



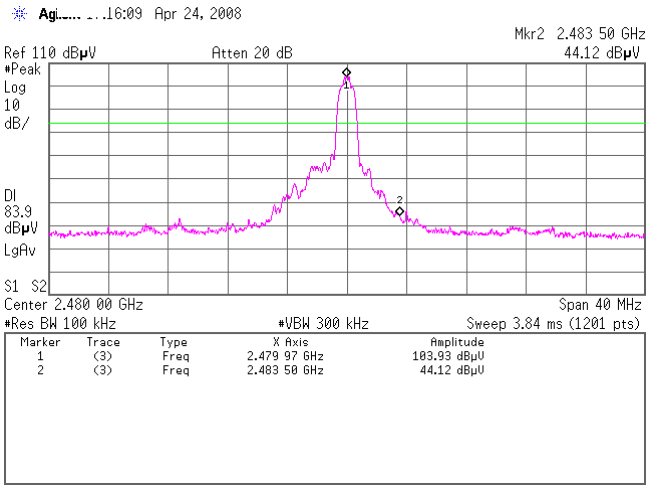
6.



[Transmitting 3DH5]

Ch:2480MHz

1.



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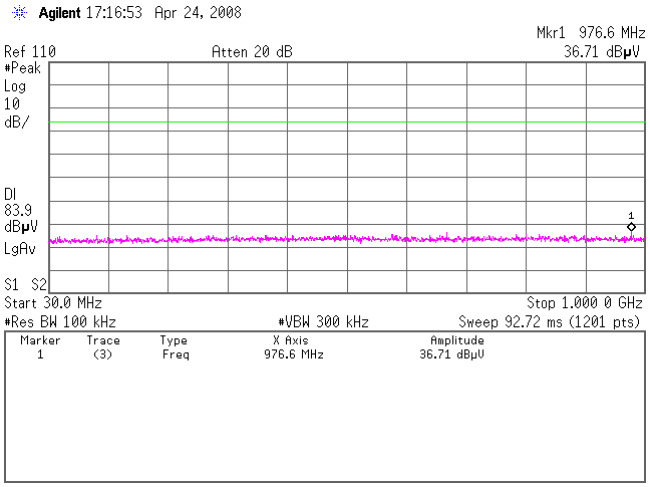

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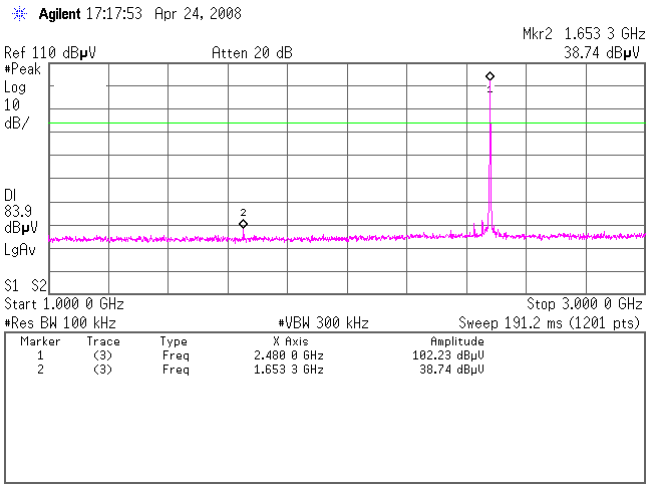
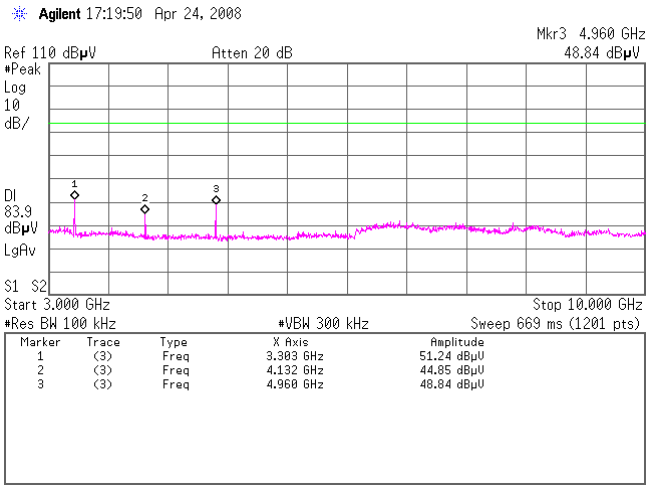


[Transmitting 3DH5]

Ch:2480MHz

4.



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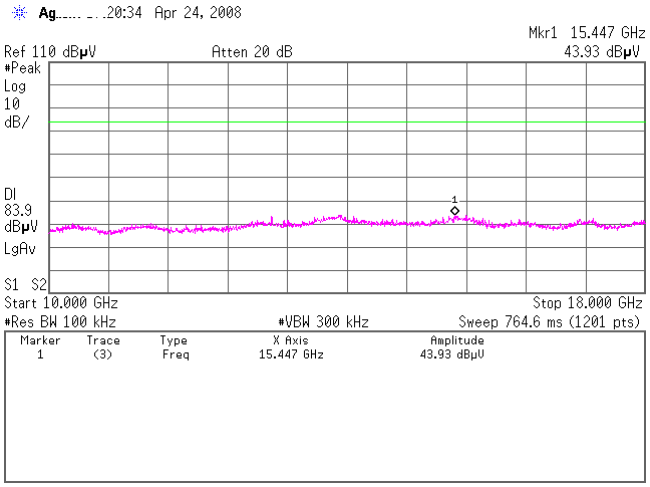

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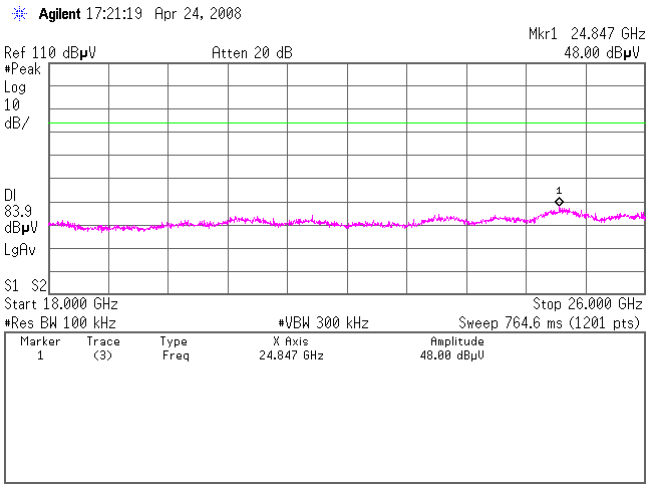
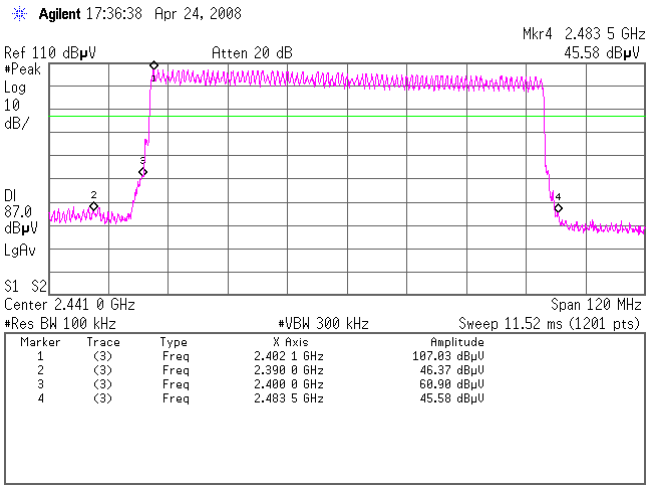


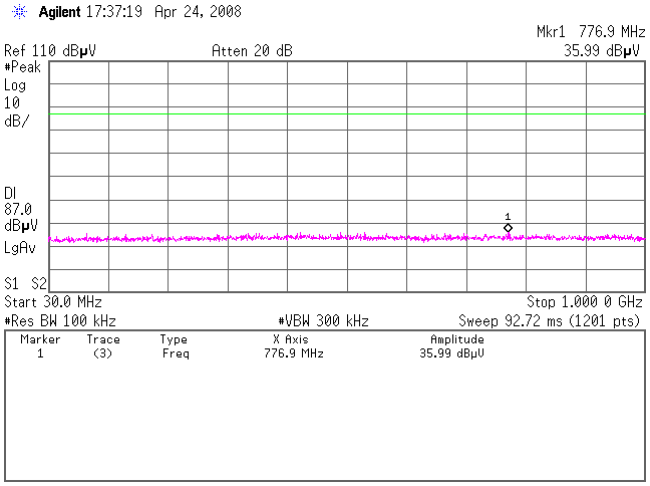
[Transmitting 3DH5]

Hopping

1.



2.



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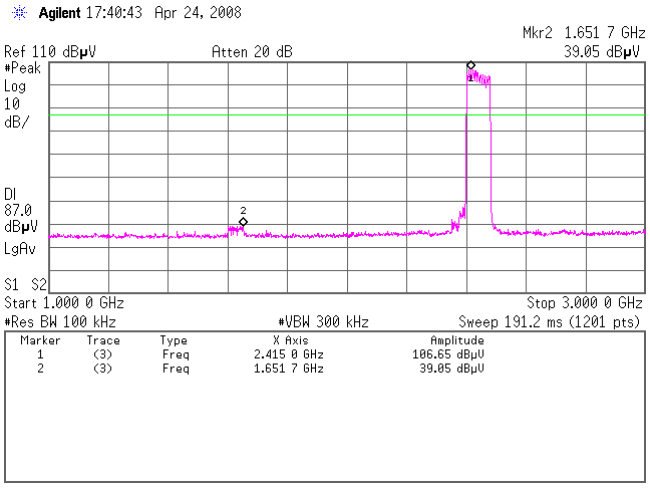
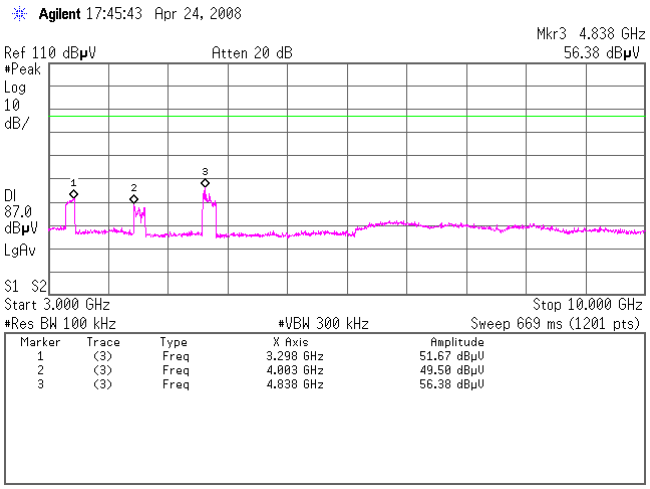


[Transmitting3 DH5]

Hopping

4.



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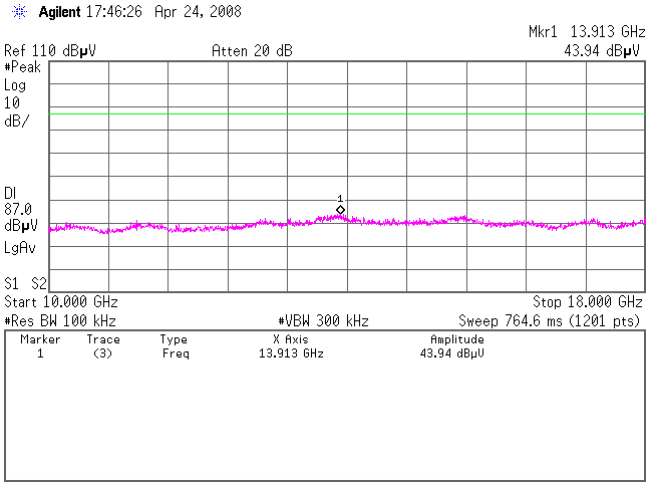
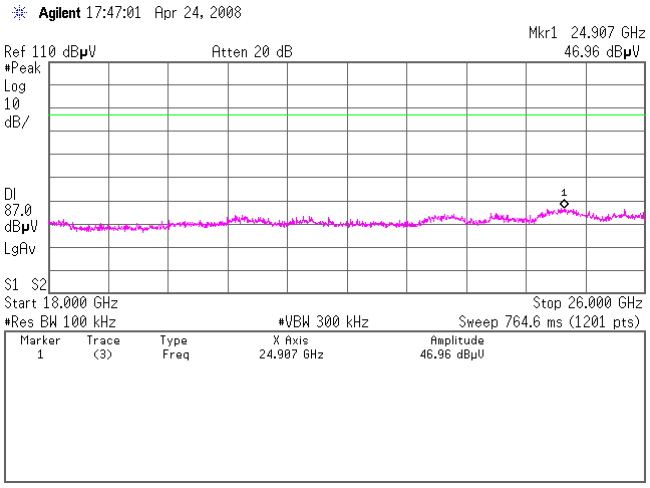


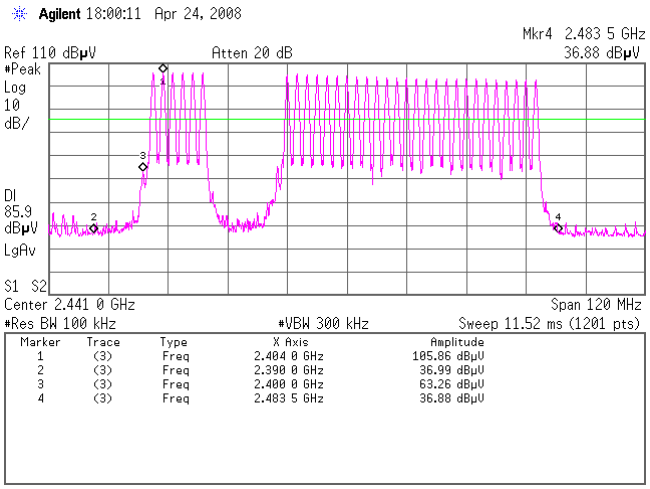
6.



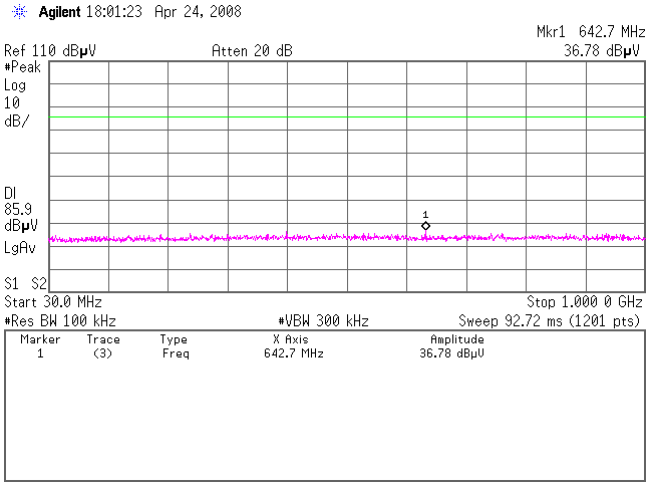
[Transmitting]

Inquiry

1.



2.



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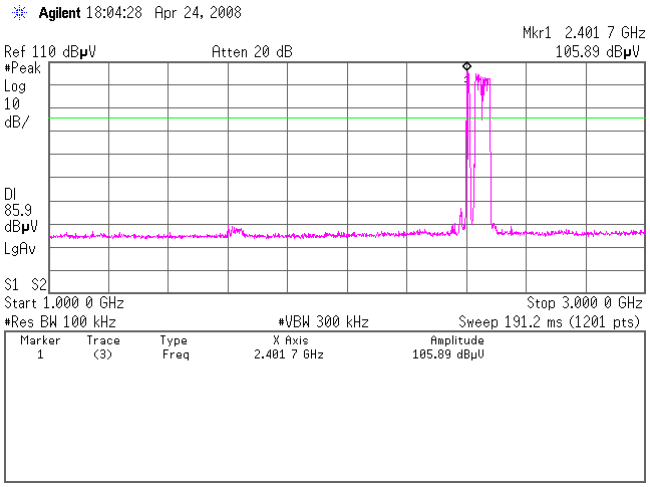
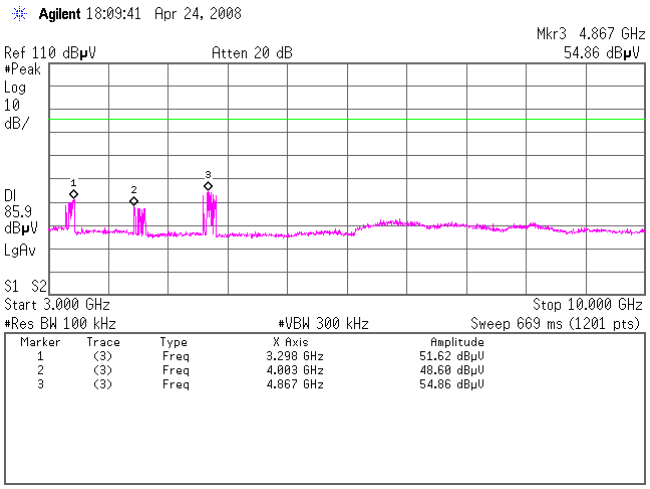


[Transmitting]

Inquiry

4.



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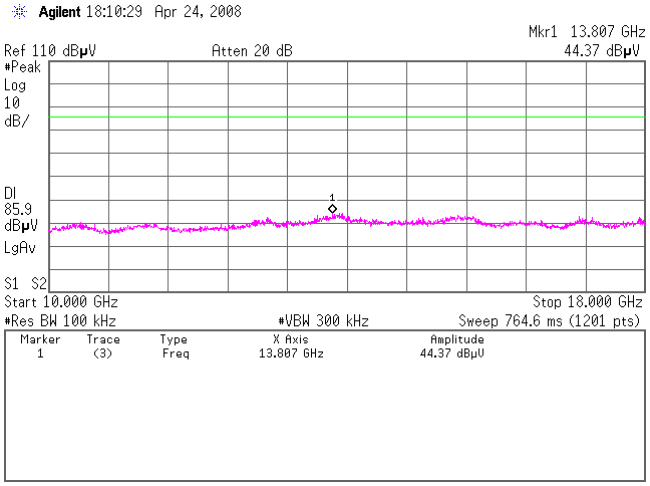

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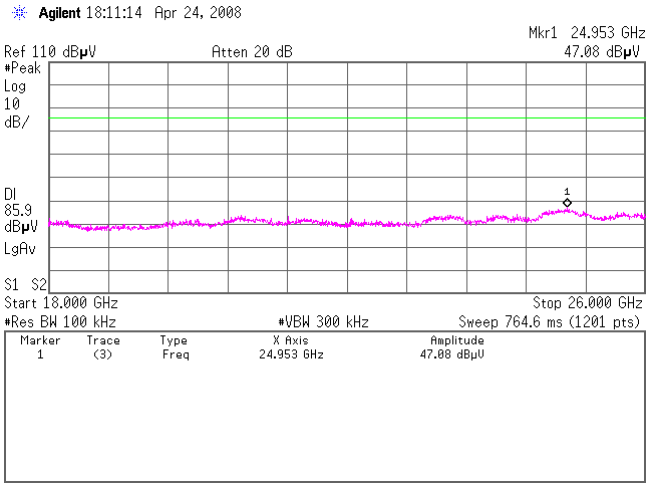

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2402MHz
Remarks : DH5
Date : 4/17/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Fumiaki Matsuo
Humidity : 54 %
Regulation : FCC Part15C §15.209

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	31.18	BB	23.4	36.2	18.3	28.4	0.9	6.0	20.2	33.0	40.0	19.8	7.0
2.	32.27	BB	24.8	37.0	17.8	28.4	0.9	6.0	21.1	33.3	40.0	18.9	6.7
3.	41.08	BB	34.8	46.7	13.3	28.5	1.1	6.0	26.7	38.6	40.0	13.3	1.4
4.	49.20	BB	36.5	47.0	10.5	28.5	1.2	6.0	25.7	36.2	40.0	14.3	3.8
5.	196.63	BB	36.0	26.8	16.7	27.8	2.6	6.0	33.5	24.3	43.5	10.0	19.2
6.	589.86	BB	29.3	30.3	19.9	29.3	5.2	6.0	31.1	32.1	46.0	14.9	13.9

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

■ANTENNA:KBA-03(BBA9106)30-299.99MHz/KLA-03(USLP9143)300-1000MHz
■CABLE:KCC-A2/A3■PREAMP:KAF-05(8447D)■EMI RECEIVER:KTR-04(ESVS)

Page:

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2441MHz
Remarks : DH5
Date : 4/17/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Fumiaki Matsuo
Humidity : 54 %
Regulation : FCC Part15C §15.209

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	31.22	BB	23.4	36.5	18.3	28.4	0.9	6.0	20.2	33.3	40.0	19.8	6.7
2.	32.24	BB	24.7	36.8	17.8	28.4	0.9	6.0	21.0	33.1	40.0	19.0	6.9
3.	40.88	BB	34.7	46.3	13.4	28.5	1.1	6.0	26.7	38.3	40.0	13.3	1.7
4.	49.17	BB	37.2	47.3	10.5	28.5	1.2	6.0	26.4	36.5	40.0	13.6	3.5
5.	196.62	BB	36.2	25.9	16.7	27.8	2.6	6.0	33.7	23.4	43.5	9.8	20.1
6.	589.85	BB	29.3	30.2	19.9	29.3	5.2	6.0	31.1	32.0	46.0	14.9	14.0

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

■ANTENNA:KBA-03(BBA9106)30-299.99MHz/KLA-03(USLP9143)300-1000MHz
■CABLE:KCC-A2/A3■PREAMP:KAF-05(8447D)■EMI RECEIVER:KTR-04(ESVS)

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DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2480MHz
Remarks : DH5
Date : 4/17/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Fumiaki Matsuo
Humidity : 54 %
Regulation : FCC Part15C §15.209

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	31.25	BB	23.4	36.3	18.3	28.4	0.9	6.0	20.2	33.1	40.0	19.8	6.9
2.	32.24	BB	24.7	36.8	17.8	28.4	0.9	6.0	21.0	33.1	40.0	19.0	6.9
3.	40.92	BB	34.7	46.2	13.4	28.5	1.1	6.0	26.7	38.2	40.0	13.3	1.8
4.	49.17	BB	37.2	47.9	10.5	28.5	1.2	6.0	26.4	37.1	40.0	13.6	2.9
5.	196.63	BB	36.1	26.7	16.7	27.8	2.6	6.0	33.6	24.2	43.5	9.9	19.3
6.	589.85	BB	27.2	30.1	19.9	29.3	5.2	6.0	29.0	31.9	46.0	17.0	14.1

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

■ANTENNA:KBA-03(BBA9106)30-299.99MHz/KLA-03(USLP9143)300-1000MHz
■CABLE:KCC-A2/A3■PREAMP:KAF-05(8447D)■EMI RECEIVER:KTR-04(ESVS)

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DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2402MHz
Remarks : 3DH5
Date : 4/17/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Fumiaki Matsuo
Humidity : 54 %
Regulation : FCC Part15C §15.209

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	31.21	BB	23.5	36.4	18.3	28.4	0.9	6.0	20.3	33.2	40.0	19.7	6.8
2.	32.24	BB	24.8	36.8	17.8	28.4	0.9	6.0	21.1	33.1	40.0	18.9	6.9
3.	40.93	BB	34.5	46.1	13.4	28.5	1.1	6.0	26.5	38.1	40.0	13.5	1.9
4.	49.13	BB	37.0	46.9	10.5	28.5	1.2	6.0	26.2	36.1	40.0	13.8	3.9
5.	196.63	BB	35.9	27.0	16.7	27.8	2.6	6.0	33.4	24.5	43.5	10.1	19.0
6.	589.85	BB	26.8	30.0	19.9	29.3	5.2	6.0	28.6	31.8	46.0	17.4	14.2

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

■ANTENNA:KBA-03(BBA9106)30-299.99MHz/KLA-03(USLP9143)300-1000MHz
■CABLE:KCC-A2/A3■PREAMP:KAF-05(8447D)■EMI RECEIVER:KTR-04(ESVS)

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DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2441MHz
Remarks : 3DH5
Date : 4/17/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Fumiaki Matsuo
Humidity : 54 %
Regulation : FCC Part15C §15.209

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	31.22	BB	23.5	36.3	18.3	28.4	0.9	6.0	20.3	33.1	40.0	19.7	6.9
2.	32.24	BB	24.8	36.8	17.8	28.4	0.9	6.0	21.1	33.1	40.0	18.9	6.9
3.	40.92	BB	34.2	46.2	13.4	28.5	1.1	6.0	26.2	38.2	40.0	13.8	1.8
4.	49.17	BB	37.4	47.6	10.5	28.5	1.2	6.0	26.6	36.8	40.0	13.4	3.2
5.	196.63	BB	35.9	27.7	16.7	27.8	2.6	6.0	33.4	25.2	43.5	10.1	18.3
6.	589.85	BB	29.2	30.0	19.9	29.3	5.2	6.0	31.0	31.8	46.0	15.0	14.2

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

■ANTENNA:KBA-03(BBA9106)30-299.99MHz/KLA-03(USLP9143)300-1000MHz
■CABLE:KCC-A2/A3■PREAMP:KAF-05(8447D)■EMI RECEIVER:KTR-04(ESVS)

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DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2480MHz
Remarks : 3DH5
Date : 4/17/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Fumiaki Matsuo
Humidity : 54 %
Regulation : FCC Part15C §15.209

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	31.22	BB	23.5	36.4	18.3	28.4	0.9	6.0	20.3	33.2	40.0	19.7	6.8
2.	32.24	BB	24.7	36.1	17.8	28.4	0.9	6.0	21.0	32.4	40.0	19.0	7.6
3.	40.92	BB	34.1	46.1	13.4	28.5	1.1	6.0	26.1	38.1	40.0	13.9	1.9
4.	49.17	BB	37.6	48.4	10.5	28.5	1.2	6.0	26.8	37.6	40.0	13.2	2.4
5.	196.64	BB	35.9	27.2	16.7	27.8	2.6	6.0	33.4	24.7	43.5	10.1	18.8
6.	589.85	BB	27.1	30.0	19.9	29.3	5.2	6.0	28.9	31.8	46.0	17.1	14.2

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

■ANTENNA:KBA-03(BBA9106)30-299.99MHz/KLA-03(USLP9143)300-1000MHz
■CABLE:KCC-A2/A3■PREAMP:KAF-05(8447D)■EMI RECEIVER:KTR-04(ESVS)

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DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2402MHz
Remarks : DH5_RBW:1MHz/VBW:1MHz (Peak)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(PK Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1871.02	BB	49.2	50.0	28.3	35.7	3.9	0.0	45.7	46.5	74.0	28.3	27.5
2.	2390.00	BB	42.6	43.3	28.5	35.4	4.4	0.0	40.1	40.8	74.0	33.9	33.2
3.	4804.00	BB	44.1	45.2	32.9	34.1	5.9	0.0	48.8	49.9	74.0	25.2	24.1
4.	7206.00	BB	43.4	45.5	36.5	34.7	7.1	0.0	52.3	54.4	74.0	21.7	19.6
5.	9608.00	BB	44.4	43.8	37.7	35.3	8.2	0.0	55.0	54.4	74.0	19.0	19.6

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

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DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2402MHz
Remarks : DH5_RBW:1MHz/VBW:300Hz, No.1 Data=>10Hz (Average)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(AV Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1871.02	BB	42.8	44.0	28.3	35.7	3.9	0.0	39.3	40.5	54.0	14.7	13.5
2.	2390.00	BB	31.2	30.8	28.5	35.4	4.4	0.0	28.7	28.3	54.0	25.3	25.7
3.	4804.00	BB	33.4	33.1	32.9	34.1	5.9	0.0	38.1	37.8	54.0	15.9	16.2
4.	7206.00	BB	30.1	31.4	36.5	34.7	7.1	0.0	39.0	40.3	54.0	15.0	13.7
5.	9608.00	BB	31.7	31.7	37.7	35.3	8.2	0.0	42.3	42.3	54.0	11.7	11.7

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2441MHz
Remarks : DH5_RBW:1MHz/VBW:1MHz (Peak)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(PK Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1870.93	BB	48.6	49.7	28.3	35.7	3.9	0.0	45.1	46.2	74.0	28.9	27.8
2.	4882.00	BB	42.4	46.8	33.1	34.1	6.0	0.0	47.4	51.8	74.0	26.6	22.2
3.	7323.00	BB	44.0	43.9	36.7	34.8	7.1	0.0	53.0	52.9	74.0	21.0	21.1
4.	9764.00	BB	45.0	44.2	37.7	35.4	8.2	0.0	55.5	54.7	74.0	18.5	19.3

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2441MHz
Remarks : DH5_RBW:1MHz/VBW:300Hz, No.1 Data=>10Hz (Average)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(AV Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1870.93	BB	42.5	44.2	28.3	35.7	3.9	0.0	39.0	40.7	54.0	15.0	13.3
2.	4882.00	BB	31.7	37.7	33.1	34.1	6.0	0.0	36.7	42.7	54.0	17.3	11.3
3.	7323.00	BB	31.2	31.2	36.7	34.8	7.1	0.0	40.2	40.2	54.0	13.8	13.8
4.	9764.00	BB	31.6	31.7	37.7	35.4	8.2	0.0	42.1	42.2	54.0	11.9	11.8

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2480MHz
Remarks : DH5_RBW:1MHz/VBW:1MHz (Peak)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(PK Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1870.93	BB	48.6	48.7	28.3	35.7	3.9	0.0	45.1	45.2	74.0	28.9	28.8
2.	2483.50	BB	45.5	44.7	28.3	35.3	4.5	0.0	43.0	42.2	74.0	31.0	31.8
3.	4960.00	BB	45.1	44.6	33.4	34.1	6.0	0.0	50.4	49.9	74.0	23.6	24.1
4.	7440.00	BB	44.6	43.5	36.8	34.8	7.1	0.0	53.7	52.6	74.0	20.3	21.4
5.	9920.00	BB	43.1	44.8	37.7	35.4	8.3	0.0	53.7	55.4	74.0	20.3	18.6

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2480MHz
Remarks : DH5_RBW:1MHz/VBW:300Hz, No.1 Data=>10Hz (Average)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(AV Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1870.93	BB	42.5	42.9	28.3	35.7	3.9	0.0	39.0	39.4	54.0	15.0	14.6
2.	2483.50	BB	32.9	34.1	28.3	35.3	4.5	0.0	30.4	31.6	54.0	23.6	22.4
3.	4960.00	BB	30.1	31.6	33.4	34.1	6.0	0.0	35.4	36.9	54.0	18.6	17.1
4.	7440.00	BB	31.1	31.1	36.8	34.8	7.1	0.0	40.2	40.2	54.0	13.8	13.8
5.	9920.00	BB	32.1	32.1	37.7	35.4	8.3	0.0	42.7	42.7	54.0	11.3	11.3

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2402MHz
Remarks : 3DH5_RBW:1MHz/VBW:1MHz (Peak)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(PK Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1871.00	BB	48.7	49.4	28.3	35.7	3.9	0.0	45.2	45.9	74.0	28.8	28.1
2.	2390.00	BB	42.0	43.6	28.5	35.4	4.4	0.0	39.5	41.1	74.0	34.5	32.9
3.	4804.00	BB	45.7	43.7	32.9	34.1	5.9	0.0	50.4	48.4	74.0	23.6	25.6
4.	7206.00	BB	44.8	43.1	36.5	34.7	7.1	0.0	53.7	52.0	74.0	20.3	22.0
5.	9608.00	BB	45.7	46.7	37.7	35.3	8.2	0.0	56.3	57.3	74.0	17.7	16.7

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

Page:

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2402MHz
Remarks : 3DH5_RBW:1MHz/VBW:300Hz, No.1 Data=>10Hz (Average)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(AV Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1871.00	BB	42.4	44.2	28.3	35.7	3.9	0.0	38.9	40.7	54.0	15.1	13.3
2.	2390.00	BB	31.8	32.2	28.5	35.4	4.4	0.0	29.3	29.7	54.0	24.7	24.3
3.	4804.00	BB	33.3	33.8	32.9	34.1	5.9	0.0	38.0	38.5	54.0	16.0	15.5
4.	7206.00	BB	31.2	31.2	36.5	34.7	7.1	0.0	40.1	40.1	54.0	13.9	13.9
5.	9608.00	BB	32.0	32.4	37.7	35.3	8.2	0.0	42.6	43.0	54.0	11.4	11.0

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2441MHz
Remarks : 3DH5_RBW:1MHz/VBW:1MHz (Peak)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(PK Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1871.13	BB	49.3	49.1	28.3	35.7	3.9	0.0	45.8	45.6	74.0	28.2	28.4
2.	4882.00	BB	45.5	47.6	33.1	34.1	6.0	0.0	50.5	52.6	74.0	23.5	21.4
3.	7323.00	BB	44.1	43.4	36.7	34.8	7.1	0.0	53.1	52.4	74.0	20.9	21.6
4.	9764.00	BB	44.9	43.5	37.7	35.4	8.2	0.0	55.4	54.0	74.0	18.6	20.0

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

Page:

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2441MHz
Remarks : 3DH5_RBW:1MHz/VBW:300Hz, No.1 Data=>10Hz (Average)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(AV Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1871.13	BB	42.3	43.2	28.3	35.7	3.9	0.0	38.8	39.7	54.0	15.2	14.3
2.	4882.00	BB	32.2	38.4	33.1	34.1	6.0	0.0	37.2	43.4	54.0	16.8	10.6
3.	7323.00	BB	31.1	31.1	36.7	34.8	7.1	0.0	40.1	40.1	54.0	13.9	13.9
4.	9764.00	BB	31.6	31.5	37.7	35.4	8.2	0.0	42.1	42.0	54.0	11.9	12.0

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

Page:

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2480MHz
Remarks : 3DH5_RBW:1MHz/VBW:1MHz (Peak)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(PK Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1870.92	BB	48.0	48.4	28.3	35.7	3.9	0.0	44.5	44.9	74.0	29.5	29.1
2.	2483.50	BB	46.2	45.6	28.3	35.3	4.5	0.0	43.7	43.1	74.0	30.3	30.9
3.	4960.00	BB	42.8	44.1	33.4	34.1	6.0	0.0	48.1	49.4	74.0	25.9	24.6
4.	7440.00	BB	43.9	45.2	36.8	34.8	7.1	0.0	53.0	54.3	74.0	21.0	19.7
5.	9920.00	BB	44.6	43.2	37.7	35.4	8.3	0.0	55.2	53.8	74.0	18.8	20.2

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

■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

Page:

DATA OF RADIATION TEST

UL Japan, Inc.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No.: 28IE0091-YK-A

Applicant : PIONEER CORPORATION
Kind of Equipment : CAR AUDIO with built in Bluetooth
Model No. : 86120-48G30
Serial No. : K3HB007
Power : DC12V
Mode : Transmitting 2480MHz
Remarks : 3DH5_RBW:1MHz/VBW:300Hz, No.1 Data=>10Hz (Average)
Date : 4/22/2008
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Akira Sato
Humidity : 51 %
Regulation : FCC Part15C §15.209(AV Detection)1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	1870.92	BB	42.2	43.4	28.3	35.7	3.9	0.0	38.7	39.9	54.0	15.3	14.1
2.	2483.50	BB	33.8	34.0	28.3	35.3	4.5	0.0	31.3	31.5	54.0	22.7	22.5
3.	4960.00	BB	30.8	30.9	33.4	34.1	6.0	0.0	36.1	36.2	54.0	17.9	17.8
4.	7440.00	BB	31.0	31.0	36.8	34.8	7.1	0.0	40.1	40.1	54.0	13.9	13.9
5.	9920.00	BB	31.4	31.8	37.7	35.4	8.3	0.0	42.0	42.4	54.0	12.0	11.6

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

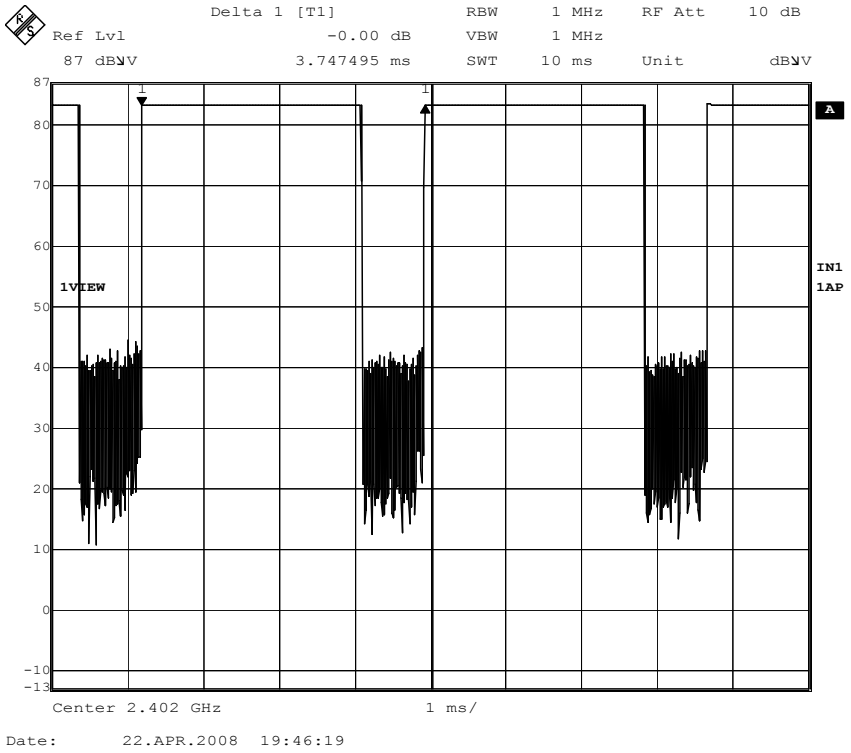
■ANTENNA:KHA-01(1-18GHz)/KHA-06(18-26.5GHz)
■CABLE:KCC-D16/D17■AMP:KAF-07(8449B)■EMI RECEIVER:KTR-01(ESI40)

Page:

Duty Cycle

UL Japan, Inc. Yamakita No.1 Anechoic Chamber
Date: 2008.4.22
Temp./Humid.: 22deg.C./51%
Engineer: Akira Sato
Test mode: Transmitting

Fundamental (band edge) and Harmonics



Duty Cycle: 3.75ms

AV Detector VBW: 1000 ms/ 3.75ms = 266.7Hz → 300Hz

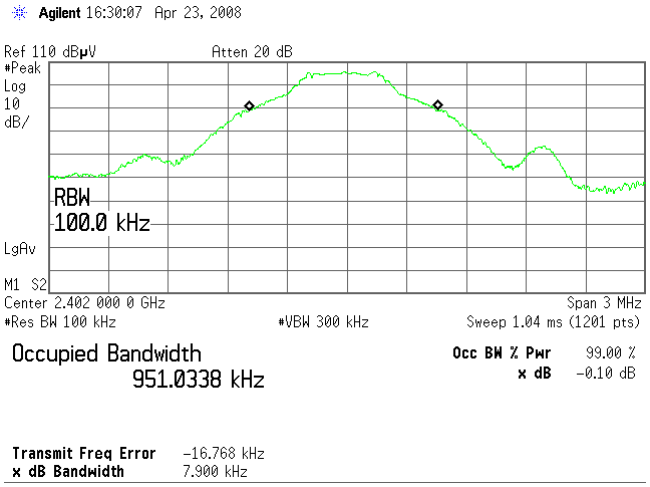
*** All the measured noise was pulse emission.**
*** Duty cycle was within 100msec.**

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

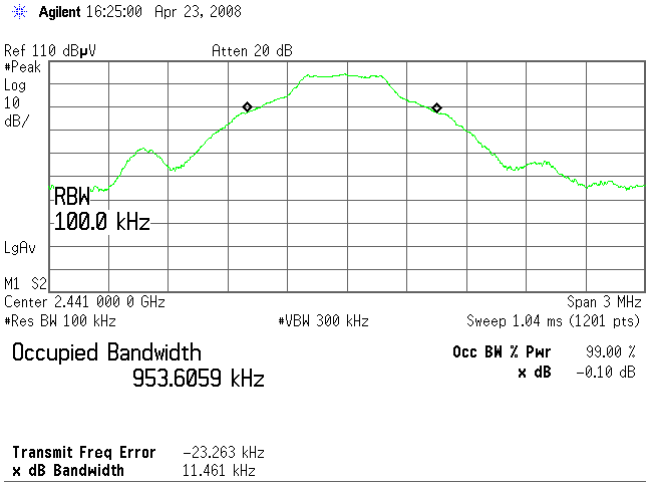
UL Japan, Inc. Yamakita No.2 Shielded Room
Date: 2008.4.23
Temp./Humid.: 25deg.C./46%
Engineer: Tatsuya Arai
Test mode: Transmitting

[Hopping off, DH5]

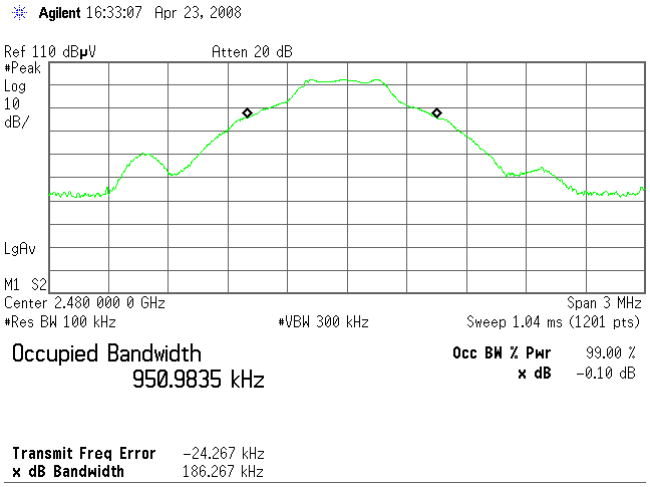
1. ch : 2402MHz/Occupied Bandwidth:951.03kHz



2. ch : 2441MHz/Occupied Bandwidth:953.61kHz

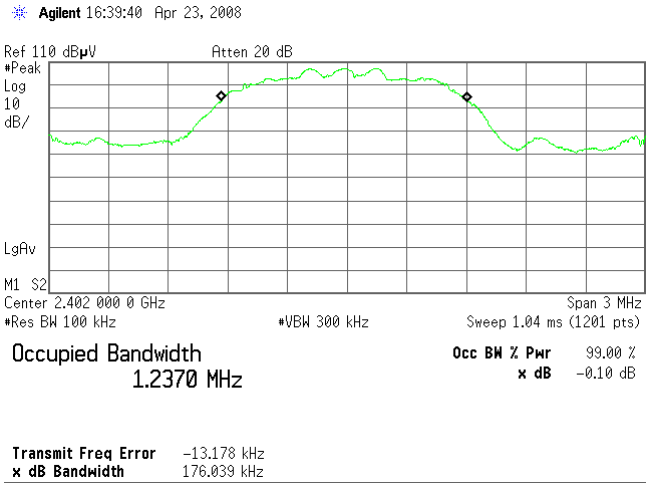


3. ch : 2480MHz/Occupied Bandwidth:950.98kHz

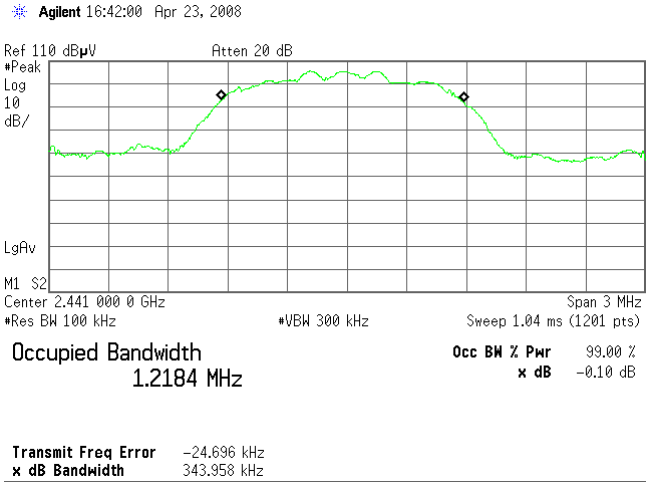


[Hopping off, 3DH5]

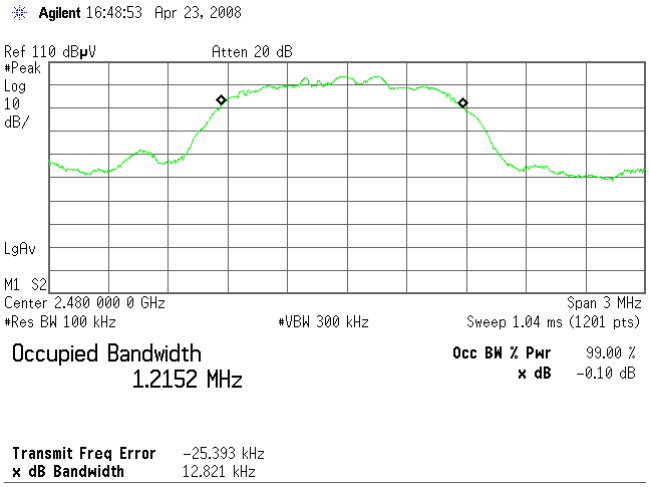
4. ch : 2402MHz/Occupied Bandwidth:1.2370MHz



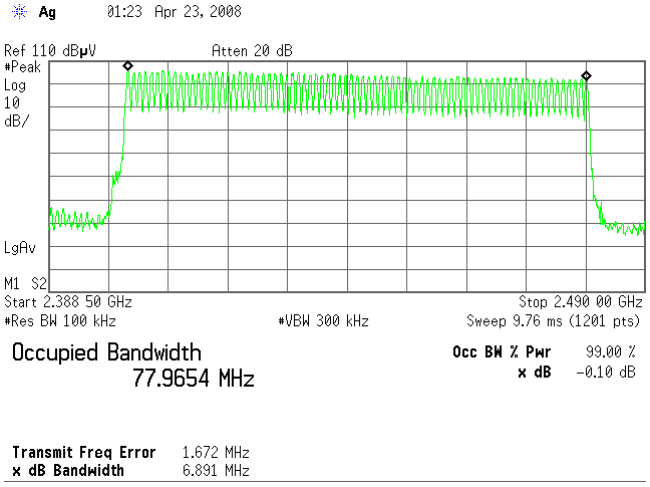
5. ch : 2441MHz/Occupied Bandwidth:1.2184MHz



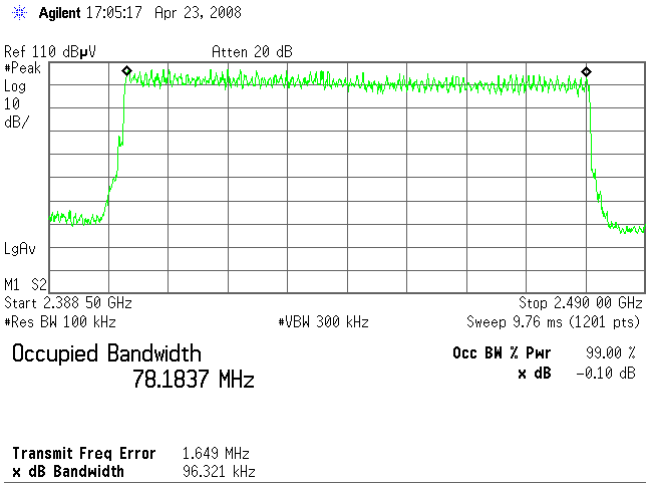
6. ch : 2480MHz/Occupied Bandwidth:1.2152MHz



7. Hopping, DH5/Occupied Bandwidth:77.97MHz



8. Hopping, 3DH5/Occupied Bandwidth:78.18MHz



APPENDIX 3
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
YA-RE	Radiated emission(software)	UL Japan	RE(Ver.1.5)	RE	-
KAEC-01	Anechoic Chamber	JSE	Semi 3m	RE	2007/08/26 * 12
KAF-05	Pre Amplifier	Agilent	8447D	RE	2008/04/08 * 12
KAT6-01	Attenuator	INMET	18N-6dB	RE	2008/03/17 * 12
KAT6-02	Attenuator	INMET	18N-6dB	RE	2008/03/17 * 12
KBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2007/12/27 * 12
KCC-A2/A3	Coaxial Cable	Fujikura	5D-2W	RE	2007/05/15 * 12
KLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2007/12/27 * 12
KOS-02	Humidity Indicator	Custom	CTH-190	RE	2006/07/10 * 24
KSA-04	Spectrum Analyzer	Advantest	R3271A	RE	2007/09/25 * 12
KTR-04	Test Receiver	Rohde & Schwarz	ESVS10	RE	2007/10/30 * 12
KJM-07	Measure	KOMELON	KMC-36	RE	-
KTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE	2008/04/18 * 12
KAF-07	Pre Amplifier	Hewlett Packard	8449B	RE	2007/12/10 * 12
KHA-06	Horn Antenna	ETS LINDGREN	3116	RE	2007/08/16 * 12
KCC-D16/D17	Coaxial Cable	INSULATED WIRE INC	KPS-1501-200-KPS/KPS-1501-2000-KPS	RE	2008/02/21 * 12
KHA-01	Horn Antenna	A.H.Systems	SAS-200/571	RE	2007/08/14 * 12
KSA-08	Spectrum Analyzer	Agilent	E4446A	AT 1,2,3,4,6	2008/01/11 * 12
KCC-D5	Coaxial Cable	Storm	421-011(2m)	AT all	2008/04/22 * 12
KPM-05	Power meter	Agilent	E4417A	AT 5	2008/03/21 * 12
KPSS-01	Power sensor	Agilent	E9327A	AT 5	2008/03/27 * 12
KOSC-01	Oscilloscope	Tektronix	TDS-2022B	AT 4	2007/05/15 * 12
KDT-01	Coaxial Crystal Detector	Agilent	8473C	AT 4	Pre Check
KOS-01	Humidity Indicator	Custom	CTH-190	AT all	2006/07/14 * 24

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)**