RADIO TEST REPORT

Test Report No.: 32CE0334-SH-01-A

Applicant	:	**Kenwood Corporation**
Type of Equipment	:	**GPS NAVIGATION SYSTEM**
Model No.	:	**KW-NT800HDT**
FCC ID	:	**IOMKWNT800HDT**
Test regulation	:	**FCC Part15 Subpart C: 2011**
Test result	:	**Complied**

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Date of test: November 6 to 10, 2011

Representative test engineer:

Hikaru Shirasawa
Engineer of WiSE Japan,
UL Verification Service

Approved by :

Go Ishiwata
Manager of WiSE Japan,
UL Verification Service

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
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JAB Testing RTL02610

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SECTION 1: Customer information

Company Name	:	Kenwood Corporation
Address	:	2967-3 Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525 Japan
Telephone Number	:	+81 42-646-5525
Facsimile Number	:	+81 42-645-7023
Contact Person	:	Masayuki Ikeda

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

2.1 Identification of E.U.T.

Type of Equipment	:	GPS NAVIGATION SYSTEM
Model Number	:	KW-NT800HDT
Serial Number	:	Refer to clause 4.2
Rating	:	DC12V
Country of Mass-production	:	Indonesia
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample	:	November 5, 2011
Modification of EUT	:	No modification by the test lab.

2.2 Product description

Model: KW-NT800HDT (referred to as the EUT in this report) is a GPS NAVIGATION SYSTEM.

Similar model: KW-NT700
The difference is only the Decoder for HD radio and the RF circuit of Tuner block. Other block of unit is a common specification. Therefore, they have not difference in radio properties.

Clock frequency(ies) in the system	:	32.768kHz/11.2896MHz/16MHz/26MHz/28.224MHz/32MHz /33.333MHz/41.6MHz/48MHz

<Radio part>

Equipment type	:	Transceiver
Frequency of operation	:	2402-2480MHz
Bandwidth / Channel spacing	:	79MHz & 1MHz
Type of modulation	:	FHSS (GFSK, π4DQPSK, 8DPSK)
Antenna type	:	PWB pattern
Antenna connector type	:	Coaxial
Antenna gain	:	1.67dBi
ITU code	:	F1D, G1D
Operation temperature range	:	0 to +40 deg.C.

FCC 15.31 (e)
The equipment provides the Bluetooth transmitter with stable power supply (DC3.3V), therefore, the equipment complies with the requirement.

FCC Part 15.203
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.

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C: 2011, final revised on July 8, 2011 and effective August 8, 2011

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

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 (324.486MHz, QP, Horizontal, Tx 2480MHz, 3DH5)	Complied

Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422
*1) The test is not applicable since the EUT does not have AC Mains.

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
Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422					

* 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.

Item	Frequency range	No.1 SAC*1/SR*2 (±)	No.2 SAC/SR (±)	No.3 SAC/SR (±)
Radiated emission (Measurement distance: 3m)	9kHz-30MHz	3.7 dB	3.7 dB	3.6 dB
	30MHz-300MHz	4.9 dB	5.1 dB	5.0 dB
	300MHz-1GHz	5.0 dB	5.2 dB	5.0 dB
	1GHz-13GHz	4.8 dB	4.8 dB	4.9 dB
Radiated emission (Measurement distance: 1m)	13GHz-18GHz	5.6 dB	5.6 dB	5.6 dB
	18GHz-40GHz	4.8 dB	4.3 dB	4.4 dB

*1: SAC=Semi-Anechoic Chamber
*2: SR= Shielded Room is applied besides radiated emission

Radiated emission test

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

Antenna port conducted test

Power Measurement uncertainty above 1GHz for this test was: (±) 1.9dB
Spurious emission (Conducted), Power density Measurement (below 1GHz) uncertainty for this test was: (±) 1.8dB
Spurious emission (Conducted), Power density Measurement (1G-3GHz) uncertainty for this test was: (±) 2.3dB
Spurious emission (Conducted), Power density Measurement (3G-18GHz) uncertainty for this test was: (±) 3.6dB
Spurious emission (Conducted), Power density Measurement (18G-26.5GHz) uncertainty for this test was: (±) 4.0dB
Bandwidth Measurement uncertainty for this test was: (±) 5.4%

3.5 Test location

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

	FCC Registration No.	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
☒ No.1 Semi-anechoic chamber	697847	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.2 Semi-anechoic chamber	697847	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 Semi-anechoic chamber	697847	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 Full-anechoic chamber	-	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
☐ No.1 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.2 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.3 shielded room	-	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
☐ No.4 shielded room	-	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
☒ No.5 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☐ No.6 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-

3.6 Test setup, Data of EMI & Test instruments

Refer to Appendix 1 to 3.

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

4.1 Operating mode

The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

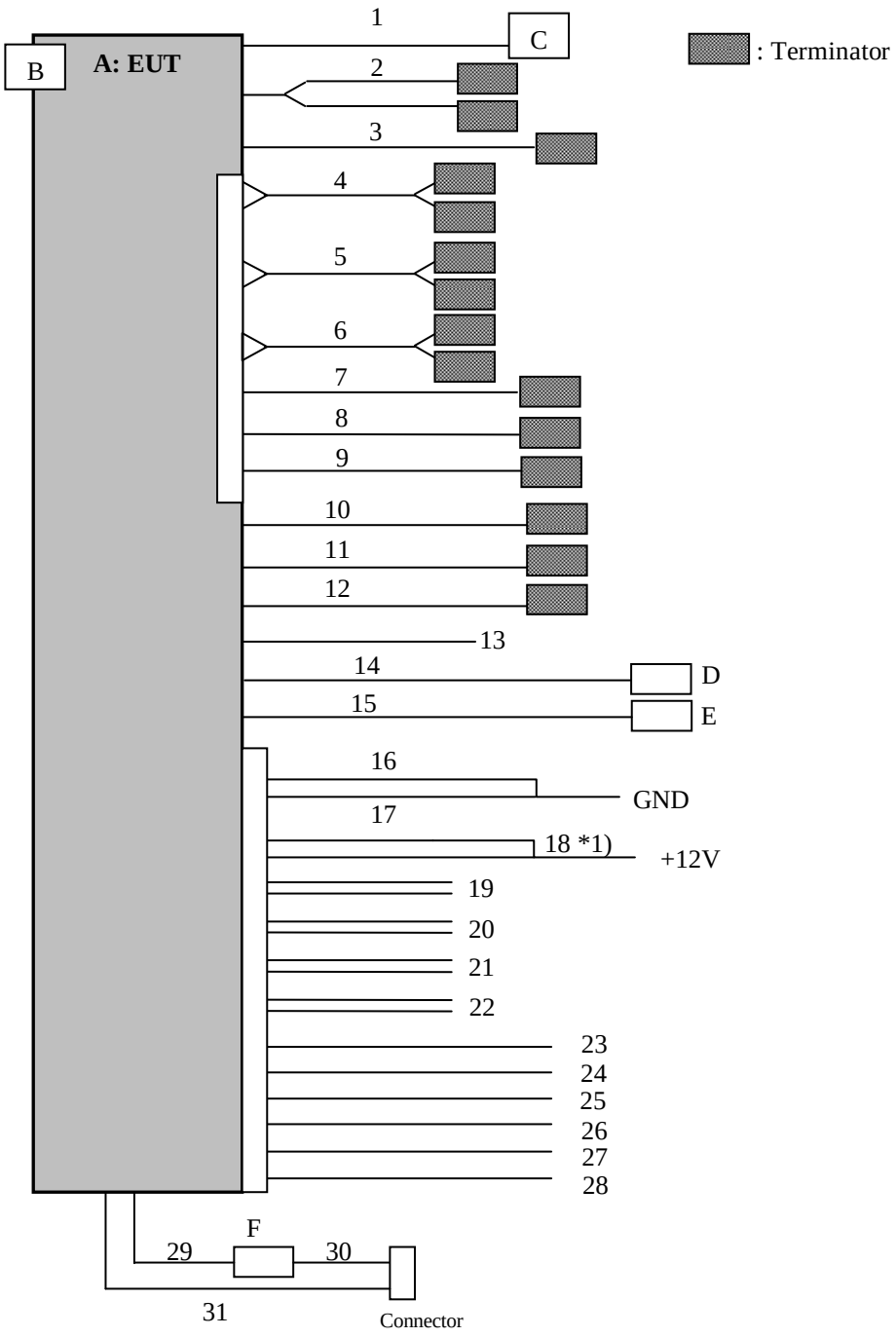
Test item	Operating mode	Tested frequency
Carrier frequency separation	Transmitting Hopping ON (DH5/3DH5) Payload: PRBS9	-
20dB bandwidth	Transmitting Hopping OFF (DH5/3DH5) Payload: PRBS9	2402MHz, 2441MHz, 2480MHz
Number of hopping frequency	Transmitting Hopping ON (DH5/3DH5) Payload: PRBS9	-
Dwell time	Transmitting (Hopping ON) -DH1, -DH3, -DH5 -3DH1, -3DH3, -3DH5	-
Maximum peak output power	Transmitting Hopping OFF (DH5/3DH5), Payload: PRBS9 -DH5 -2DH5 -3DH5	2402MHz, 2441MHz, 2480MHz
Band edge compliance & Spurious emission (Conducted)	Transmitting (DH5/3DH5), Payload: PRBS9 -Hopping ON -Hopping OFF	Band edge compliance: 2402MHz, 2480MHz Spurious emission: 2402MHz, 2441MHz, 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)
** The EUT has no Inquiry mode.

*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 for the test.

EUT has the power settings by the software as follows;
Power settings: BDR: Ext.=0, Int.=63
EDR: Ext.=0, Int.=127
Software: CSR BlueSuite BlueTest Version 1.24

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	GPS Navigation System	KW-NT800HDT	*2)	KENWOOD	EUT
B	SDHC MEMORY CARD	MF-FSDH08GC6	-	ELECOM	-
C	Microphone	-	-	KENWOOD	-
D	GPS antenna	-	-	KENWOOD	-
E	USB memory	USM4GL-W	-	Sony	-
F	Jig	-	-	KENWOOD	-

*1) DC power supply (Model No.: PAN35-10A) was used for DC 12V input.
*2) Radiated emissions: 156X0064, Antenna port conducted tests: 156X0061

List of cables used

No.	Cable	Length (m)	Shield-Cable	Shield-Connector	Remarks
1	Microphone	3.0	Shielded	Unshielded	-
2	Subwoofer (OUT)	0.15+1.5	Unshielded	Unshielded	-
3	Steering Wheel Remote	0.2+1.8	Unshielded	Unshielded	-
4	Audio (Front OUT)	0.1+0.9	Unshielded	Unshielded	-
5	Audio (Rear OUT)	0.1+0.8	Unshielded	Unshielded	-
6	LINE IN	0.2+0.9	Unshielded	Unshielded	-
7	Video OUT	0.15+3.6	Unshielded	Unshielded	-
8	Video IN	0.2+1.5	Unshielded	Unshielded	-
9	Camera IN	0.2+1.5	Unshielded	Unshielded	
10	Antenna	1.0	Shielded	Shielded	-
11	iPod VIDEO	1.5	Unshielded	Unshielded	-
12	DIRECT S.R.	1.5	Unshielded	Unshielded	-
13	SXM	1.0	Shielded	Shielded	-
14	GPS Antenna	5.0	Shielded	Unshielded	-
15	iPod / USB	1.0+2.0	Shielded	Shielded	-
16	Ground	1.5	Unshielded	Unshielded	-
17	PPK SW	2.0	Unshielded	Unshielded	-
18	DC+	1.5	Unshielded	Unshielded	-
19	Speaker (1)	1.1	Unshielded	Unshielded	-
20	Speaker (2)	1.1	Unshielded	Unshielded	-
21	Speaker (3)	1.1	Unshielded	Unshielded	-
22	Speaker (4)	1.1	Unshielded	Unshielded	-
23	P. CONT	0.1	Unshielded	Unshielded	-
24	Steering Wheel Remote INPUT	0.1	Unshielded	Unshielded	-
25	Antenna CONT	0.1	Unshielded	Unshielded	-
26	MUTE	0.1	Unshielded	Unshielded	-
27	Illumination	0.1	Unshielded	Unshielded	-
28	Reverse Gear Signal	5.0	Unshielded	Unshielded	-
29	Jig-1	0.1	Unshielded	Unshielded	-
30	Jig-2	0.05	Unshielded	Unshielded	-
31	Jig-3	0.15	Unshielded	Unshielded	-

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

SECTION 5: Radiated emission

5.1 Operating environment

The test was carried out in No.1 / No.3 Semi-Anechoic Chamber.

Temperature : See test data (APPENDIX 2)
Humidity : See test data (APPENDIX 2)

5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity. The rear of EUT was aligned and flushed with rear of tabletop. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.
Photographs of the set up are shown in Appendix 1.

5.3 Test conditions

Frequency range	:	30MHz to 26GHz
Test distance	:	3m(below 13GHz) / 1m(above 13GHz)
EUT position	:	Table top
EUT operation mode	:	Refer to SECTION 4.1

5.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3m(below 13GHz) / 1m(above 13GHz) (Refer to Figure 1). Measurements were performed with quasi-peak, peak and average detector. 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.
The radiated emission measurements were made with the following detection of the test receiver.

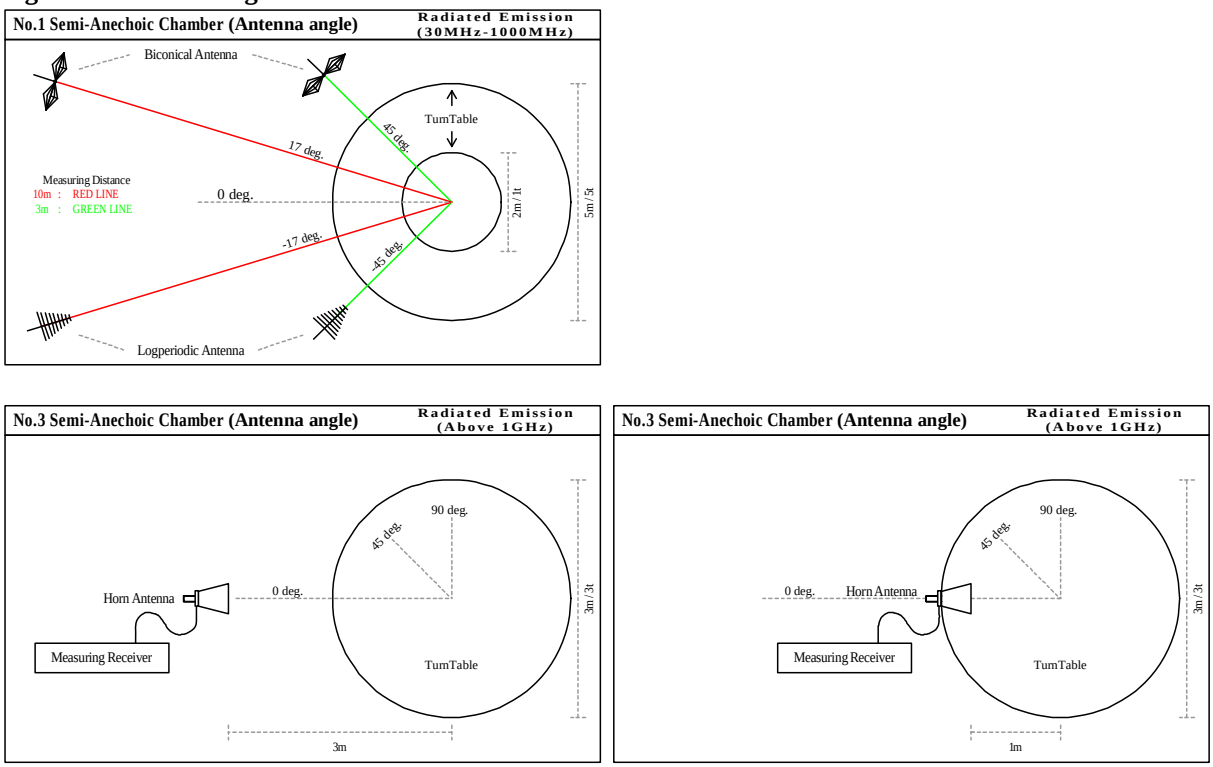
Frequency	:	30-1000MHz	1000-26000MHz	
Detection Type	:	Quasi-Peak	Peak	* Average
IF Bandwidth	:	120kHz	RBW:1MHz/VBW:3MHz	RBW:1MHz/VBW:10Hz RBW:1MHz/VBW:270Hz *1)

*1) Used for the band edge of the carrier and the harmonics that can be measured. The VBW is based on the inverse of the duty cycle (Refer to the data).

* 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.

Figure 1. Antenna angle



5.5 Band edge

Band edge level at 2400MHz is less than 20dB of peak point of the carrier. Refer to the data of Out of Band Emissions (Antenna Port Conducted). Band edge level at 2390MHz and 2483.5MHz is below the limits of FCC 15.209. Refer to the data.

5.6 Results

Summary of the test results : Pass *No noise was detected above the 5th order harmonics.
Refer to APPENDIX 2

SECTION 6: Spurious emissions (Antenna port conducted)

Test procedure
The spurious missions were 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 radiated measurement.
In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.
Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.
(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=10kHz)

Summary of the test results: Pass
Refer to APPENDIX 2

SECTION 7: 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
Refer to APPENDIX 2

SECTION 8: 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
Refer to APPENDIX 2

SECTION 9: 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
Refer to APPENDIX 2

SECTION 10: Dwell time

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

Summary of the test results: Pass
Refer to APPENDIX 2

SECTION 11: 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
Refer to APPENDIX 2

Contents of appendixes

APPENDIX 1: Test data

20dB bandwidth and Carrier frequency separation
Number of hopping frequency
Dwell time
Maximum peak output power
Radiated emission
Spurious emission (Antenna port conducted)
Occupied bandwidth

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Radiated emission

APPENDIX 1: Test data

20dB Bandwidth and Carrier Frequency Separation

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 10, 2011	
Temperature / Humidity	24deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, Bluetooth, BDR, PRBS9	

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency Separation [MHz]
DH5	2402.0	0.935	1.000	>= 0.623
DH5	2441.0	0.935	1.000	>= 0.623
DH5	2480.0	0.945	1.003	>= 0.630

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

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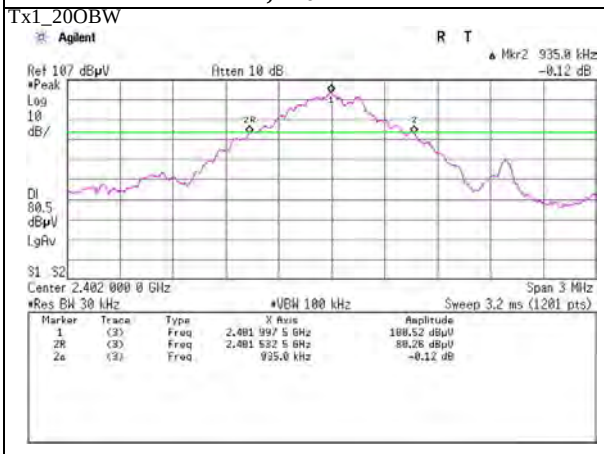
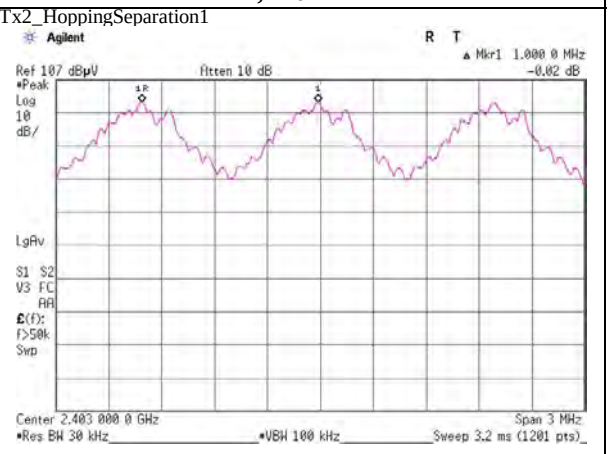
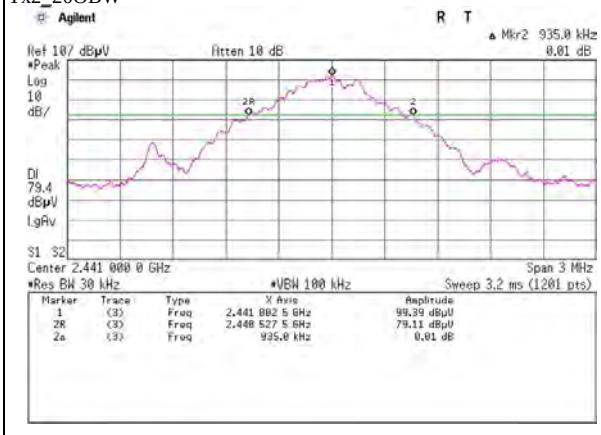
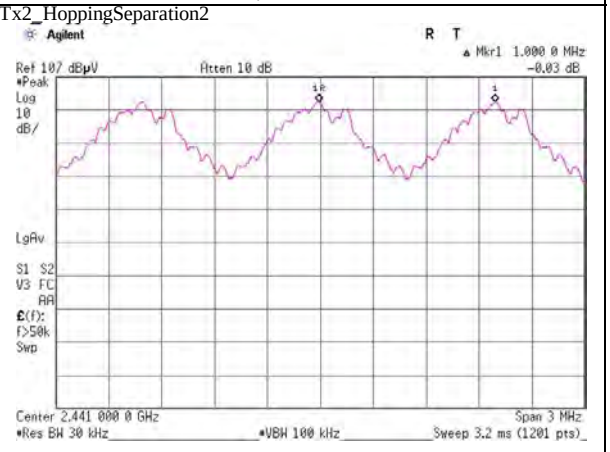
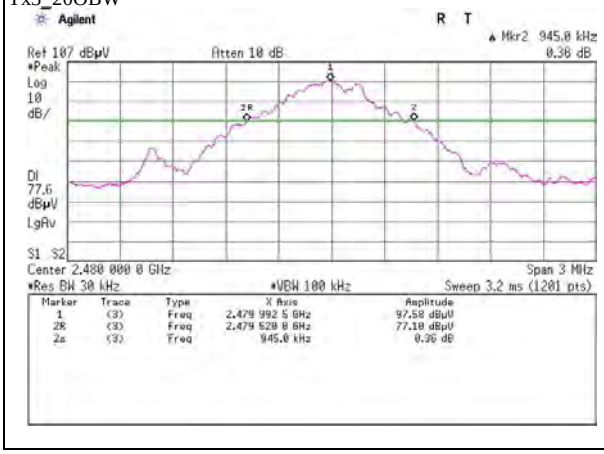
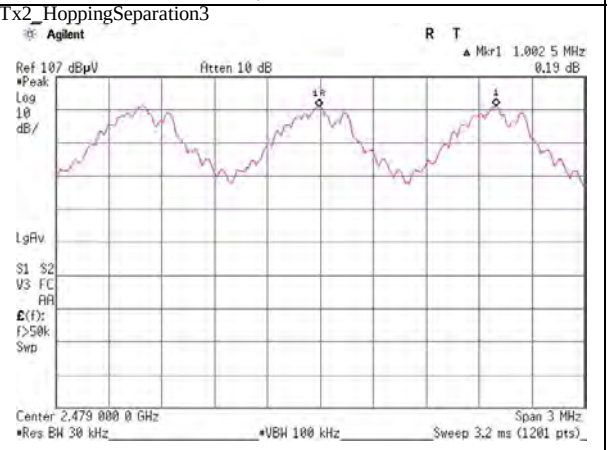
20dB Bandwidth and Carrier Frequency Separation

Tx, Bluetooth, BDR, PRBS9

20dB Bandwidth	Carrier Frequency Separation
Tx, 2402MHz	**Tx, 2402MHz**
Tx1_20OBW 	Tx2_HoppingSeparation1 
Tx, 2441MHz	**Tx, 2441MHz**
Tx2_20OBW 	Tx2_HoppingSeparation2 
Tx, 2480MHz	**Tx, 2480MHz**
Tx3_20OBW 	Tx2_HoppingSeparation3 

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20dB Bandwidth and Carrier Frequency Separation

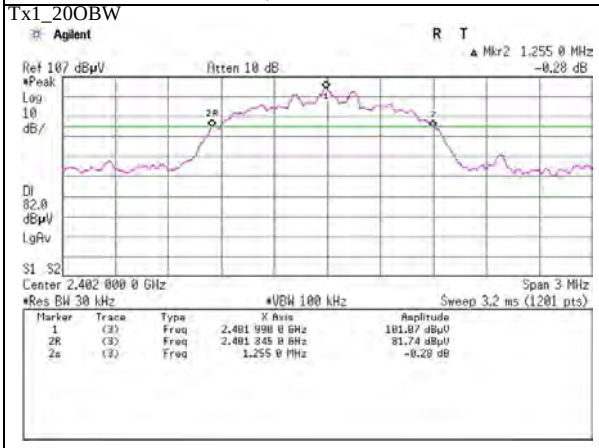
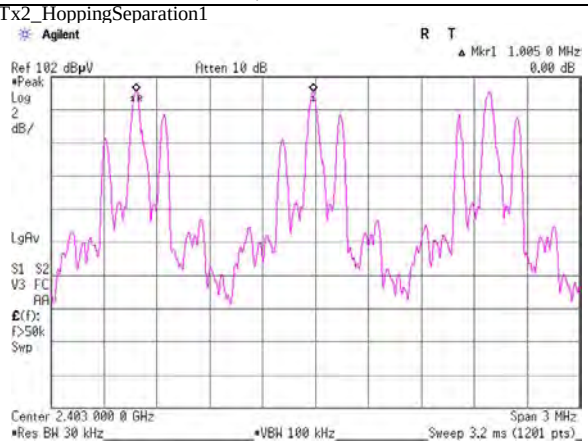
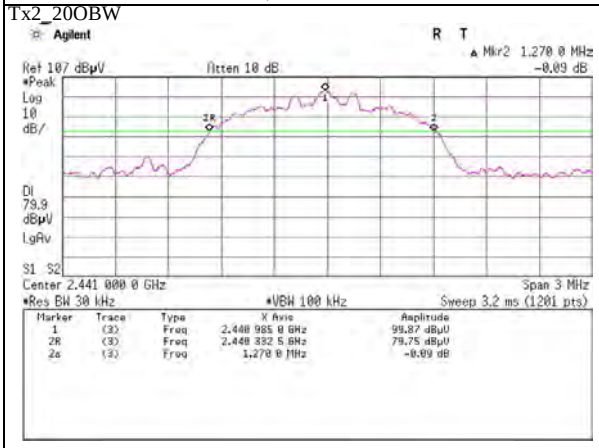
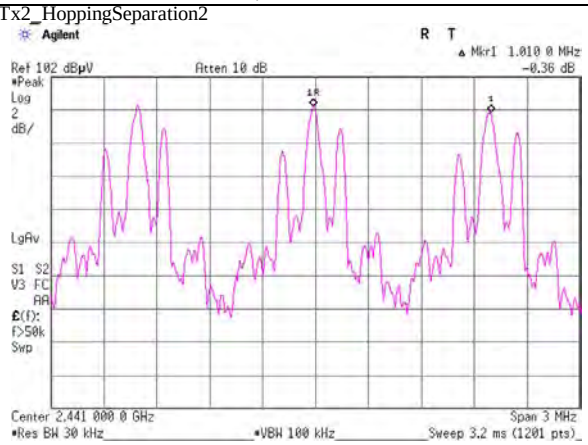
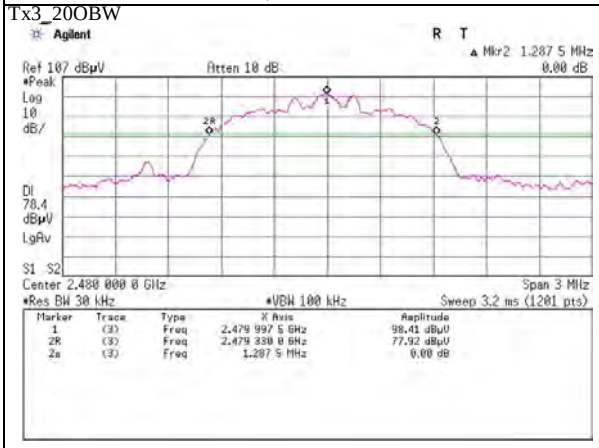
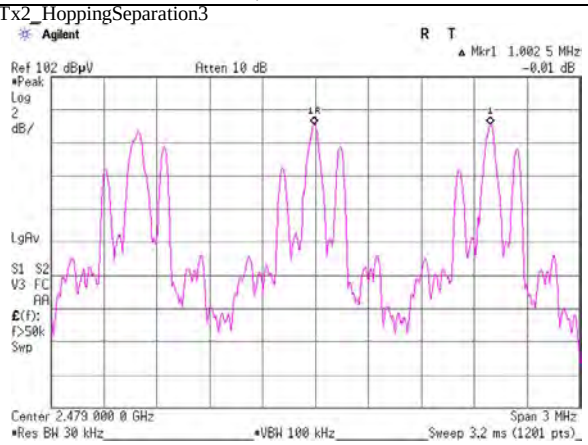
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 10, 2011	
Temperature / Humidity	24deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, Bluetooth, EDR, PRBS9	

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency Separation [MHz]
3-DH5	2402.0	1.255	1.005	>= 0.837
3-DH5	2441.0	1.270	1.010	>= 0.847
3-DH5	2480.0	1.288	1.003	>= 0.858

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

20dB Bandwidth and Carrier Frequency Separation

Tx, Bluetooth, EDR, PRBS9

20dB Bandwidth	Carrier Frequency Separation
Tx, 2402MHz	**Tx, 2402MHz**
Tx1_20OBW 	Tx2_HoppingSeparation1 
Tx, 2441MHz	**Tx, 2441MHz**
Tx2_20OBW 	Tx2_HoppingSeparation2 
Tx, 2480MHz	**Tx, 2480MHz**
Tx3_20OBW 	Tx2_HoppingSeparation3 

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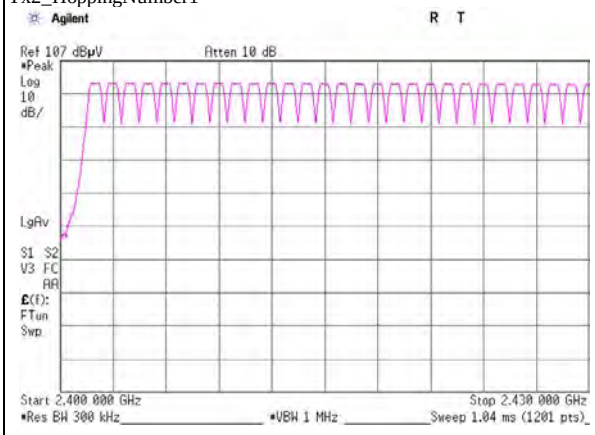
Number of Hopping Frequency

Test place	UL Japan, Inc. Shonan EMC Lab.
Date	November 10, 2011
Temperature / Humidity	24deg.C , 39%RH
Engineer	Hikaru Shirasawa
Mode	Tx, Bluetooth, BDR, PRBS9

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

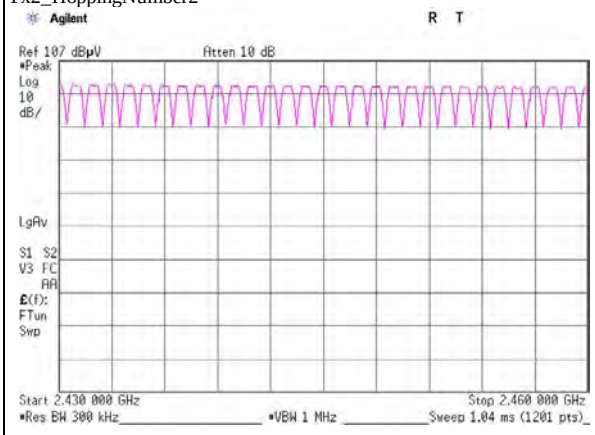
DH5 (1/3)

Tx2_HoppingNumber1



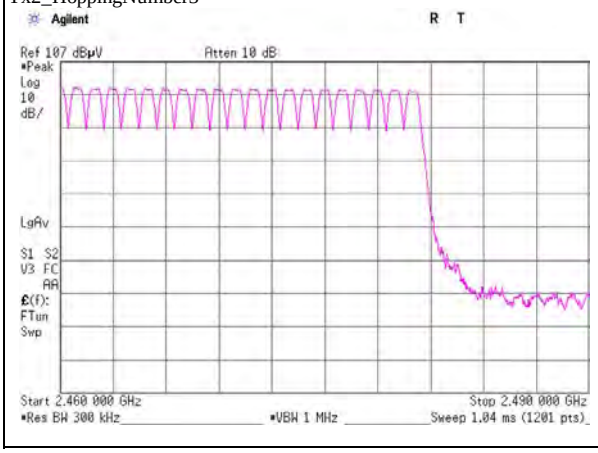
DH5 (2/3)

Tx2_HoppingNumber2



DH5 (3/3)

Tx2_HoppingNumber3



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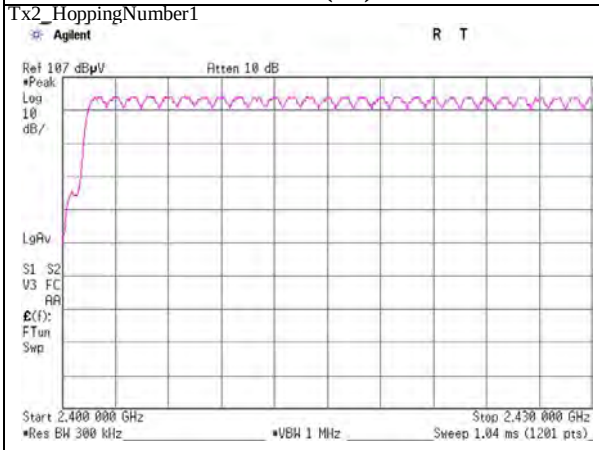
Number of Hopping Frequency

Test place	UL Japan, Inc. Shonan EMC Lab.
Date	November 10, 2011
Temperature / Humidity	24deg.C , 39%RH
Engineer	Hikaru Shirasawa
Mode	Tx, Bluetooth, EDR, PRBS9

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

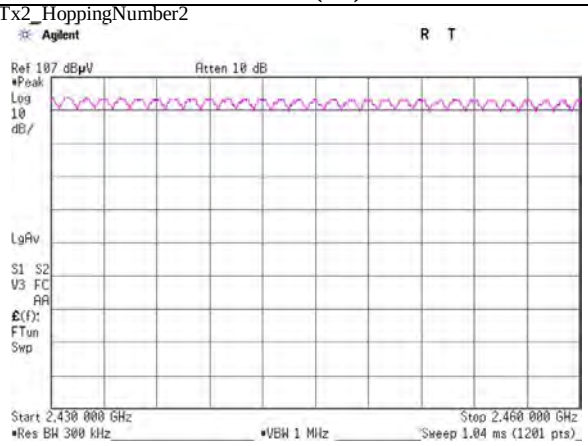
3-DH5 (1/3)

Tx2_HoppingNumber1



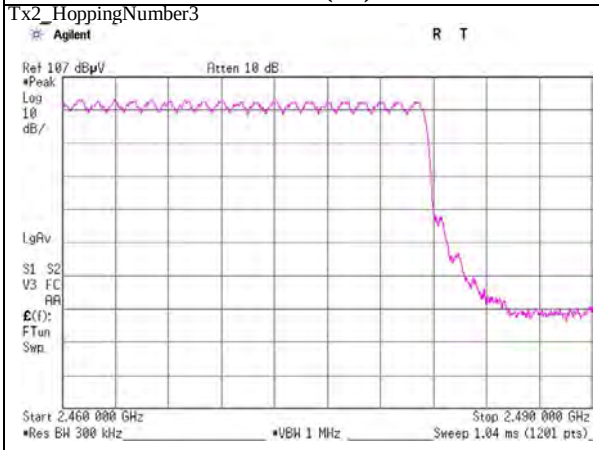
3-DH5 (2/3)

Tx2_HoppingNumber2



3-DH5 (3/3)

Tx2_HoppingNumber3



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Dwell Time

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 9, 2011	
Temperature / Humidity	27deg.C , 35%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, Bluetooth, BDR, PRBS9	

Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	50.4 / 5.0 sec. x 31.6 sec. = 319 times	0.408	130	400
DH3	25.6 / 5.0 sec. x 31.6 sec. = 162 times	1.665	270	400
DH5	17.0 / 5.0 sec. x 31.6 sec. = 108 times	2.917	315	400

Sample Calculation

Result = Number of transmission x Length of transmition time

*Average data of 5 tests.(except Inquiry)

Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	51	50	51	50	50	50.4
DH3	26	26	26	25	25	25.6
DH5	17	17	17	17	17	17.0

Sample Calculation

Average= Summation(Sampling 1 to 5) / 5

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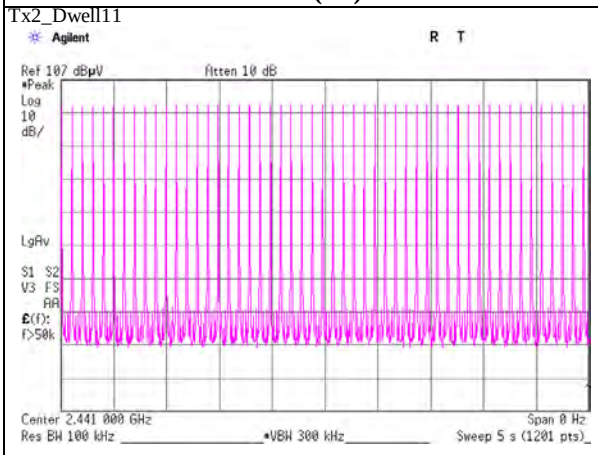
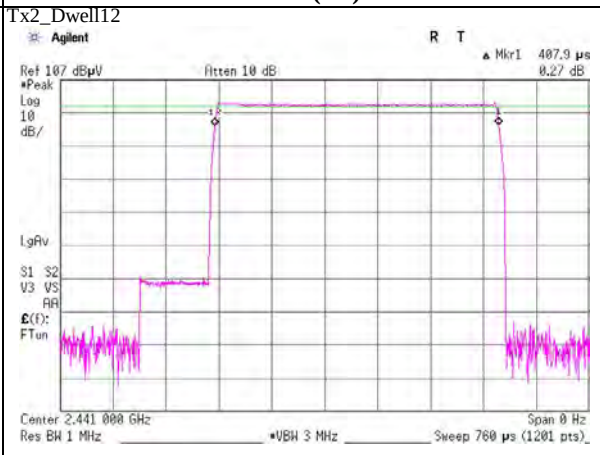
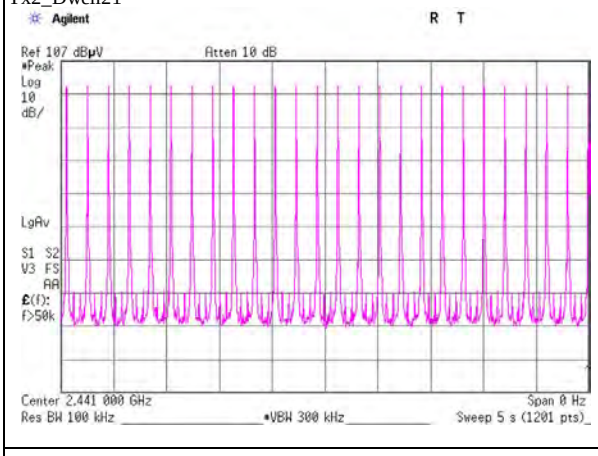
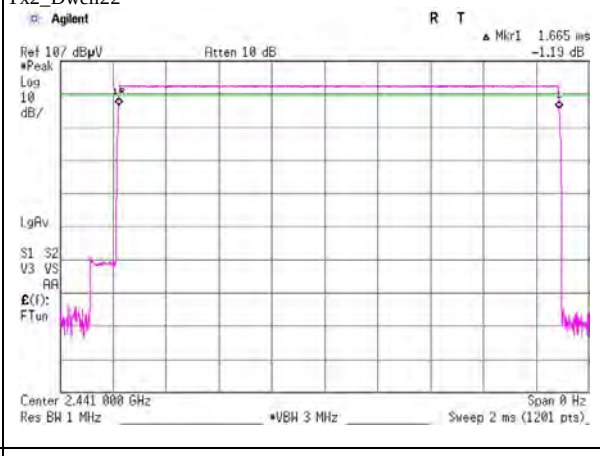
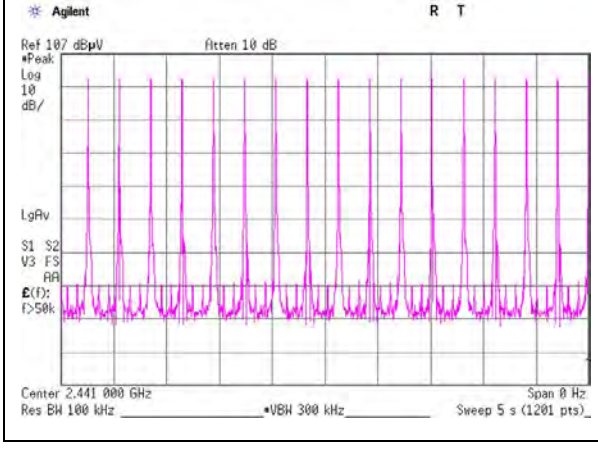
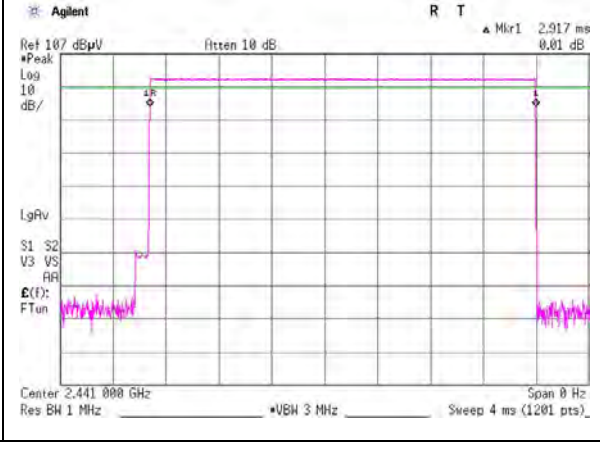
Dwell time

Tx, Bluetooth, BDR, PRBS9

DH1 (1/2)	DH1 (2/2)
Tx2_Dwell11 	Tx2_Dwell12 
DH3 (1/2)	**DH3 (2/2)**
Tx2_Dwell21 	Tx2_Dwell22 
DH5 (1/2)	**DH5 (2/2)**
Tx2_Dwell31 	Tx2_Dwell32 

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Dwell Time

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 9, 2011	
Temperature / Humidity	27deg.C , 35%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, Bluetooth, EDR, PRBS9	

Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
3-DH1	50.4 / 5.0 sec. x 31.6 sec. = 319 times	0.421	134	400
3-DH3	25.4 / 5.0 sec. x 31.6 sec. = 161 times	1.672	269	400
3-DH5	16.4 / 5.0 sec. x 31.6 sec. = 104 times	2.927	304	400

Sample Calculation

Result = Number of transmission x Length of transmition time

*Average data of 5 tests.(except Inquiry)

Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
3-DH1	50	50	51	51	50	50.4
3-DH3	26	25	25	25	26	25.4
3-DH5	17	16	17	16	16	16.4

Sample Calculation

Average= Summation(Sampling 1 to 5) / 5

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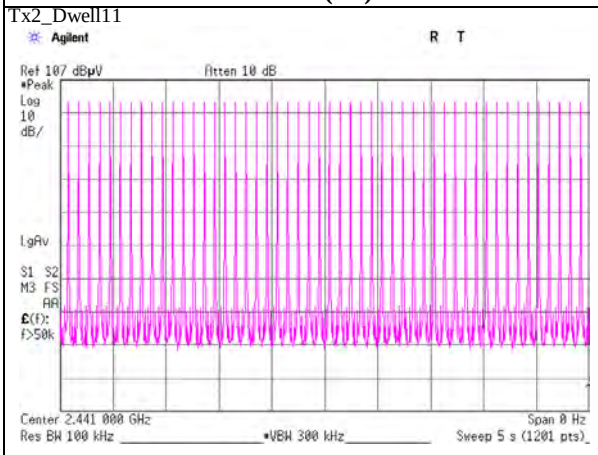
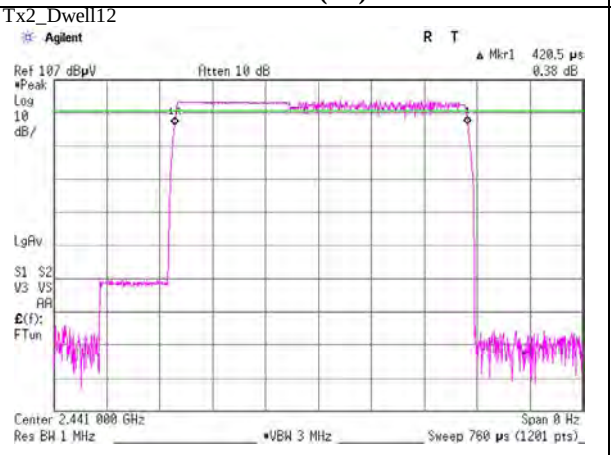
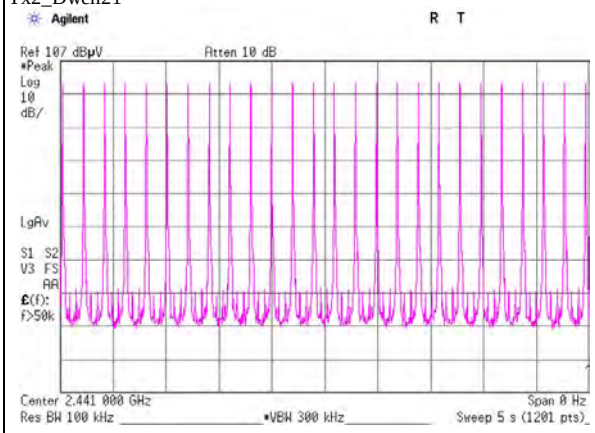
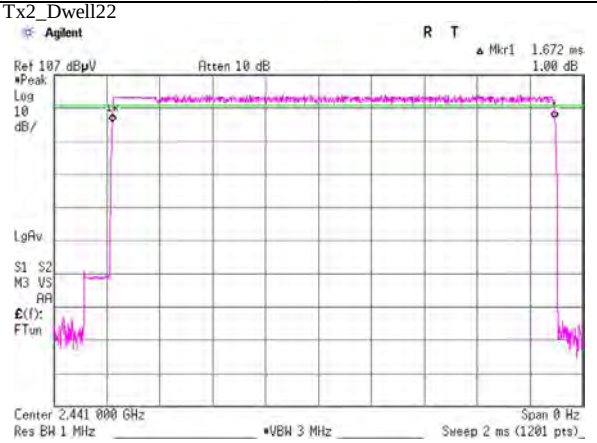
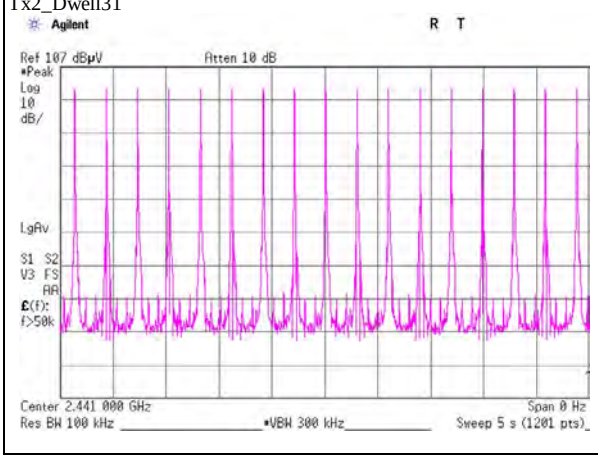
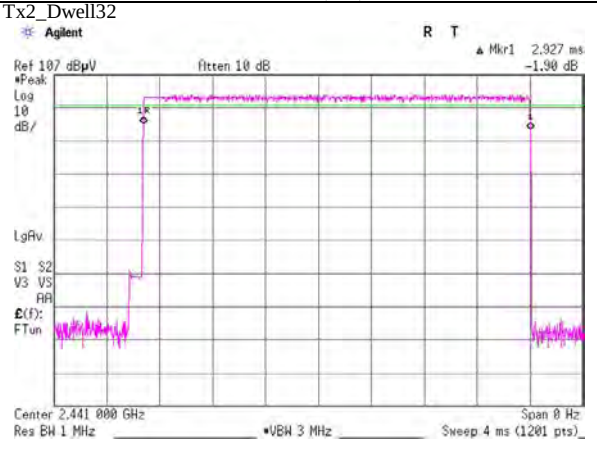
Dwell time

Tx, Bluetooth, EDR, PRBS9

3-DH1 (1/2)	3-DH1 (2/2)
Tx2_Dwell11 	Tx2_Dwell12 
3-DH3 (1/2)	**3-DH3 (2/2)**
Tx2_Dwell21 	Tx2_Dwell22 
3-DH5 (1/2)	**3-DH5 (2/2)**
Tx2_Dwell31 	Tx2_Dwell32 

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Peak Output Power (Conducted)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date	November 10, 2011
Temperature / Humidity	24deg.C , 39%RH
Engineer	Hikaru Shirasawa
Mode	Tx, Bluetooth, BDR (Worst: DH5)

(* P/M: Power Meter with power sensor)

	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
DH5	2402.0	-6.31	2.01	9.97	5.67	3.69	20.97	125	15.29
DH5	2441.0	-7.04	2.03	9.97	4.96	3.14	20.97	125	16.00
DH5	2480.0	-8.57	2.05	9.97	3.45	2.22	20.97	125	17.51
2-DH5	2402.0	-5.15	2.01	9.97	6.83	4.82	20.97	125	14.13
2-DH5	2441.0	-5.85	2.03	9.97	6.15	4.13	20.97	125	14.81
2-DH5	2480.0	-6.97	2.05	9.97	5.05	3.20	20.97	125	15.91
3-DH5	2402.0	-4.91	2.01	9.97	7.07	5.10	20.97	125	13.89
3-DH5	2441.0	-5.53	2.03	9.97	6.47	4.44	20.97	125	14.49
3-DH5	2480.0	-6.56	2.05	9.97	5.46	3.52	20.97	125	15.50

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

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.1&No.3 Semi Anechoic Chamber
Date	November 6, 2011	November 7, 2011	
Temperature / Humidity	23deg.C , 64%RH	23deg.C , 58%RH	
Engineer	Yasumasa Owaki	Wataru Kojima	
Mode	Tx, 2402 MHz		
	Tx, Bluetooth, BDR, PRBS9		

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	85.071	QP	45.3	7.3	7.7	31.8	28.5	40.0	11.5	200	305	
Hori.	114.456	QP	38.4	12.2	8.1	31.8	26.9	43.5	16.6	155	326	
Hori.	324.444	QP	48.6	14.7	7.0	31.8	38.5	46.0	7.5	100	199	
Hori.	355.361	QP	48.5	15.3	7.2	31.8	39.2	46.0	6.8	100	214	
Hori.	385.380	QP	47.7	15.9	7.5	31.8	39.3	46.0	6.7	100	95	
Hori.	523.626	QP	36.0	17.8	8.2	31.9	30.1	46.0	15.9	100	23	
Hori.	2390.000	PK	46.3	27.2	13.8	41.1	46.2	73.9	27.7	100	83	
Hori.	2391.783	PK	48.0	27.2	13.8	41.1	47.9	73.9	26.0	100	83	
Hori.	2400.000	PK	54.4	27.3	13.8	41.1	54.4	73.9	19.5	100	83	
Hori.	3203.985	PK	47.7	29.0	5.5	41.5	40.7	73.9	33.2	100	0	
Hori.	4007.000	PK	44.4	30.0	5.7	41.7	38.4	73.9	35.5	100	0	
Hori.	4085.430	PK	55.5	30.1	5.7	41.7	49.6	73.9	24.3	100	249	
Hori.	4804.000	PK	53.0	31.1	6.0	41.1	49.0	73.9	24.9	100	197	
Hori.	7206.000	PK	46.6	36.5	7.4	41.3	49.2	73.9	24.7	100	0	
Hori.	9608.000	PK	44.3	38.2	8.7	38.8	52.4	73.9	21.5	100	0	
Hori.	12010.000	PK	45.6	39.3	10.2	39.2	55.9	73.9	18.0	100	0	
Hori.	2390.000	AV	37.2	27.2	13.8	41.1	37.1	53.9	16.8	100	83	VBW:270Hz
Hori.	2391.783	AV	37.5	27.2	13.8	41.1	37.4	53.9	16.5	100	83	Not Detected(VBW:10Hz)
Hori.	2400.000	AV	45.5	27.3	13.8	41.1	45.5	53.9	8.4	100	83	VBW:270Hz
Hori.	3203.985	AV	36.7	29.0	5.5	41.5	29.7	53.9	24.2	100	0	Not Detected(VBW:10Hz)
Hori.	4007.000	AV	34.4	30.0	5.7	41.7	28.4	53.9	25.5	100	0	Not Detected(VBW:10Hz)
Hori.	4085.430	AV	52.8	30.1	5.7	41.7	46.9	53.9	7.0	100	249	Not Detected(VBW:10Hz)
Hori.	4804.000	AV	47.8	31.1	6.0	41.1	43.8	53.9	10.1	100	197	VBW:270Hz
Hori.	7206.000	AV	36.0	36.5	7.4	41.3	38.6	53.9	15.3	100	0	VBW:270Hz
Hori.	9608.000	AV	34.6	38.2	8.7	38.8	42.7	53.9	11.2	100	0	VBW:270Hz
Hori.	12010.000	AV	35.8	39.3	10.2	39.2	46.1	53.9	7.8	100	0	VBW:270Hz
Vert.	54.934	QP	41.2	9.6	7.3	31.8	26.3	40.0	13.7	100	293	
Vert.	101.312	QP	41.7	10.4	8.0	31.8	28.3	43.5	15.2	100	13	
Vert.	353.948	QP	43.7	15.3	7.2	31.8	34.4	46.0	11.6	100	327	
Vert.	2390.000	PK	48.0	27.2	13.8	41.1	47.9	73.9	26.0	115	108	
Vert.	2391.783	PK	49.1	27.2	13.8	41.1	49.0	73.9	24.9	115	108	
Vert.	2400.000	PK	57.1	27.3	13.8	41.1	57.1	73.9	16.8	115	108	
Vert.	3203.982	PK	48.5	29.0	5.5	41.5	41.5	73.9	32.4	100	18	
Vert.	4007.000	PK	44.4	30.0	5.7	41.7	38.4	73.9	35.5	100	0	
Vert.	4085.623	PK	56.2	30.1	5.7	41.7	50.3	73.9	23.6	100	188	
Vert.	4804.000	PK	53.2	31.1	6.0	41.1	49.2	73.9	24.7	100	85	
Vert.	7206.000	PK	45.5	36.5	7.4	41.3	48.1	73.9	25.8	100	0	
Vert.	9608.000	PK	45.0	38.2	8.7	38.8	53.1	73.9	20.8	100	0	
Vert.	12010.000	PK	45.7	39.3	10.2	39.2	56.0	73.9	17.9	100	0	
Vert.	2390.000	AV	37.3	27.2	13.8	41.1	37.2	53.9	16.7	115	108	VBW:270Hz
Vert.	2391.783	AV	37.4	27.2	13.8	41.1	37.3	53.9	16.6	115	108	Not Detected(VBW:10Hz)
Vert.	2400.000	AV	47.9	27.3	13.8	41.1	47.9	53.9	6.0	115	108	VBW:270Hz
Vert.	3203.982	AV	36.8	29.0	5.5	41.5	29.8	53.9	24.1	100	18	Not Detected(VBW:10Hz)
Vert.	4007.000	AV	34.3	30.0	5.7	41.7	28.3	53.9	25.6	100	0	Not Detected(VBW:10Hz)
Vert.	4085.623	AV	53.2	30.1	5.7	41.7	47.3	53.9	6.6	100	188	Not Detected(VBW:10Hz)
Vert.	4804.000	AV	48.3	31.1	6.0	41.1	44.3	53.9	9.6	100	85	VBW:270Hz
Vert.	7206.000	AV	36.3	36.5	7.4	41.3	38.9	53.9	15.0	100	0	VBW:270Hz
Vert.	9608.000	AV	34.8	38.2	8.7	38.8	42.9	53.9	11.0	100	0	VBW:270Hz
Vert.	12010.000	AV	35.8	39.3	10.2	39.2	46.1	53.9	7.8	100	0	VBW:270Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier) + Dwell time factor (refer to "Dwell time factor Calculation")

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.1&No.3 Semi Anechoic Chamber
Date	November 6, 2011	November 7, 2011	
Temperature / Humidity	23deg.C , 64%RH	23deg.C , 58%RH	
Engineer	Yasumasa Owaki	Wataru Kojima	
Mode	Tx, 2441 MHz		
	Tx, Bluetooth, BDR, PRBS9		

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	85.064	QP	44.9	7.3	7.7	31.8	28.1	40.0	11.9	200	302	
Hori.	114.486	QP	38.1	12.2	8.1	31.8	26.6	43.5	16.9	150	329	
Hori.	324.466	QP	48.4	14.7	7.0	31.8	38.3	46.0	7.7	100	198	
Hori.	355.365	QP	49.5	15.3	7.2	31.8	40.2	46.0	5.8	100	215	
Hori.	385.372	QP	48.2	15.9	7.5	31.8	39.8	46.0	6.2	100	92	
Hori.	3257.500	PK	47.0	29.0	5.4	41.6	39.8	73.9	34.1	100	295	
Hori.	4067.000	PK	44.5	30.1	5.7	41.7	38.6	73.9	35.3	100	0	
Hori.	4085.322	PK	55.3	30.1	5.7	41.7	49.4	73.9	24.5	100	244	
Hori.	4882.000	PK	50.0	31.2	6.0	40.9	46.3	73.9	27.6	100	358	
Hori.	7323.000	PK	47.0	36.8	7.4	41.4	49.8	73.9	24.1	100	358	
Hori.	9764.000	PK	45.5	38.5	8.7	38.8	53.9	73.9	20.0	100	3	
Hori.	12205.000	PK	44.4	39.3	10.3	39.2	54.8	73.9	19.1	100	1	
Hori.	3257.500	AV	35.9	29.0	5.4	41.6	28.7	53.9	25.2	100	295	Not Detected(VBW:10Hz)
Hori.	4067.000	AV	34.7	30.1	5.7	41.7	28.8	53.9	25.1	100	0	Not Detected(VBW:10Hz)
Hori.	4085.322	AV	52.6	30.1	5.7	41.7	46.7	53.9	7.2	100	244	Not Detected(VBW:10Hz)
Hori.	4882.000	AV	45.6	31.2	6.0	40.9	41.9	53.9	12.0	100	358	VBW:270Hz
Hori.	7323.000	AV	36.7	36.8	7.4	41.4	39.5	53.9	14.4	100	358	VBW:270Hz
Hori.	9764.000	AV	34.7	38.5	8.7	38.8	43.1	53.9	10.8	100	3	VBW:270Hz
Hori.	12205.000	AV	35.4	39.3	10.3	39.2	45.8	53.9	8.1	100	1	VBW:270Hz
Vert.	54.965	QP	41.3	9.6	7.3	31.8	26.4	40.0	13.6	100	274	
Vert.	84.765	QP	43.6	7.3	7.7	31.8	26.8	40.0	13.2	129	66	
Vert.	93.120	QP	43.0	8.9	7.8	31.8	27.9	43.5	15.6	100	39	
Vert.	101.099	QP	41.3	10.3	8.0	31.8	27.8	43.5	15.7	100	28	
Vert.	353.961	QP	44.2	15.3	7.2	31.8	34.9	46.0	11.1	100	320	
Vert.	3257.590	PK	48.0	29.0	5.4	41.6	40.8	73.9	33.1	100	20	
Vert.	4067.000	PK	44.6	30.1	5.7	41.7	38.7	73.9	35.2	100	0	
Vert.	4085.177	PK	55.5	30.1	5.7	41.7	49.6	73.9	24.3	100	191	
Vert.	4882.000	PK	50.6	31.2	6.0	40.9	46.9	73.9	27.0	100	120	
Vert.	7323.000	PK	47.0	36.8	7.4	41.4	49.8	73.9	24.1	100	358	
Vert.	9764.000	PK	44.5	38.5	8.7	38.8	52.9	73.9	21.0	100	357	
Vert.	12205.000	PK	45.3	39.3	10.3	39.2	55.7	73.9	18.2	100	1	
Vert.	3257.590	AV	39.0	29.0	5.4	41.6	31.8	53.9	22.1	100	20	Not Detected(VBW:10Hz)
Vert.	4067.000	AV	34.6	30.1	5.7	41.7	28.7	53.9	25.2	100	0	Not Detected(VBW:10Hz)
Vert.	4085.177	AV	53.1	30.1	5.7	41.7	47.2	53.9	6.7	100	191	Not Detected(VBW:10Hz)
Vert.	4882.000	AV	44.8	31.2	6.0	40.9	41.1	53.9	12.8	100	120	VBW:270Hz
Vert.	7323.000	AV	36.9	36.8	7.4	41.4	39.7	53.9	14.2	100	358	VBW:270Hz
Vert.	9764.000	AV	34.8	38.5	8.7	38.8	43.2	53.9	10.7	100	357	VBW:270Hz
Vert.	12205.000	AV	35.3	39.3	10.3	39.2	45.7	53.9	8.2	100	1	VBW:270Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier) + Dwell time factor (refer to "Dwell time factor Calculation")

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.1&No.3 Semi Anechoic Chamber
Date	November 6, 2011	November 7, 2011	
Temperature / Humidity	23deg.C , 64%RH	23deg.C , 58%RH	
Engineer	Yasumasa Owaki	Wataru Kojima	
Mode	Tx, 2480 MHz		
	Tx, Bluetooth, BDR, PRBS9		

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	85.074	QP	45.3	7.3	7.7	31.8	28.5	40.0	11.5	200	313	
Hori.	114.471	QP	38.1	12.2	8.1	31.8	26.6	43.5	16.9	150	338	
Hori.	199.981	QP	38.9	16.3	9.0	31.8	32.4	43.5	11.1	171	203	
Hori.	324.456	QP	48.5	14.7	7.0	31.8	38.4	46.0	7.6	100	197	
Hori.	355.374	QP	49.1	15.3	7.2	31.8	39.8	46.0	6.2	100	205	
Hori.	385.392	QP	47.9	15.9	7.5	31.8	39.5	46.0	6.5	100	93	
Hori.	2483.500	PK	43.3	27.5	13.7	41.1	43.4	73.9	30.5	100	191	
Hori.	2483.975	PK	43.1	27.5	13.7	41.1	43.2	73.9	30.7	100	358	
Hori.	3305.302	PK	48.4	29.1	5.4	41.6	41.3	73.9	32.6	100	119	
Hori.	4084.444	PK	55.4	30.1	5.7	41.7	49.5	73.9	24.4	100	0	
Hori.	4130.000	PK	44.6	30.1	5.8	41.7	38.8	73.9	35.1	100	0	
Hori.	4960.000	PK	47.3	31.4	6.0	40.8	43.9	73.9	30.0	100	128	
Hori.	7440.000	PK	46.9	37.0	7.3	41.5	49.7	73.9	24.2	100	1	
Hori.	9920.000	PK	45.4	38.8	8.8	38.8	54.2	73.9	19.7	100	2	
Hori.	12400.000	PK	46.0	39.4	10.3	39.2	56.5	73.9	17.4	100	1	
Hori.	2483.500	AV	36.8	27.5	13.7	41.1	36.9	53.9	17.0	100	191	VBW:270Hz
Hori.	2483.975	AV	36.8	27.5	13.7	41.1	36.9	53.9	17.0	100	358	Not Detected(VBW:10Hz)
Hori.	3305.302	AV	41.0	29.1	5.4	41.6	33.9	53.9	20.0	100	119	Not Detected(VBW:10Hz)
Hori.	4084.444	AV	52.9	30.1	5.7	41.7	47.0	53.9	6.9	100	0	Not Detected(VBW:10Hz)
Hori.	4130.000	AV	34.3	30.1	5.8	41.7	28.5	53.9	25.4	100	0	Not Detected(VBW:10Hz)
Hori.	4960.000	AV	38.9	31.4	6.0	40.8	35.5	53.9	18.4	100	128	VBW:270Hz
Hori.	7440.000	AV	36.6	37.0	7.3	41.5	39.4	53.9	14.5	100	1	VBW:270Hz
Hori.	9920.000	AV	34.2	38.8	8.8	38.8	43.0	53.9	10.9	100	2	VBW:270Hz
Hori.	12400.000	AV	35.0	39.4	10.3	39.2	45.5	53.9	8.4	100	1	VBW:270Hz
Vert.	55.003	QP	41.4	9.6	7.3	31.8	26.5	40.0	13.5	100	283	
Vert.	84.860	QP	43.7	7.3	7.7	31.8	26.9	40.0	13.1	138	72	
Vert.	385.388	QP	46.2	15.9	7.5	31.8	37.8	46.0	8.2	126	136	
Vert.	2483.500	PK	45.6	27.5	13.7	41.1	45.7	73.9	28.2	100	244	
Vert.	2483.975	PK	48.4	27.5	13.7	41.1	48.5	73.9	25.4	100	120	
Vert.	3305.370	PK	49.7	29.1	5.4	41.6	42.6	73.9	31.3	100	352	
Vert.	4084.425	PK	55.0	30.1	5.7	41.7	49.1	73.9	24.8	100	185	
Vert.	4130.000	PK	44.5	30.1	5.8	41.7	38.7	73.9	35.2	100	0	
Vert.	4960.000	PK	48.8	31.4	6.0	40.8	45.4	73.9	28.5	100	84	
Vert.	7440.000	PK	47.0	37.0	7.3	41.5	49.8	73.9	24.1	100	1	
Vert.	9920.000	PK	44.8	38.8	8.8	38.8	53.6	73.9	20.3	100	1	
Vert.	12400.000	PK	46.2	39.4	10.3	39.2	56.7	73.9	17.2	100	1	
Vert.	2483.500	AV	36.5	27.5	13.7	41.1	36.6	53.9	17.3	100	244	VBW:270Hz
Vert.	2483.975	AV	36.7	27.5	13.7	41.1	36.8	53.9	17.1	100	120	Not Detected(VBW:10Hz)
Vert.	3305.370	AV	40.1	29.1	5.4	41.6	33.0	53.9	20.9	100	352	Not Detected(VBW:10Hz)
Vert.	4084.425	AV	52.2	30.1	5.7	41.7	46.3	53.9	7.6	100	185	Not Detected(VBW:10Hz)
Vert.	4130.000	AV	34.4	30.1	5.8	41.7	28.6	53.9	25.3	100	0	Not Detected(VBW:10Hz)
Vert.	4960.000	AV	38.6	31.4	6.0	40.8	35.2	53.9	18.7	100	84	VBW:270Hz
Vert.	7440.000	AV	36.8	37.0	7.3	41.5	39.6	53.9	14.3	100	1	VBW:270Hz
Vert.	9920.000	AV	35.0	38.8	8.8	38.8	43.8	53.9	10.1	100	1	VBW:270Hz
Vert.	12400.000	AV	35.9	39.4	10.3	39.2	46.4	53.9	7.5	100	1	VBW:270Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier) + Dwell time factor (refer to "Dwell time factor Calculation")

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.1&No.3 Semi Anechoic Chamber
Date	November 6, 2011	November 7, 2011	
Temperature / Humidity	23deg.C , 64%RH	23deg.C , 58%RH	
Engineer	Yasumasa Owaki	Wataru Kojima	
Mode	Tx, 2402 MHz		
	Tx, Bluetooth, EDR, PRBS9		

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	85.080	QP	45.5	7.4	7.7	31.8	28.8	40.0	11.2	200	306	
Hori.	114.469	QP	38.4	12.2	8.1	31.8	26.9	43.5	16.6	151	342	
Hori.	136.002	QP	44.8	14.0	8.3	31.8	35.3	43.5	8.2	212	125	
Hori.	324.493	QP	50.7	14.7	7.0	31.8	40.6	46.0	5.4	100	200	
Hori.	355.334	QP	45.8	15.3	7.2	31.8	36.5	46.0	9.5	100	210	
Hori.	385.375	QP	45.5	15.9	7.5	31.8	37.1	46.0	8.9	100	90	
Hori.	2390.000	PK	45.0	27.2	13.8	41.1	44.9	73.9	29.0	100	191	
Hori.	3203.200	PK	47.3	29.0	5.5	41.5	40.3	73.9	33.6	100	120	
Hori.	4007.000	PK	44.3	30.0	5.7	41.7	38.3	73.9	35.6	100	0	
Hori.	4085.020	PK	55.2	30.1	5.7	41.7	49.3	73.9	24.6	100	195	
Hori.	4804.000	PK	57.4	31.1	6.0	41.1	53.4	73.9	20.5	100	213	
Hori.	7206.000	PK	45.5	36.5	7.4	41.3	48.1	73.9	25.8	100	119	
Hori.	9608.000	PK	44.7	38.2	8.7	38.8	52.8	73.9	21.1	100	185	
Hori.	12010.000	PK	45.9	39.3	10.2	39.2	56.2	73.9	17.7	100	358	
Hori.	2390.000	AV	37.1	27.2	13.8	41.1	37.0	53.9	16.9	100	191	VBW:270Hz
Hori.	3203.200	AV	36.3	29.0	5.5	41.5	29.3	53.9	24.6	100	120	Not Detected(VBW:10Hz)
Hori.	4007.000	AV	34.5	30.0	5.7	41.7	28.5	53.9	25.4	100	0	Not Detected(VBW:10Hz)
Hori.	4085.020	AV	53.0	30.1	5.7	41.7	47.1	53.9	6.8	100	195	Not Detected(VBW:10Hz)
Hori.	4804.000	AV	50.0	31.1	6.0	41.1	46.0	53.9	7.9	100	213	VBW:270Hz
Hori.	7206.000	AV	36.0	36.5	7.4	41.3	38.6	53.9	15.3	100	119	VBW:270Hz
Hori.	9608.000	AV	34.7	38.2	8.7	38.8	42.8	53.9	11.1	100	185	VBW:270Hz
Hori.	12010.000	AV	35.6	39.3	10.2	39.2	45.9	53.9	8.0	100	358	VBW:270Hz
Vert.	55.130	QP	41.9	9.5	7.3	31.8	26.9	40.0	13.1	100	287	
Vert.	84.828	QP	44.5	7.3	7.7	31.8	27.7	40.0	12.3	143	56	
Vert.	101.196	QP	41.8	10.3	8.0	31.8	28.3	43.5	15.2	100	17	
Vert.	900.948	QP	30.1	22.2	10.0	31.3	31.0	46.0	15.0	115	152	
Vert.	2390.000	PK	47.3	27.2	13.8	41.1	47.2	73.9	26.7	100	244	
Vert.	3203.965	PK	48.9	29.0	5.5	41.5	41.9	73.9	32.0	100	70	
Vert.	4007.000	PK	44.5	30.0	5.7	41.7	38.5	73.9	35.4	100	0	
Vert.	4085.240	PK	54.2	30.1	5.7	41.7	48.3	73.9	25.6	100	192	
Vert.	4804.000	PK	57.0	31.1	6.0	41.1	53.0	73.9	20.9	100	87	
Vert.	7206.000	PK	46.9	36.5	7.4	41.3	49.5	73.9	24.4	100	352	
Vert.	9608.000	PK	45.0	38.2	8.7	38.8	53.1	73.9	20.8	100	0	
Vert.	12010.000	PK	45.3	39.3	10.2	39.2	55.6	73.9	18.3	100	358	
Vert.	2390.000	AV	37.2	27.2	13.8	41.1	37.1	53.9	16.8	100	244	VBW:270Hz
Vert.	3203.965	AV	38.0	29.0	5.5	41.5	31.0	53.9	22.9	100	70	Not Detected(VBW:10Hz)
Vert.	4007.000	AV	34.6	30.0	5.7	41.7	28.6	53.9	25.3	100	0	Not Detected(VBW:10Hz)
Vert.	4085.240	AV	51.0	30.1	5.7	41.7	45.1	53.9	8.8	100	192	Not Detected(VBW:10Hz)
Vert.	4804.000	AV	49.3	31.1	6.0	41.1	45.3	53.9	8.6	100	87	VBW:270Hz
Vert.	7206.000	AV	36.4	36.5	7.4	41.3	39.0	53.9	14.9	100	352	VBW:270Hz
Vert.	9608.000	AV	35.0	38.2	8.7	38.8	43.1	53.9	10.8	100	0	VBW:270Hz
Vert.	12010.000	AV	35.4	39.3	10.2	39.2	45.7	53.9	8.2	100	358	VBW:270Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier) + Dwell time factor (refer to "Dwell time factor Calculation")

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	91.2	27.3	13.8	41.1	91.2	-	-	Carrier
Hori.	2399.620	PK	47.8	27.3	13.8	41.1	47.8	71.2	23.4	
Hori.	2400.000	PK	48.2	27.3	13.8	41.1	48.2	71.2	23.0	
Vert.	2402.000	PK	93.0	27.3	13.8	41.1	93.0	-	-	Carrier
Vert.	2399.620	PK	49.7	27.3	13.8	41.1	49.7	73.0	23.3	
Vert.	2400.000	PK	50.0	27.3	13.8	41.1	50.0	73.0	23.0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier)

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.1&No.3 Semi Anechoic Chamber
Date	November 6, 2011	November 7, 2011	
Temperature / Humidity	23deg.C , 64%RH	23deg.C , 58%RH	
Engineer	Yasumasa Owaki	Wataru Kojima	
Mode	Tx, 2441 MHz		
	Tx, Bluetooth, EDR, PRBS9		

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	85.079	QP	45.6	7.4	7.7	31.8	28.9	40.0	11.1	201	325	
Hori.	114.508	QP	38.6	12.2	8.1	31.8	27.1	43.5	16.4	150	337	
Hori.	135.996	QP	45.1	14.0	8.3	31.8	35.6	43.5	7.9	230	123	
Hori.	152.000	QP	42.6	14.7	8.5	31.8	34.0	43.5	9.5	193	112	
Hori.	324.477	QP	50.6	14.7	7.0	31.8	40.5	46.0	5.5	100	192	
Hori.	355.371	QP	46.0	15.3	7.2	31.8	36.7	46.0	9.3	100	205	
Hori.	385.381	QP	45.5	15.9	7.5	31.8	37.1	46.0	8.9	100	91	
Hori.	3257.580	PK	48.2	29.0	5.4	41.6	41.0	73.9	32.9	100	191	
Hori.	4067.000	PK	44.5	30.1	5.7	41.7	38.6	73.9	35.3	100	0	
Hori.	4084.747	PK	55.3	30.1	5.7	41.7	49.4	73.9	24.5	100	249	
Hori.	4882.000	PK	53.0	31.2	6.0	40.9	49.3	73.9	24.6	100	217	
Hori.	7323.000	PK	46.7	36.8	7.4	41.4	49.5	73.9	24.4	100	109	
Hori.	9764.000	PK	45.1	38.5	8.7	38.8	53.5	73.9	20.4	100	244	
Hori.	12205.000	PK	45.4	39.3	10.3	39.2	55.8	73.9	18.1	100	83	
Hori.	3257.580	AV	36.0	29.0	5.4	41.6	28.8	53.9	25.1	100	191	Not Detected(VBW:10Hz)
Hori.	4067.000	AV	34.6	30.1	5.7	41.7	28.7	53.9	25.2	100	0	Not Detected(VBW:10Hz)
Hori.	4084.747	AV	53.5	30.1	5.7	41.7	47.6	53.9	6.3	100	249	Not Detected(VBW:10Hz)
Hori.	4882.000	AV	41.0	31.2	6.0	40.9	37.3	53.9	16.6	100	217	VBW:270Hz
Hori.	7323.000	AV	36.4	36.8	7.4	41.4	39.2	53.9	14.7	100	109	VBW:270Hz
Hori.	9764.000	AV	35.0	38.5	8.7	38.8	43.4	53.9	10.5	100	244	VBW:270Hz
Hori.	12205.000	AV	35.0	39.3	10.3	39.2	45.4	53.9	8.5	100	83	VBW:270Hz
Vert.	55.010	QP	41.3	9.6	7.3	31.8	26.4	40.0	13.6	100	303	
Vert.	93.017	QP	43.9	8.9	7.8	31.8	28.8	43.5	14.7	100	23	
Vert.	385.382	QP	43.8	15.9	7.5	31.8	35.4	46.0	10.6	132	145	
Vert.	3253.200	PK	51.0	29.0	5.4	41.6	43.8	73.9	30.1	100	3	
Vert.	4067.000	PK	44.4	30.1	5.7	41.7	38.5	73.9	35.4	100	0	
Vert.	4084.921	PK	56.3	30.1	5.7	41.7	50.4	73.9	23.5	100	193	
Vert.	4882.000	PK	53.0	31.2	6.0	40.9	49.3	73.9	24.6	100	126	
Vert.	7323.000	PK	46.8	36.8	7.4	41.4	49.6	73.9	24.3	100	1	
Vert.	9764.000	PK	44.4	38.5	8.7	38.8	52.8	73.9	21.1	100	357	
Vert.	12205.000	PK	45.5	39.3	10.3	39.2	55.9	73.9	18.0	100	358	
Vert.	3253.200	AV	36.5	29.0	5.4	41.6	29.3	53.9	24.6	100	3	Not Detected(VBW:10Hz)
Vert.	4067.000	AV	34.7	30.1	5.7	41.7	28.8	53.9	25.1	100	0	Not Detected(VBW:10Hz)
Vert.	4084.921	AV	54.0	30.1	5.7	41.7	48.1	53.9	5.8	100	193	Not Detected(VBW:10Hz)
Vert.	4882.000	AV	41.3	31.2	6.0	40.9	37.6	53.9	16.3	100	126	VBW:270Hz
Vert.	7323.000	AV	37.0	36.8	7.4	41.4	39.8	53.9	14.1	100	1	VBW:270Hz
Vert.	9764.000	AV	34.7	38.5	8.7	38.8	43.1	53.9	10.8	100	357	VBW:270Hz
Vert.	12205.000	AV	35.0	39.3	10.3	39.2	45.4	53.9	8.5	100	358	VBW:270Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier) + Dwell time factor (refer to "Dwell time factor Calculation")

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.1&No.3 Semi Anechoic Chamber
Date	November 6, 2011	November 7, 2011	
Temperature / Humidity	23deg.C , 64%RH	23deg.C , 58%RH	
Engineer	Yasumasa Owaki	Wataru Kojima	
Mode	Tx, 2480 MHz		
	Tx, Bluetooth, EDR, PRBS9		

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	85.086	QP	45.5	7.4	7.7	31.8	28.8	40.0	11.2	200	329	
Hori.	135.998	QP	44.9	14.0	8.3	31.8	35.4	43.5	8.1	235	129	
Hori.	200.004	QP	43.7	16.3	9.0	31.8	37.2	43.5	6.3	168	199	
Hori.	318.442	QP	42.0	14.5	6.9	31.8	31.6	46.0	14.4	100	201	
Hori.	324.486	QP	50.9	14.7	7.0	31.8	40.8	46.0	5.2	100	198	
Hori.	355.367	QP	45.5	15.3	7.2	31.8	36.2	46.0	9.8	100	208	
Hori.	523.821	QP	37.2	17.8	8.2	31.9	31.3	46.0	14.7	100	1	
Hori.	2483.500	PK	47.0	27.5	13.7	41.1	47.1	73.9	26.8	100	3	
Hori.	2483.950	PK	48.7	27.5	13.7	41.1	48.8	73.9	25.1	100	249	
Hori.	3305.320	PK	49.9	29.1	5.4	41.6	42.8	73.9	31.1	100	119	
Hori.	4084.783	PK	55.5	30.1	5.7	41.7	49.6	73.9	24.3	100	208	
Hori.	4133.000	PK	44.6	30.1	5.8	41.7	38.8	73.9	35.1	100	0	
Hori.	4960.000	PK	46.4	31.4	6.0	40.8	43.0	73.9	30.9	100	1	
Hori.	7440.000	PK	47.3	37.0	7.3	41.5	50.1	73.9	23.8	100	2	
Hori.	9920.000	PK	46.0	38.8	8.8	38.8	54.8	73.9	19.1	100	0	
Hori.	12400.000	PK	46.0	39.4	10.3	39.2	56.5	73.9	17.4	100	358	
Hori.	2483.500	AV	38.2	27.5	13.7	41.1	38.3	53.9	15.6	100	3	VBW:270Hz
Hori.	2483.950	AV	37.7	27.5	13.7	41.1	37.8	53.9	16.1	100	249	Not Detected(VBW:10Hz)
Hori.	3305.320	AV	40.6	29.1	5.4	41.6	33.5	53.9	20.4	100	119	Not Detected(VBW:10Hz)
Hori.	4084.783	AV	52.5	30.1	5.7	41.7	46.6	53.9	7.3	100	208	Not Detected(VBW:10Hz)
Hori.	4133.000	AV	34.5	30.1	5.8	41.7	28.7	53.9	25.2	100	0	Not Detected(VBW:10Hz)
Hori.	4960.000	AV	38.0	31.4	6.0	40.8	34.6	53.9	19.3	100	1	VBW:270Hz
Hori.	7440.000	AV	36.0	37.0	7.3	41.5	38.8	53.9	15.1	100	2	VBW:270Hz
Hori.	9920.000	AV	34.1	38.8	8.8	38.8	42.9	53.9	11.0	100	0	VBW:270Hz
Hori.	12400.000	AV	35.4	39.4	10.3	39.2	45.9	53.9	8.0	100	358	VBW:270Hz
Vert.	84.821	QP	44.4	7.3	7.7	31.8	27.6	40.0	12.4	141	45	
Vert.	101.232	QP	42.0	10.3	8.0	31.8	28.5	43.5	15.0	100	36	
Vert.	385.389	QP	42.2	15.9	7.5	31.8	33.8	46.0	12.2	138	148	
Vert.	2483.500	PK	45.2	27.5	13.7	41.1	45.3	73.9	28.6	115	191	
Vert.	2483.950	PK	46.4	27.5	13.7	41.1	46.5	73.9	27.4	115	193	
Vert.	3305.302	PK	49.5	29.1	5.4	41.6	42.4	73.9	31.5	100	352	
Vert.	4083.933	PK	56.0	30.1	5.7	41.7	50.1	73.9	23.8	100	192	
Vert.	4133.000	PK	44.3	30.1	5.8	41.7	38.5	73.9	35.4	100	0	
Vert.	4960.000	PK	48.9	31.4	6.0	40.8	45.5	73.9	28.4	100	2	
Vert.	7440.000	PK	46.4	37.0	7.3	41.5	49.2	73.9	24.7	100	1	
Vert.	9920.000	PK	45.1	38.8	8.8	38.8	53.9	73.9	20.0	100	358	
Vert.	12400.000	PK	46.5	39.4	10.3	39.2	57.0	73.9	16.9	100	1	
Vert.	2483.500	AV	37.9	27.5	13.7	41.1	38.0	53.9	15.9	115	191	VBW:270Hz
Vert.	2483.950	AV	37.4	27.5	13.7	41.1	37.5	53.9	16.4	115	193	Not Detected(VBW:10Hz)
Vert.	3305.302	AV	40.0	29.1	5.4	41.6	32.9	53.9	21.0	100	352	Not Detected(VBW:10Hz)
Vert.	4083.933	AV	53.4	30.1	5.7	41.7	47.5	53.9	6.4	100	192	Not Detected(VBW:10Hz)
Vert.	4133.000	AV	34.5	30.1	5.8	41.7	38.7	53.9	25.2	100	0	Not Detected(VBW:10Hz)
Vert.	4960.000	AV	38.5	31.4	6.0	40.8	35.1	53.9	18.8	100	2	VBW:270Hz
Vert.	7440.000	AV	36.5	37.0	7.3	41.5	39.3	53.9	14.6	100	1	VBW:270Hz
Vert.	9920.000	AV	36.2	38.8	8.8	38.8	45.0	53.9	8.9	100	358	VBW:270Hz
Vert.	12400.000	AV	35.4	39.4	10.3	39.2	45.9	53.9	8.0	100	1	VBW:270Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier) + Dwell time factor (refer to "Dwell time factor Calculation")

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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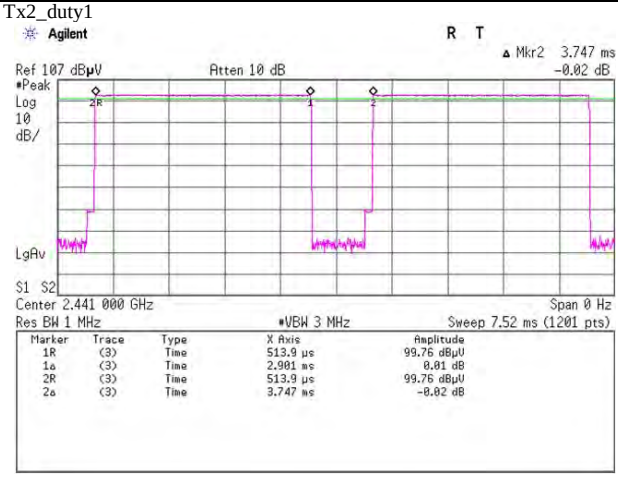
VBW (Average) Calculation chart

Tx, Bluetooth, BDR, PRBS9

VBW (Average) Calculation	
VBW: 1/x = 266.88Hz<270Hz **x: (Tx on+Tx off) =3.747ms**	
Tx2_duty1  	

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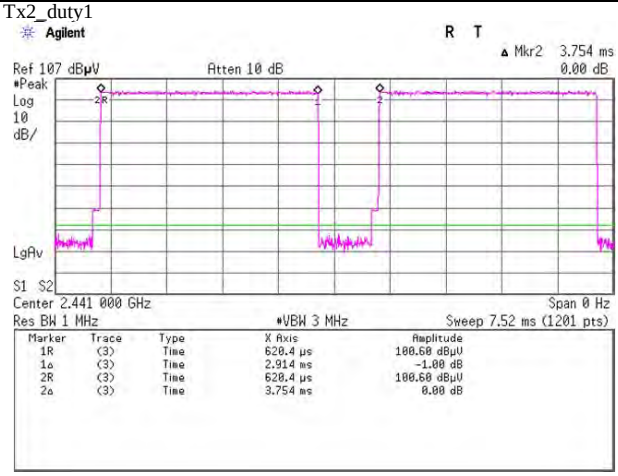
VBW (Average) Calculation chart

Tx, Bluetooth, EDR, PRBS9

VBW (Average) Calculation	
VBW: 1/x = 266.38Hz<270Hz **x: (Tx on+Tx off) =3.754ms**	
Tx2_duty1  	

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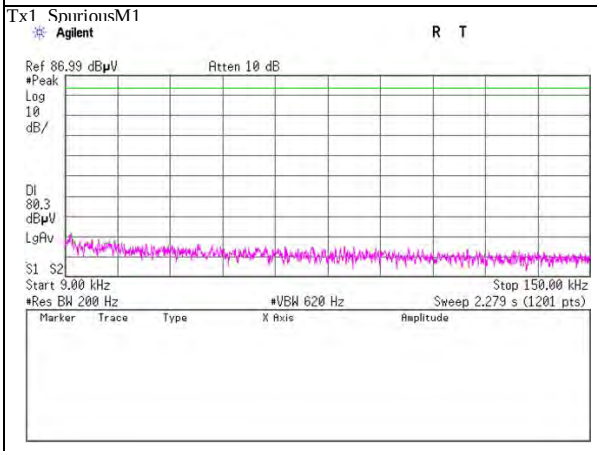
Spurious emission (Conducted)

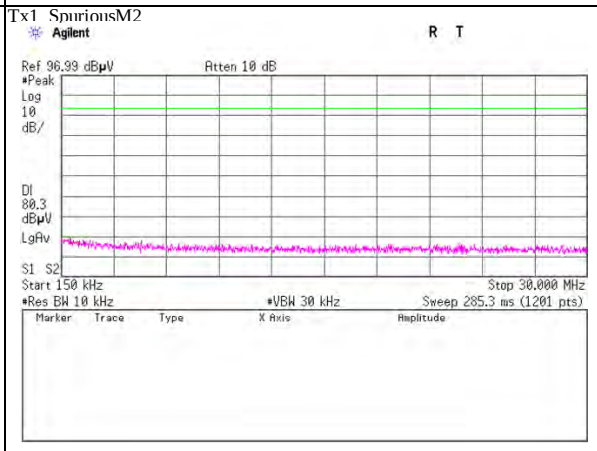
Tx, Bluetooth, BDR, PRBS9

Tx, 2402MHz (1/2)

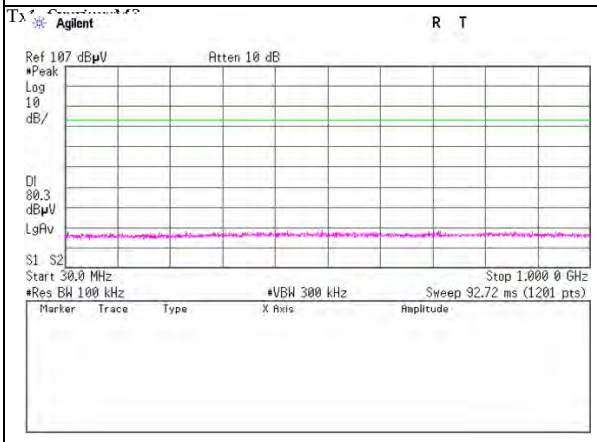
9kHz - 150kHz



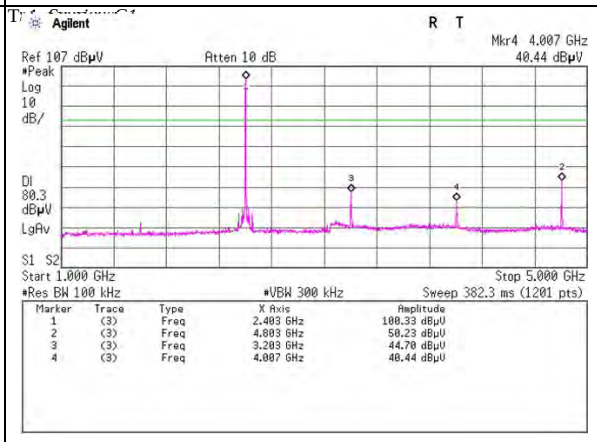
150kHz - 30MHz



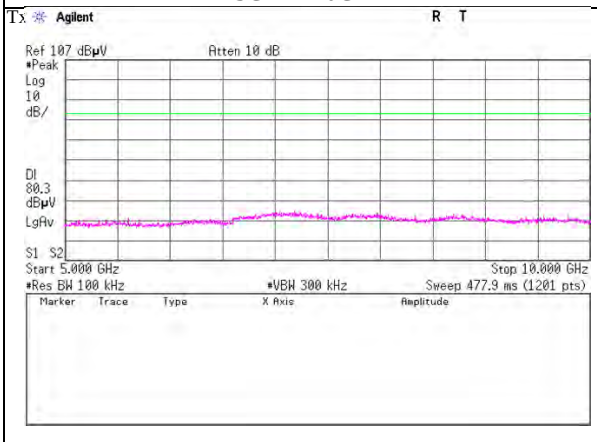
30MHz - 1GHz



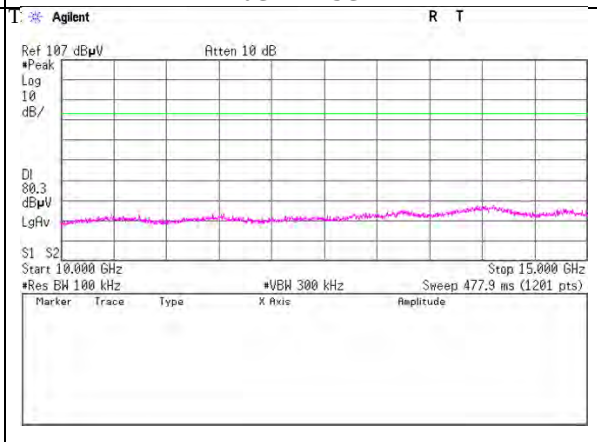
1GHz - 5GHz



5GHz - 10GHz



10GHz - 15GHz



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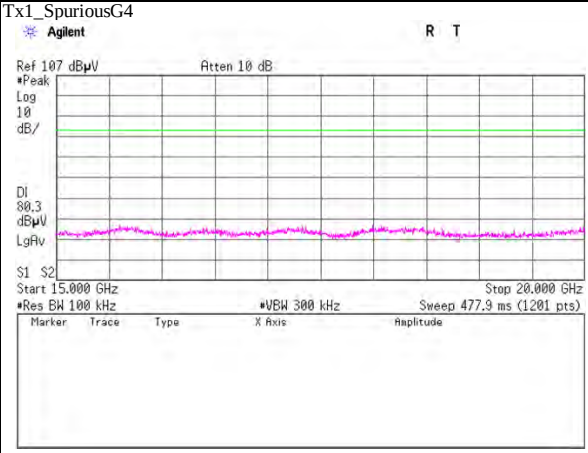
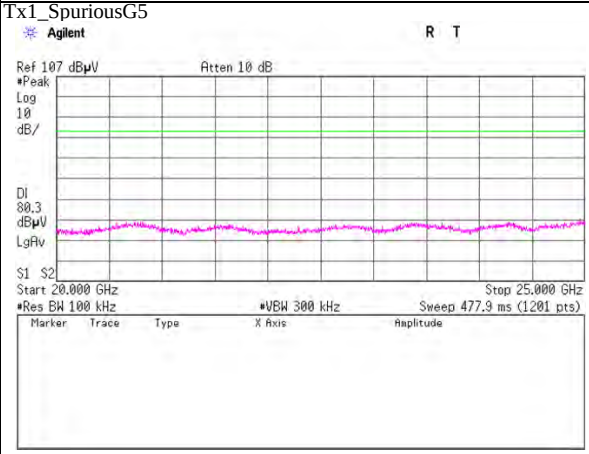
Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

Tx, 2402MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
Tx1_SpuriousG4 	Tx1_SpuriousG5 
Tx1_SpuriousG6	Tx1_SpuriousG7
Tx1_SpuriousG8	

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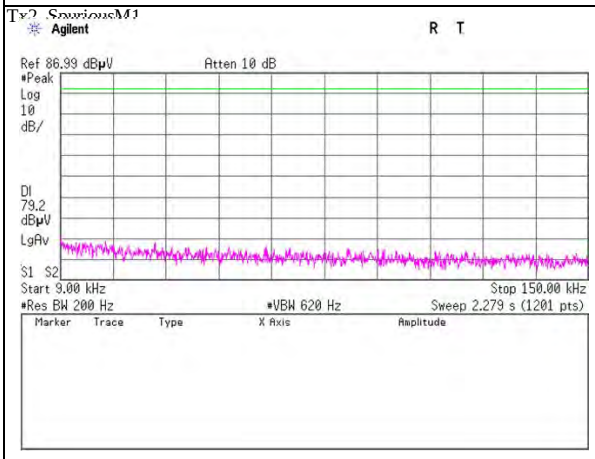
Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

Tx, 2441MHz (1/2)

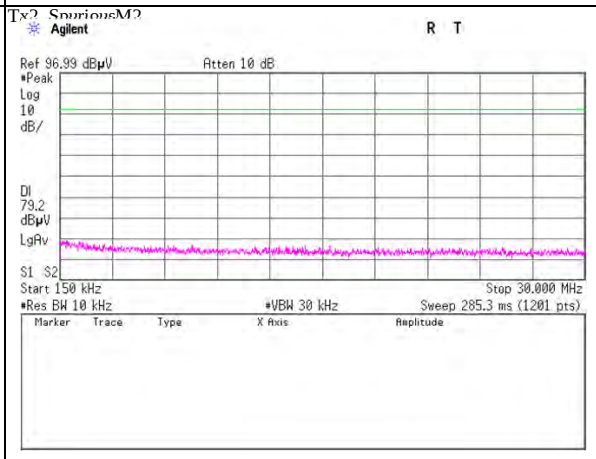
9kHz - 150kHz

Tx2_SpuriousM1



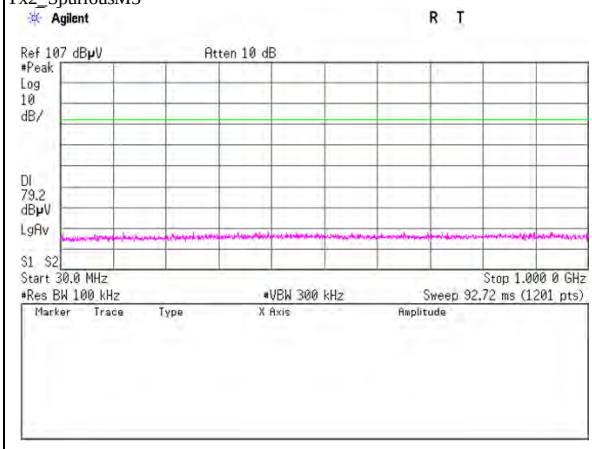
150kHz - 30MHz

Tx2_SpuriousM2



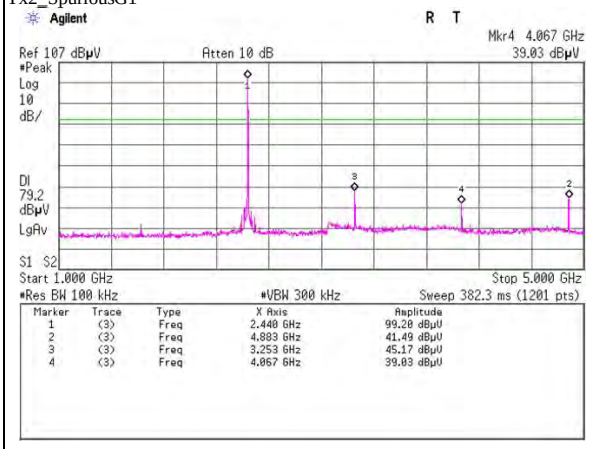
30MHz - 1GHz

Tx2_SpuriousM3



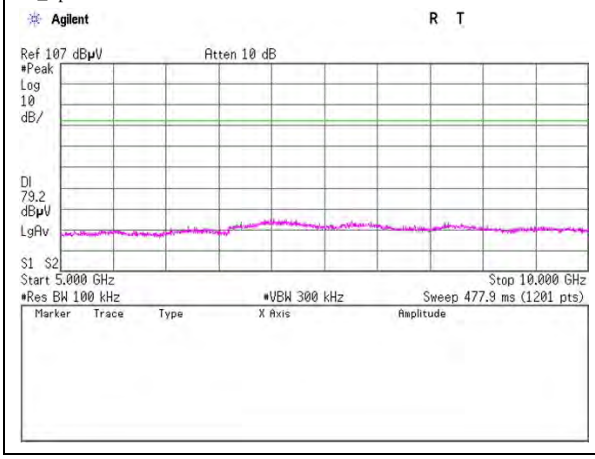
1GHz - 5GHz

Tx2_SpuriousG1



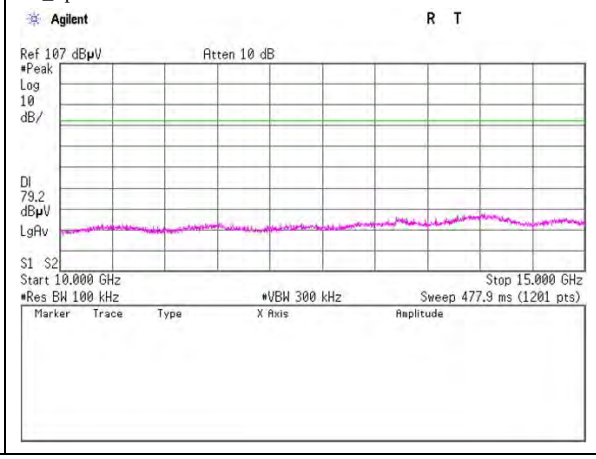
5GHz - 10GHz

Tx2_SpuriousG2



10GHz - 15GHz

Tx2_SpuriousG3



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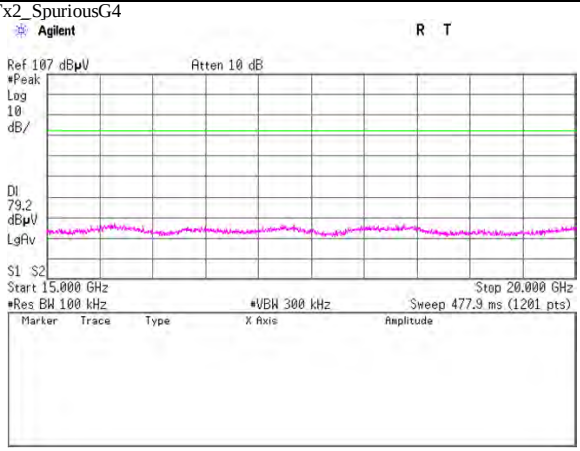
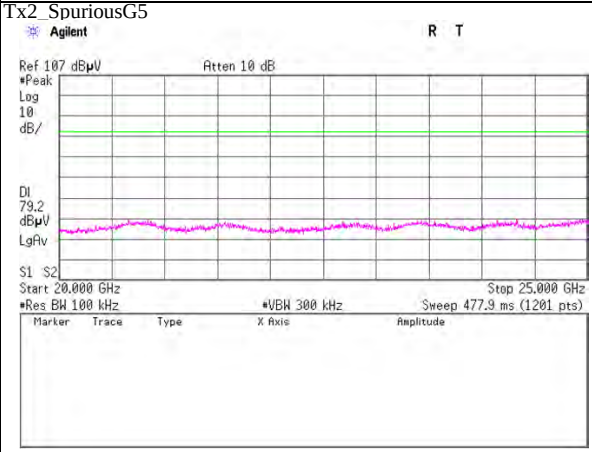
Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

Tx, 2441MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
Tx2_SpuriousG4 	Tx2_SpuriousG5 
Tx2_SpuriousG6	Tx2_SpuriousG7
Tx2_SpuriousG8	

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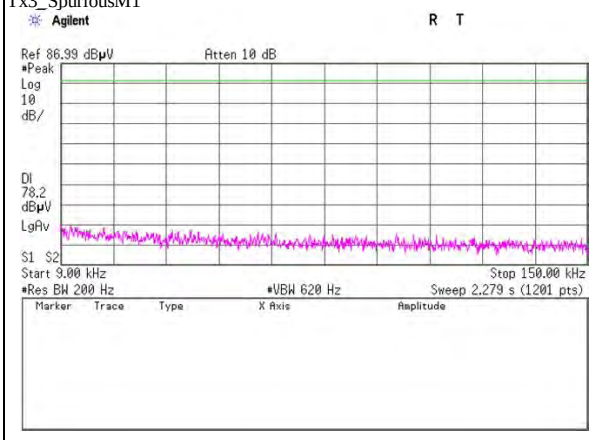
Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

Tx, 2480MHz (1/2)

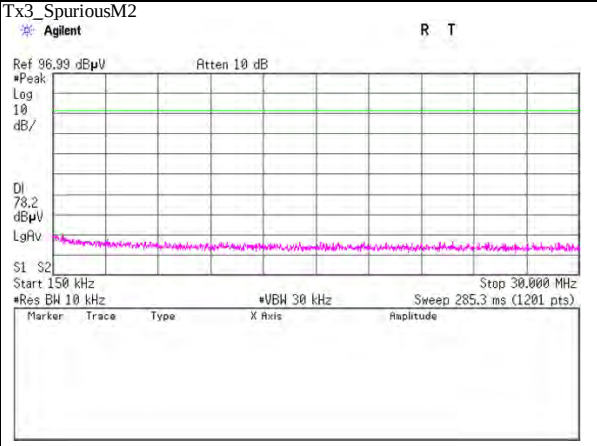
9kHz - 150kHz

Tx3_SpuriousM1



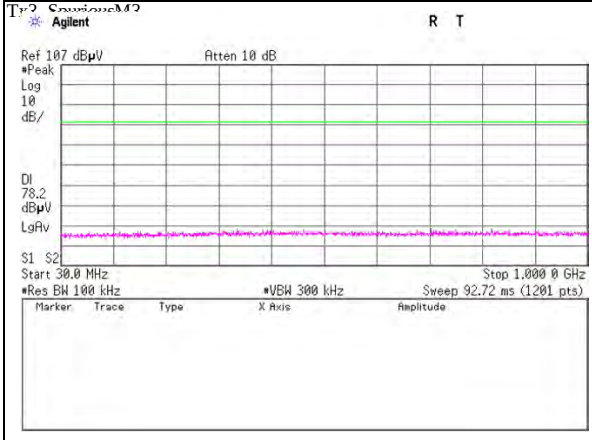
150kHz - 30MHz

Tx3_SpuriousM2



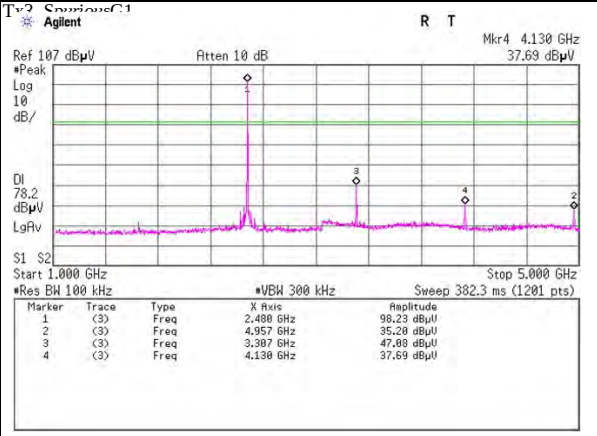
30MHz - 1GHz

Tx3_SpuriousM3



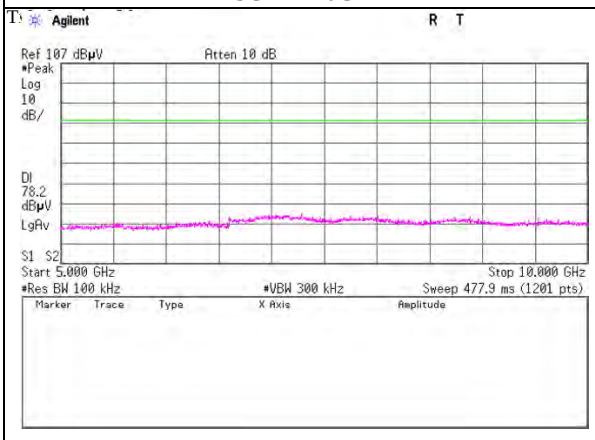
1GHz - 5GHz

Tx3_SpuriousG1



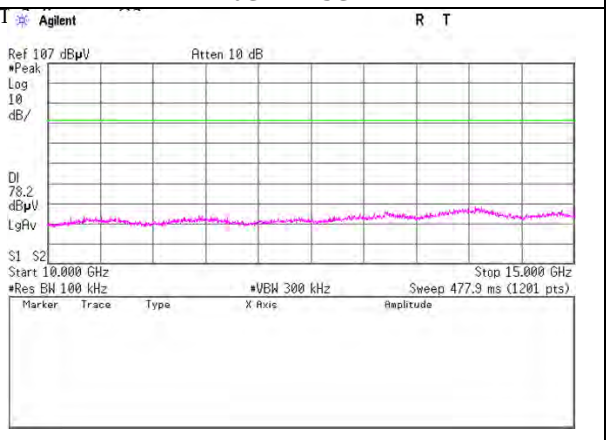
5GHz - 10GHz

Tx3_SpuriousG2



10GHz - 15GHz

Tx3_SpuriousG3



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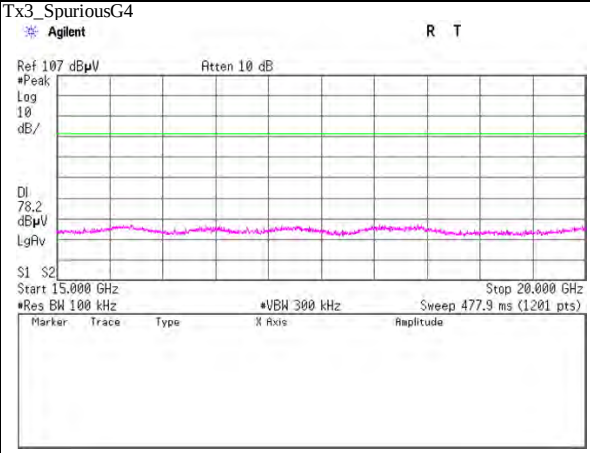
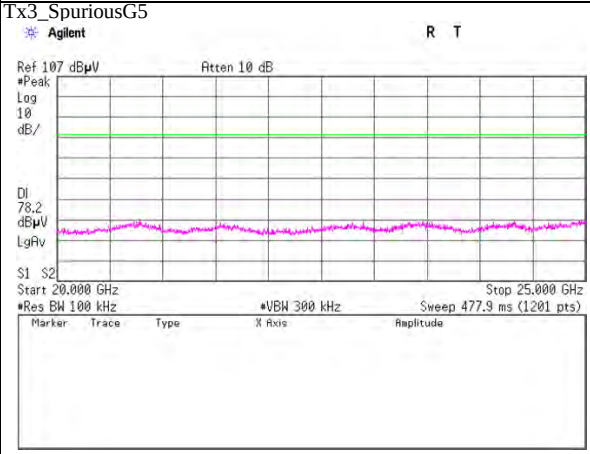
Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

Tx, 2480MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
Tx3_SpuriousG4 	Tx3_SpuriousG5 
Tx3_SpuriousG6	Tx3_SpuriousG7
Tx3_SpuriousG8	

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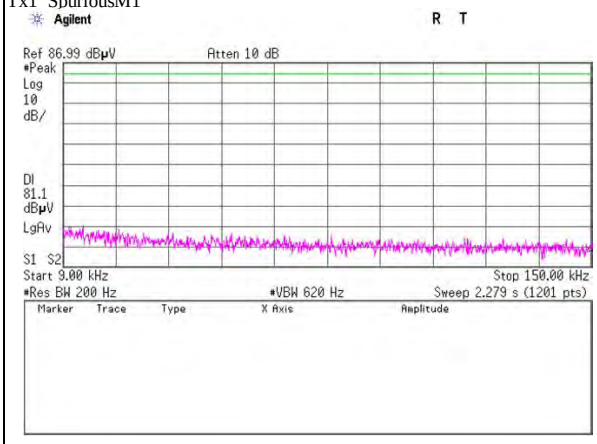
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2402MHz (1/2)

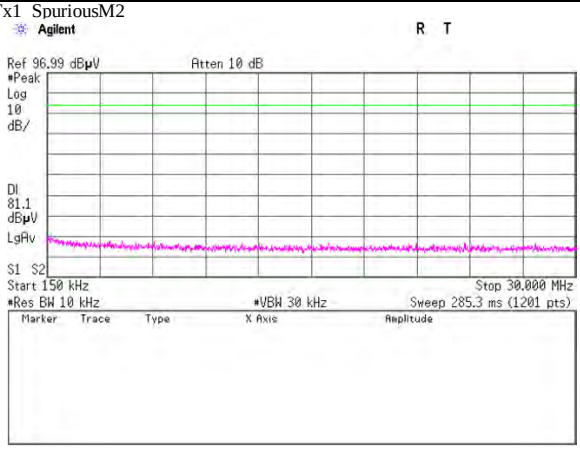
9kHz - 150kHz

Tx1 SpuriousM1



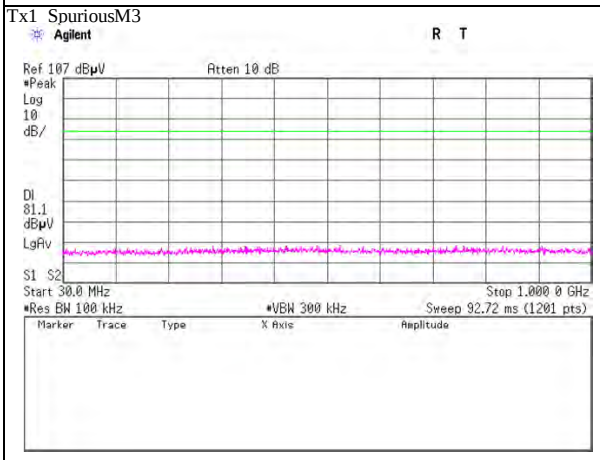
150kHz - 30MHz

Tx1 SpuriousM2



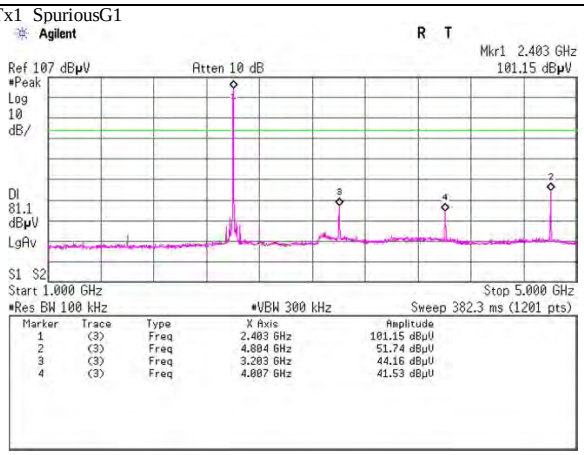
30MHz - 1GHz

Tx1 SpuriousM3



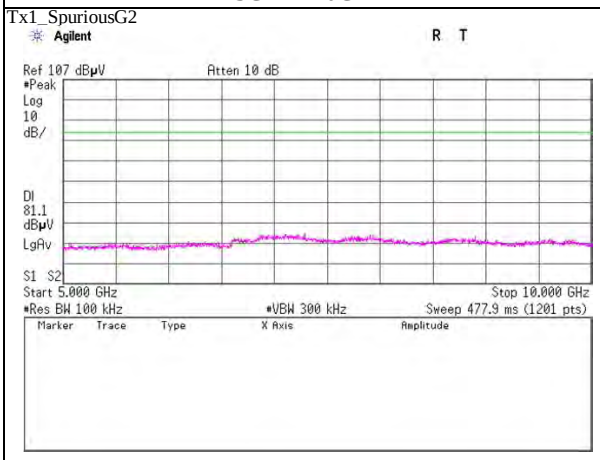
1GHz - 5GHz

Tx1 SpuriousG1



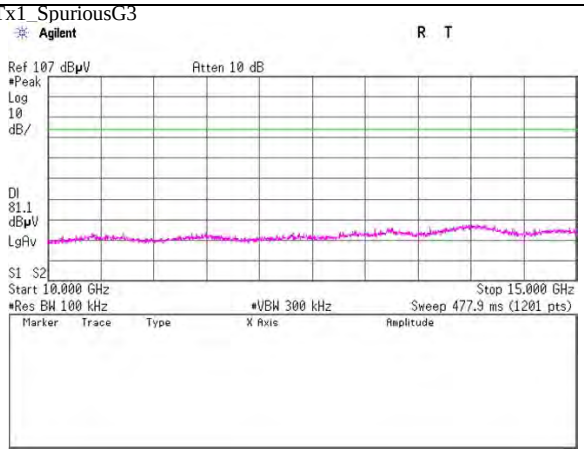
5GHz - 10GHz

Tx1_SpuriousG2



10GHz - 15GHz

Tx1_SpuriousG3



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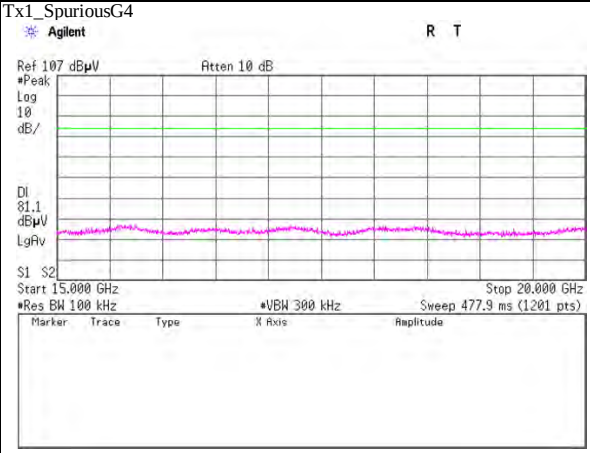
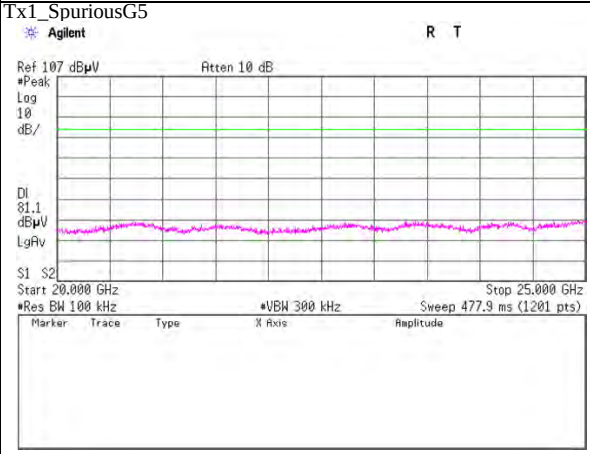
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2402MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
Tx1_SpuriousG4 	Tx1_SpuriousG5 
Tx1_SpuriousG6	Tx1_SpuriousG7
Tx1_SpuriousG8	

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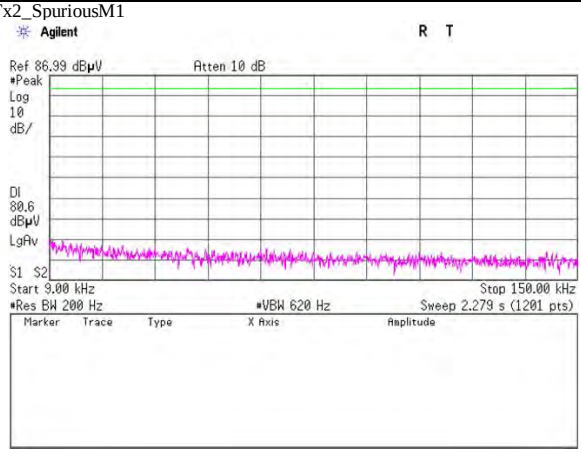
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2441MHz (1/2)

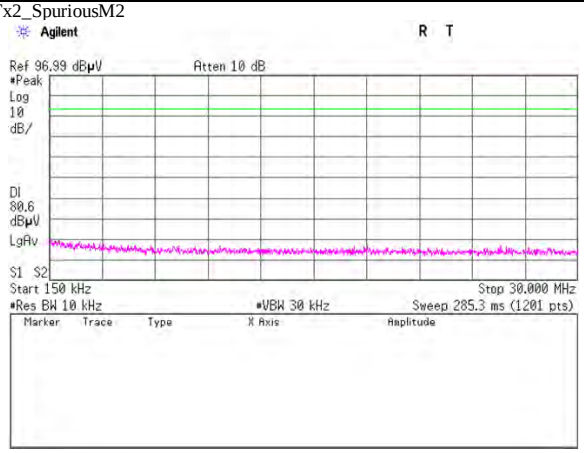
9kHz - 150kHz

Tx2_SpuriousM1



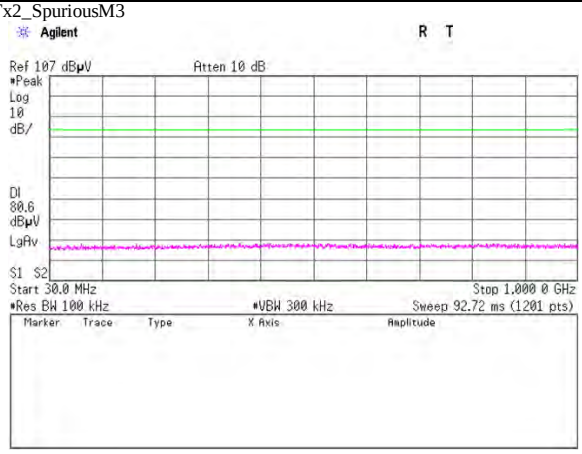
150kHz - 30MHz

Tx2_SpuriousM2



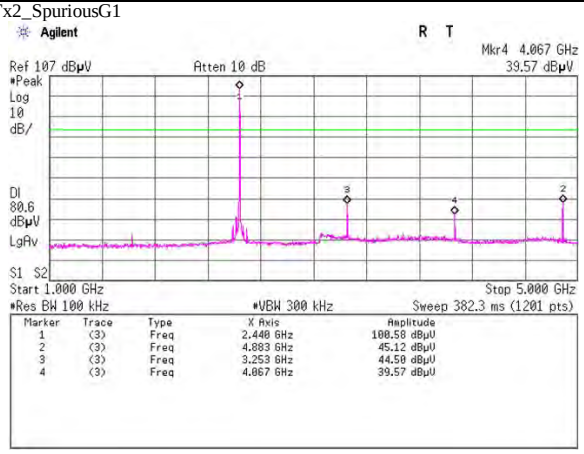
30MHz - 1GHz

Tx2_SpuriousM3



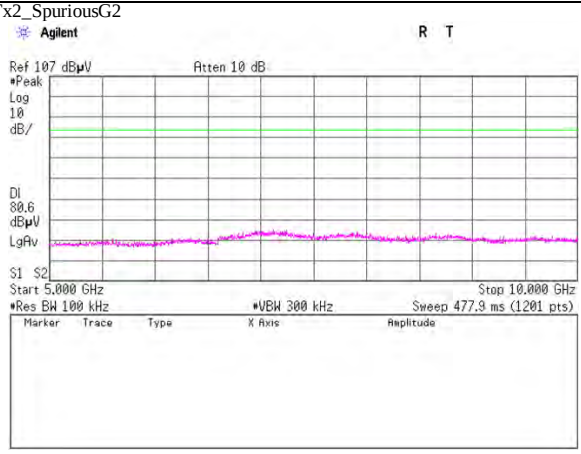
1GHz - 5GHz

Tx2_SpuriousG1



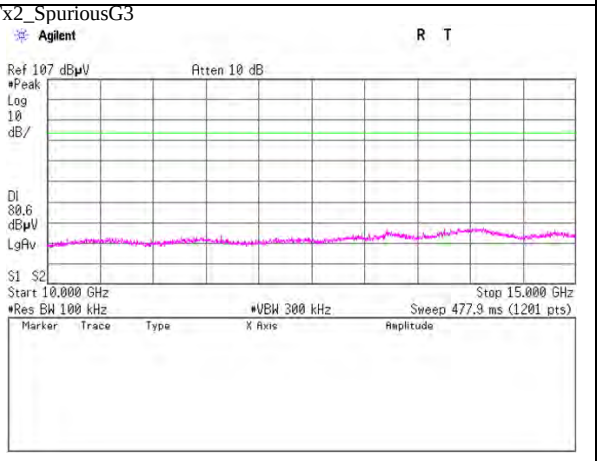
5GHz - 10GHz

Tx2_SpuriousG2



10GHz - 15GHz

Tx2_SpuriousG3



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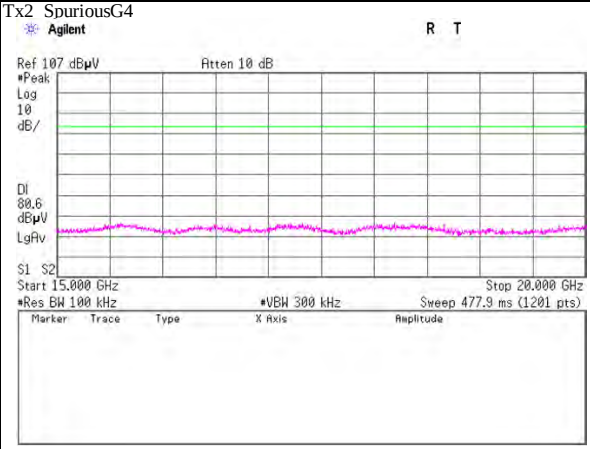
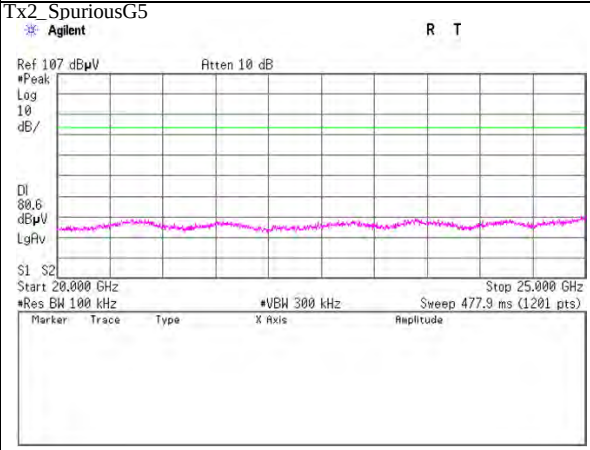
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2441MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
Tx2_SpuriousG4 	Tx2_SpuriousG5 
Tx2_SpuriousG6	Tx2_SpuriousG7
Tx2_SpuriousG8	

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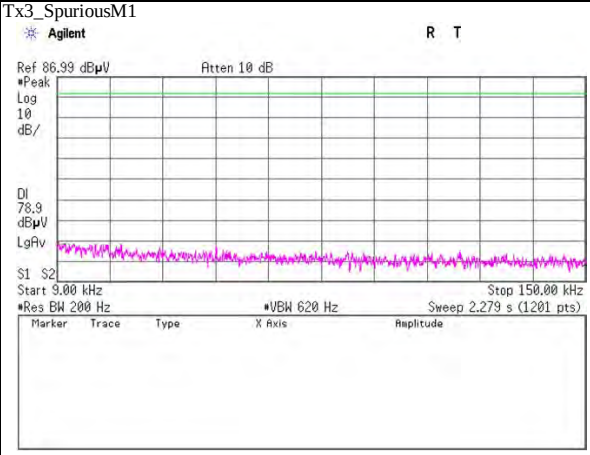
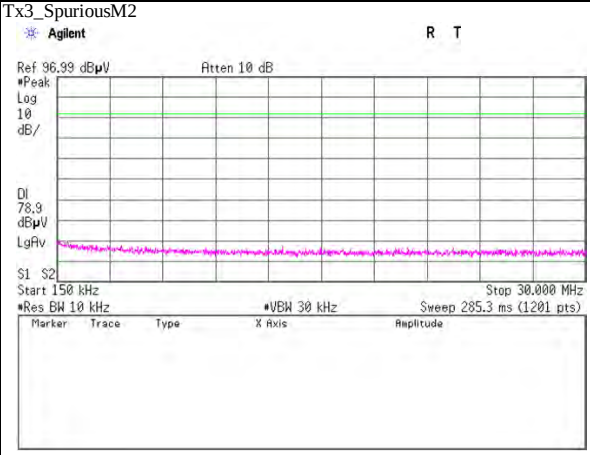
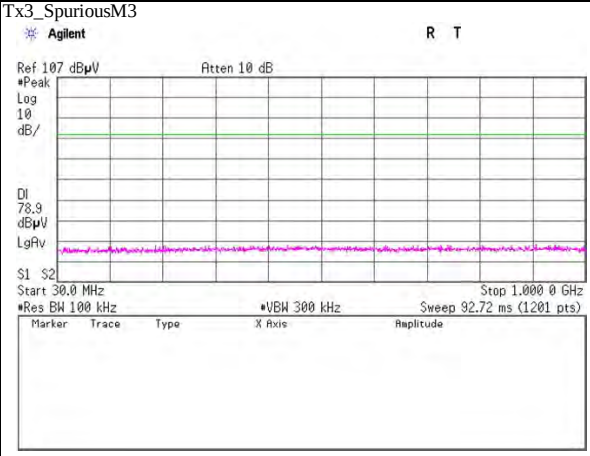
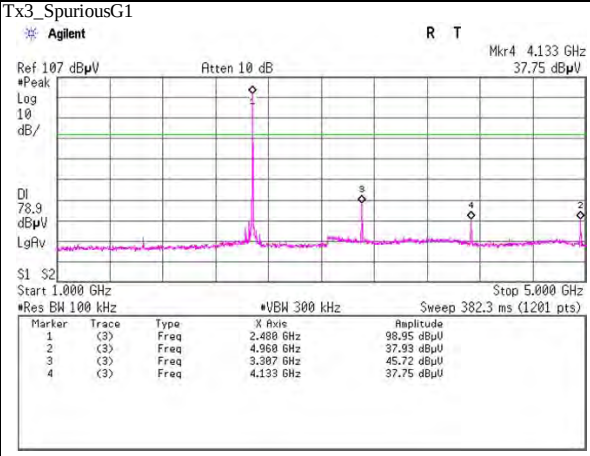
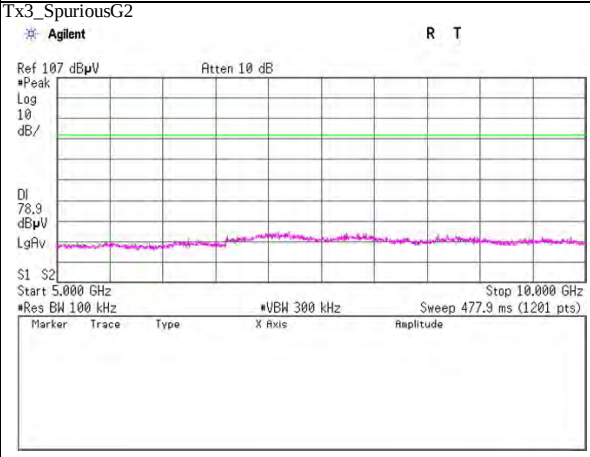
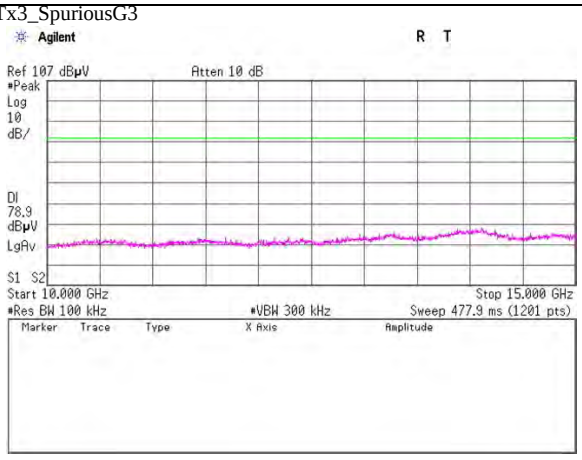
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2480MHz (1/2)

9kHz - 150kHz	150kHz - 30MHz
Tx3_SpuriousM1	Tx3_SpuriousM2
	
30MHz - 1GHz	**1GHz - 5GHz**
Tx3_SpuriousM3	Tx3_SpuriousG1
	
5GHz - 10GHz	**10GHz - 15GHz**
Tx3_SpuriousG2	Tx3_SpuriousG3
	

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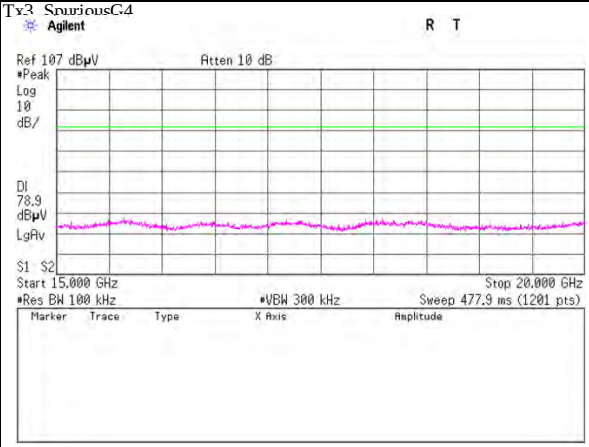
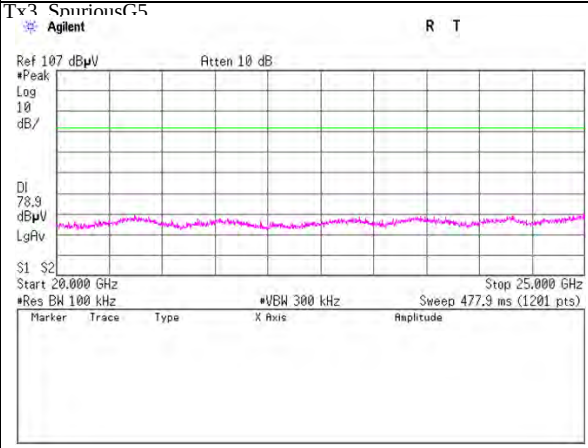
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2480MHz (2/2)	
15GHz - 20GHz	**20GHz - 25GHz**
Tx3_SpuriousG4 	Tx3_SpuriousG5 
Tx3_SpuriousG6	Tx3_SpuriousG7
Tx3_SpuriousG8	

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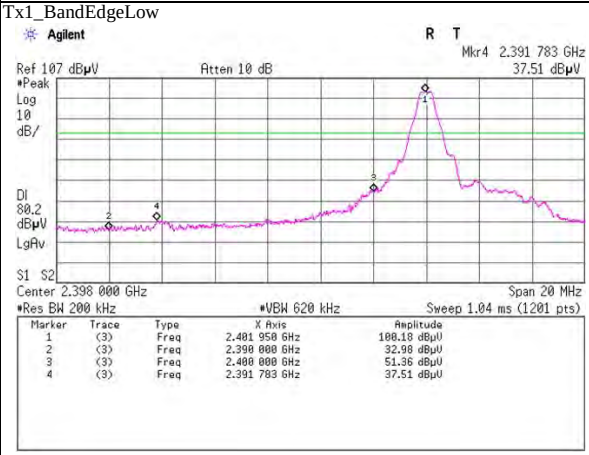
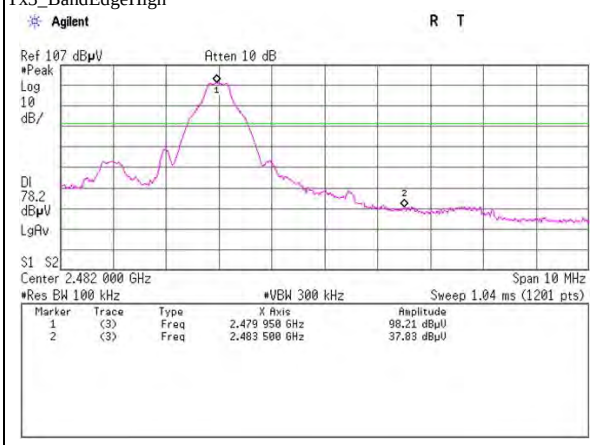
Spurious emission (Conducted)

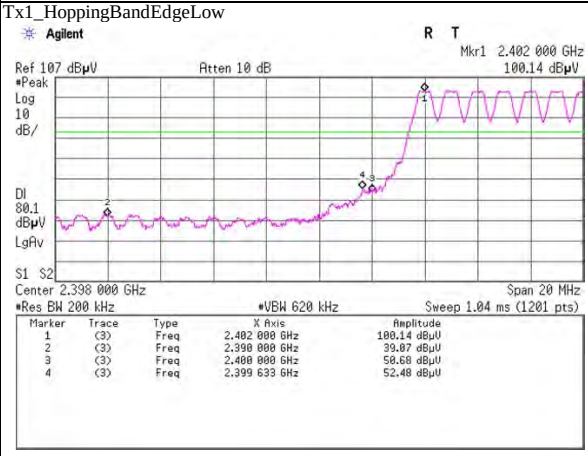
Band Edge compliance

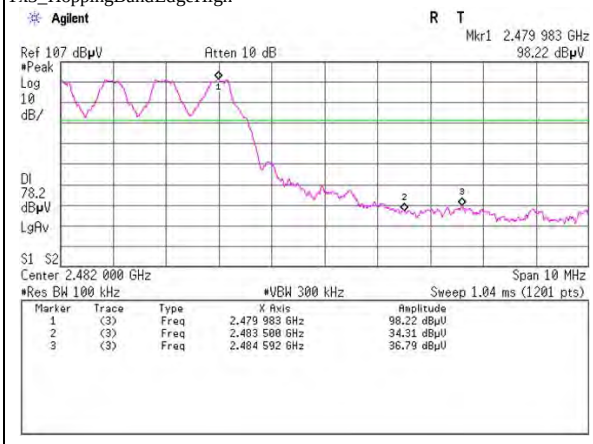
Tx, Bluetooth, BDR, PRBS9	
Tx, 2402MHz	**Tx, 2480MHz**
Tx1_BandEdgeLow	Tx3_BandEdgeHigh





Tx, Bluetooth, BDR, PRBS9	
Hopping On (Low)	**Hopping On (High)**
Tx1_HoppingBandEdgeLow	Tx3_HoppingBandEdgeHigh





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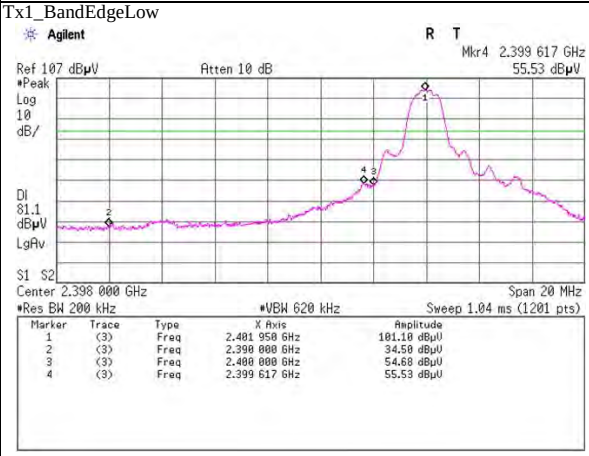
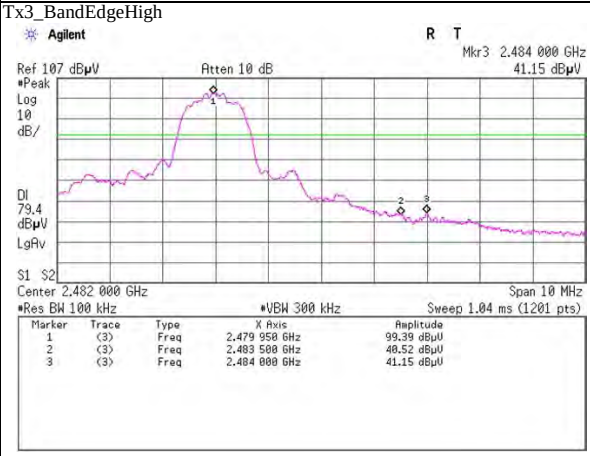
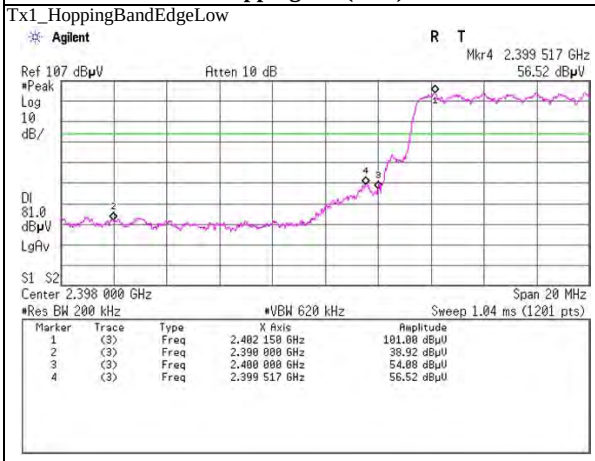
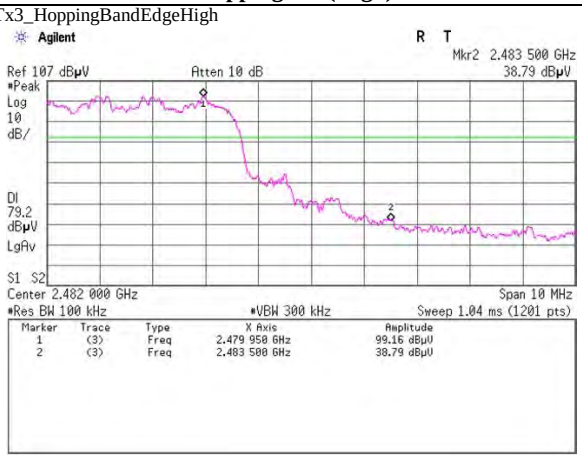
Spurious emission (Conducted)

Band Edge compliance

Tx, Bluetooth, EDR, PRBS9	
Tx, 2402MHz	**Tx, 2480MHz**
Tx1_BandEdgeLow	Tx3_BandEdgeHigh
	

Tx, Bluetooth, EDR, PRBS9	
Hopping On (Low)	**Hopping On (High)**
Tx1_HoppingBandEdgeLow	Tx3_HoppingBandEdgeHigh
	

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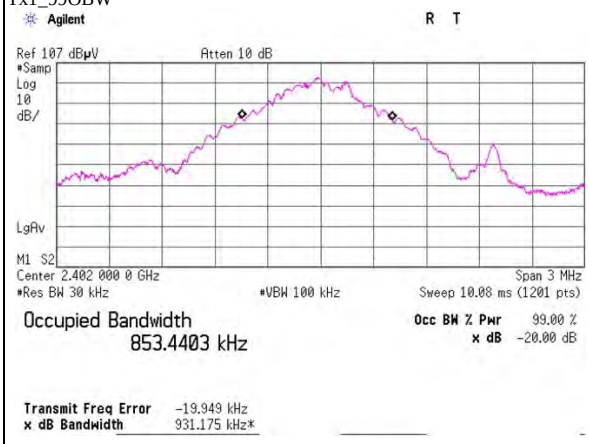
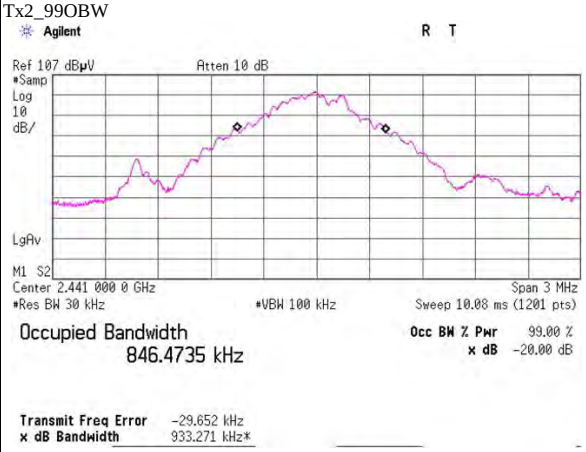
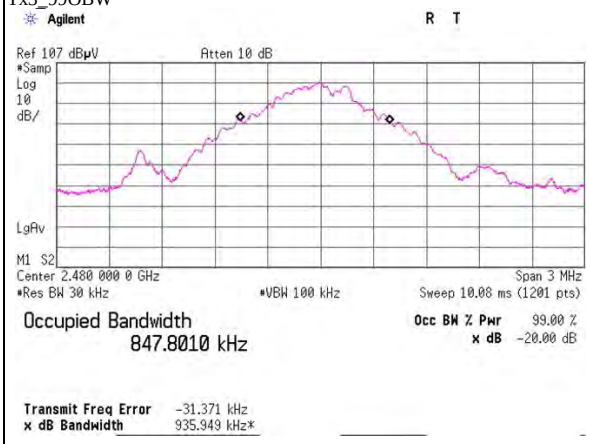
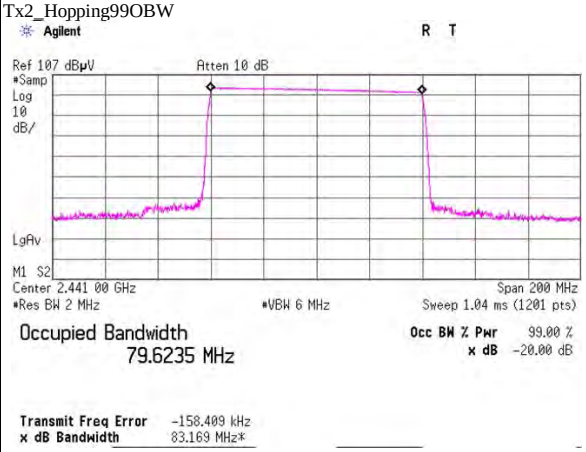
99% Occupied Bandwidth

Tx, Bluetooth, BDR, PRBS9	
Tx, 2402MHz	**Tx, 2441MHz**
Tx1_99OBW 	Tx2_99OBW 
Tx, 2480MHz	**Tx, Hopping On**
Tx3_99OBW 	Tx2_Hopping99OBW 

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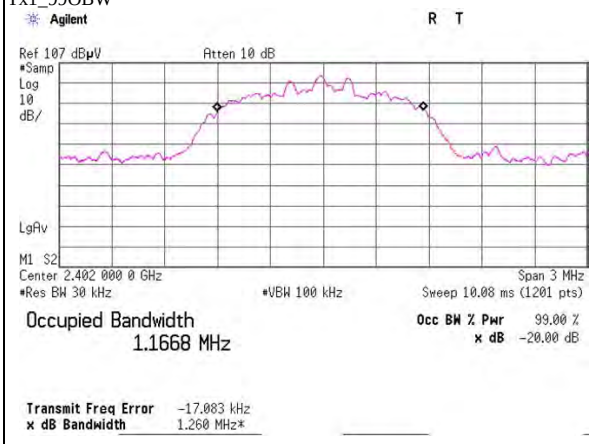
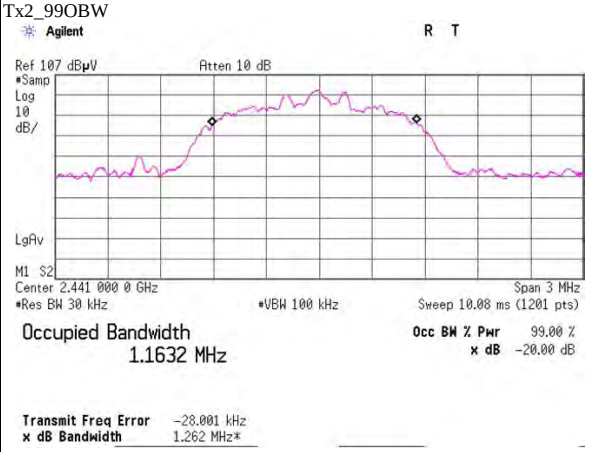
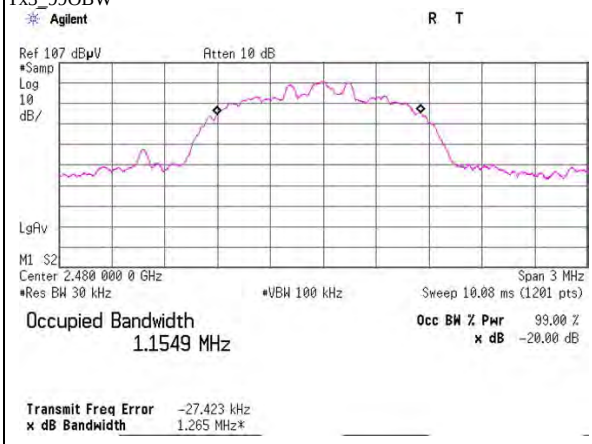
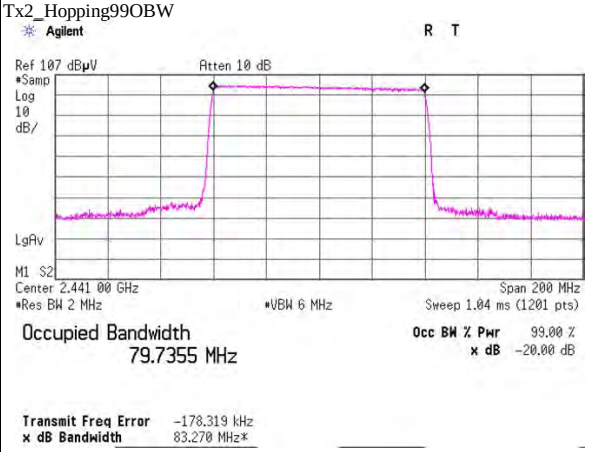
99% Occupied Bandwidth

Tx, Bluetooth, EDR, PRBS9	
Tx, 2402MHz	**Tx, 2441MHz**
Tx1_99OBW 	Tx2_99OBW 
Tx, 2480MHz	**Tx, Hopping On**
Tx3_99OBW 	Tx2_Hopping99OBW 

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APPENDIX 2
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAF-01	Pre Amplifier	SONOMA	310N	290211	RE	2011/02/17 * 12
SAT6-01	Attenuator	JFW	50HF-006N	-	RE	2011/02/17 * 12
SAT3-04	Attenuator	JFW	50HF-003N	-	RE	2011/02/17 * 12
SBA-01	Biconical Antenna	Schwarzbeck	BBA9106	91032664	RE	2011/10/15 * 12
SCC-A1/A3/A5/A7/A8/A13/SRSE-01	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-269(RF Selector)	RE	2011/04/28 * 12
SCC-A2/A4/A6/A7/A8/A13/SRSE-01	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-269(RF Selector)	RE	2011/04/28 * 12
SLA-01	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0888	RE	2011/08/17 * 12
SOS-01	Humidity Indicator	A&D	AD-5681	4062555	RE	2011/02/23 * 12
STR-01	Test Receiver	Rohde & Schwarz	ESU40	100093	RE	2011/10/22 * 12
SJM-12	Measure	PROMART	SEN1935	-	RE	-
SAEC-01(NSA)	Semi-Anechoic Chamber	TDK	SAEC-01(NSA)	1	RE	2011/09/01 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFI,MF)	-	RE	-
SAF-09	Pre Amplifier	TOYO Corporation	HAP18-26W	00000018	RE	2011/03/16 * 12
SCC-G18	Coaxial Cable	Suhner	SUCOFLEX 104A	46292/4A	RE	2011/03/16 * 12
SHA-05	Horn Antenna	ETS LINDGREN	3160-09	LM4210	RE	2011/03/15 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2011/02/23 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	RE	2010/11/16 * 12
SJM-10	Measure	PROMART	SEN1935	-	RE	-
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2011/07/19 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2011/04/28 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2011/05/27 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2011/08/28 * 12
SAT10-04	Attenuator(above1GHz)	Agilent	8493C-010	74863	RE	2010/12/15 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2010/12/15 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	AT	2010/11/16 * 12
SCC-G11	Coaxial Cable	Suhner	SUCOFLEX 102	31595/2	AT	2011/03/23 * 12
SAT10-06	Attenuator	Agilent	8493C-010	74865	AT	2011/03/23 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2011/03/02 * 12
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2011/04/12 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2011/04/12 * 12

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards .
Test Item :
RE: Radiated emission ,
AT: Antenna terminal disturbance voltage