RADIO TEST REPORT

Test Report No.: 10007234S-C

Applicant	:	**PIONEER CORPORATION**
Type of Equipment	:	**Car Audio with Bluetooth**
Model No.	:	**CVX-5338**
FCC ID	:	**AJDK074**
Test regulation	:	**FCC Part15 Subpart C: 2012**
Test result	:	**Complied**

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
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6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.

Date of test: May 17 to 24, 2013

Tested by:

Akio Hayashi
Engineer of WiSE Japan,
UL Verification Service

Approved by :

Toyokazu Imamura
Leader 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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RTL02610

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REVISION HISTORY

Original Test Report No.: 10007234S-C

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10007234S-C	June 5, 2013	-	-

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SECTION 1: Customer information

Company Name	:	PIONEER CORPORATION
Brand name	:	Pioneer
Address	:	25-1 Aza-Nishi-machi, Yamada, Kawagoe-shi, Saitama, 350-8555, JAPAN
Telephone Number	:	+81-49-228-6415
Facsimile Number	:	+81-49-228-6493
Contact Person	:	Makoto Kaieda

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

2.1 Identification of E.U.T.

Type of Equipment	:	Car Audio with Bluetooth
Model No.	:	CVX-5338
Serial No.	:	See Section 4.
Rating	:	DC 12V
Country of Mass-production	:	Japan
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No modification by the test lab.
Receipt Date of Sample	:	May 15, 2013

2.2 Product description

Model: CVX-5338 (referred to as the EUT in this report) is a Car Audio with Bluetooth.

Radio specification:

Wireless LAN:

Equipment type	:	Transceiver
Frequency of operation	:	2412-2462MHz
Bandwidth & channel spacing	:	20MHz & 5MHz
Type of modulation	:	BPSK, QPSK, CCK, OFDM
Antenna type	:	Ceramic Patch Antennas For 2.4GHz
Antenna gain with cable loss	:	+2dBi (max)
Antenna connector type	:	U.FL-LP-066
Operation temperature range	:	-20 to +65 deg.C.

Bluetooth:

Equipment type	:	Transceiver
Frequency of operation	:	2402-2480MHz
Bandwidth & channel spacing	:	79MHz & 1MHz
Type of modulation	:	GFSK, π/4DQPSK, 8DPSK
Antenna type	:	Ceramic Patch Antennas For 2.4GHz
Antenna gain with cable loss	:	+2dBi (max)
Antenna connector type	:	U.FL-LP-066
Operation temperature range	:	-20 to +65 deg.C.

Refer to the test report: 10007234S-A for Wireless LAN part.

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

FCC 15.203
The equipment and its antenna comply with the requirement since the antenna is built in the equipment and it cannot be replaced by end users.

Clock Frequency:

Reason For Use	Frequency
SYSTEM MICROCOMPUTER	16MHz
CAN MICROCOMPUTER	8MHz
Dirana	41.6MHz
VDEC	32MHz
GVIF TX	24MHz
GPS RX	26MHz
SoC int CLK (33M_PLL)	1066.667MHz
SoC int CLK (48M_PLL)	864.0MHz
SoC MASTER CLK	33.33MHz
SoC DOTCLK	37MHz
SoC USBCLK	48.0MHz
VCXO (SoC)	27.0MHz
Audio PLL IC (SoC)	24.576MHz
Audio PLL IC (SoC)	16.934MHz
Audio PLL IC(ADC for MIC)	6.144MHz
DSP MCLK (HD)	24.0MHz
SYS CLK (XM)	24.265MHz
I2C communication SYS uCom ↔E2PROM	100k~400kHz
I2C communication SYS uCom ↔VDEC	0.4MHz
I2C communication SYS uCom ↔LVDS	400kbps
I2C communication SYS uCom ↔GVIF	100kHz or 400kHz
I2C communication SYS uCom ↔Dirana	0.3MHz
I2C communication Dirana↔L-Dice	0.4MHz
I2C communication Dirana↔Hero	0.4MHz
I2C communication SoC↔iPod	100~400kHz
SPI communication SYS uCom↔KeyScan IC	0.4MHz
SPI communication SYS uCom↔CAN uCom	0.6MHz
SPI communication SYS uCom↔GVIF	0.4MHz
SPI communication SoC↔HD Module	0.8MHz
UART communication SYS uCom↔HD Module	115kbps
UART communication SYS uCom↔SoC	1.5Mbps
UART communication SYS uCom↔CD Meca	19.2kbps
UART communication SoC⇔BT Module	3Mbps
CAN communication	500kbps
LBSC communication Soc↔NorFlash	66.66MHz
DBSC3 communication Soc↔DDR3	533.33MHz
SD IF SoC↔SD Card	48MHz
SD IF SoC↔WiFi Module	24MHz
Audio data (I2S)	3.072MHz
Audio data (SPDIF)	2.82MHz
D.RGB666 (Video)	37.007MHz
Digital IF Dirana↔HD Module	0.65MHz
USB2.0 signal	480Mbps
LVDS signal	500MHz
GVIF signal	500MHz
Global CAN	500kbps
Local CAN	500kbps
AVC-LAN	12Mbps
DCDC converter	444.444kHz, 480.000kHz
HERO (For HD DATA)	62.4MHz

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : Test specification: FCC Part 15 Subpart C: 2012,
final revised on December 27, 2012 and effective January 28, 2013

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

The EUT has been tested for compliance with FCC Part 15 Subpart B by the customer.

3.2 Procedures & Results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.4:2009 7. AC powerline conducted emission measurements	FCC 15.207	-	N/A *1)	-	N/A
Carrier frequency separation	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (a)(1)	Conducted	N/A	*See data.	Complied
20dB bandwidth	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (a)(1)	Conducted	N/A		-
Number of hopping frequency	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (a)(1)(iii)	Conducted	N/A		Complied
Dwell time	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (a)(1)(iii)	Conducted	N/A		Complied
Maximum peak output power	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (b)(1)	Conducted	N/A		Complied
Band edge compliance & Spurious emission	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (d) 15.209	Conducted/ Radiated	N/A	2.8dB Freq.: 816.013MHz Polarization: Horizontal Detection: Quasi Peak Mode: Tx 2441MHz, 3-DH5	Complied

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

3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99%)	ANSI C63.4:2009 13. Measurement of intentional radiators, RSS-Gen 4.6.1	-	Conducted	-	-
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	4.9 dB
	300MHz-1GHz	5.0 dB	5.2 dB	4.9 dB
	1GHz-15GHz	4.8 dB	4.8 dB	4.9 dB
Radiated emission (Measurement distance: 1m)	15GHz-18GHz	5.6 dB	5.6 dB	5.6 dB
	18GHz-40GHz	4.6 dB	4.3 dB	4.4 dB

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

Radiated emission

The data listed in this test report meets the limits unless the uncertainty is taken into consideration.

Antenna port conducted test

Power measurement uncertainty above 1GHz for this test was: (±) 1.5dB
Spurious emission (Conducted) measurement (below 1GHz) uncertainty for this test was: (±) 1.7dB
Spurious emission (Conducted) measurement (1G-3GHz) uncertainty for this test was: (±) 2.3dB
Spurious emission (Conducted) measurement (3G-18GHz) uncertainty for this test was: (±) 3.0dB
Spurious emission (Conducted) measurement (18G-26.5GHz) uncertainty for this test was: (±) 2.9dB
Bandwidth measurement uncertainty for this test was: (±) 5.4%

3.5 Test location

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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 Semi-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 test & Test instruments

Refer to APPENDIX 1 to 3.

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

4.1 Operating mode

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

*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload (except Dwell time test).

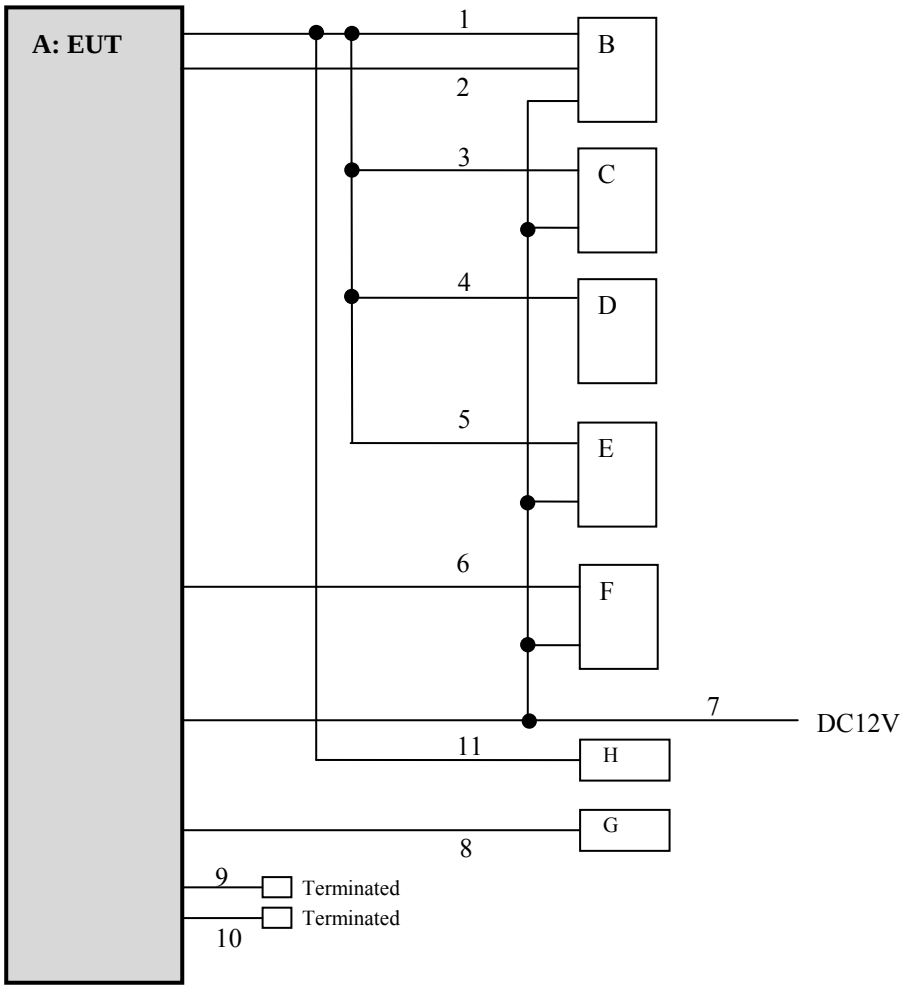
*EUT has the power settings by the software as follows;
Power settings:
BDR: Ext.=0, Int.=56
EDR: Ext.=0, Int.=54
Software: BlueTest3 Ver. 2.4

The EUT does not have Inquiry mode.

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

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

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 Bluetooth	CVX-5338	*1)	Pioneer	EUT
B	Display	86110-30330	329004067	DENSO	-
C	Remote Control Device	84780-48080	-	Tokai Rika	-
D	Steering Switch	-	-	-	-
E	Air-Condition ECU	886650-76250	3Q27	DENSO	-
F	Amplifier	86280-53180	TPJA000186WL	Pioneer	-
G	USB AUX port	86190-48030	3104482	Pioneer	-
H	Microphone	SDA3110A 2DC00005	-	Pioneer	-

*1) Antenna terminal conducted tests: K1MC000038US, Radiated emission tests: K1MC000040US

List of cables used

No.	Cable name	Length (m)	Shield		Remark
			Cable	Connector	
1	Signal cable for Display	2.0	Unshielded	Unshielded	-
2	Image output cable	2.0	Unshielded	Unshielded	-
3	Signal cable for Remote control	2.0	Unshielded	Unshielded	-
4	Signal cable for Steering Switch	2.0	Unshielded	Unshielded	-
5	Signal cable for Air-Condition ECU	2.0	Unshielded	Unshielded	-
6	Signal cable for Amplifier	2.0	Unshielded	Unshielded	-
7	DC power cable	3.7	Unshielded	Unshielded	-
8	USB cable	3.0	Shielded	Shielded	-
9	Antenna cable for Radio	0.15	Shielded	Shielded	-
10	Antenna cable for Radio	0.15	Shielded	Shielded	-
11	Signal cable	2.0	Unshielded	Unshielded	-

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

SECTION 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
Refer to APPENDIX

SECTION 6: 20dB bandwidth & Occupied bandwidth (99%)

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

Summary of the test results: Pass
Refer to APPENDIX

SECTION 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
Refer to APPENDIX

SECTION 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
Refer to APPENDIX

SECTION 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
Refer to APPENDIX

SECTION 10: Spurious 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 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

SECTION 11: Radiated emission

11.1 Operating environment

Test room : See test data (APPENDIX)
Temperature : See test data (APPENDIX)
Humidity : See test data (APPENDIX)

11.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 2.0m, raised 0.8m 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, including its peripherals 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.
Photographs of the set up are shown in APPENDIX.

11.3 Test conditions

Frequency range : 30MHz to 25GHz
EUT position : Table top

11.4 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 15GHz) / 1m (above 15GHz) (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.

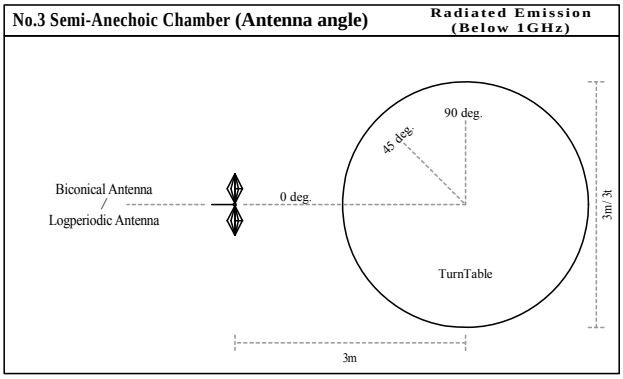
The radiated emission measurements were made with the following detection of the test receiver.

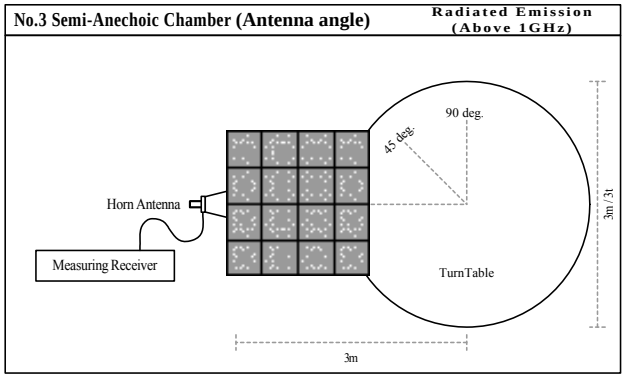
Frequency		30 - 1000MHz	1 - 25GHz		20dBc
Detection Type	:	Quasi-Peak	Peak	* Average	Peak
IF Bandwidth	:	120kHz	RBW:1MHz VBW:3MHz	RBW:1MHz VBW:10Hz	RBW: 100kHz, VBW: 300kHz

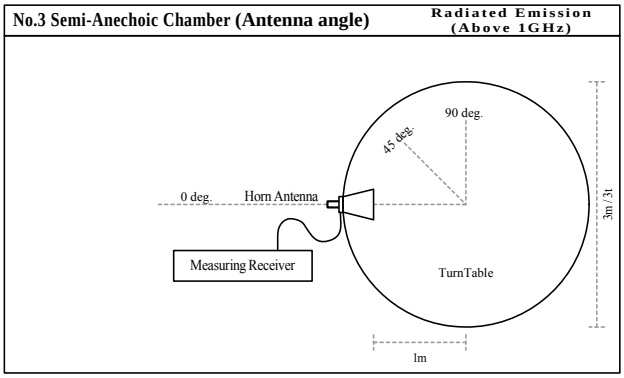
* When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.
Although 00-705 accepts VBW=10Hz for AV measurements, confirmed that superfluous smoothing was not performed.

The carrier level and noise levels were fixed at angle of 30 deg. based on the product specification.

Figure 1. Antenna angle







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.

Refer to APPENDIX

Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

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: Data of Radio tests

20dB Bandwidth and Carrier Frequency Separation

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 17, 2013	
Temperature / Humidity	25 deg.C , 56 %RH	
Engineer	Akio Hayashi	
Mode	Tx, Bluetooth, BDR, PRBS9	

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency Separation [MHz]
DH5	2402.0	0.947	1.000	>= 0.631
DH5	2441.0	0.946	1.000	>= 0.631
DH5	2480.0	0.944	1.000	>= 0.629

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

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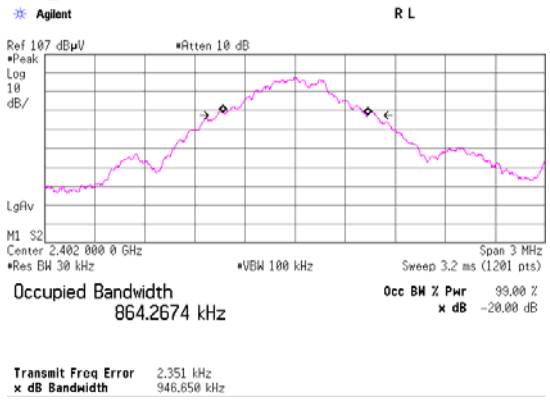
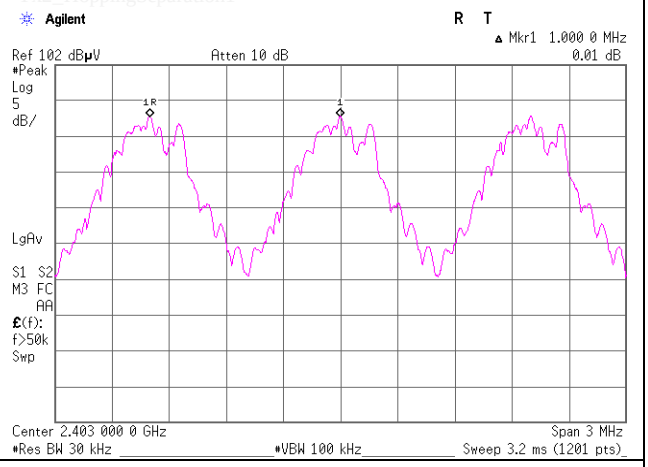
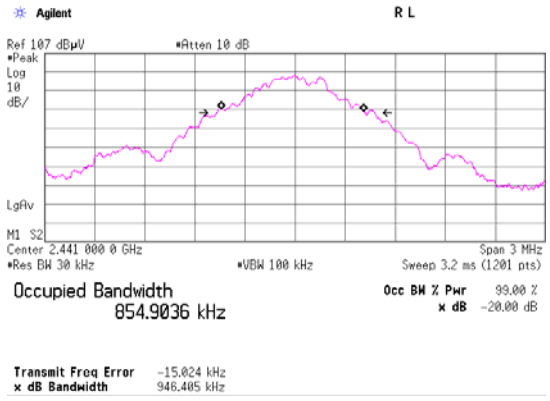
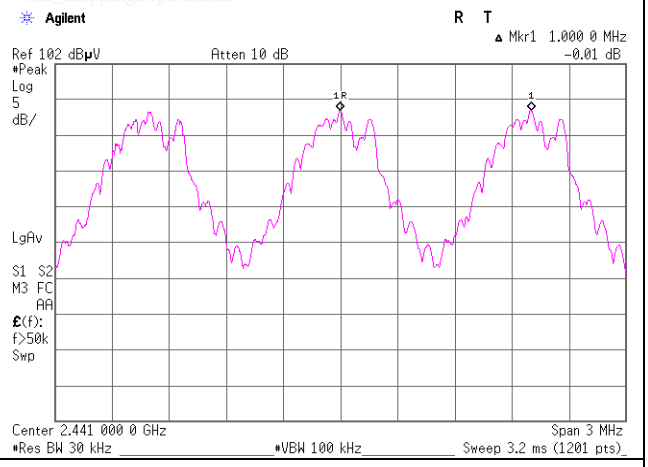
20dB Bandwidth and Carrier Frequency Separation

Tx, Bluetooth, BDR, PRBS9

20dB Bandwidth	Carrier Frequency Separation
Tx, 2402MHz	**Tx, 2402MHz**
	
Tx, 2441MHz	**Tx, 2441MHz**
	
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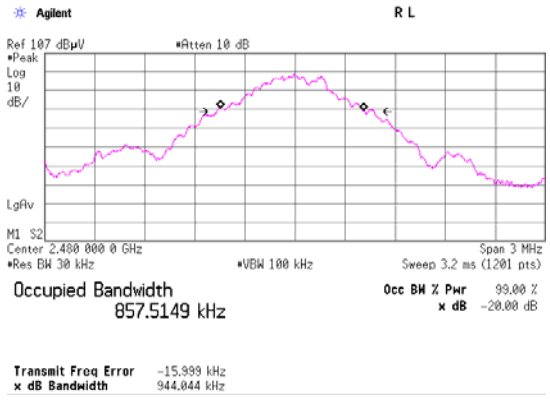	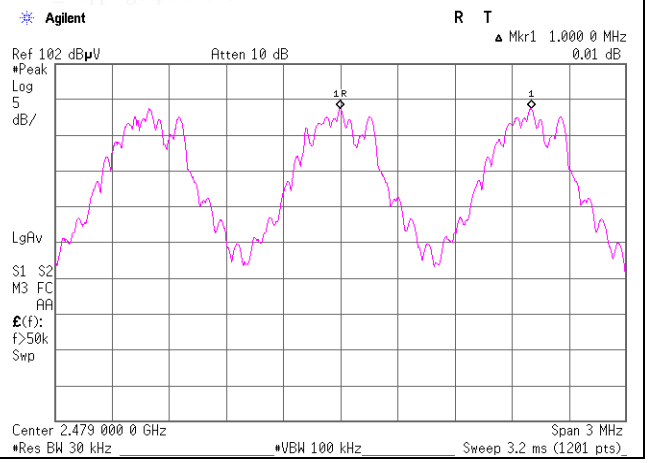

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20dB Bandwidth and Carrier Frequency Separation

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 17, 2013	
Temperature / Humidity	25 deg.C , 56 %RH	
Engineer	Akio Hayashi	
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	1.279	1.000	>= 0.853
3-DH5	2441.0	1.264	1.000	>= 0.843
3-DH5	2480.0	1.265	1.000	>= 0.843

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

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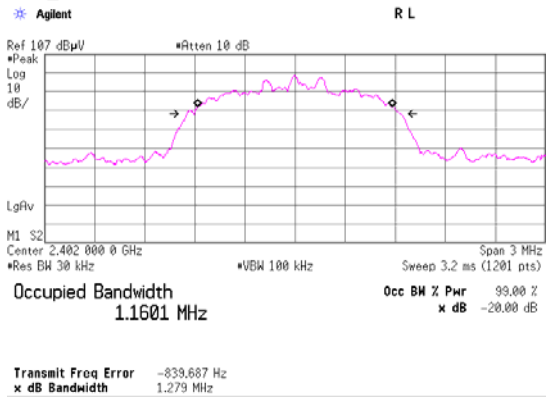
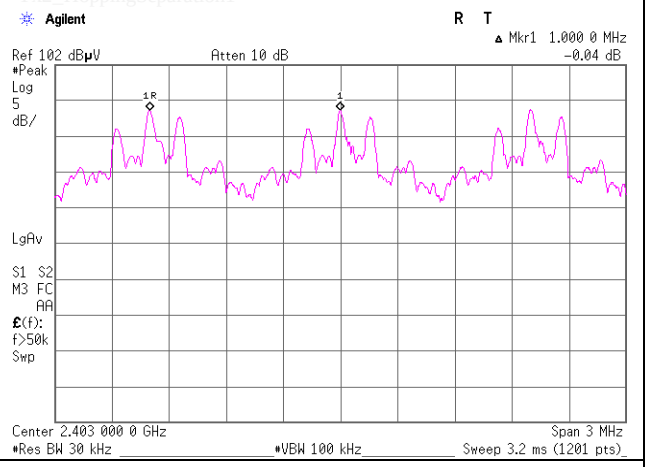
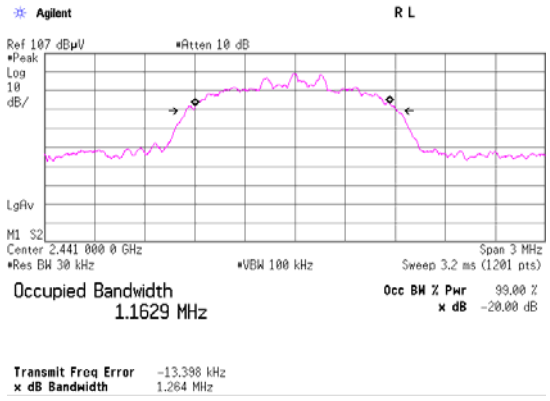
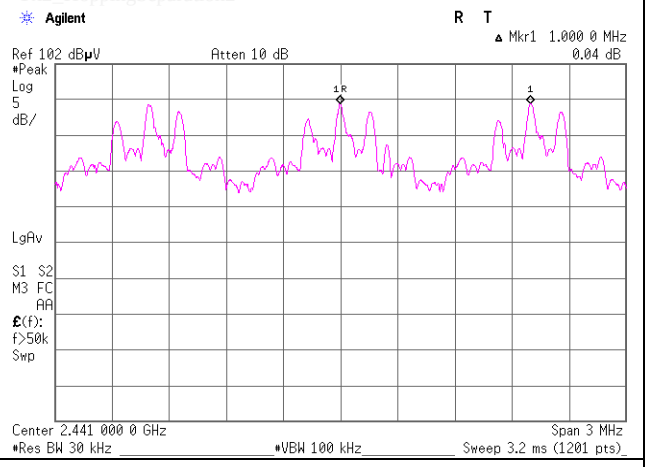
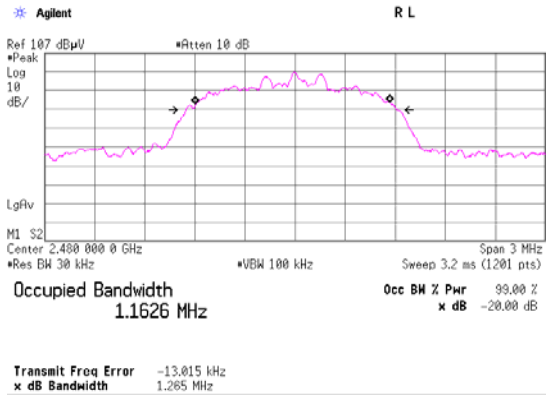
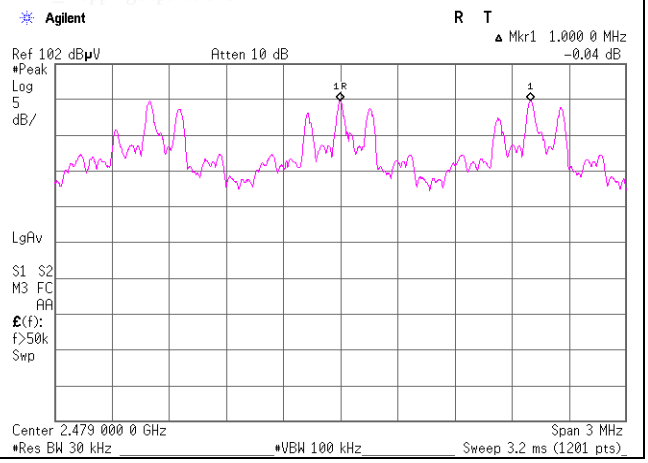
20dB Bandwidth and Carrier Frequency Separation

Tx, Bluetooth, EDR, PRBS9

20dB Bandwidth	Carrier Frequency Separation
Tx, 2402MHz	**Tx, 2402MHz**
	
Tx, 2441MHz	**Tx, 2441MHz**
	
Tx, 2480MHz	**Tx, 2480MHz**
	

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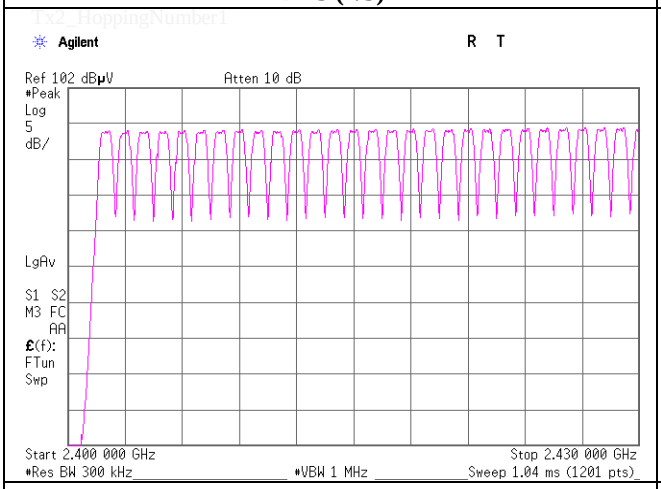
Number of Hopping Frequency

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 17, 2013	
Temperature / Humidity	25 deg.C , 56 %RH	
Engineer	Akio Hayashi	
Mode	Tx, Bluetooth, BDR, PRBS9	

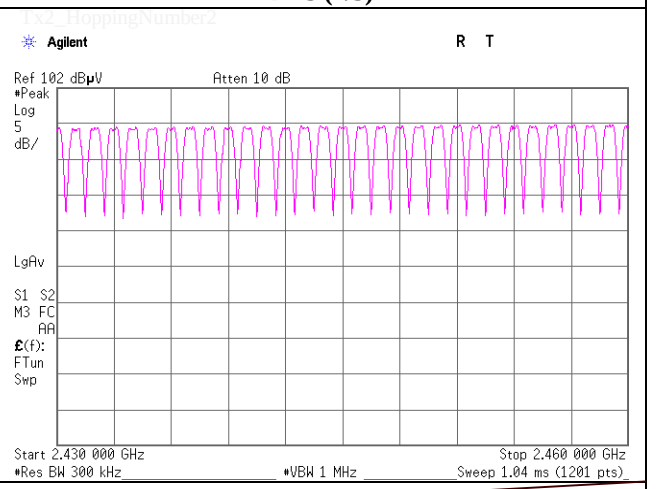
Mode	Number of Channel [times]	Limit [times]
DH5	79	>= 15

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

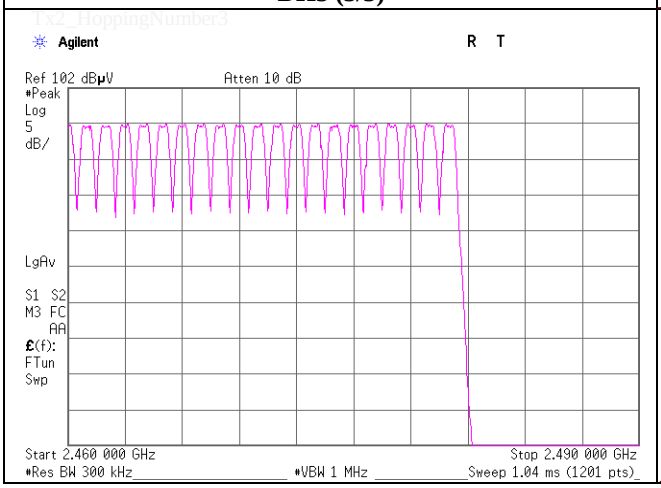
DH5 (1/3)

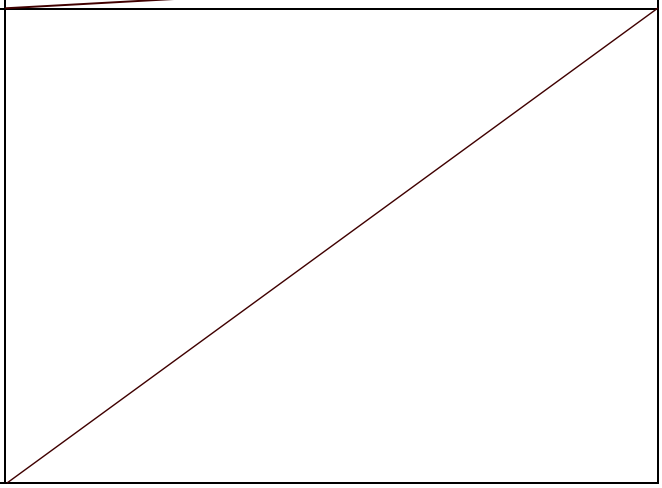


DH5 (2/3)



DH5 (3/3)





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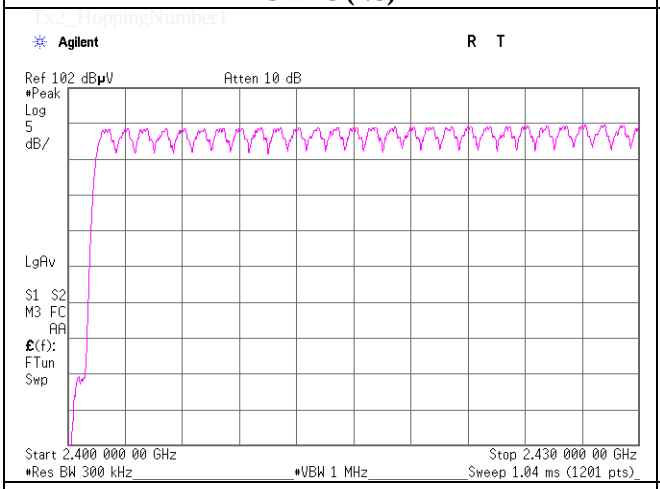
Number of Hopping Frequency

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 17, 2013	
Temperature / Humidity	25 deg.C , 56 %RH	
Engineer	Akio Hayashi	
Mode	Tx, Bluetooth, EDR, PRBS9	

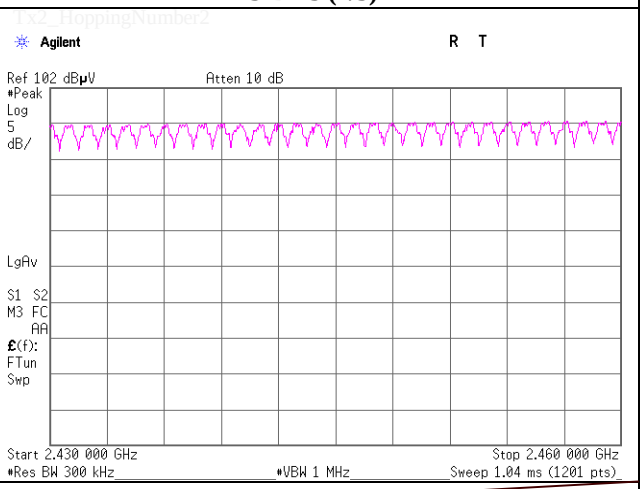
Mode	Number of Channel [times]	Limit [times]
3-DH5	79	>= 15

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

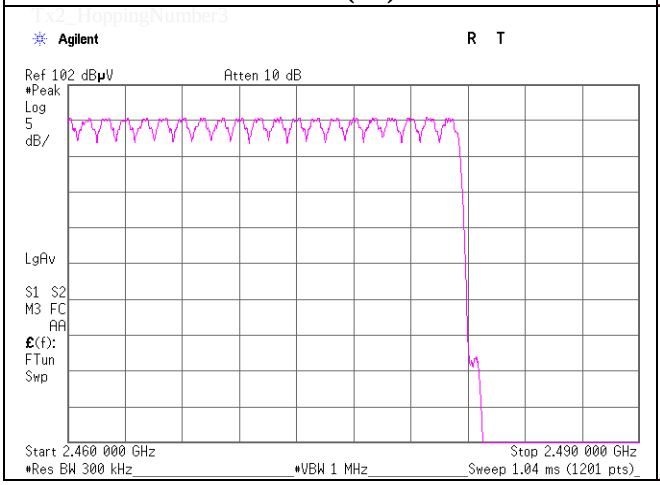
3-DH5 (1/3)



3-DH5 (2/3)



3-DH5 (3/3)



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Dwell Time

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 17, 2013	
Temperature / Humidity	25 deg.C , 56 %RH	
Engineer	Akio Hayashi	
Mode	Tx, Bluetooth, BDR, PRBS9	

Mode	Number of transmission in a 31.6 (79 Hopping x 0.4)	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	51.0 / 5.0 sec. x 31.6 sec. = 323 times	0.411	133	400
DH3	26.0 / 5.0 sec. x 31.6 sec. = 165 times	1.668	275	400
DH5	17.0 / 5.0 sec. x 31.6 sec. = 108 times	2.916	315	400

Sample Calculation

Result = Number of transmission x Length of transmition time

* This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in N x 0.4s, where N is the number of channels being used in the hopping sequence ($20 \leq N \leq 79$), is always less than 0.4s regardless of packet size (DH1, DH3 or DH5). This is confirmed in the test report for N=79.

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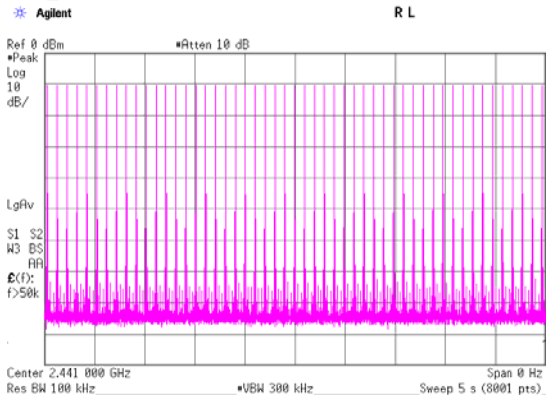
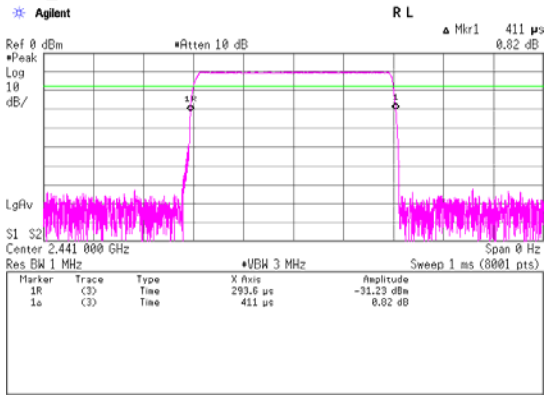
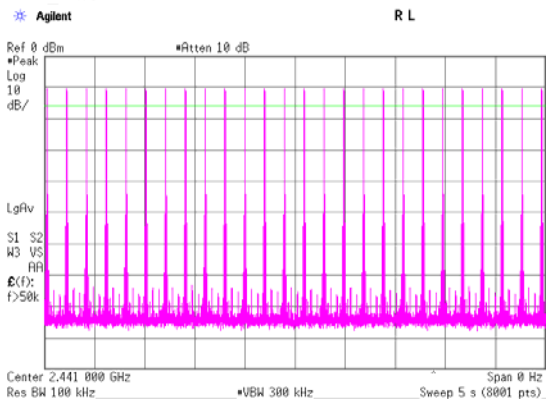
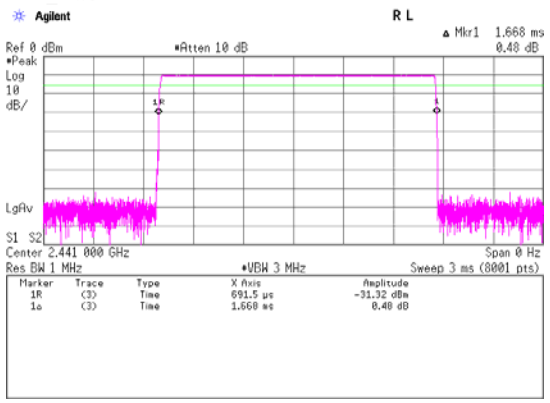
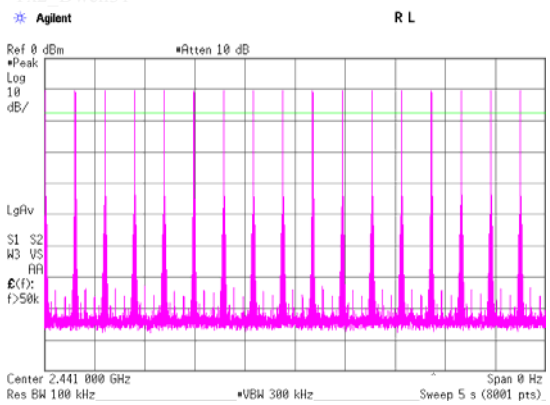
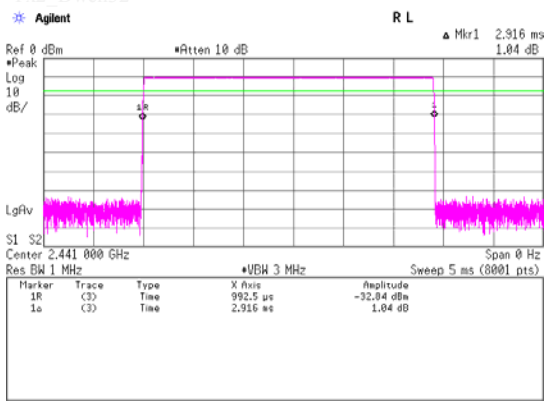
Dwell time

Tx, Bluetooth, BDR, PRBS9

DH1 (1/2)	DH1 (2/2)
	
DH3 (1/2)	**DH3 (2/2)**
	
DH5 (1/2)	**DH5 (2/2)**
	

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Dwell Time

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 17, 2013	
Temperature / Humidity	25 deg.C , 56 %RH	
Engineer	Akio Hayashi	
Mode	Tx, Bluetooth, EDR, PRBS9	

Mode	Number of transmission in a 31.6 (79 Hopping x 0.4) second	Length of transmission time [msec]	Result [msec]	Limit [msec]
3-DH1	51.0 / 5.0 sec. x 31.6 sec. = 323 times	0.423	137	400
3-DH3	26.0 / 5.0 sec. x 31.6 sec. = 165 times	1.674	276	400
3-DH5	17.0 / 5.0 sec. x 31.6 sec. = 108 times	2.925	316	400

Sample Calculation

Result = Number of transmission x Length of transmition time

* This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in N x 0.4s, where N is the number of channels being used in the hopping sequence ($20 \leq N \leq 79$), is always less than 0.4s regardless of packet size (3-DH1, 3-DH3 or 3-DH5). This is confirmed in the test report for N=79.

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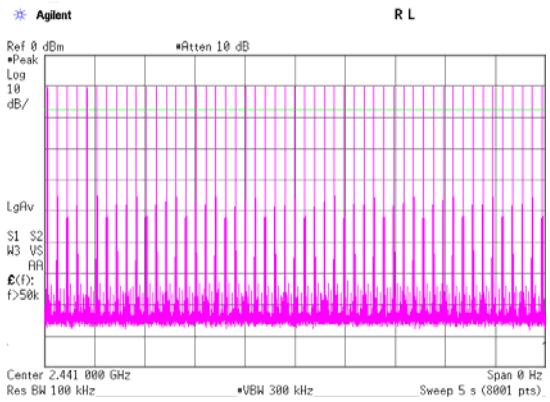
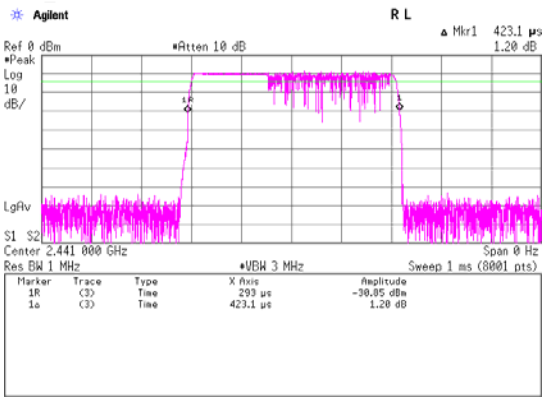
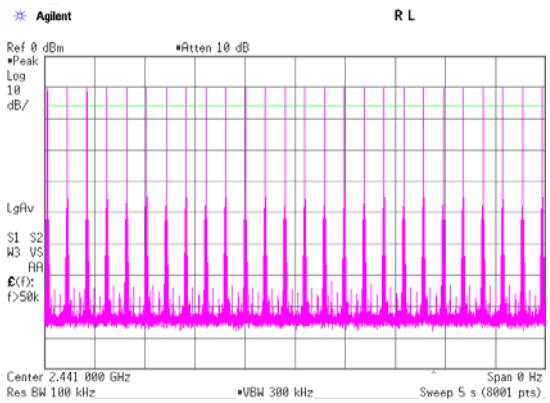
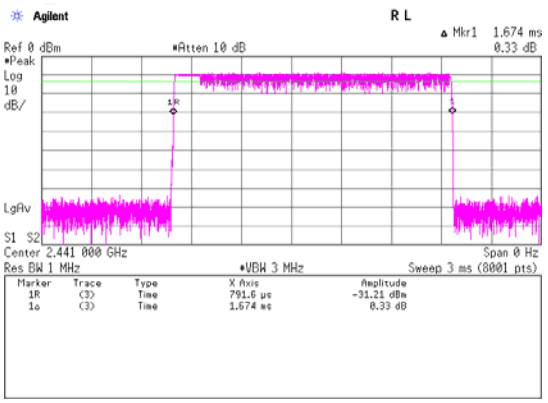
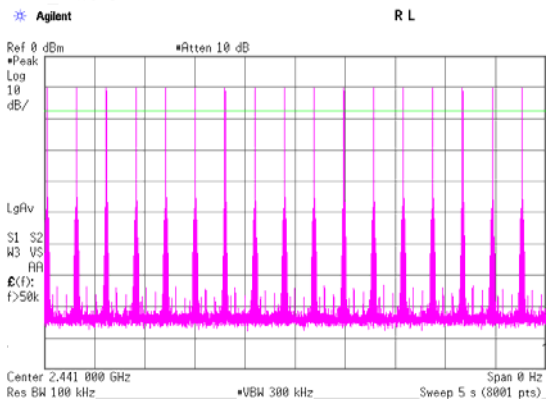
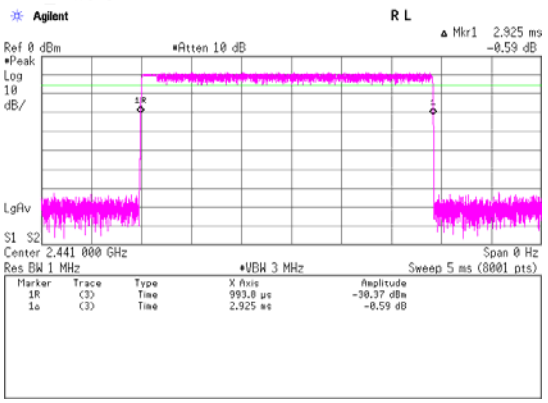
Dwell time

Tx, Bluetooth, EDR, PRBS9

3-DH1 (1/2)	3-DH1 (2/2)
	
3-DH3 (1/2)	**3-DH3 (2/2)**
	
3-DH5 (1/2)	**3-DH5 (2/2)**
	

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Maximum Peak Conducted Output Power (Conducted)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date	May 17, 2013
Temperature / Humidity	25 deg.C , 56 %RH
Engineer	Akio Hayashi
Mode	Tx, Bluetooth

(* 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	-10.66	1.47	9.62	0.43	1.10	20.97	125	20.54
DH5	2441.0	-10.06	1.48	9.63	1.05	1.27	20.97	125	19.92
DH5	2480.0	-9.80	1.49	9.63	1.32	1.36	20.97	125	19.65
2-DH5	2402.0	-9.43	1.47	9.62	1.66	1.47	20.97	125	19.31
2-DH5	2441.0	-8.73	1.48	9.63	2.38	1.73	20.97	125	18.59
2-DH5	2480.0	-8.36	1.49	9.63	2.76	1.89	20.97	125	18.21
3-DH5	2402.0	-9.06	1.47	9.62	2.03	1.60	20.97	125	18.94
3-DH5	2441.0	-8.35	1.48	9.63	2.76	1.89	20.97	125	18.21
3-DH5	2480.0	-8.00	1.49	9.63	3.12	2.05	20.97	125	17.85

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

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Radiated Emission

Test place	No.3 Semi Anechoic Chamber			
Date	May 22, 2013	May 21, 2013	May 23, 2013	May 24, 2013
Temperature / Humidity	25deg.C, 54%RH	22deg.C, 56%RH	26deg.C, 46%RH	24deg.C, 52%RH
Engineer	Akio Hayashi	Akio Hayashi	Kenichi Adachi	Kenichi Adachi
Mode	Tx 2402 MHz			
	Tx, Bluetooth, BDR, PRBS9		S/N: K1MC000040US	

(* 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.	240.004	QP	41.4	16.9	8.2	32.0	34.5	46.0	11.5	138	52	
Hori.	336.002	QP	46.5	14.8	8.7	31.9	38.1	46.0	7.9	100	209	
Hori.	407.071	QP	44.0	16.3	9.1	32.0	37.4	46.0	8.6	105	320	
Hori.	432.007	QP	45.1	16.6	9.2	31.9	39.0	46.0	7.0	100	321	
Hori.	518.096	QP	44.7	17.7	9.5	32.0	39.9	46.0	6.1	100	17	
Hori.	666.123	QP	41.3	19.8	10.1	31.9	39.3	46.0	6.7	100	174	
Hori.	816.013	QP	40.8	21.1	10.5	31.5	40.9	46.0	5.1	247	172	
Hori.	2390.000	PK	45.5	27.4	14.8	41.4	46.3	73.9	27.6	188	68	
Hori.	2506.019	PK	48.0	27.6	14.9	41.4	49.1	73.9	24.8	186	292	
Hori.	2532.010	PK	47.6	27.6	14.9	41.4	48.7	73.9	25.2	195	39	
Hori.	2558.024	PK	48.8	27.7	15.0	41.4	50.1	73.9	23.8	158	39	
Hori.	3126.481	PK	53.1	28.7	6.6	41.5	46.9	73.9	27.0	147	53	
Hori.	4804.000	PK	51.4	31.1	7.6	41.2	48.9	73.9	25.0	147	45	
Hori.	7206.000	PK	47.9	36.6	9.1	41.4	52.2	73.9	21.7	146	49	
Hori.	9608.000	PK	44.8	38.5	10.3	38.9	54.7	73.9	19.2	100	0	
Hori.	12010.000	PK	45.5	39.4	11.5	39.4	57.0	73.9	16.9	100	0	
Hori.	24020.000	PK	45.6	39.8	-1.9	46.5	37.0	73.9	36.9	100	0	noise floor level
Hori.	2390.000	AV	34.1	27.4	14.8	41.4	34.9	53.9	19.0	188	68	
Hori.	2506.019	AV	38.8	27.6	14.9	41.4	39.9	53.9	14.0	186	292	
Hori.	2532.010	AV	36.9	27.6	14.9	41.4	38.0	53.9	15.9	195	39	
Hori.	2558.024	AV	39.0	27.7	15.0	41.4	40.3	53.9	13.6	158	39	
Hori.	3126.481	AV	47.4	28.7	6.6	41.5	41.2	53.9	12.7	147	53	
Hori.	4804.000	AV	42.7	31.1	7.6	41.2	40.2	53.9	13.7	147	45	
Hori.	7206.000	AV	35.7	36.6	9.1	41.4	40.0	53.9	13.9	146	49	
Hori.	9608.000	AV	32.3	38.5	10.3	38.9	42.2	53.9	11.7	100	0	
Hori.	12010.000	AV	33.4	39.4	11.5	39.4	44.9	53.9	9.0	100	0	
Hori.	24020.000	AV	32.6	39.8	-1.9	46.5	24.0	53.9	29.9	100	0	noise floor level
Vert.	144.004	QP	37.2	14.6	7.7	32.1	27.4	43.5	16.1	100	255	
Vert.	666.123	QP	39.8	19.8	10.1	31.9	37.8	46.0	8.2	100	214	
Vert.	720.011	QP	38.3	20.4	10.2	31.8	37.1	46.0	8.9	103	171	
Vert.	816.013	QP	41.6	21.1	10.5	31.5	41.7	46.0	**4.3**	100	188	
Vert.	2390.000	PK	46.0	27.4	14.8	41.4	46.8	73.9	27.1	145	338	
Vert.	2506.019	PK	48.1	27.6	14.9	41.4	49.2	73.9	24.7	139	334	
Vert.	2532.010	PK	47.9	27.6	14.9	41.4	49.0	73.9	24.9	174	335	
Vert.	2558.024	PK	47.7	27.7	15.0	41.4	49.0	73.9	24.9	174	0	
Vert.	3126.481	PK	55.8	28.7	6.6	41.5	49.6	73.9	24.3	100	192	
Vert.	4804.000	PK	49.7	31.1	7.6	41.2	47.2	73.9	26.7	159	37	
Vert.	7206.000	PK	47.6	36.6	9.1	41.4	51.9	73.9	22.0	154	20	
Vert.	9608.000	PK	44.9	38.5	10.3	38.9	54.8	73.9	19.1	100	0	
Vert.	12010.000	PK	45.5	39.4	11.5	39.4	57.0	73.9	16.9	100	0	
Vert.	24020.000	PK	45.5	39.8	-1.9	46.5	36.9	73.9	37.0	100	0	noise floor level
Vert.	2390.000	AV	33.9	27.4	14.8	41.4	34.7	53.9	19.2	145	338	
Vert.	2506.019	AV	37.5	27.6	14.9	41.4	38.6	53.9	15.3	139	334	
Vert.	2532.010	AV	35.6	27.6	14.9	41.4	36.7	53.9	17.2	174	335	
Vert.	2558.024	AV	37.2	27.7	15.0	41.4	38.5	53.9	15.4	174	0	
Vert.	3126.481	AV	52.8	28.7	6.6	41.5	46.6	53.9	7.3	100	192	
Vert.	4804.000	AV	41.1	31.1	7.6	41.2	38.6	53.9	15.3	159	37	
Vert.	7206.000	AV	35.6	36.6	9.1	41.4	39.9	53.9	14.0	154	20	
Vert.	9608.000	AV	32.4	38.5	10.3	38.9	42.3	53.9	11.6	100	0	
Vert.	12010.000	AV	33.4	39.4	11.5	39.4	44.9	53.9	9.0	100	0	
Vert.	24020.000	AV	32.6	39.8	-1.9	46.5	24.0	53.9	29.9	100	0	noise floor level

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

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.	2402.000	PK	89.9	27.4	14.8	41.4	90.7	-	-	188	68	Carrier
Hori.	2400.000	PK	39.0	27.4	14.8	41.4	39.8	70.7	30.9	188	68	
Vert.	2402.000	PK	89.3	27.4	14.8	41.4	90.1	-	-	145	338	Carrier
Vert.	2400.000	PK	39.3	27.4	14.8	41.4	40.1	70.1	30.0	145	338	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

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Radiated Emission

Test place	No.3 Semi Anechoic Chamber			
Date	May 22, 2013	May 22, 2013	May 23, 2013	May 24, 2013
Temperature / Humidity	25deg.C, 54%RH	23deg.C, 58%RH	26deg.C, 46%RH	24deg.C, 52%RH
Engineer	Akio Hayashi	Akio Hayashi	Kenichi Adachi	Kenichi Adachi
Mode	Tx 2441 MHz			
	Tx, Bluetooth, BDR, PRBS9		S/N: K1MC000040US	

(* 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.	240.060	QP	40.5	16.9	8.2	32.0	33.6	46.0	12.4	145	53	
Hori.	336.003	QP	47.2	14.8	8.7	31.9	38.8	46.0	7.2	100	211	
Hori.	407.072	QP	43.3	16.3	9.1	32.0	36.7	46.0	9.3	100	319	
Hori.	432.008	QP	45.4	16.6	9.2	31.9	39.3	46.0	6.7	100	322	
Hori.	481.084	QP	41.0	17.2	9.4	31.9	35.7	46.0	10.3	100	15	
Hori.	518.094	QP	42.6	17.7	9.5	32.0	37.8	46.0	8.2	233	359	
Hori.	666.122	QP	38.5	19.8	10.1	31.9	36.5	46.0	9.5	123	218	
Hori.	816.015	QP	40.4	21.1	10.5	31.5	40.5	46.0	5.5	245	175	
Hori.	2545.008	PK	47.8	27.6	15.0	41.4	49.0	73.9	24.9	182	331	
Hori.	2571.004	PK	48.3	27.7	15.0	41.4	49.6	73.9	24.3	187	43	
Hori.	2597.000	PK	48.3	27.7	15.0	41.4	49.6	73.9	24.3	183	43	
Hori.	3126.483	PK	56.1	28.7	6.6	41.5	49.9	73.9	24.0	100	224	
Hori.	4882.000	PK	50.2	31.3	7.7	41.1	48.1	73.9	25.8	146	46	
Hori.	7323.000	PK	47.1	36.6	9.2	41.4	51.5	73.9	22.4	143	59	
Hori.	9764.000	PK	43.0	38.7	10.2	38.9	53.0	73.9	20.9	100	0	
Hori.	12205.000	PK	44.0	39.5	11.4	39.3	55.6	73.9	18.3	100	0	
Hori.	24410.000	PK	45.7	39.7	-1.8	46.7	36.9	73.9	37.0	100	0	noise floor level
Hori.	2545.008	AV	37.2	27.6	15.0	41.4	38.4	53.9	15.5	182	331	
Hori.	2571.004	AV	38.1	27.7	15.0	41.4	39.4	53.9	14.5	187	43	
Hori.	2597.000	AV	38.7	27.7	15.0	41.4	40.0	53.9	13.9	183	43	
Hori.	3126.483	AV	51.9	28.7	6.6	41.5	45.7	53.9	8.2	100	224	
Hori.	4882.000	AV	41.6	31.3	7.7	41.1	39.5	53.9	14.4	146	46	
Hori.	7323.000	AV	34.9	36.6	9.2	41.4	39.3	53.9	14.6	143	59	
Hori.	9764.000	AV	30.7	38.7	10.2	38.9	40.7	53.9	13.2	100	0	
Hori.	12205.000	AV	30.7	39.5	11.4	39.3	42.3	53.9	11.6	100	0	
Hori.	24410.000	AV	32.7	39.7	-1.8	46.7	23.9	53.9	30.0	100	0	noise floor level
Vert.	144.001	QP	37.3	14.6	7.7	32.1	27.5	43.5	16.0	100	255	
Vert.	481.084	QP	38.4	17.2	9.4	31.9	33.1	46.0	12.9	100	154	
Vert.	666.122	QP	39.6	19.8	10.1	31.9	37.6	46.0	8.4	100	211	
Vert.	720.010	QP	38.2	20.4	10.2	31.8	37.0	46.0	9.0	100	168	
Vert.	816.015	QP	41.6	21.1	10.5	31.5	41.7	46.0	4.3	100	193	
Vert.	2545.008	PK	47.7	27.6	15.0	41.4	48.9	73.9	25.0	173	26	
Vert.	2571.004	PK	47.1	27.7	15.0	41.4	48.4	73.9	25.5	172	26	
Vert.	2597.000	PK	46.7	27.7	15.0	41.4	48.0	73.9	25.9	177	112	
Vert.	3126.483	PK	56.3	28.7	6.6	41.5	50.1	73.9	23.8	100	196	
Vert.	4882.000	PK	49.7	31.3	7.7	41.1	47.6	73.9	26.3	100	193	
Vert.	7323.000	PK	47.8	36.6	9.2	41.4	52.2	73.9	21.7	150	337	
Vert.	9764.000	PK	42.2	38.7	10.2	38.9	52.2	73.9	21.7	100	0	
Vert.	12205.000	PK	44.6	39.5	11.4	39.3	56.2	73.9	17.7	100	0	
Vert.	24410.000	PK	45.6	39.7	-1.8	46.7	36.8	73.9	37.1	100	0	noise floor level
Vert.	2545.008	AV	35.7	27.6	15.0	41.4	36.9	53.9	17.0	173	26	
Vert.	2571.004	AV	36.0	27.7	15.0	41.4	37.3	53.9	16.6	172	26	
Vert.	2597.000	AV	36.0	27.7	15.0	41.4	37.3	53.9	16.6	177	112	
Vert.	3126.483	AV	53.5	28.7	6.6	41.5	47.3	53.9	6.6	100	196	
Vert.	4882.000	AV	39.6	31.3	7.7	41.1	37.5	53.9	16.4	100	193	
Vert.	7323.000	AV	35.6	36.6	9.2	41.4	40.0	53.9	13.9	150	337	
Vert.	9764.000	AV	30.7	38.7	10.2	38.9	40.7	53.9	13.2	100	0	
Vert.	12205.000	AV	32.1	39.5	11.4	39.3	43.7	53.9	10.2	100	0	
Vert.	24410.000	AV	32.7	39.7	-1.8	46.7	23.9	53.9	30.0	100	0	noise floor level

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.3 Semi Anechoic Chamber			
Date	May 22, 2013	May 21, 2013	May 23, 2013	May 24, 2013
Temperature / Humidity	25deg.C, 54%RH	22deg.C, 56%RH	26deg.C, 46%RH	24deg.C, 52%RH
Engineer	Akio Hayashi	Akio Hayashi	Kenichi Adachi	Kenichi Adachi
Mode	Tx 2480 MHz			
	Tx, Bluetooth, BDR, PRBS9		S/N: K1MC000040US	

(* 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.	240.002	QP	40.3	16.9	8.2	32.0	33.4	46.0	12.6	142	49	
Hori.	336.006	QP	47.9	14.8	8.7	31.9	39.5	46.0	6.5	100	217	
Hori.	407.075	QP	44.8	16.3	9.1	32.0	38.2	46.0	7.8	100	324	
Hori.	432.011	QP	45.6	16.6	9.2	31.9	39.5	46.0	6.5	100	325	
Hori.	481.089	QP	41.2	17.2	9.4	31.9	35.9	46.0	10.1	100	7	
Hori.	518.093	QP	44.1	17.7	9.5	32.0	39.3	46.0	6.7	100	7	
Hori.	666.119	QP	41.4	19.8	10.1	31.9	39.4	46.0	6.6	100	171	
Hori.	816.013	QP	41.0	21.1	10.5	31.5	41.1	46.0	4.9	223	167	
Hori.	2483.500	PK	47.0	27.5	14.9	41.4	48.0	73.9	25.9	190	296	
Hori.	2584.010	PK	48.0	27.7	15.0	41.4	49.3	73.9	24.6	184	42	
Hori.	2609.980	PK	46.9	27.8	15.0	41.4	48.3	73.9	25.6	181	47	
Hori.	2637.000	PK	46.6	27.8	15.0	41.4	48.0	73.9	25.9	100	0	
Hori.	3126.540	PK	55.6	28.7	6.6	41.5	49.4	73.9	24.5	100	219	
Hori.	4960.000	PK	47.6	31.6	7.7	41.0	45.9	73.9	28.0	108	89	
Hori.	7440.000	PK	48.2	36.7	9.2	41.5	52.6	73.9	21.3	100	263	
Hori.	9920.000	PK	44.3	39.0	10.3	38.9	54.7	73.9	19.2	100	0	
Hori.	12400.000	PK	45.1	39.5	11.3	39.3	56.6	73.9	17.3	100	0	
Hori.	24800.000	PK	44.6	39.6	-1.6	46.7	35.9	73.9	38.0	100	0	noise floor level
Hori.	2483.500	AV	34.4	27.5	14.9	41.4	35.4	53.9	18.5	190	296	
Hori.	2584.010	AV	38.7	27.7	15.0	41.4	40.0	53.9	13.9	184	42	
Hori.	2609.980	AV	35.6	27.8	15.0	41.4	37.0	53.9	16.9	181	47	
Hori.	2637.000	AV	34.4	27.8	15.0	41.4	35.8	53.9	18.1	100	0	
Hori.	3126.540	AV	51.6	28.7	6.6	41.5	45.4	53.9	8.5	100	219	
Hori.	4960.000	AV	39.5	31.6	7.7	41.0	37.8	53.9	16.1	108	89	
Hori.	7440.000	AV	36.3	36.7	9.2	41.5	40.7	53.9	13.2	100	263	
Hori.	9920.000	AV	31.9	39.0	10.3	38.9	42.3	53.9	11.6	100	0	
Hori.	12400.000	AV	31.8	39.5	11.3	39.3	43.3	53.9	10.6	100	0	
Hori.	24800.000	AV	32.4	39.6	-1.6	46.7	23.7	53.9	30.2	100	0	noise floor level
Vert.	144.003	QP	37.7	14.6	7.7	32.1	27.9	43.5	15.6	100	256	
Vert.	592.108	QP	40.2	18.8	9.8	31.9	36.9	46.0	9.1	104	178	
Vert.	666.119	QP	39.8	19.8	10.1	31.9	37.8	46.0	8.2	100	162	
Vert.	816.013	QP	41.7	21.1	10.5	31.5	41.8	46.0	4.2	114	181	
Vert.	2483.500	PK	48.4	27.5	14.9	41.4	49.4	73.9	24.5	137	322	
Vert.	2584.010	PK	46.7	27.7	15.0	41.4	48.0	73.9	25.9	144	64	
Vert.	2609.980	PK	46.1	27.8	15.0	41.4	47.5	73.9	26.4	146	101	
Vert.	2637.000	PK	45.7	27.8	15.0	41.4	47.1	73.9	26.8	100	0	
Vert.	3126.540	PK	55.9	28.7	6.6	41.5	49.7	73.9	24.2	100	203	
Vert.	4960.000	PK	49.1	31.6	7.7	41.0	47.4	73.9	26.5	129	17	
Vert.	7440.000	PK	47.9	36.7	9.2	41.5	52.3	73.9	21.6	131	327	
Vert.	9920.000	PK	45.6	39.0	10.3	38.9	56.0	73.9	17.9	100	0	
Vert.	12400.000	PK	45.5	39.5	11.3	39.3	57.0	73.9	16.9	100	0	
Vert.	24800.000	PK	44.5	39.6	-1.6	46.7	35.8	73.9	38.1	100	0	noise floor level
Vert.	2483.500	AV	34.3	27.5	14.9	41.4	35.3	53.9	18.6	137	322	
Vert.	2584.010	AV	36.1	27.7	15.0	41.4	37.4	53.9	16.5	144	64	
Vert.	2609.980	AV	34.6	27.8	15.0	41.4	36.0	53.9	17.9	146	101	
Vert.	2637.000	AV	34.2	27.8	15.0	41.4	35.6	53.9	18.3	100	0	
Vert.	3126.540	AV	51.9	28.7	6.6	41.5	45.7	53.9	8.2	100	203	
Vert.	4960.000	AV	39.3	31.6	7.7	41.0	37.6	53.9	16.3	129	17	
Vert.	7440.000	AV	35.9	36.7	9.2	41.5	40.3	53.9	13.6	131	327	
Vert.	9920.000	AV	31.5	39.0	10.3	38.9	41.9	53.9	12.0	100	0	
Vert.	12400.000	AV	31.5	39.5	11.3	39.3	43.0	53.9	10.9	100	0	
Vert.	24800.000	AV	32.4	39.6	-1.6	46.7	23.7	53.9	30.2	100	0	noise floor level

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	May 23, 2013	May 21, 2013	May 24, 2013
Temperature / Humidity	26deg.C, 46%RH	22deg.C, 56%RH	24deg.C, 52%RH
Engineer	Kenichi Adachi	Akio Hayashi	Kenichi Adachi
Mode	Tx 2402 MHz		
	Tx, Bluetooth, EDR, PRBS9		S/N: K1MC000040US

(* 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.	37.008	QP	37.8	15.5	6.5	32.2	27.6	40.0	12.4	367	137	
Hori.	333.056	QP	43.2	14.7	8.7	31.9	34.7	46.0	11.3	118	227	
Hori.	407.072	QP	49.0	16.3	9.1	32.0	42.4	46.0	3.6	100	3	
Hori.	444.078	QP	41.4	16.8	9.2	31.9	35.5	46.0	10.5	100	141	
Hori.	481.085	QP	43.5	17.2	9.4	31.9	38.2	46.0	7.8	217	9	
Hori.	518.094	QP	43.1	17.7	9.5	32.0	38.3	46.0	7.7	172	39	
Hori.	592.106	QP	40.4	18.8	9.8	31.9	37.1	46.0	8.9	141	74	
Hori.	666.121	QP	44.5	19.8	10.1	31.9	42.5	46.0	**3.5**	142	93	
Hori.	816.014	QP	42.2	21.1	10.6	31.5	42.4	46.0	3.6	159	203	
Hori.	1776.315	PK	51.6	25.9	14.0	41.0	50.5	73.9	23.4	100	128	
Hori.	2390.000	PK	46.7	27.4	14.8	41.4	47.5	73.9	26.4	192	67	
Hori.	2506.035	PK	49.1	27.6	14.9	41.4	50.2	73.9	23.7	185	299	
Hori.	2532.020	PK	47.6	27.6	14.9	41.4	48.7	73.9	25.2	181	341	
Hori.	2558.050	PK	48.9	27.7	15.0	41.4	50.2	73.9	23.7	187	45	
Hori.	3126.482	PK	56.0	28.7	6.6	41.5	49.8	73.9	24.1	100	219	
Hori.	4804.000	PK	47.8	31.1	7.6	41.2	45.3	73.9	28.6	147	51	
Hori.	7206.000	PK	46.5	36.6	9.1	41.4	50.8	73.9	23.1	100	0	
Hori.	9608.000	PK	43.7	38.5	10.3	38.9	53.6	73.9	20.3	100	0	
Hori.	12010.000	PK	46.4	39.4	11.5	39.4	57.9	73.9	16.0	100	0	
Hori.	24020.000	PK	45.7	39.8	-1.9	46.5	37.1	73.9	36.8	100	0	noise floor level
Hori.	1776.315	AV	45.7	25.9	14.0	41.0	44.6	53.9	9.3	100	128	
Hori.	2390.000	AV	34.1	27.4	14.8	41.4	34.9	53.9	19.0	192	67	
Hori.	2506.035	AV	37.5	27.6	14.9	41.4	38.6	53.9	15.3	185	299	
Hori.	2532.020	AV	35.9	27.6	14.9	41.4	37.0	53.9	16.9	181	341	
Hori.	2558.050	AV	38.0	27.7	15.0	41.4	39.3	53.9	14.6	187	45	
Hori.	3126.482	AV	52.3	28.7	6.6	41.5	46.1	53.9	7.8	100	219	
Hori.	4804.000	AV	37.5	31.1	7.6	41.2	35.0	53.9	18.9	147	51	
Hori.	7206.000	AV	34.8	36.6	9.1	41.4	39.1	53.9	14.8	100	0	
Hori.	9608.000	AV	32.3	38.5	10.3	38.9	42.2	53.9	11.7	100	0	
Hori.	12010.000	AV	33.4	39.4	11.5	39.4	44.9	53.9	9.0	100	0	
Hori.	24020.000	AV	32.6	39.8	-1.9	46.5	24.0	53.9	29.9	100	0	noise floor level
Vert.	37.008	QP	42.1	15.5	6.5	32.2	31.9	40.0	8.1	100	59	
Vert.	407.072	QP	46.1	16.3	9.1	32.0	39.5	46.0	6.5	118	167	
Vert.	481.085	QP	42.5	17.2	9.4	31.9	37.2	46.0	8.8	137	352	
Vert.	592.106	QP	43.8	18.8	9.8	31.9	40.5	46.0	5.5	106	6	
Vert.	666.121	QP	43.3	19.8	10.1	31.9	41.3	46.0	4.7	100	342	
Vert.	816.014	QP	33.8	21.1	10.6	31.5	34.0	46.0	12.0	100	329	
Vert.	1776.315	PK	50.5	25.9	14.0	41.0	49.4	73.9	24.5	100	144	
Vert.	2390.000	PK	46.5	27.4	14.8	41.4	47.3	73.9	26.6	191	66	
Vert.	2506.035	PK	47.8	27.6	14.9	41.4	48.9	73.9	25.0	168	8	
Vert.	2532.020	PK	46.5	27.6	14.9	41.4	47.6	73.9	26.3	171	329	
Vert.	2558.050	PK	47.9	27.7	15.0	41.4	49.2	73.9	24.7	171	359	
Vert.	3126.482	PK	56.9	28.7	6.6	41.5	50.7	73.9	23.2	100	198	
Vert.	4804.000	PK	49.1	31.1	7.6	41.2	46.6	73.9	27.3	158	37	
Vert.	7206.000	PK	47.6	36.6	9.1	41.4	51.9	73.9	22.0	100	0	
Vert.	9608.000	PK	44.6	38.5	10.3	38.9	54.5	73.9	19.4	100	0	
Vert.	12010.000	PK	45.9	39.4	11.5	39.4	57.4	73.9	16.5	100	0	
Vert.	24020.000	PK	45.6	39.8	-1.9	46.5	37.0	73.9	36.9	100	0	noise floor level
Vert.	1776.315	AV	44.3	25.9	14.0	41.0	43.2	53.9	10.7	100	144	
Vert.	2390.000	AV	34.1	27.4	14.8	41.4	34.9	53.9	19.0	191	66	
Vert.	2506.035	AV	36.5	27.6	14.9	41.4	37.6	53.9	16.3	168	8	
Vert.	2532.020	AV	35.2	27.6	14.9	41.4	36.3	53.9	17.6	171	329	
Vert.	2558.050	AV	36.3	27.7	15.0	41.4	37.6	53.9	16.3	171	359	
Vert.	3126.482	AV	54.6	28.7	6.6	41.5	48.4	53.9	5.5	100	198	
Vert.	4804.000	AV	37.6	31.1	7.6	41.2	35.1	53.9	18.8	158	37	
Vert.	7206.000	AV	35.3	36.6	9.1	41.4	39.6	53.9	14.3	100	0	
Vert.	9608.000	AV	32.3	38.5	10.3	38.9	42.2	53.9	11.7	100	0	
Vert.	12010.000	AV	33.5	39.4	11.5	39.4	45.0	53.9	8.9	100	0	
Vert.	24020.000	AV	32.5	39.8	-1.9	46.5	23.9	53.9	30.0	100	0	noise floor level

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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

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.	2402.000	PK	89.5	27.4	14.8	41.4	90.3	-	-	192	67	Carrier
Hori.	2400.000	PK	41.9	27.4	14.8	41.4	42.7	70.3	27.6	192	67	
Vert.	2402.000	PK	90.5	27.4	14.8	41.4	91.3	-	-	191	66	Carrier
Vert.	2400.000	PK	41.6	27.4	14.8	41.4	42.4	71.3	28.9	191	66	

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter) - Gain(Amplifier)

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Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	May 23, 2013	May 22, 2013	May 24, 2013
Temperature / Humidity	26deg.C, 46%RH	23deg.C, 58%RH	24deg.C, 52%RH
Engineer	Kenichi Adachi	Akio Hayashi	Kenichi Adachi
Mode	Tx 2441 MHz		
	Tx, Bluetooth, EDR, PRBS9		S/N: K1MC000040US

(* 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.	37.005	QP	37.6	15.5	6.5	32.2	27.4	40.0	12.6	363	140	
Hori.	240.001	QP	41.1	16.9	8.2	32.0	34.2	46.0	11.8	137	301	
Hori.	296.051	QP	35.0	19.4	8.5	32.0	30.9	46.0	15.1	116	204	
Hori.	336.005	QP	47.2	14.8	8.7	31.9	38.8	46.0	7.2	100	216	
Hori.	407.071	QP	46.2	16.3	9.1	32.0	39.6	46.0	6.4	100	6	
Hori.	592.105	QP	40.2	18.8	9.8	31.9	36.9	46.0	9.1	133	76	
Hori.	666.120	QP	44.3	19.8	10.1	31.9	42.3	46.0	3.7	147	92	
Hori.	816.013	QP	43.0	21.1	10.6	31.5	43.2	46.0	2.8	141	211	
Hori.	2545.040	PK	47.3	27.6	15.0	41.4	48.5	73.9	25.4	187	46	
Hori.	2570.975	PK	48.6	27.7	15.0	41.4	49.9	73.9	24.0	187	44	
Hori.	2597.000	PK	48.5	27.7	15.0	41.4	49.8	73.9	24.1	185	43	
Hori.	3126.497	PK	55.5	28.7	6.6	41.5	49.3	73.9	24.6	100	223	
Hori.	4882.000	PK	48.7	31.3	7.7	41.1	46.6	73.9	27.3	146	79	
Hori.	7323.000	PK	46.3	36.6	9.2	41.4	50.7	73.9	23.2	100	0	
Hori.	9764.000	PK	42.8	38.7	10.2	38.9	52.8	73.9	21.1	100	0	
Hori.	12205.000	PK	44.5	39.5	11.4	39.3	56.1	73.9	17.8	100	0	
Hori.	24410.000	PK	45.7	39.7	-1.8	46.7	36.9	73.9	37.0	100	0	noise floor level
Hori.	2545.040	AV	36.4	27.6	15.0	41.4	37.6	53.9	16.3	187	46	
Hori.	2570.975	AV	36.6	27.7	15.0	41.4	37.9	53.9	16.0	187	44	
Hori.	2597.000	AV	37.3	27.7	15.0	41.4	38.6	53.9	15.3	185	43	
Hori.	3126.497	AV	52.1	28.7	6.6	41.5	45.9	53.9	8.0	100	223	
Hori.	4882.000	AV	37.0	31.3	7.7	41.1	34.9	53.9	19.0	146	79	
Hori.	7323.000	AV	33.8	36.6	9.2	41.4	38.2	53.9	15.7	100	0	
Hori.	9764.000	AV	30.5	38.7	10.2	38.9	40.5	53.9	13.4	100	0	
Hori.	12205.000	AV	31.9	39.5	11.4	39.3	43.5	53.9	10.4	100	0	
Hori.	24410.000	AV	32.6	39.7	-1.8	46.7	23.8	53.9	30.1	100	0	noise floor level
Vert.	37.005	QP	42.0	15.5	6.5	32.2	31.8	40.0	8.2	100	58	
Vert.	144.001	QP	36.9	14.6	7.7	32.1	27.1	43.5	16.4	100	262	
Vert.	296.051	QP	29.1	19.4	8.5	32.0	25.0	46.0	21.0	100	142	
Vert.	407.071	QP	46.0	16.3	9.1	32.0	39.4	46.0	6.6	116	168	
Vert.	592.105	QP	41.1	18.8	9.8	31.9	37.8	46.0	8.2	107	30	
Vert.	666.120	QP	43.0	19.8	10.1	31.9	41.0	46.0	5.0	100	113	
Vert.	816.013	QP	33.9	21.1	10.6	31.5	34.1	46.0	11.9	100	331	
Vert.	2545.040	PK	47.4	27.6	15.0	41.4	48.6	73.9	25.3	153	219	
Vert.	2570.975	PK	47.4	27.7	15.0	41.4	48.7	73.9	25.2	149	110	
Vert.	2597.000	PK	47.0	27.7	15.0	41.4	48.3	73.9	25.6	178	111	
Vert.	3126.497	PK	57.0	28.7	6.6	41.5	50.8	73.9	23.1	100	197	
Vert.	4882.000	PK	48.5	31.3	7.7	41.1	46.4	73.9	27.5	100	185	
Vert.	7323.000	PK	46.7	36.6	9.2	41.4	51.1	73.9	22.8	100	0	
Vert.	9764.000	PK	42.5	38.7	10.2	38.9	52.5	73.9	21.4	100	0	
Vert.	12205.000	PK	44.2	39.5	11.4	39.3	55.8	73.9	18.1	100	0	
Vert.	24410.000	PK	45.8	39.7	-1.8	46.7	37.0	73.9	36.9	100	0	noise floor level
Vert.	2545.040	AV	35.3	27.6	15.0	41.4	36.5	53.9	17.4	153	219	
Vert.	2570.975	AV	34.9	27.7	15.0	41.4	36.2	53.9	17.7	149	110	
Vert.	2597.000	AV	35.3	27.7	15.0	41.4	36.6	53.9	17.3	178	111	
Vert.	3126.497	AV	54.2	28.7	6.6	41.5	48.0	53.9	5.9	100	197	
Vert.	4882.000	AV	36.5	31.3	7.7	41.1	34.4	53.9	19.5	100	185	
Vert.	7323.000	AV	34.0	36.6	9.2	41.4	38.4	53.9	15.5	100	0	
Vert.	9764.000	AV	30.6	38.7	10.2	38.9	40.6	53.9	13.3	100	0	
Vert.	12205.000	AV	31.9	39.5	11.4	39.3	43.5	53.9	10.4	100	0	
Vert.	24410.000	AV	32.7	39.7	-1.8	46.7	23.9	53.9	30.0	100	0	noise floor level

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.3 Semi Anechoic Chamber		
Date	May 23, 2013	May 21, 2013	May 24, 2013
Temperature / Humidity	26deg.C, 46%RH	22deg.C, 56%RH	24deg.C, 52%RH
Engineer	Kenichi Adachi	Akio Hayashi	Kenichi Adachi
Mode	Tx 2480 MHz		
	Tx, Bluetooth, EDR, PRBS9		S/N: K1MC000040US

(* 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.	37.004	QP	37.7	15.5	6.5	32.2	27.5	40.0	12.5	357	138	
Hori.	240.001	QP	41.0	16.9	8.2	32.0	34.1	46.0	11.9	136	298	
Hori.	336.004	QP	47.1	14.8	8.7	31.9	38.7	46.0	7.3	100	212	
Hori.	407.073	QP	44.5	16.3	9.1	32.0	37.9	46.0	8.1	100	179	
Hori.	592.104	QP	40.0	18.8	9.8	31.9	36.7	46.0	9.3	134	82	
Hori.	666.119	QP	44.1	19.8	10.1	31.9	42.1	46.0	3.9	148	89	
Hori.	816.015	QP	42.8	21.1	10.6	31.5	43.0	46.0	3.0	152	208	
Hori.	2483.500	PK	46.4	27.5	14.9	41.4	47.4	73.9	26.5	164	34	
Hori.	2583.990	PK	48.2	27.7	15.0	41.4	49.5	73.9	24.4	183	45	
Hori.	2610.000	PK	46.0	27.8	15.0	41.4	47.4	73.9	26.5	185	43	
Hori.	2637.000	PK	45.8	27.8	15.0	41.4	47.2	73.9	26.7	100	0	
Hori.	3126.505	PK	53.7	28.7	6.6	41.5	47.5	73.9	26.4	121	112	
Hori.	4960.000	PK	48.1	31.6	7.7	41.0	46.4	73.9	27.5	100	0	
Hori.	7440.000	PK	45.9	36.7	9.2	41.5	50.3	73.9	23.6	100	0	
Hori.	9920.000	PK	41.6	39.0	10.3	38.9	52.0	73.9	21.9	100	0	
Hori.	12400.000	PK	42.7	39.5	11.3	39.3	54.2	73.9	19.7	100	0	
Hori.	24800.000	PK	44.6	39.6	-1.6	46.7	35.9	73.9	38.0	100	0	noise floor level
Hori.	2483.500	AV	34.2	27.5	14.9	41.4	35.2	53.9	18.7	164	34	
Hori.	2583.990	AV	37.0	27.7	15.0	41.4	38.3	53.9	15.6	183	45	
Hori.	2610.000	AV	34.8	27.8	15.0	41.4	36.2	53.9	17.7	185	43	
Hori.	2637.000	AV	33.7	27.8	15.0	41.4	35.1	53.9	18.8	100	0	
Hori.	3126.505	AV	49.6	28.7	6.6	41.5	43.4	53.9	10.5	121	112	
Hori.	4960.000	AV	37.0	31.6	7.7	41.0	35.3	53.9	18.6	100	0	
Hori.	7440.000	AV	34.4	36.7	9.2	41.5	38.8	53.9	15.1	100	0	
Hori.	9920.000	AV	30.2	39.0	10.3	38.9	40.6	53.9	13.3	100	0	
Hori.	12400.000	AV	31.0	39.5	11.3	39.3	42.5	53.9	11.4	100	0	
Hori.	24800.000	AV	32.4	39.6	-1.6	46.7	23.7	53.9	30.2	100	0	noise floor level
Vert.	37.004	QP	42.2	15.5	6.5	32.2	32.0	40.0	8.0	100	54	
Vert.	144.001	QP	37.0	14.6	7.7	32.1	27.2	43.5	16.3	100	258	
Vert.	407.073	QP	46.2	16.3	9.1	32.0	39.6	46.0	6.4	115	171	
Vert.	592.104	QP	43.7	18.8	9.8	31.9	40.4	46.0	5.6	105	21	
Vert.	666.119	QP	43.2	19.8	10.1	31.9	41.2	46.0	4.8	100	339	
Vert.	816.015	QP	33.7	21.1	10.6	31.5	33.9	46.0	12.1	100	330	
Vert.	2483.500	PK	47.2	27.5	14.9	41.4	48.2	73.9	25.7	174	334	
Vert.	2583.990	PK	46.8	27.7	15.0	41.4	48.1	73.9	25.8	174	21	
Vert.	2610.000	PK	45.2	27.8	15.0	41.4	46.6	73.9	27.3	159	113	
Vert.	2637.000	PK	45.3	27.8	15.0	41.4	46.7	73.9	27.2	100	0	
Vert.	3126.505	PK	56.8	28.7	6.6	41.5	50.6	73.9	23.3	100	196	
Vert.	4960.000	PK	47.8	31.6	7.7	41.0	46.1	73.9	27.8	100	55	
Vert.	7440.000	PK	46.5	36.7	9.2	41.5	50.9	73.9	23.0	100	0	
Vert.	9920.000	PK	41.9	39.0	10.3	38.9	52.3	73.9	21.6	100	0	
Vert.	12400.000	PK	42.6	39.5	11.3	39.3	54.1	73.9	19.8	100	0	
Vert.	24800.000	PK	44.7	39.6	-1.6	46.7	36.0	73.9	37.9	100	0	noise floor level
Vert.	2483.500	AV	34.6	27.5	14.9	41.4	35.6	53.9	18.3	174	334	
Vert.	2583.990	AV	35.2	27.7	15.0	41.4	36.5	53.9	17.4	174	21	
Vert.	2610.000	AV	34.1	27.8	15.0	41.4	35.5	53.9	18.4	159	113	
Vert.	2637.000	AV	33.6	27.8	15.0	41.4	35.0	53.9	18.9	100	0	
Vert.	3126.505	AV	54.1	28.7	6.6	41.5	47.9	53.9	6.0	100	196	
Vert.	4960.000	AV	36.3	31.6	7.7	41.0	34.6	53.9	19.3	100	55	
Vert.	7440.000	AV	34.1	36.7	9.2	41.5	38.5	53.9	15.4	100	0	
Vert.	9920.000	AV	29.7	39.0	10.3	38.9	40.1	53.9	13.8	100	0	
Vert.	12400.000	AV	31.0	39.5	11.3	39.3	42.5	53.9	11.4	100	0	
Vert.	24800.000	AV	32.5	39.6	-1.6	46.7	23.8	53.9	30.1	100	0	noise floor level

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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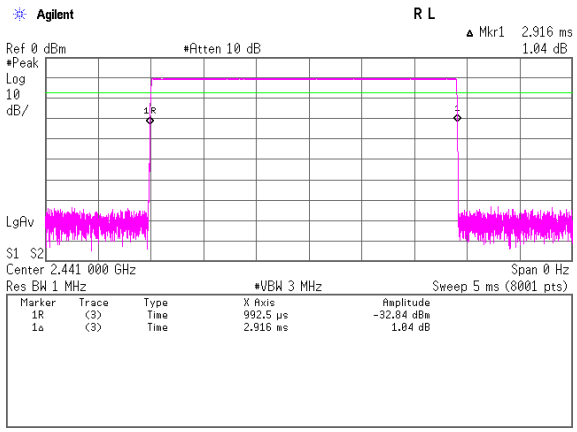
Dwell time factor Calculation chart

Dwell time factor Calculation

Tx, Bluetooth, BDR, PRBS9	
Worst 100ms **Dwell time factor =20log((2.936 x 2)/100) = -24.62dB**	**1cycle On time :** **2.936ms**
ON time of some channel during 100ms: Twice This is the worst case in hopping sequence of Bluetooth.	

VBW (Average) setting

***Although 00-705 accepts VBW=10Hz for AV measurements, confirmed that superfluous smoothing was not performed.**

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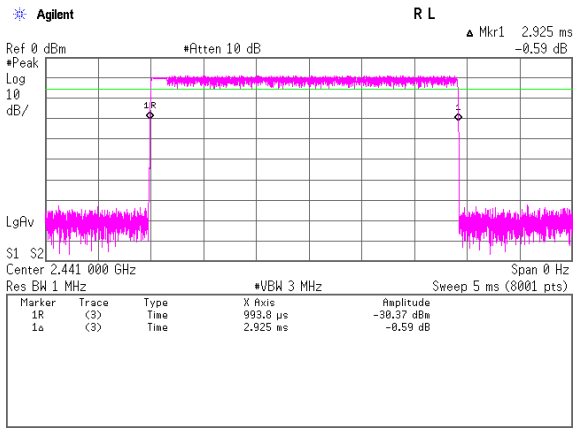
Dwell time factor Calculation chart

Dwell time factor Calculation

Tx, Bluetooth, EDR, PRBS9	
Worst 100ms **Dwell time factor =20log((2.936 x 2)/100) = -24.62dB**	**1cycle On time :** **2.936ms**
ON time of some channel during 100ms: Twice This is the worst case in hopping sequence of Bluetooth.	

VBW (Average) setting

***Although 00-705 accepts VBW=10Hz for AV measurements, confirmed that superfluous smoothing was not performed.**

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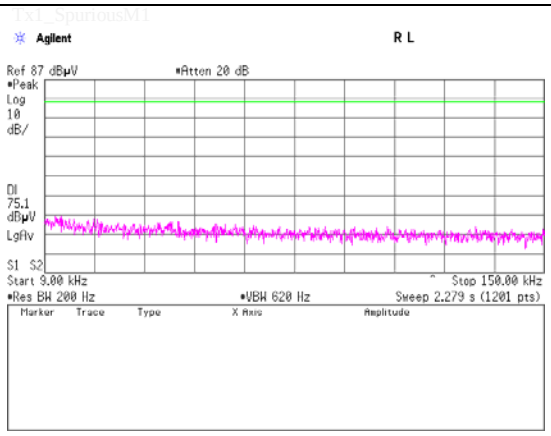
Spurious emission (Conducted)

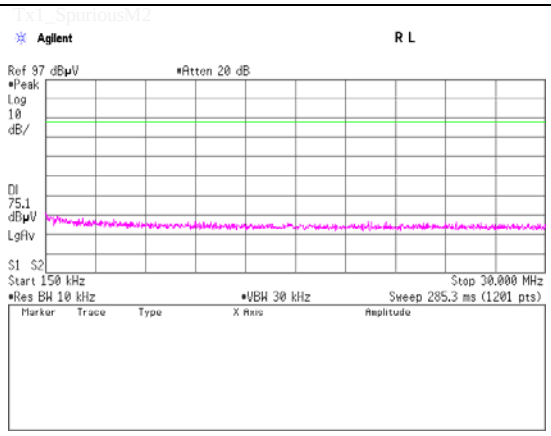
Tx, Bluetooth, BDR, PRBS9

Tx, 2402MHz (below 1GHz)

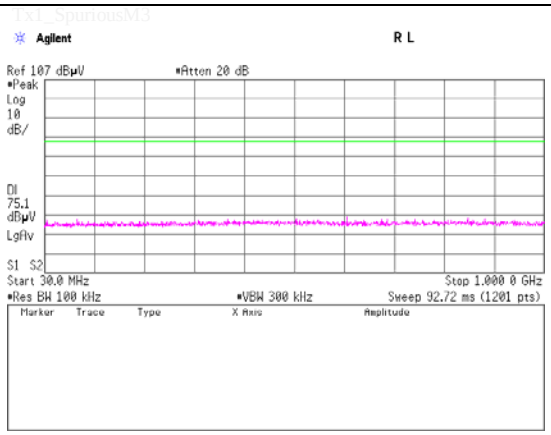
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



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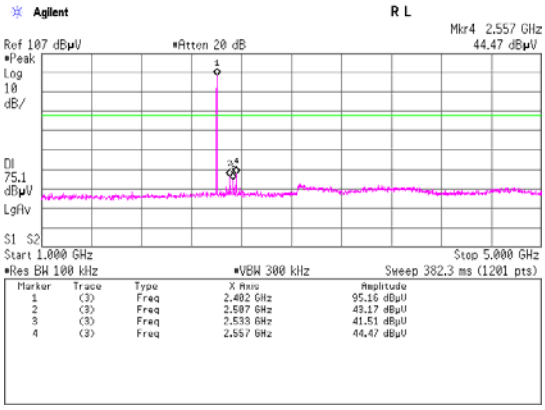
Spurious emission (Conducted)

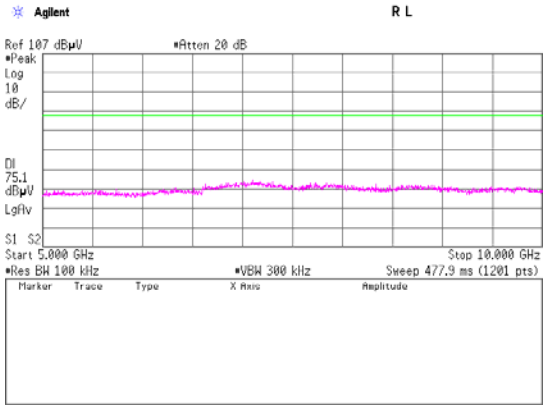
Tx, Bluetooth, BDR, PRBS9

Tx, 2402MHz (above 1GHz)

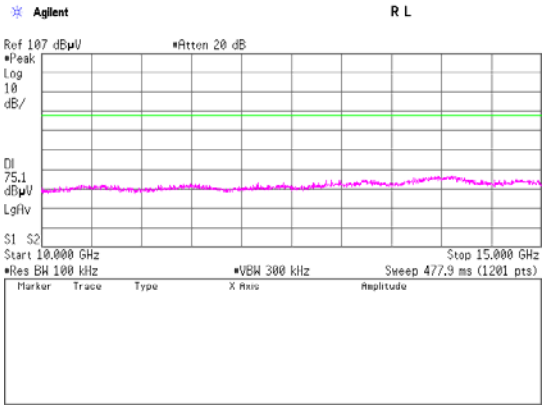
1GHz - 5GHz



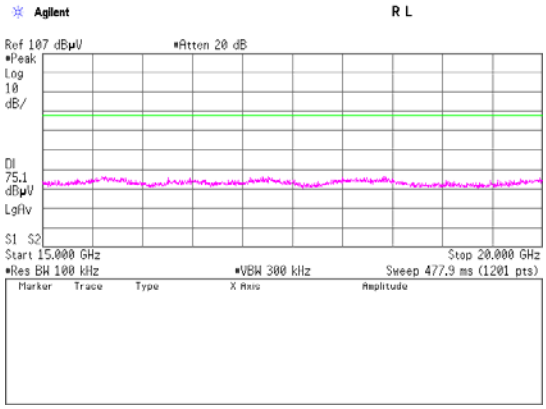
5GHz - 10GHz



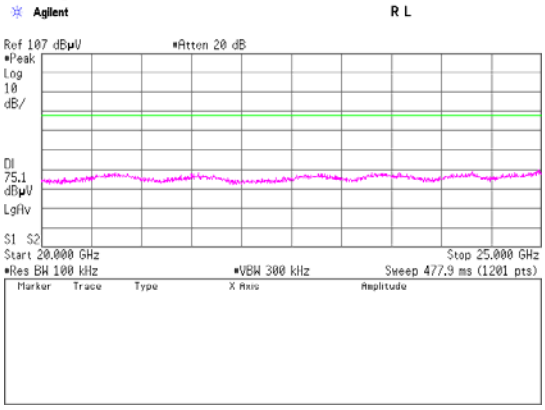
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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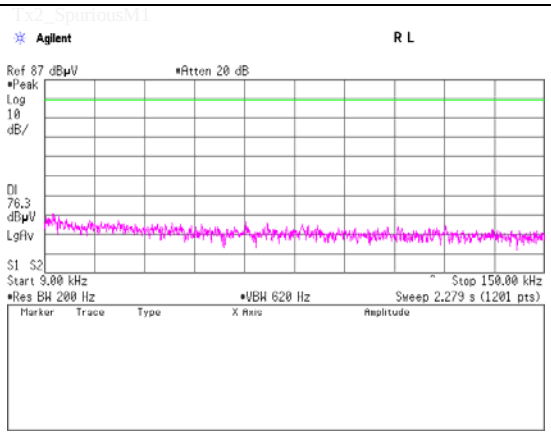
Spurious emission (Conducted)

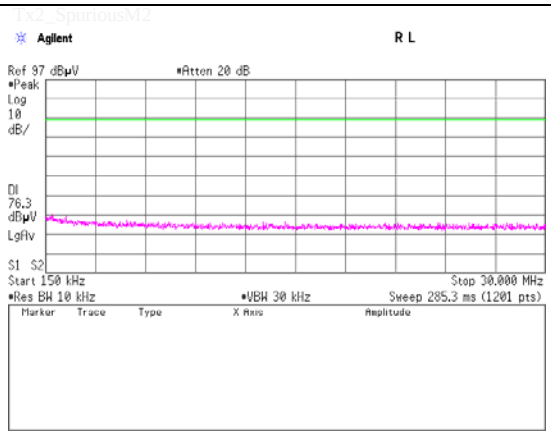
Tx, Bluetooth, BDR, PRBS9

Tx, 2441MHz (below 1GHz)

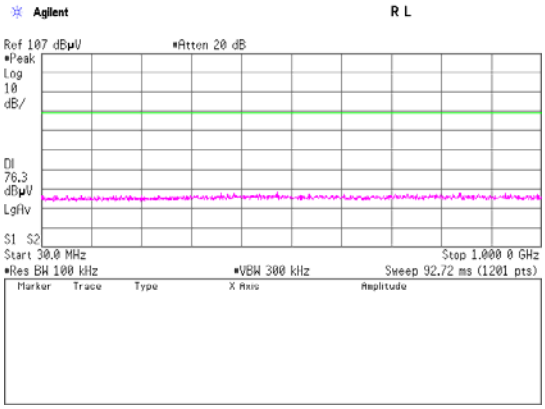
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



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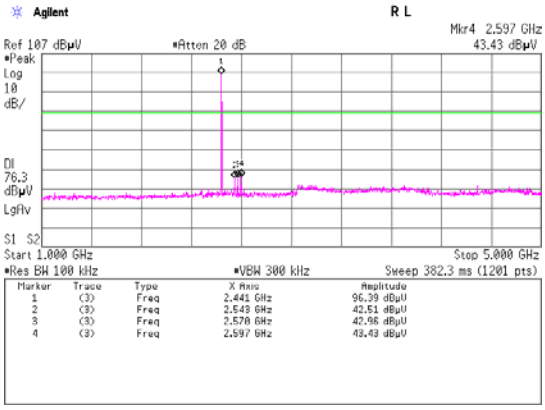
Spurious emission (Conducted)

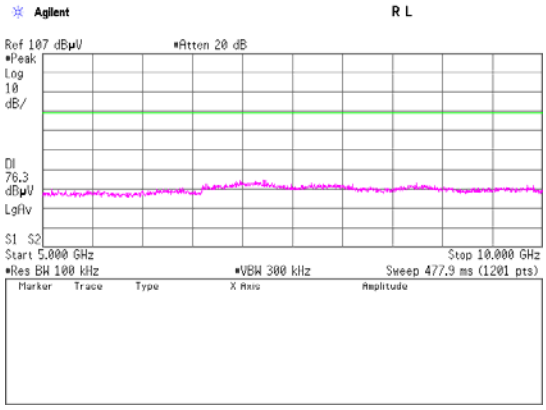
Tx, Bluetooth, BDR, PRBS9

Tx, 2441MHz (above 1GHz)

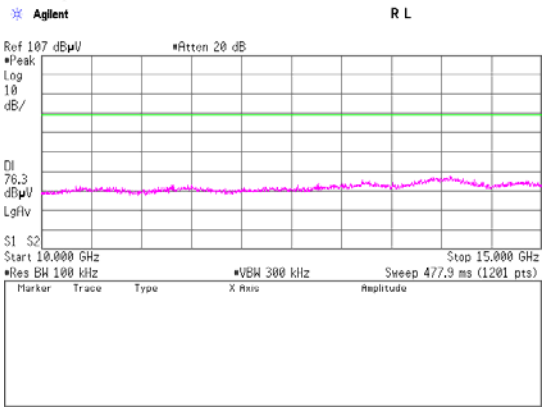
1GHz - 5GHz



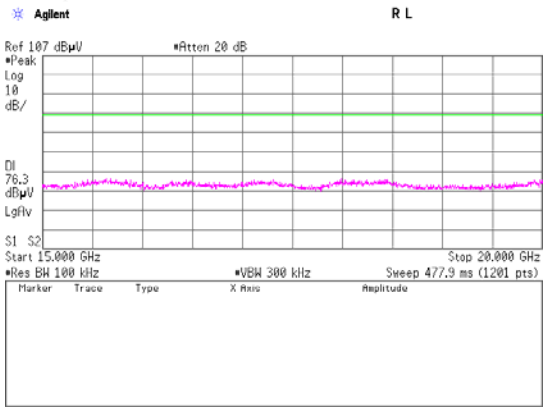
5GHz - 10GHz



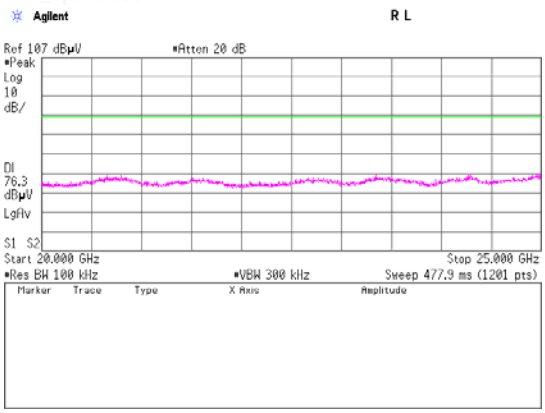
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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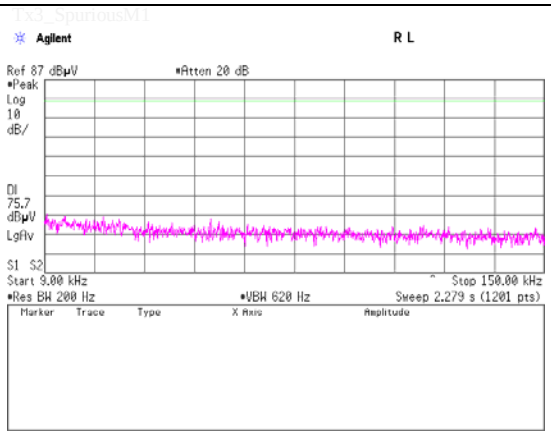
Spurious emission (Conducted)

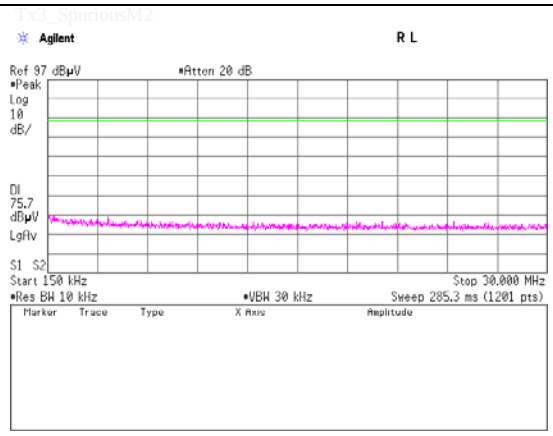
Tx, Bluetooth, BDR, PRBS9

Tx, 2480MHz (below 1GHz)

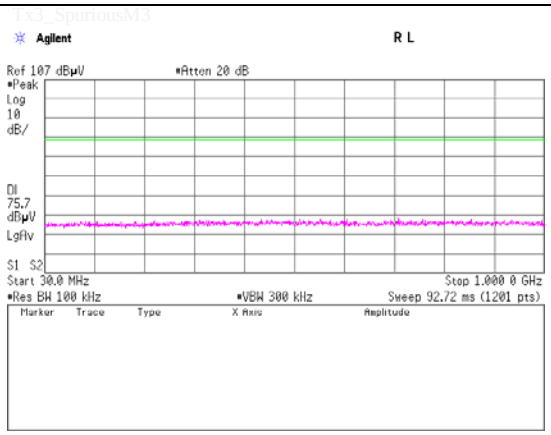
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



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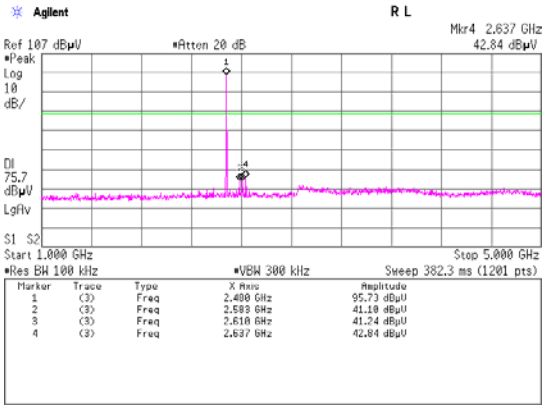
Spurious emission (Conducted)

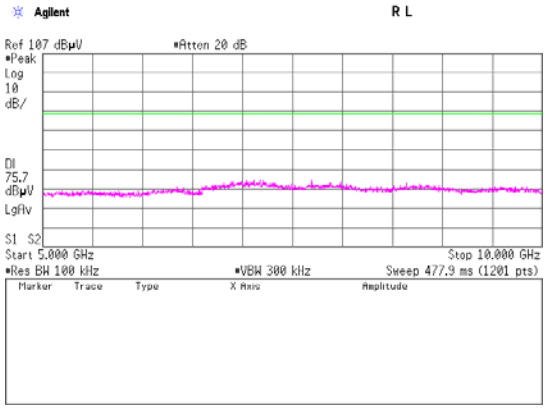
Tx, Bluetooth, BDR, PRBS9

Tx, 2480MHz (above 1GHz)

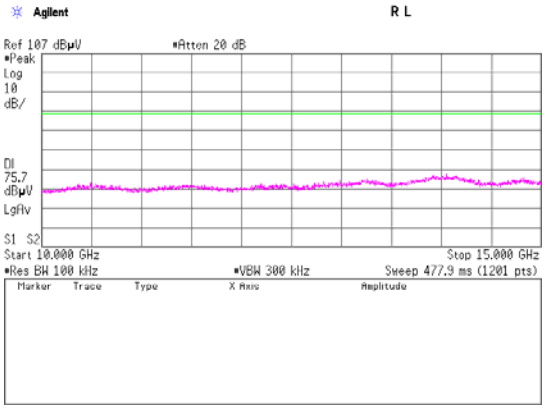
1GHz - 5GHz



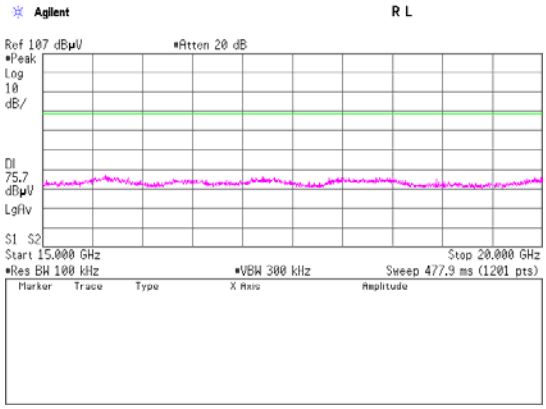
5GHz - 10GHz



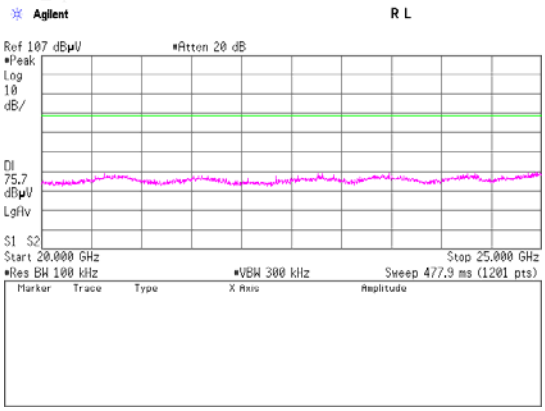
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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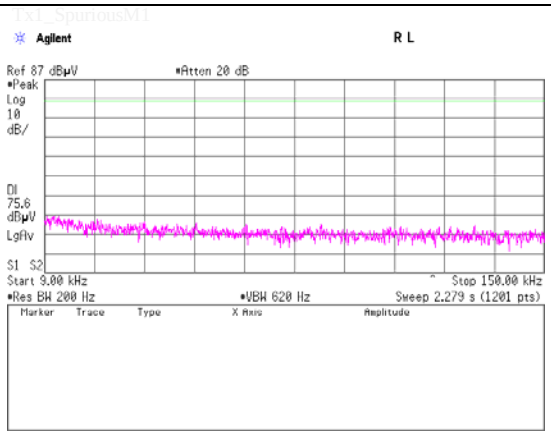
Spurious emission (Conducted)

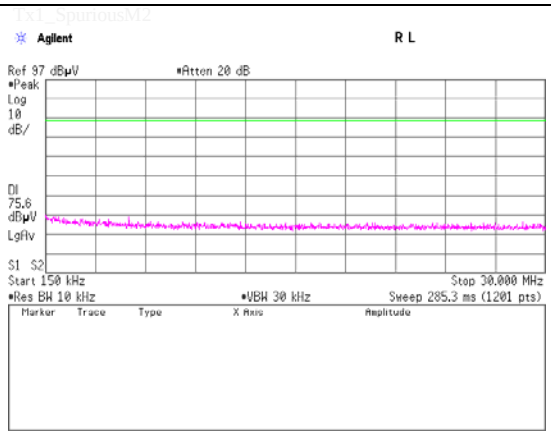
Tx, Bluetooth, EDR, PRBS9

Tx, 2402MHz (below 1GHz)

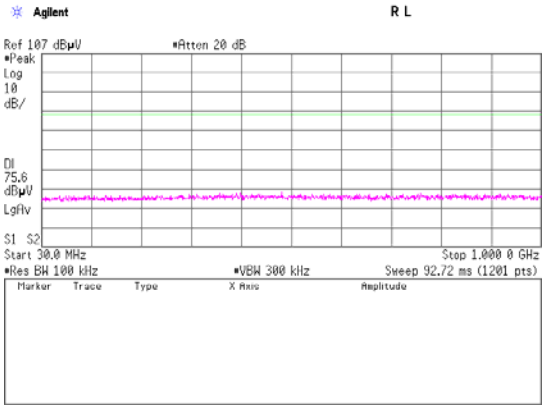
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



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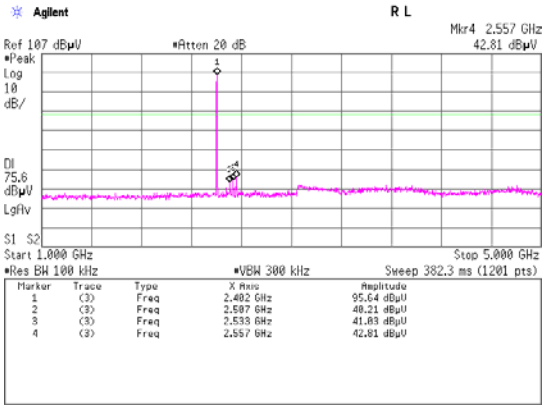
Spurious emission (Conducted)

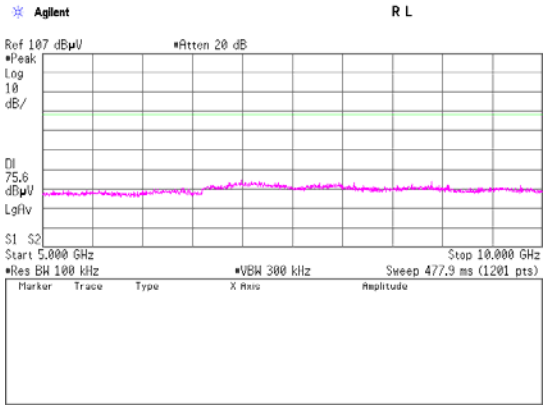
Tx, Bluetooth, EDR, PRBS9

Tx, 2402MHz (above 1GHz)

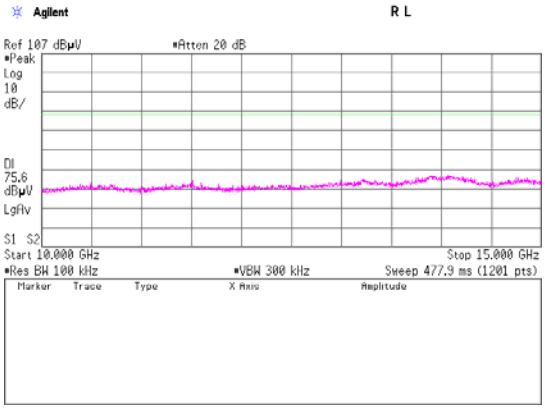
1GHz - 5GHz



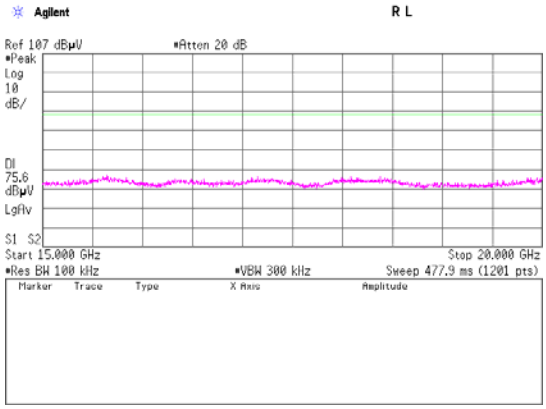
5GHz - 10GHz



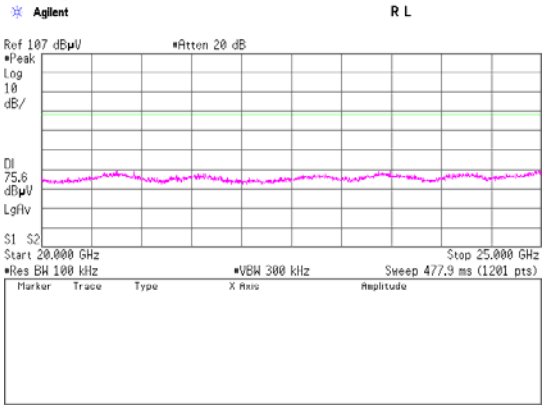
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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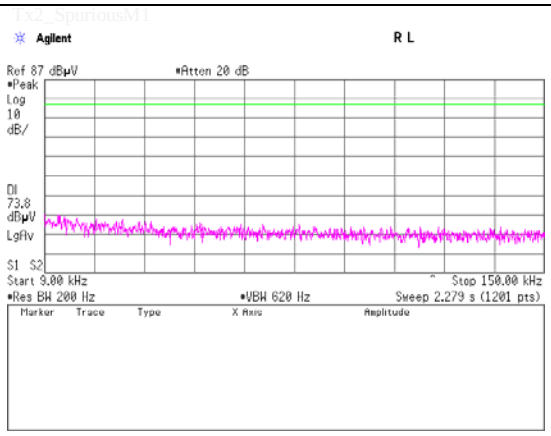
Spurious emission (Conducted)

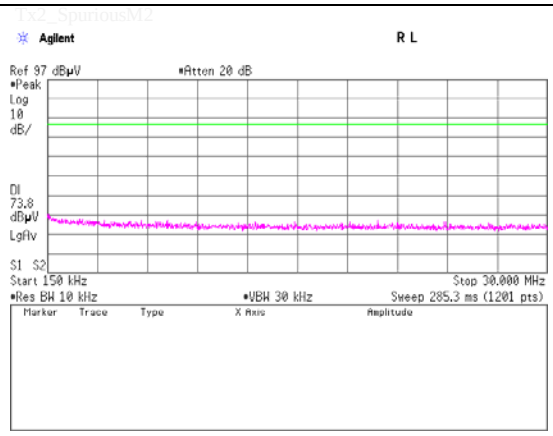
Tx, Bluetooth, EDR, PRBS9

Tx, 2441MHz (below 1GHz)

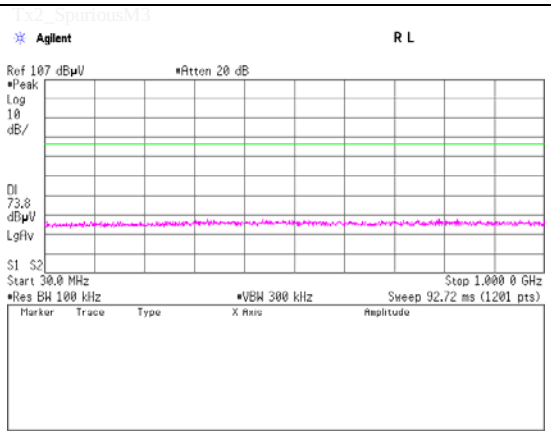
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



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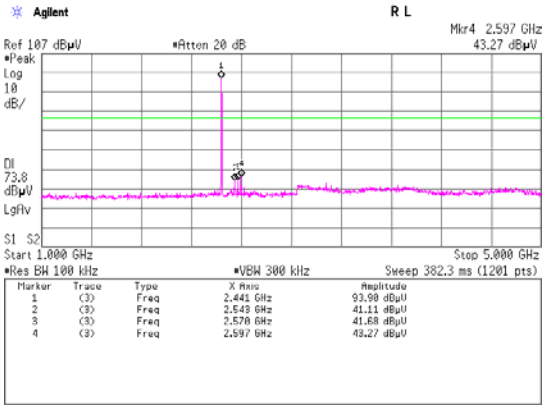
Spurious emission (Conducted)

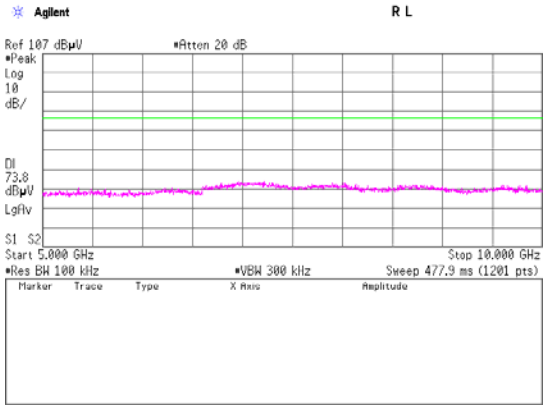
Tx, Bluetooth, EDR, PRBS9

Tx, 2441MHz (above 1GHz)

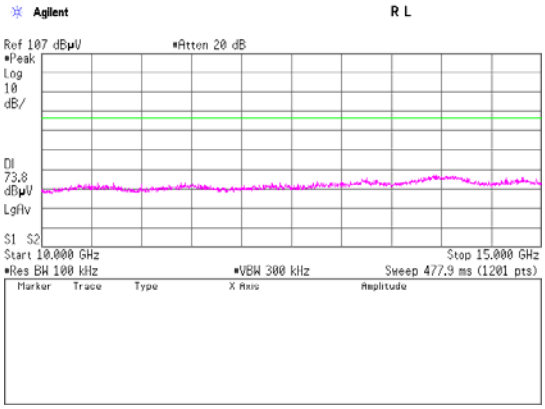
1GHz - 5GHz



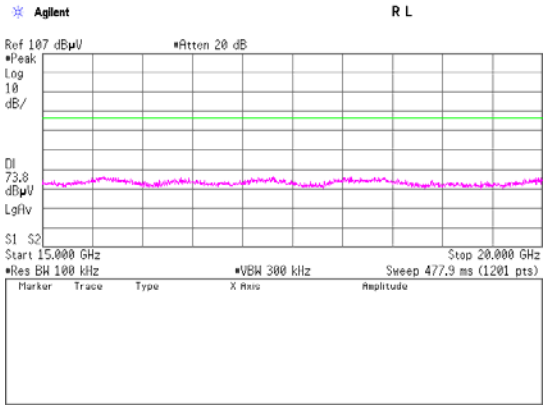
5GHz - 10GHz



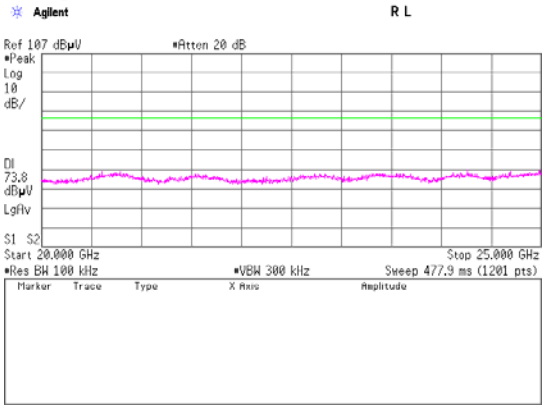
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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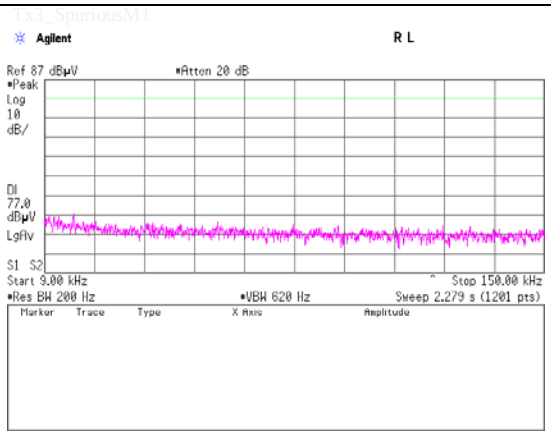
Spurious emission (Conducted)

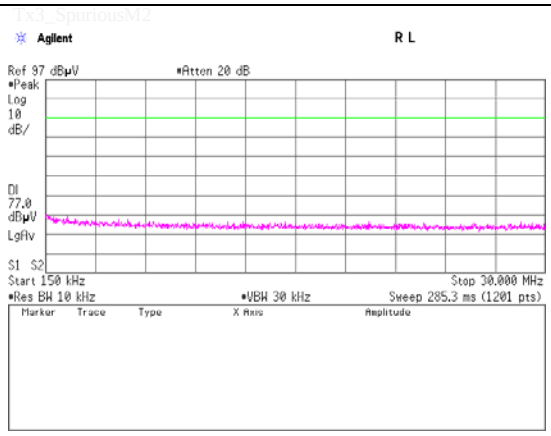
Tx, Bluetooth, EDR, PRBS9

Tx, 2480MHz (below 1GHz)

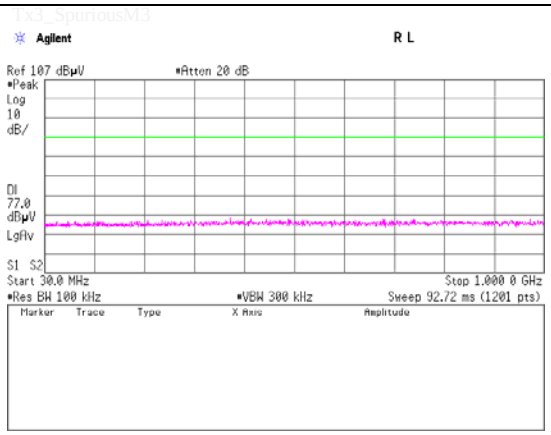
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



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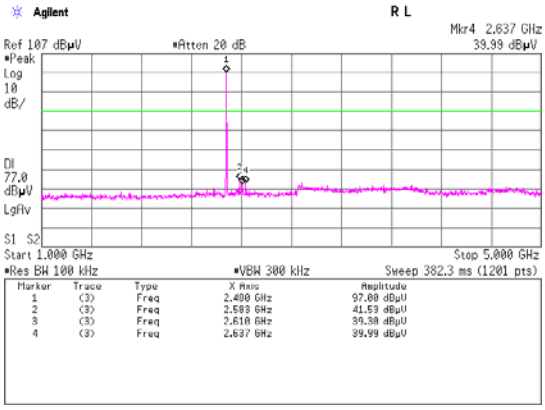
Spurious emission (Conducted)

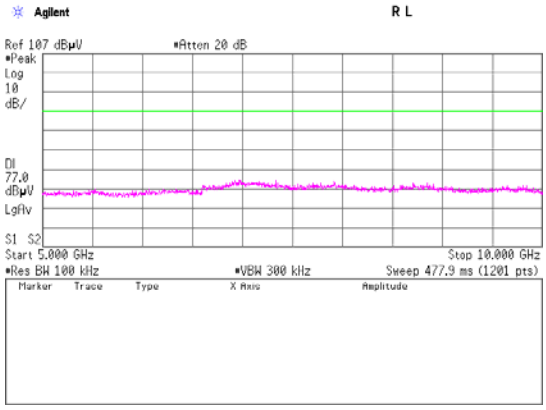
Tx, Bluetooth, EDR, PRBS9

Tx, 2480MHz (above 1GHz)

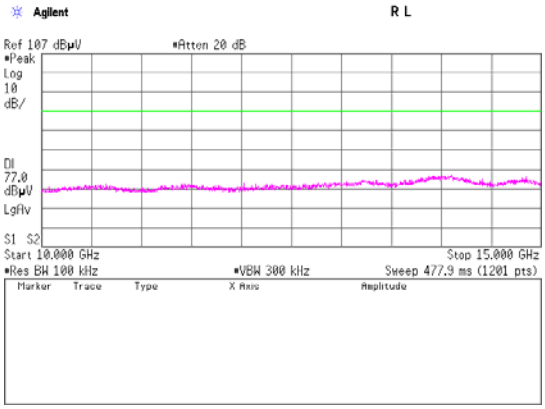
1GHz - 5GHz



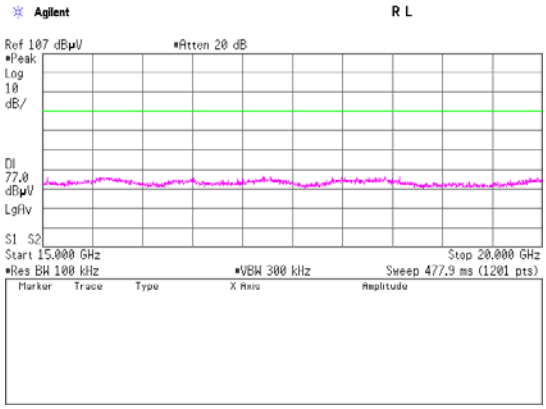
5GHz - 10GHz



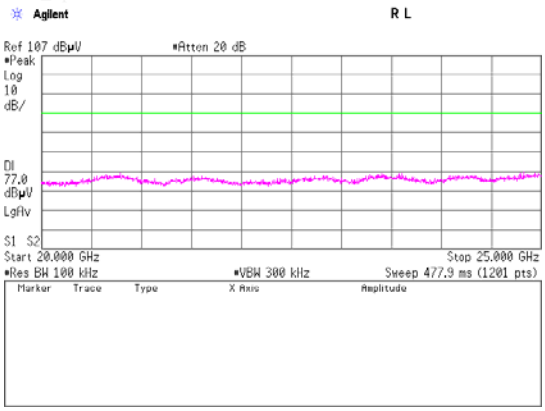
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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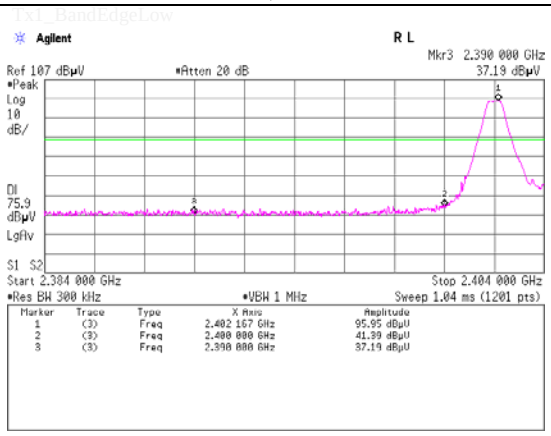
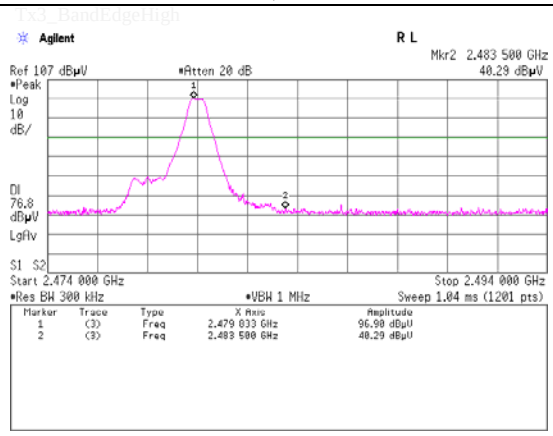
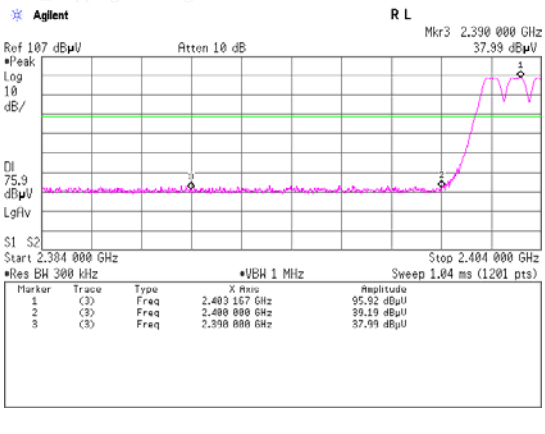
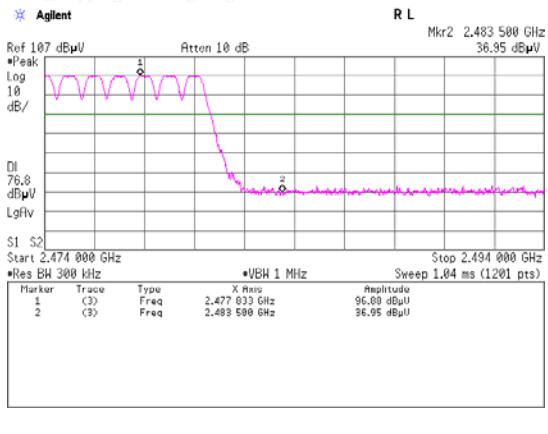
Spurious emission (Conducted)

Band Edge compliance

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

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

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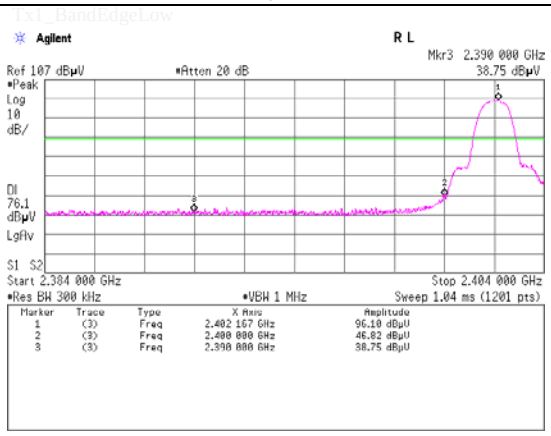
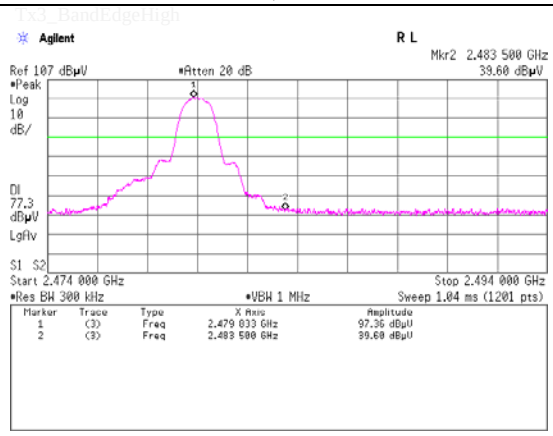
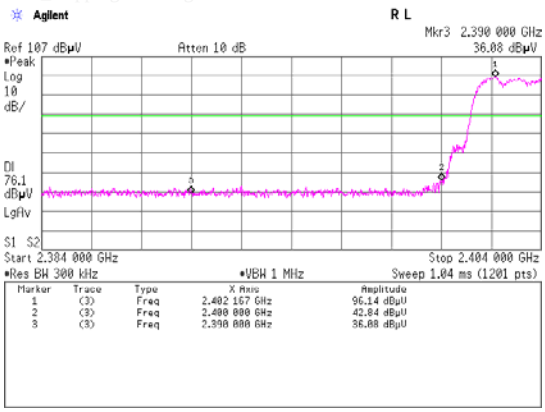
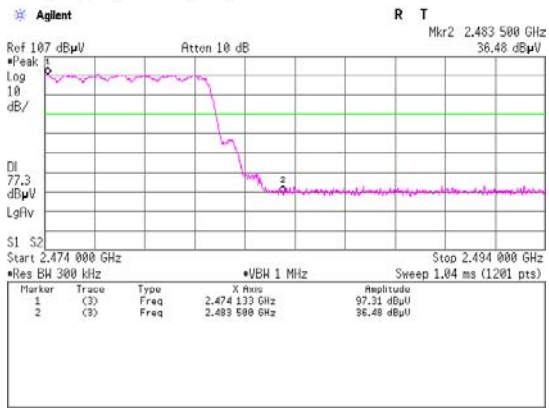
Spurious emission (Conducted)

Band Edge compliance

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

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

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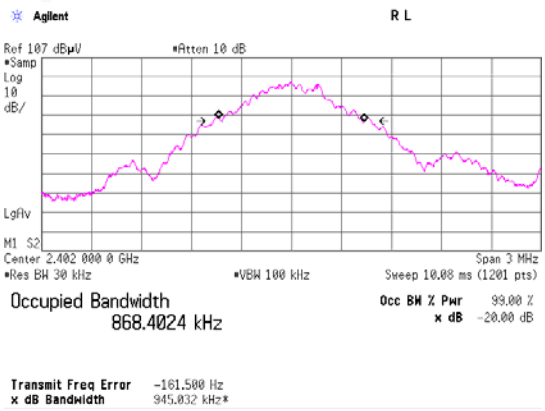
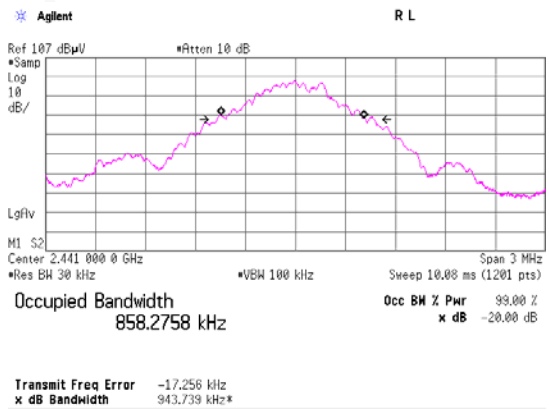
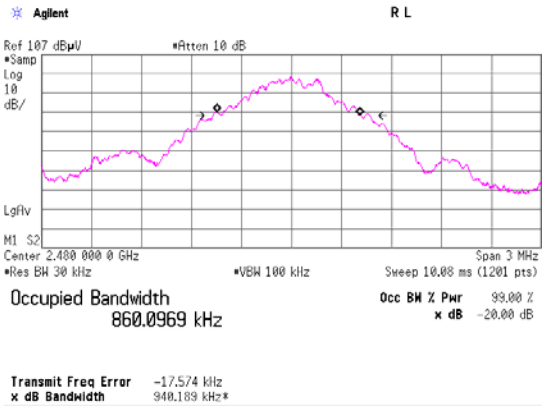
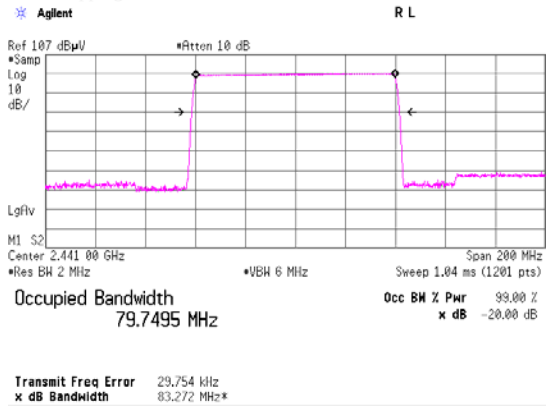
99% Occupied Bandwidth

Tx, Bluetooth, BDR, PRBS9	
Tx, 2402MHz	**Tx, 2441MHz**
	
Tx, 2480MHz	**Tx, Hopping On**
	

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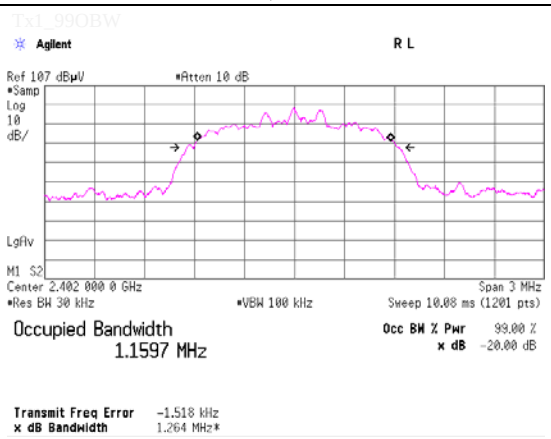
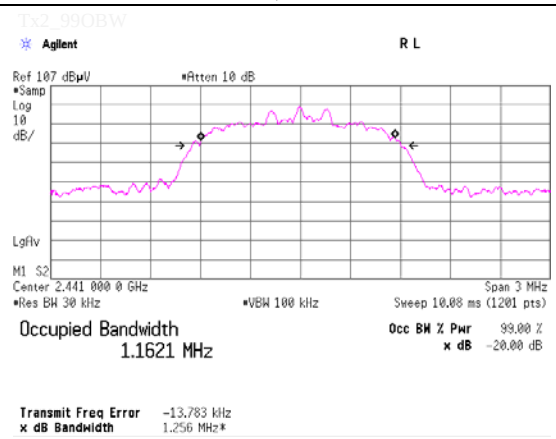
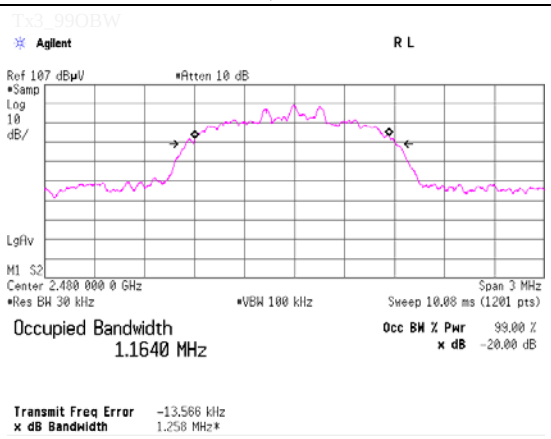
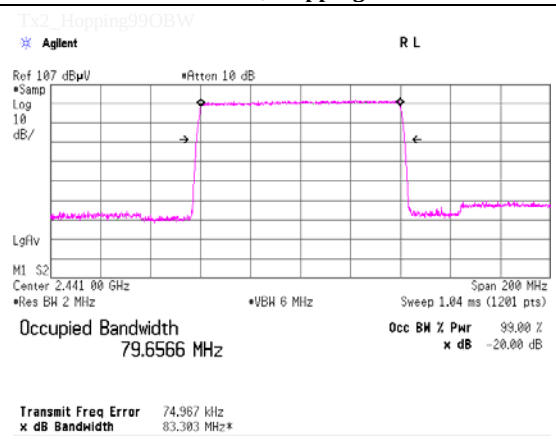
99% Occupied Bandwidth

Tx, Bluetooth, EDR, PRBS9	
Tx, 2402MHz	**Tx, 2441MHz**
	
Tx, 2480MHz	**Tx, Hopping On**
	

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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)
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2013/04/09 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2013/04/09 * 12
SAT10-09	Attenuator	Weinschel Corp.	54A-10	W5692	AT	2012/11/15 * 12
SCC-G29	Coaxial Cable	Junkosha	MWX241-01000KM SKMS	SEP-20-12-003	AT	2012/09/26 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	AT	2013/01/08 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2013/03/07 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2012/09/21 * 12
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2012/07/18 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2013/04/11 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2013/05/22 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2012/08/17 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2013/02/27 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE	2013/03/28 * 12
SJM-11	Measure	PROMART	SEN1935	-	RE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE, RFI,MF)	-	RE	-
SAT10-06	Attenuator	Agilent	8493C-010	74865	RE	2012/12/18 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2012/12/18 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2013/02/12 * 12
SAT6-06	Attenuator	JFW	50HF-006N	-	RE	2013/02/12 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2012/10/08 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2013/04/03 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2012/10/08 * 12
STR-06	Test Receiver	Rohde & Schwarz	ESCI	101259	RE	2013/02/27 * 12
KSA-08	Spectrum Analyzer	Agilent	E4446A	MY46180525	RE	2013/03/04 * 12
STR-03	Test Receiver	Rohde & Schwarz	ESI40	100054/040	RE	2012/06/14 * 12
SCC-G18	Coaxial Cable	Suhner	SUCOFLEX 104A	46292/4A	RE	2013/03/16 * 12
SAF-09	Pre Amplifier	TOYO Corporation	HAP18-26W	00000018	RE	2013/03/19 * 12
SHA-05	Horn Antenna	ETS LINDGREN	3160-09	LM4210	RE	2013/03/14 * 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 conducted tests ,