APPENDIX 1: Data of Radio tests

20dB Bandwidth and Carrier Frequency Separation

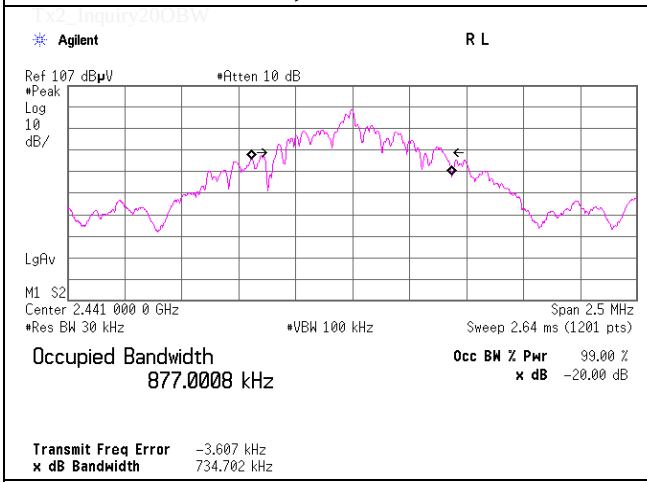
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	August 30, 2012	
Temperature / Humidity	26 deg.C , 54 %RH	
Engineer	Kenichi Adachi	
Mode	Tx, Bluetooth, BDR, PRBS9	

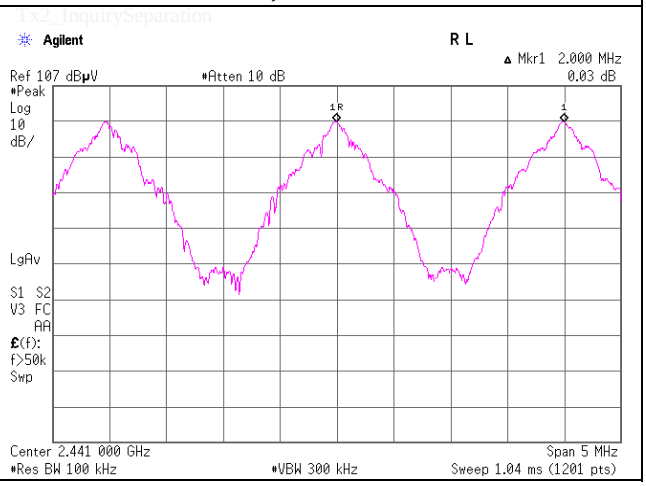
Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency Separation [MHz]
DH5	2402.0	0.924	1.000	>= 0.616
DH5	2441.0	0.926	1.003	>= 0.618
DH5	2480.0	0.925	0.998	>= 0.617
Inquiry	2441.0	0.735	2.000	>= 0.490

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

Inquiry

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

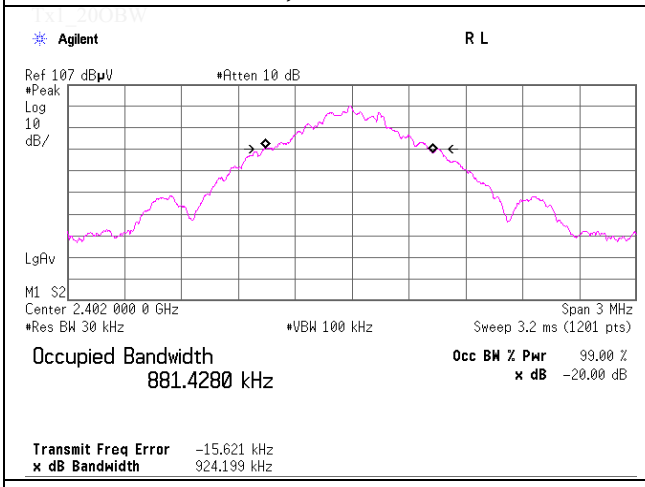
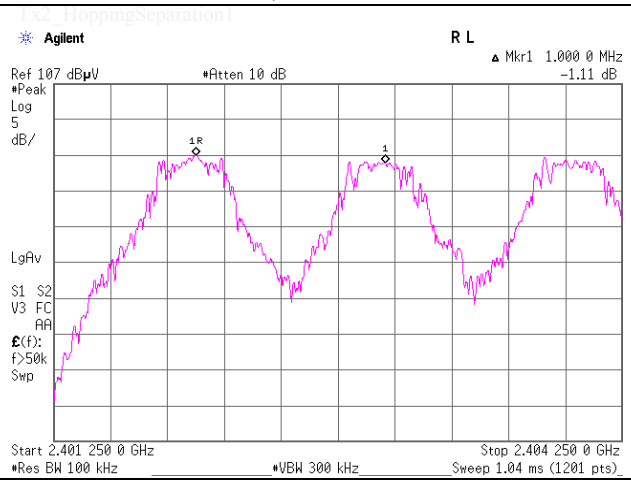
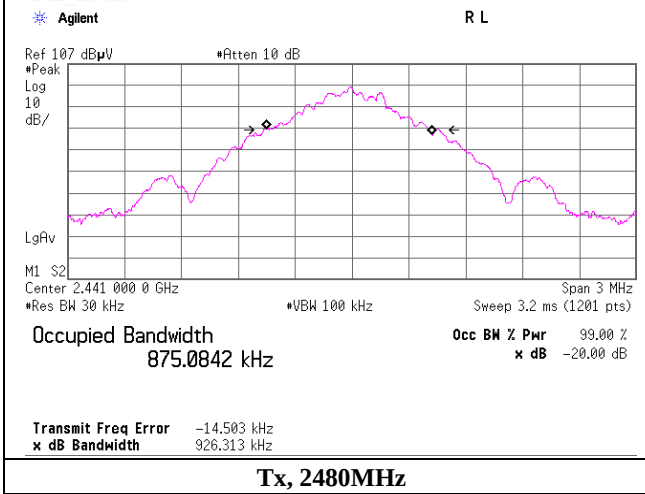
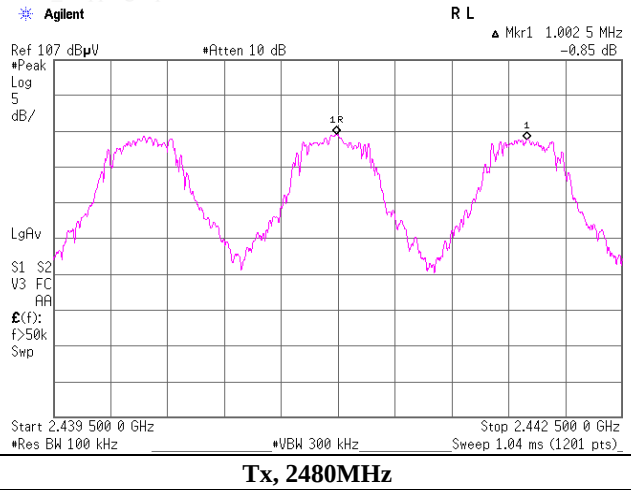
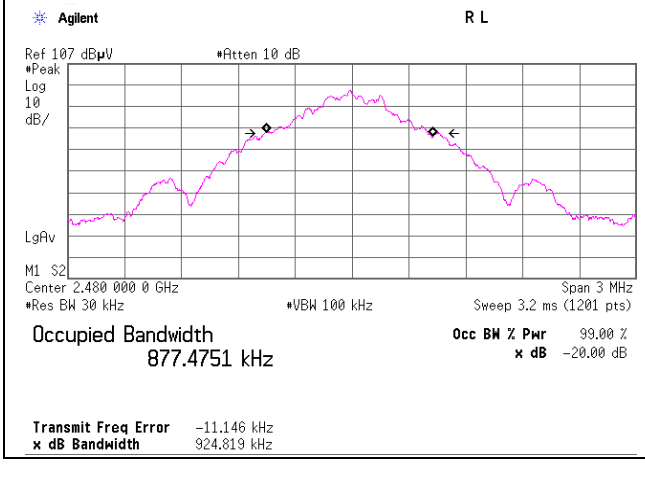
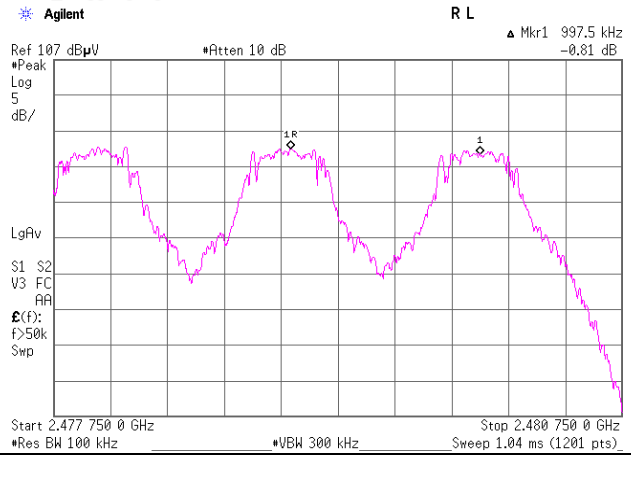




UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

20dB Bandwidth and Carrier Frequency Separation

Tx, Bluetooth, BDR, PRBS9

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

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

20dB Bandwidth and Carrier Frequency Separation

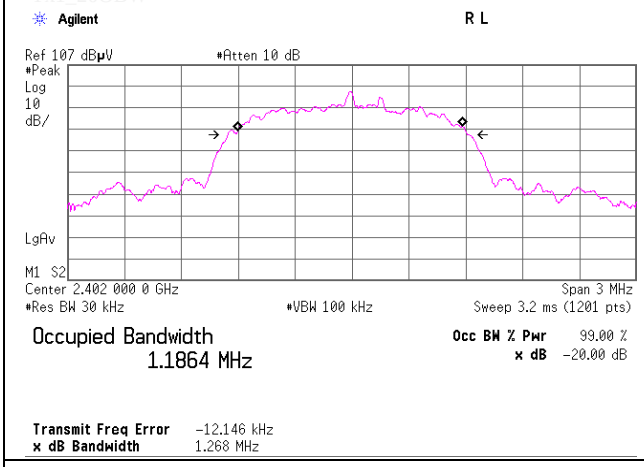
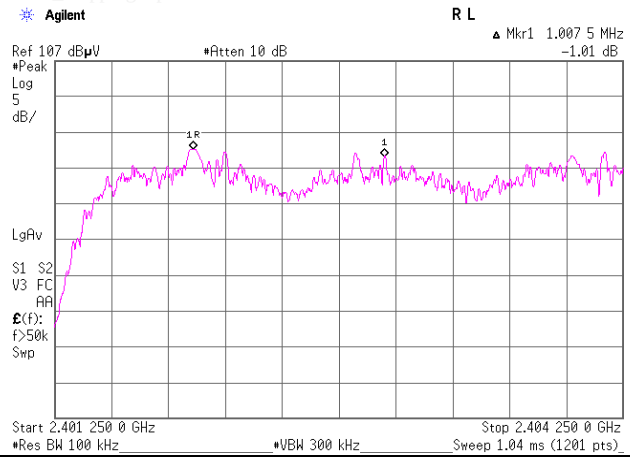
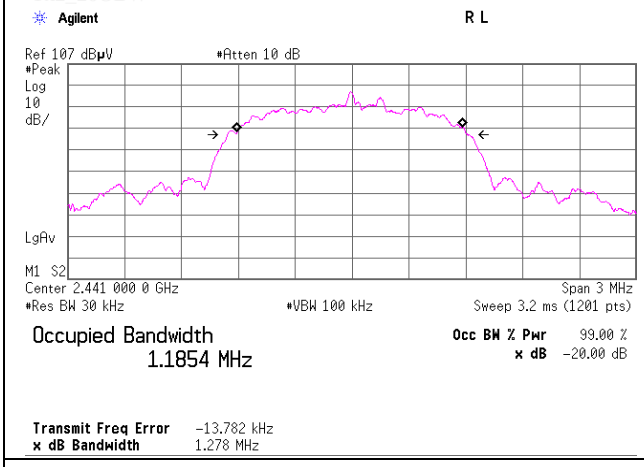
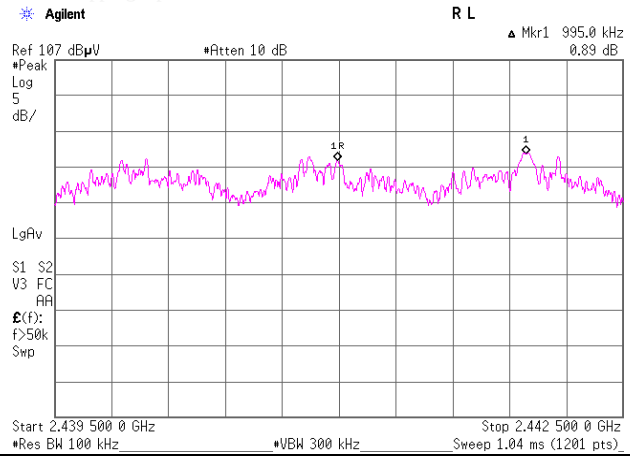
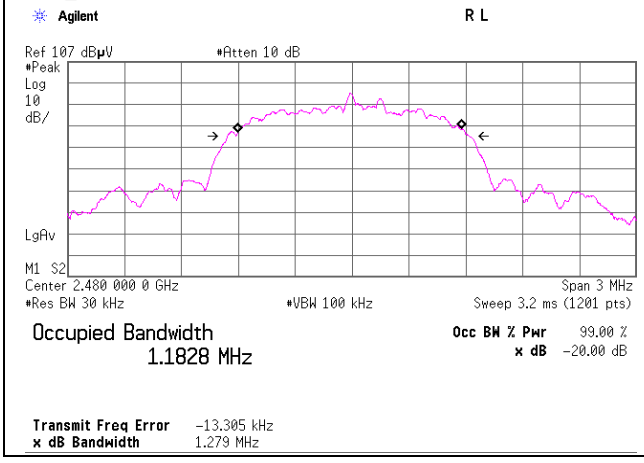
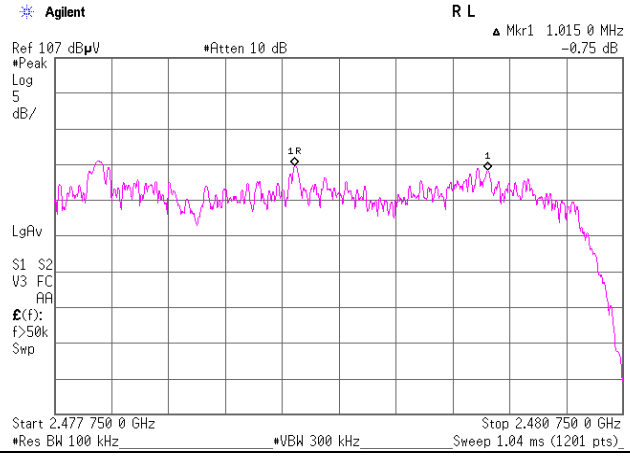
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	August 30, 2012	
Temperature / Humidity	26 deg.C , 54 %RH	
Engineer	Kenichi Adachi	
Mode	Tx, Bluetooth, EDR, PRBS9	

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency Separation [MHz]
3-DH5	2402.0	1.268	1.008	>= 0.845
3-DH5	2441.0	1.278	0.995	>= 0.852
3-DH5	2480.0	1.279	1.015	>= 0.853

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**
	
Tx, 2441MHz	**Tx, 2441MHz**
	
Tx, 2480MHz	**Tx, 2480MHz**
	

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

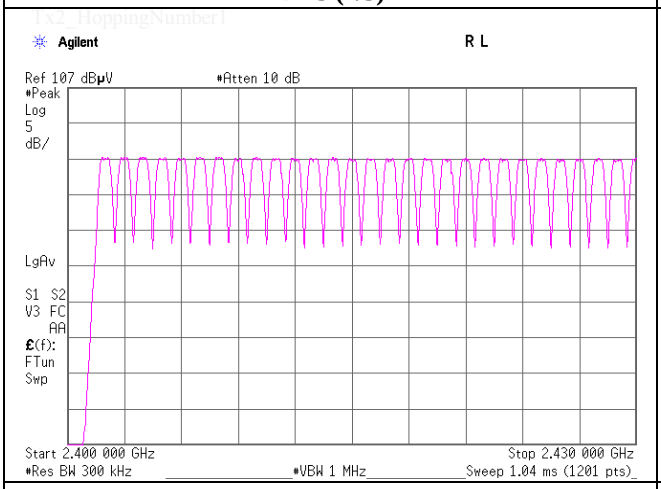
Number of Hopping Frequency

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	August 30, 2012	
Temperature / Humidity	26 deg.C , 54 %RH	
Engineer	Kenichi Adachi	
Mode	Tx, Bluetooth, BDR, PRBS9	

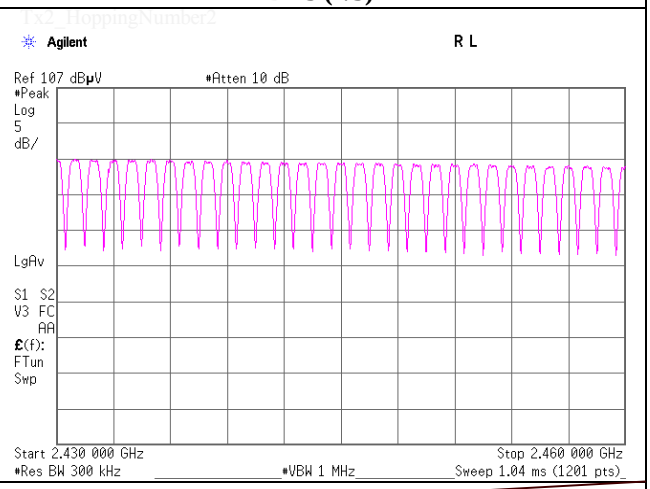
Mode	Number of Channel [times]	Limit [times]
DH5	79	>= 15

* 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.

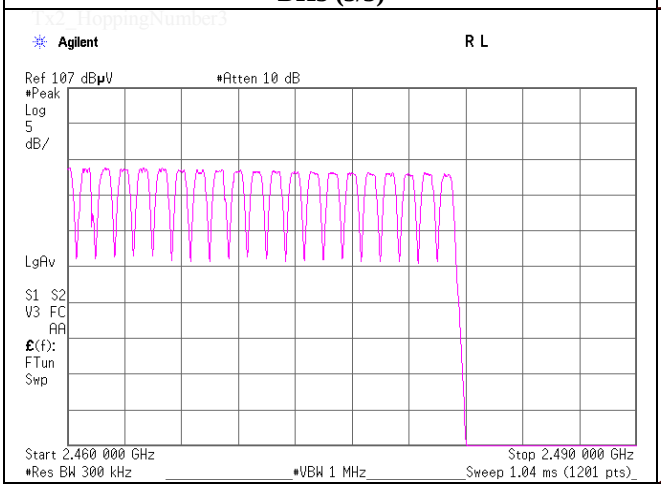
DH5 (1/3)

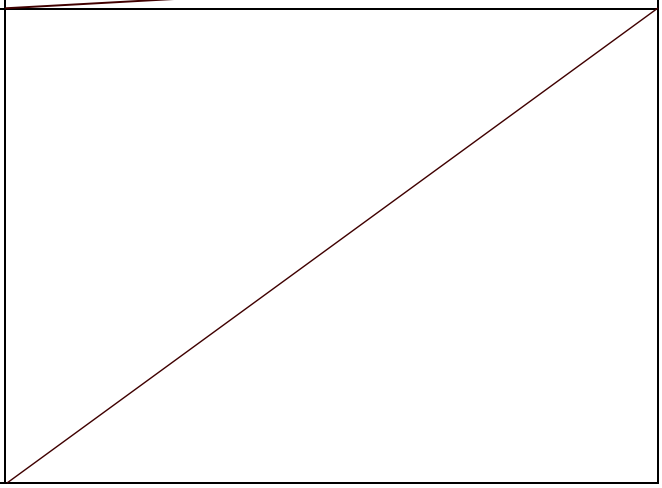


DH5 (2/3)



DH5 (3/3)





UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

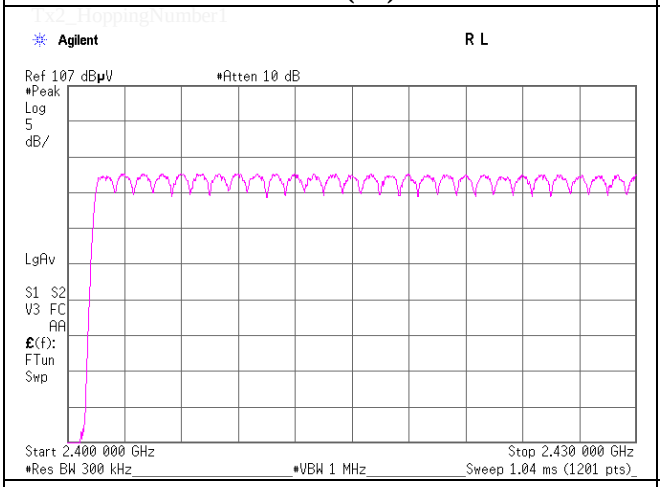
Number of Hopping Frequency

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	August 30, 2012	
Temperature / Humidity	26 deg.C , 54 %RH	
Engineer	Kenichi Adachi	
Mode	Tx, Bluetooth, EDR, PRBS9	

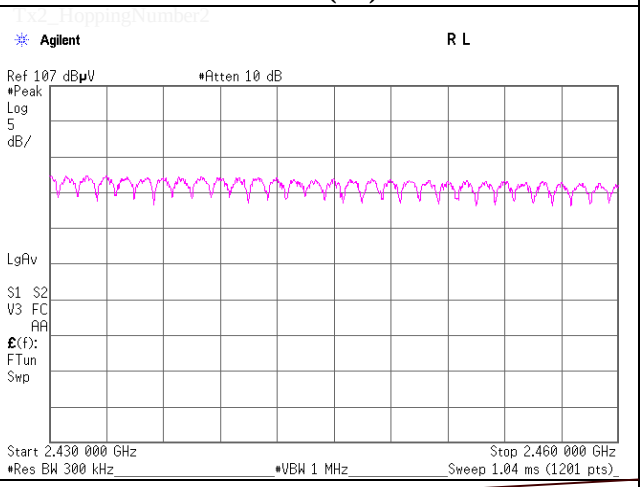
Mode	Number of Channel [times]	Limit [times]
3-DH5	79	>= 15

* 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.

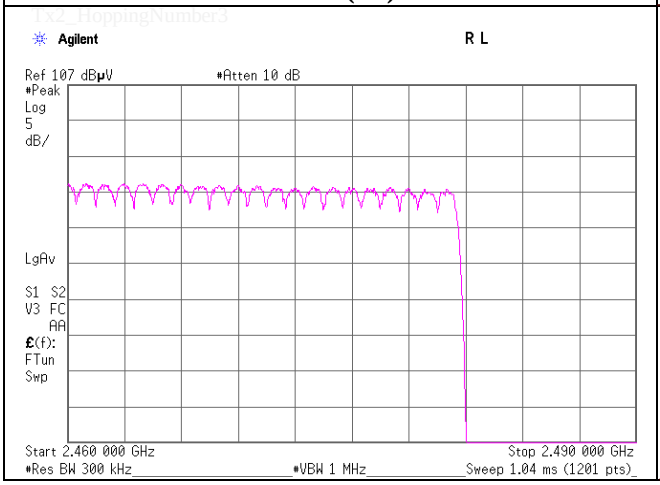
3-DH5 (1/3)



3-DH5 (2/3)



3-DH5 (3/3)



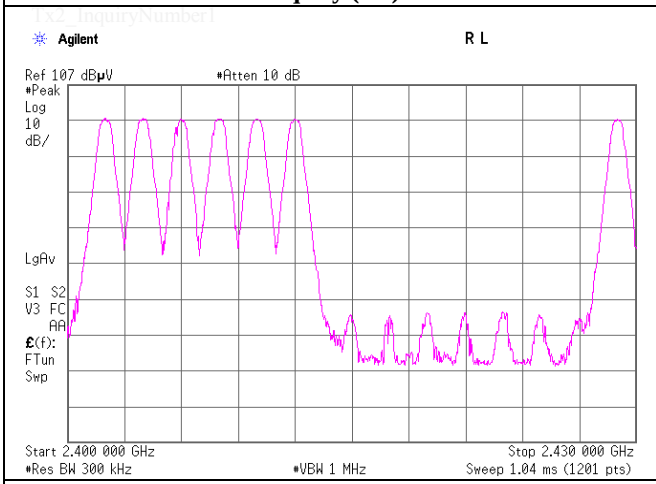
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Number of Hopping Frequency

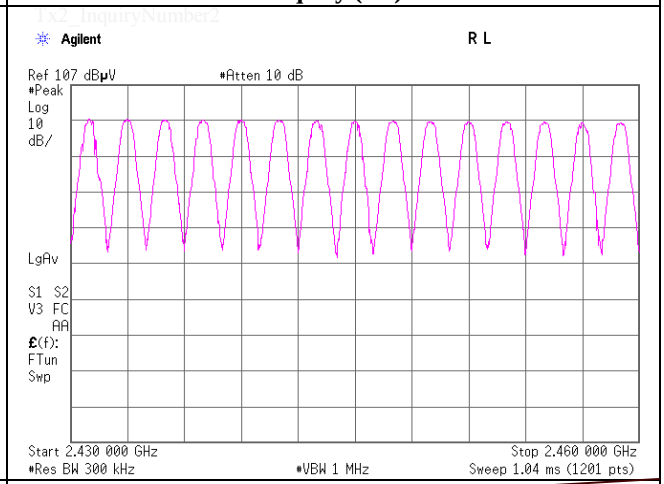
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	August 30, 2012	
Temperature / Humidity	26 deg.C , 54 %RH	
Engineer	Kenichi Adachi	
Mode	Tx, Bluetooth, Inquiry	

Mode	Number of Channel [times]	Limit [times]
Inquiry	32	>= 15

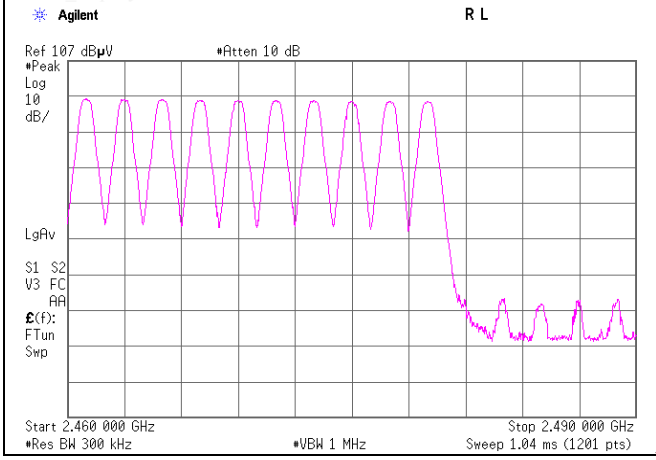
Inquiry (1/3)



Inquiry (2/3)



Inquiry (3/3)



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Dwell Time

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date August 30, 2012
Temperature / Humidity 26 deg.C , 54 %RH
Engineer Kenichi Adachi
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	23.0 / 5.0 sec. x 31.6 sec. = 146 times	0.399	58	400
DH3	22.8 / 5.0 sec. x 31.6 sec. = 145 times	1.656	240	400
DH5	18.2 / 5.0 sec. x 31.6 sec. = 116 times	2.904	337	400
Inquiry	100.0 / 1.0 sec. x 12.8 sec. = 1280 times	0.101	130	400

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

*Average data of 5 tests.(except Inquiry)

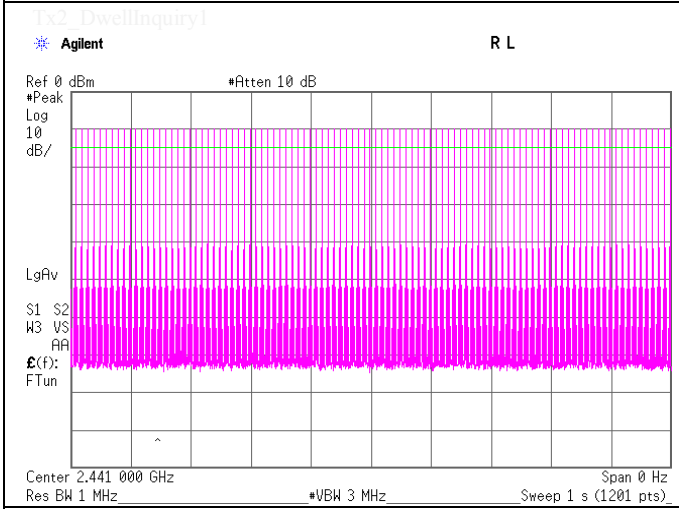
Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	25	23	23	21	23	23.0
DH3	23	24	20	24	23	22.8
DH5	17	19	19	18	18	18.2
Inquiry	100	100	100	100	100	100.0

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

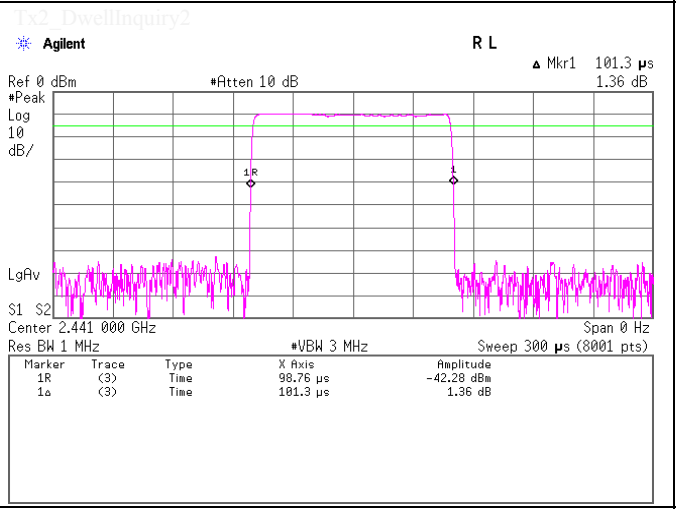
* This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in N x 0.4s, where N is the number of channels being used in the hopping sequence (20 ≤ N ≤ 79), is always less than 0.4s regardless of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

Inquiry

Inquiry (1/2)



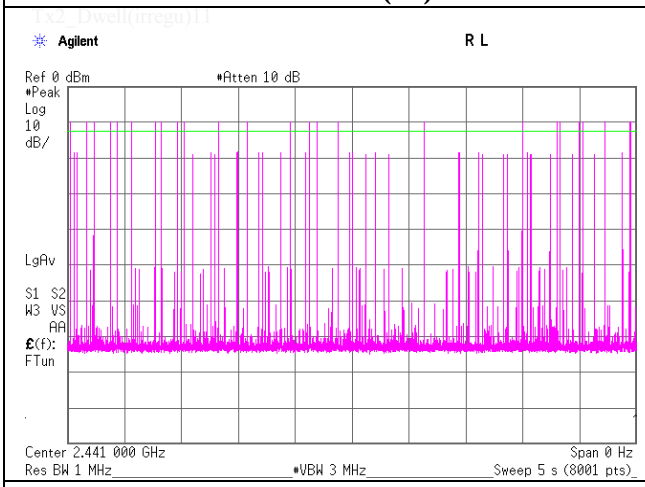
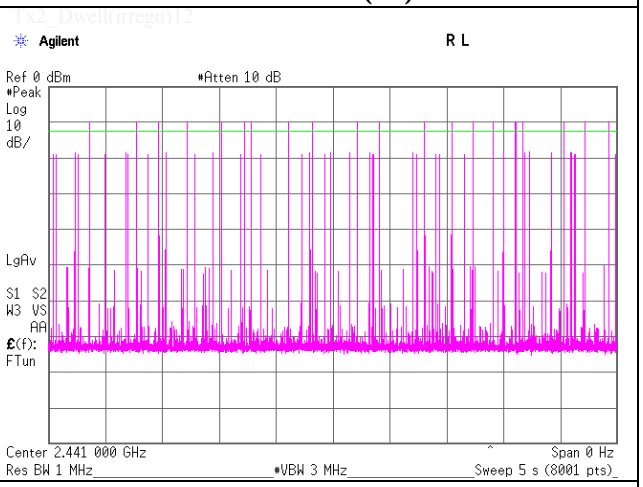
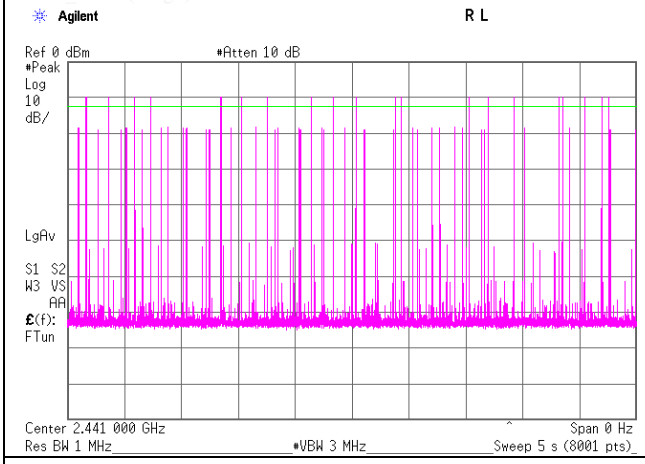
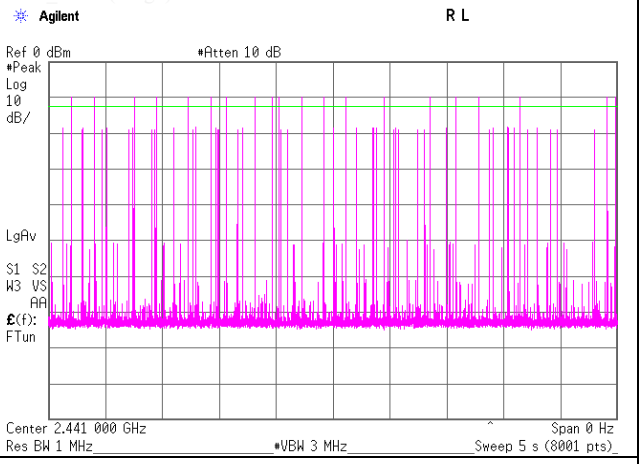
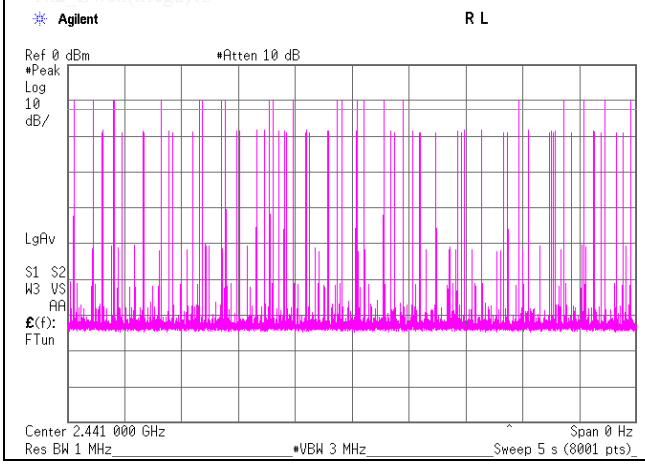
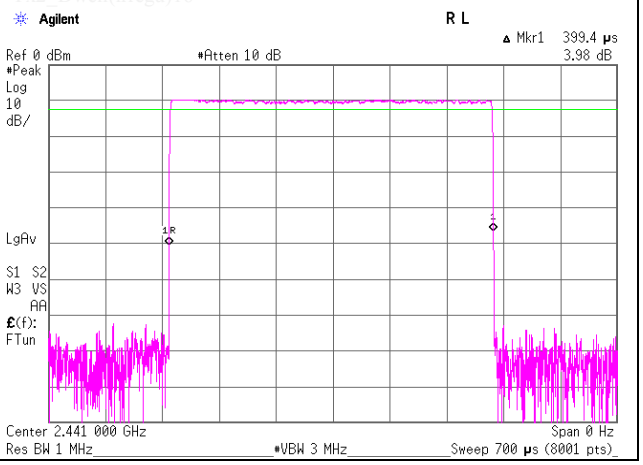
Inquiry (2/2)



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Dwell time

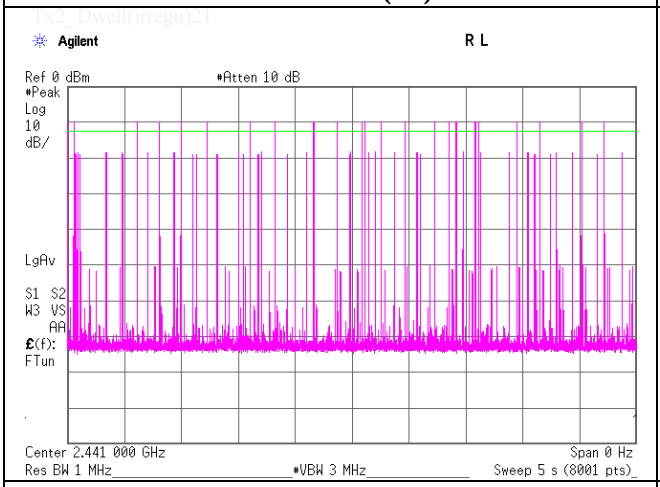
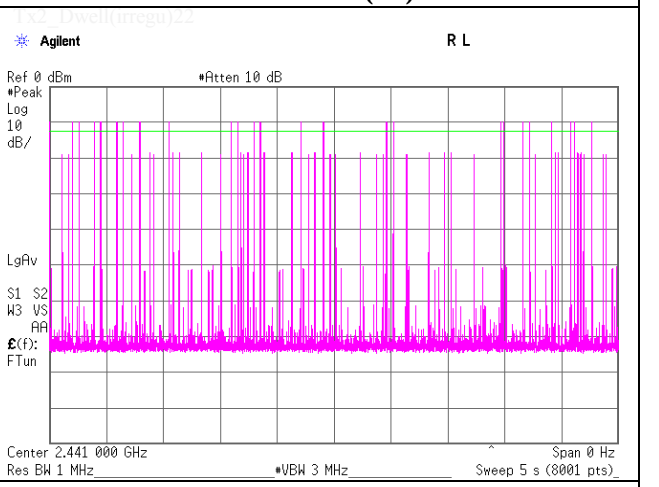
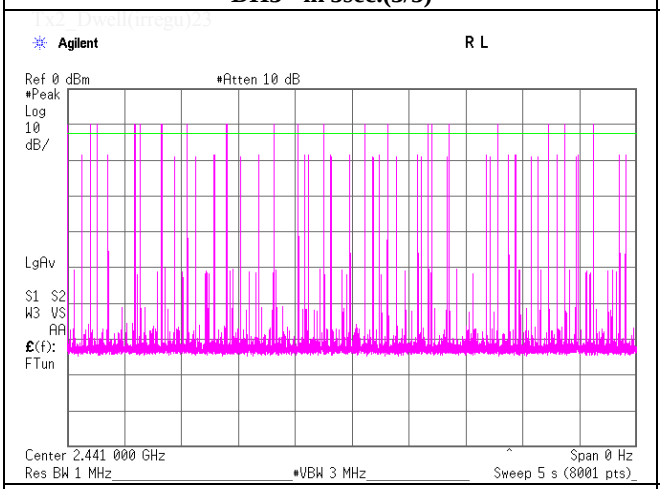
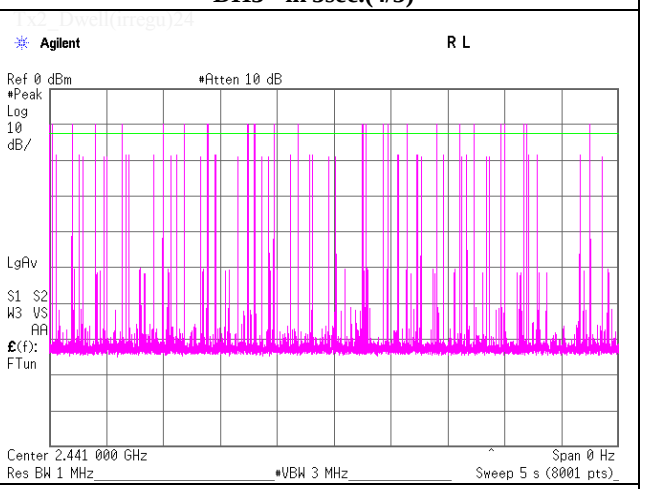
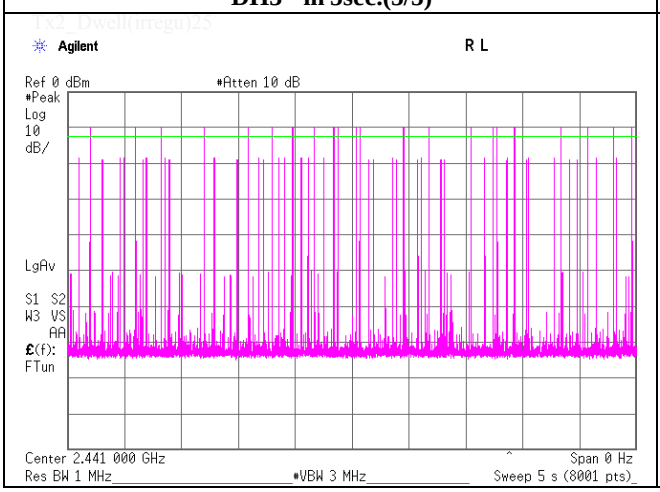
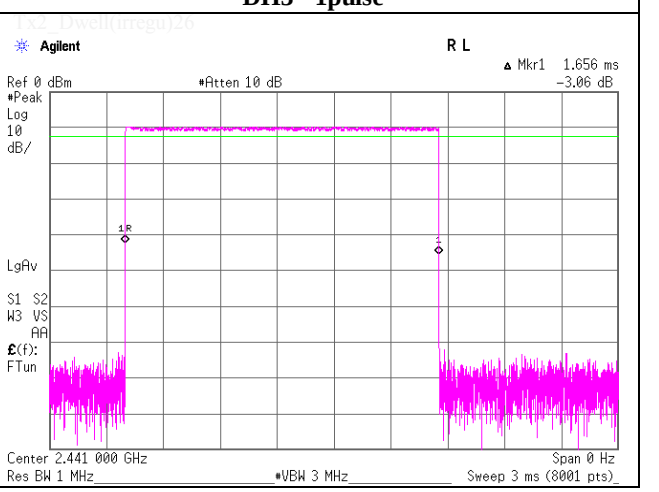
Tx, Bluetooth, BDR, PRBS9

DH1 - in 5sec.(1/5)	DH1 - in 5sec.(2/5)
	
DH1 - in 5sec.(3/5)	**DH1 - in 5sec.(4/5)**
	
DH1 - in 5sec.(5/5)	**DH1 - 1pulse**
	

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Dwell time

Tx, Bluetooth, BDR, PRBS9

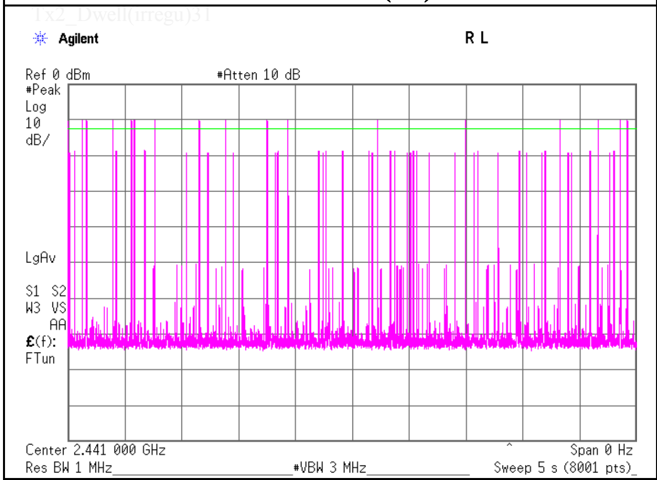
DH3 - in 5sec.(1/5)	DH3 - in 5sec.(2/5)
	
DH3 - in 5sec.(3/5)	**DH3 - in 5sec.(4/5)**
	
DH3 - in 5sec.(5/5)	**DH3 - 1pulse**
	

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

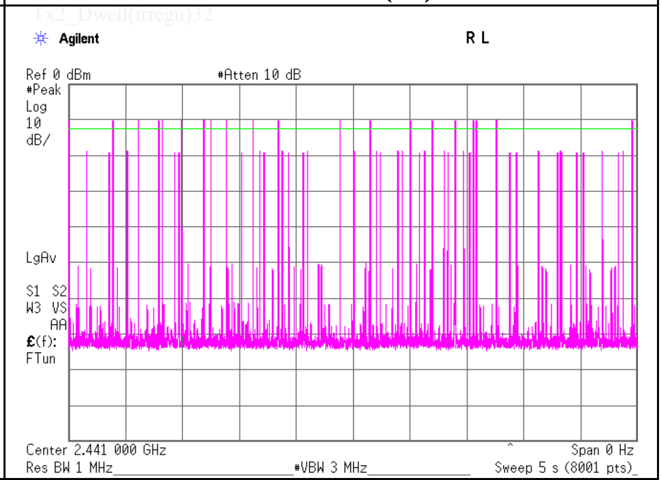
Dwell time

Tx, Bluetooth, BDR, PRBS9

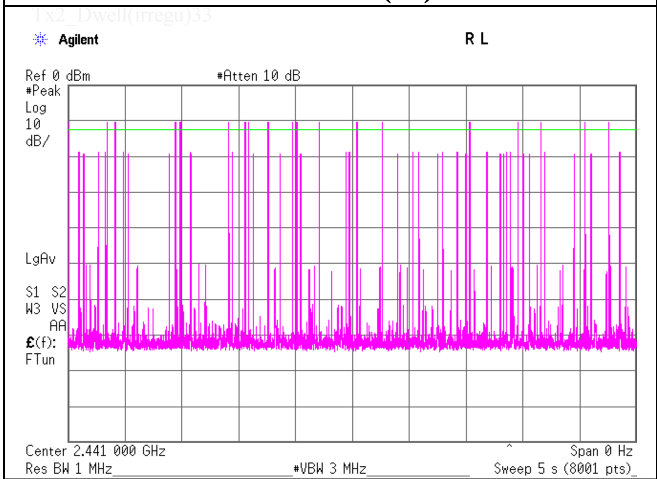
DH5 - in 5sec.(1/5)



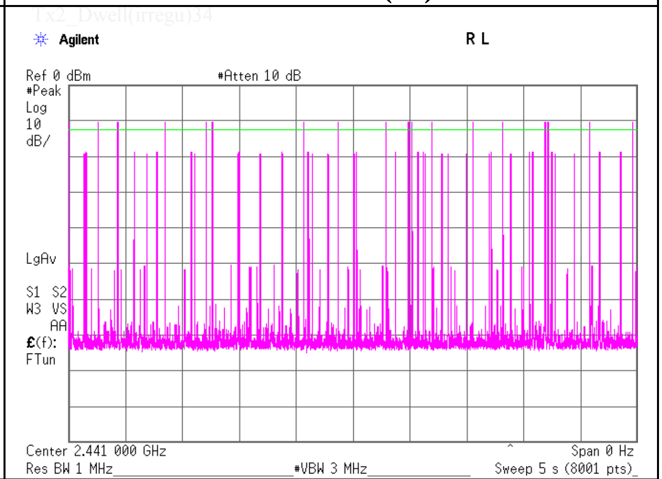
DH5 - in 5sec.(2/5)



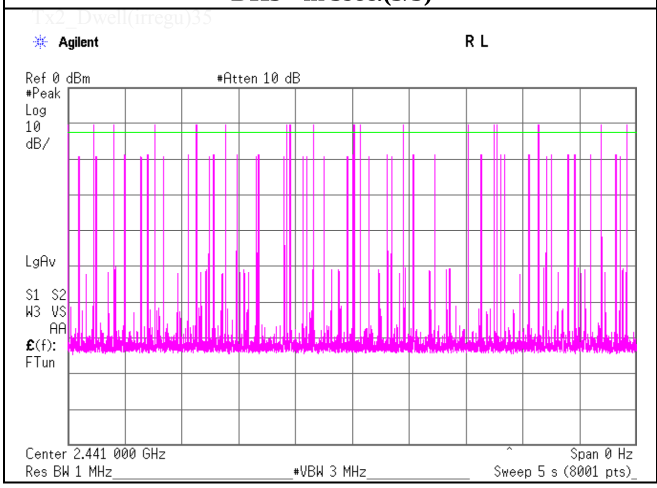
DH5 - in 5sec.(3/5)



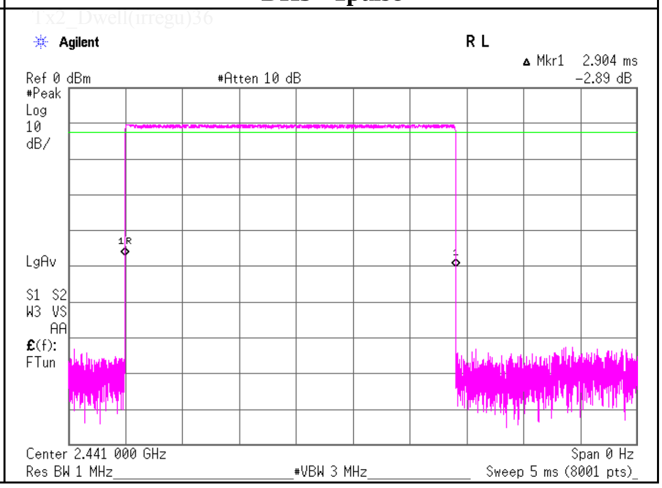
DH5 - in 5sec.(4/5)



DH5 - in 5sec.(5/5)



DH5 - 1pulse



Dwell Time

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date August 30, 2012
Temperature / Humidity 26 deg.C , 54 %RH
Engineer Kenichi Adachi
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	20.8 / 5.0 sec. x 31.6 sec. = 132 times	0.409	54	400
3-DH3	21.8 / 5.0 sec. x 31.6 sec. = 138 times	1.661	229	400
3-DH5	20.8 / 5.0 sec. x 31.6 sec. = 132 times	2.912	384	400

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

*Average data of 5 tests.(except Inquiry)

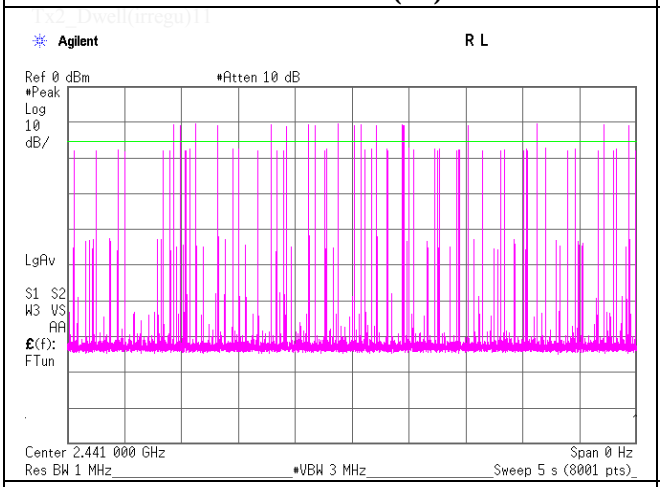
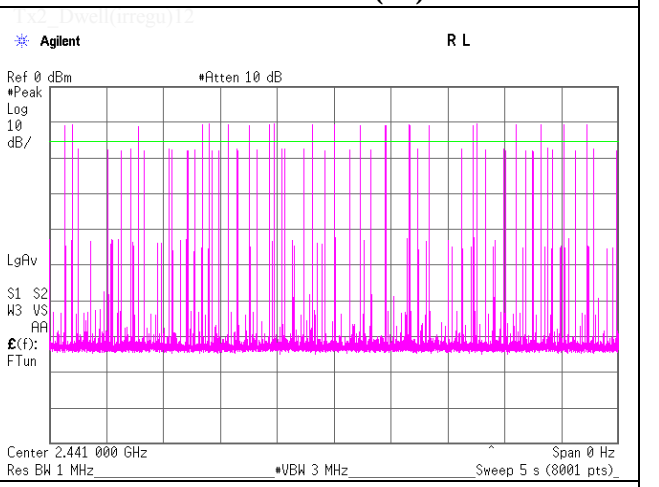
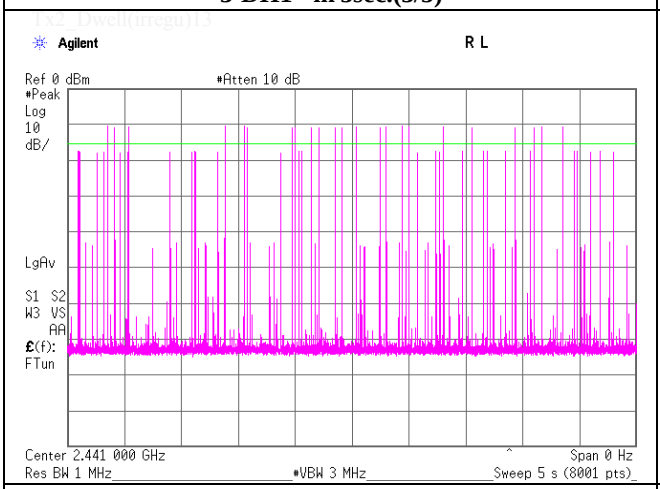
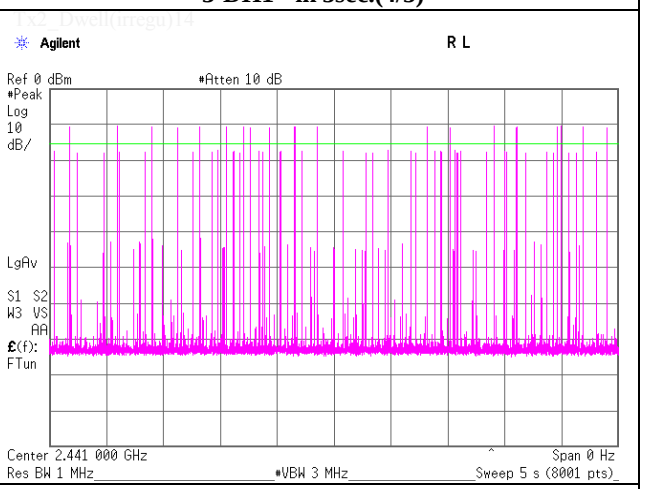
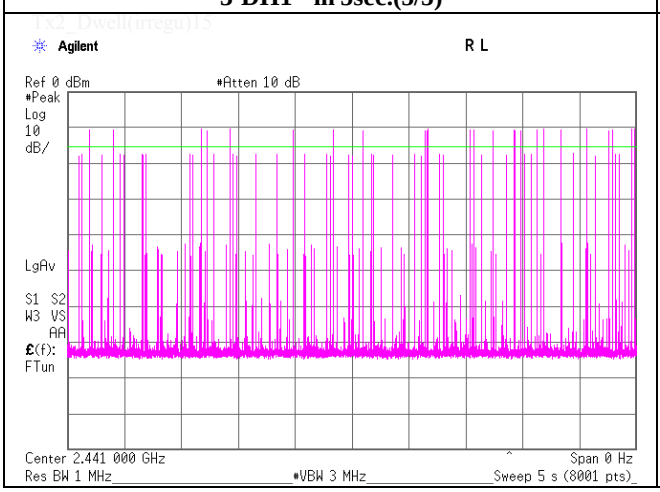
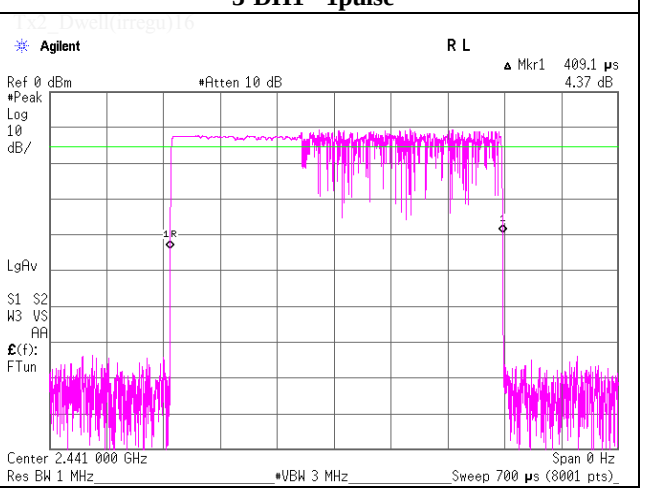
Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
3-DH1	18	21	23	19	23	20.8
3-DH3	22	21	21	21	24	21.8
3-DH5	24	16	21	19	24	20.8

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

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

Dwell time

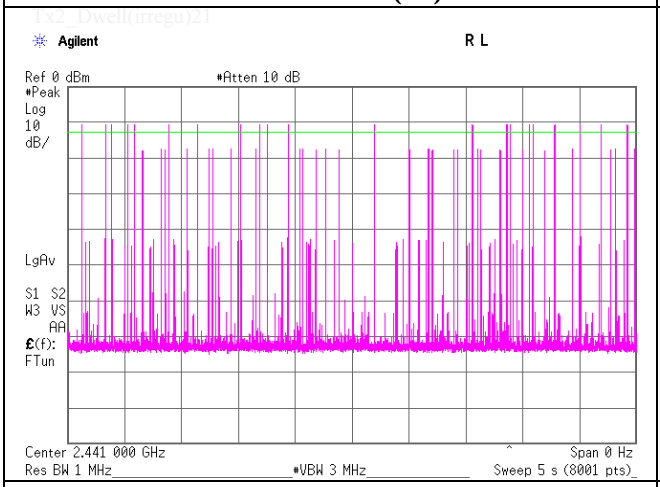
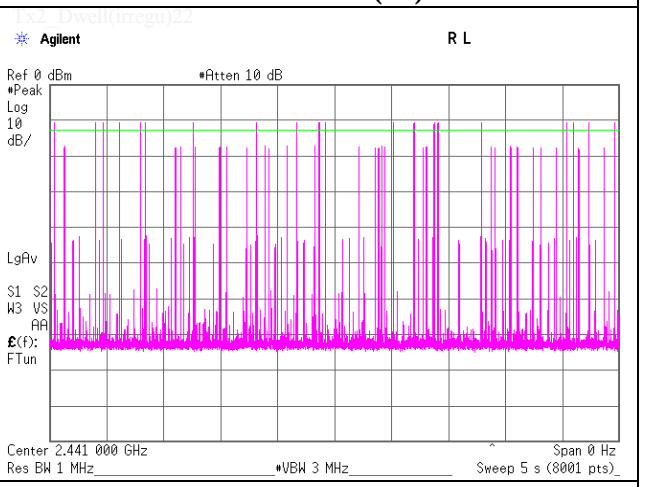
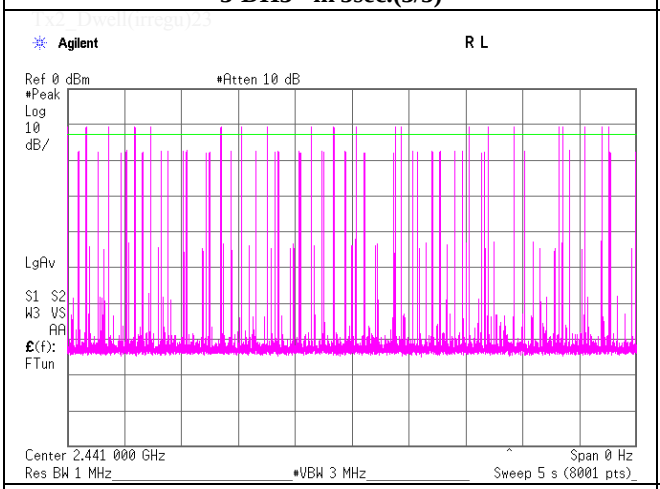
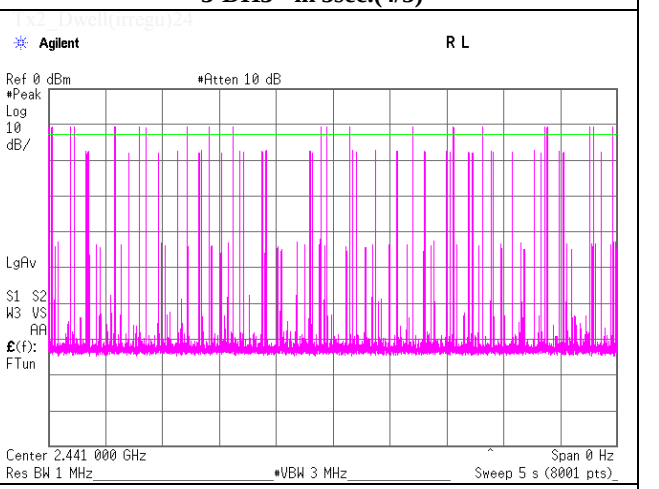
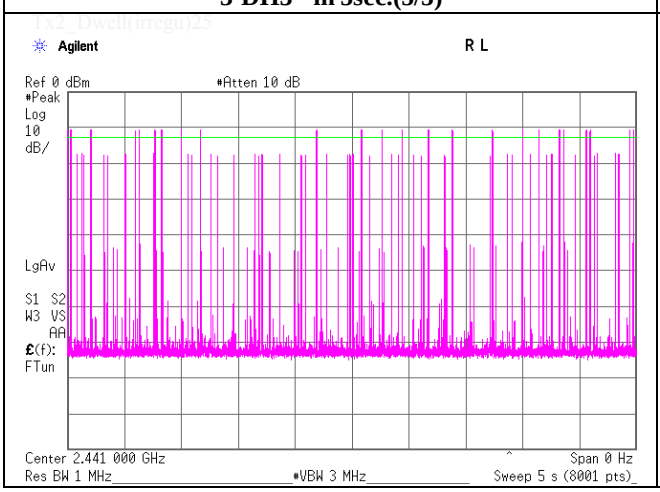
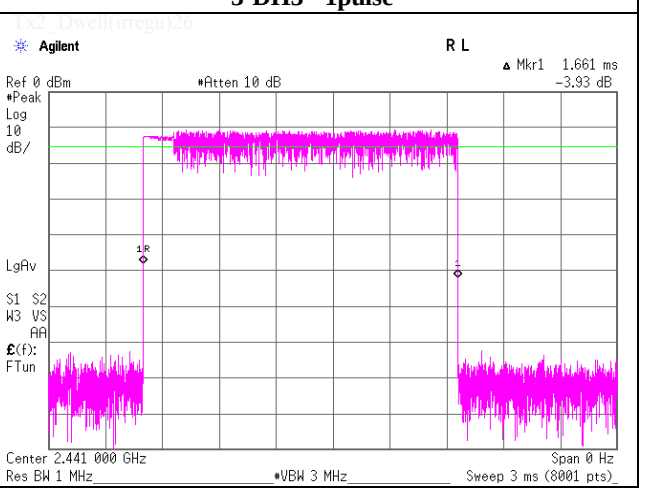
Tx, Bluetooth, EDR, PRBS9

3-DH1 - in 5sec.(1/5)	3-DH1 - in 5sec.(2/5)
	
3-DH1 - in 5sec.(3/5)	**3-DH1 - in 5sec.(4/5)**
	
3-DH1 - in 5sec.(5/5)	**3-DH1 - 1pulse**
	

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Dwell time

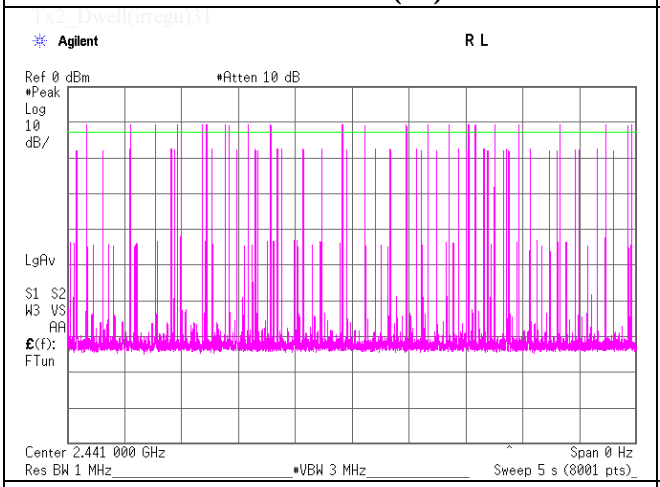
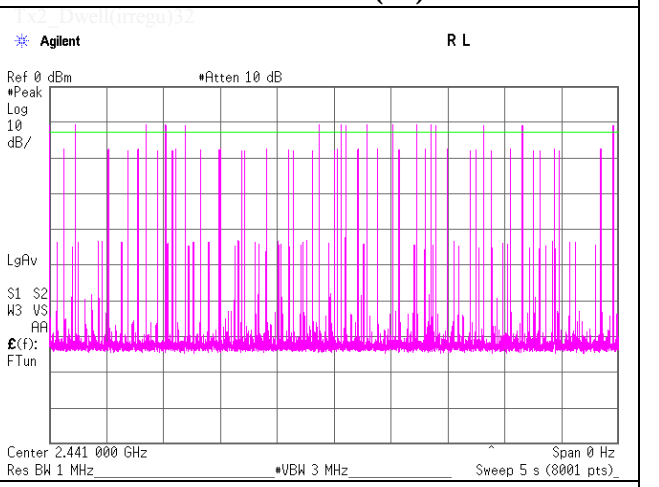
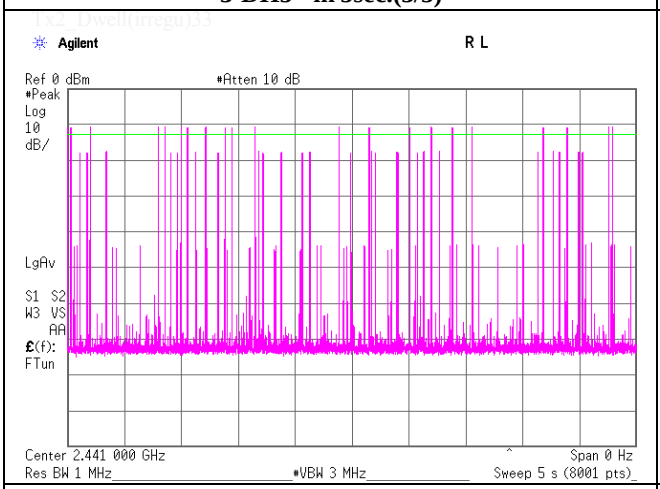
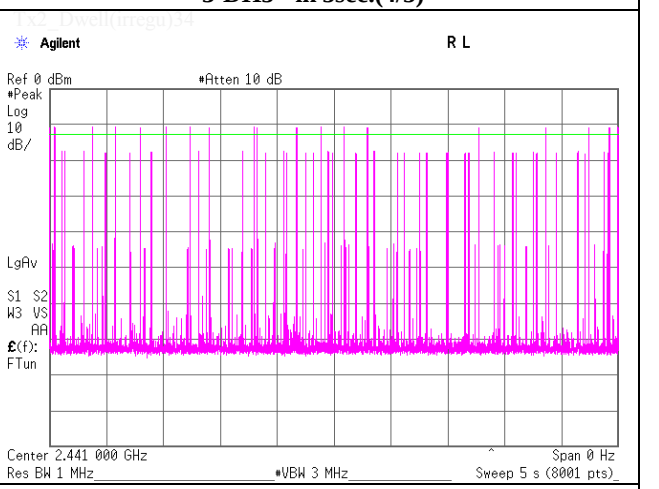
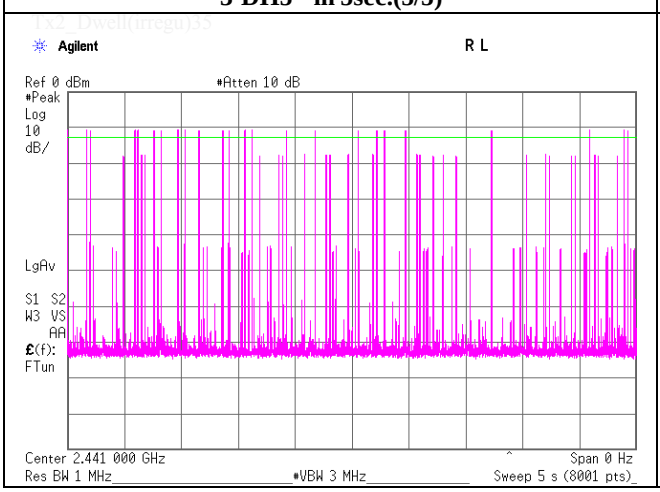
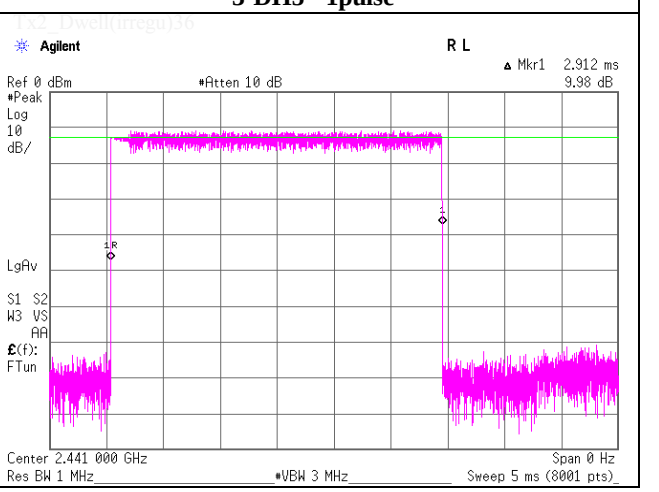
Tx, Bluetooth, EDR, PRBS9

3-DH3 - in 5sec.(1/5)	3-DH3 - in 5sec.(2/5)
	
3-DH3 - in 5sec.(3/5)	**3-DH3 - in 5sec.(4/5)**
	
3-DH3 - in 5sec.(5/5)	**3-DH3 - 1pulse**
	

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Dwell time

Tx, Bluetooth, EDR, PRBS9

3-DH5 - in 5sec.(1/5)	3-DH5 - in 5sec.(2/5)
	
3-DH5 - in 5sec.(3/5)	**3-DH5 - in 5sec.(4/5)**
	
3-DH5 - in 5sec.(5/5)	**3-DH5 - 1pulse**
	

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Peak Output Power (Conducted)

Test place	UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date	August 30, 2012
Temperature / Humidity	26 deg.C , 54 %RH
Engineer	Kenichi Adachi
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	-9.67	1.51	10.00	1.84	1.53	20.97	125	19.13
DH5	2441.0	-10.12	1.54	10.00	1.42	1.39	20.97	125	19.55
DH5	2480.0	-11.58	1.60	10.00	0.02	1.00	20.97	125	20.95
2-DH5	2402.0	-10.21	1.51	10.00	1.30	1.35	20.97	125	19.67
2-DH5	2441.0	-10.69	1.54	10.00	0.85	1.22	20.97	125	20.12
2-DH5	2480.0	-12.22	1.60	10.00	-0.62	0.87	20.97	125	21.59
3-DH5	2402.0	-10.20	1.51	10.00	1.31	1.35	20.97	125	19.66
3-DH5	2441.0	-10.32	1.54	10.00	1.22	1.32	20.97	125	19.75
3-DH5	2480.0	-11.79	1.60	10.00	-0.19	0.96	20.97	125	21.16

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

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	UL Japan, Inc. Yamakita EMC Lab.	No.1 Semi Anechoic Chamber
Date	September 4, 2012	September 5, 2012
Temperature / Humidity	25 deg.C , 69 %RH	25 deg.C , 66 %RH
Engineer	Yasumasa Owaki	Akira Sato
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.	215.995	QP	33.2	16.9	8.5	27.1	31.5	43.5	12.0	148	188	PK:VBW:3MHz
Hori.	245.544	QP	34.0	17.3	8.7	27.0	33.0	46.0	13.0	218	92	AV:VBW:10Hz
Hori.	359.996	QP	36.5	16.2	9.3	27.4	34.6	46.0	11.4	114	320	
Hori.	935.990	QP	30.6	22.8	11.9	27.9	37.4	46.0	8.6	118	273	
Hori.	2389.083	PK	46.1	27.4	14.4	36.9	51.0	73.9	22.9	100	0	
Hori.	2390.000	PK	45.9	27.4	14.4	36.9	50.8	73.9	23.1	100	350	
Hori.	2400.000	PK	46.9	27.4	14.4	36.9	51.8	73.9	22.1	100	350	
Hori.	4804.000	PK	45.7	30.9	6.7	36.1	47.2	73.9	26.7	100	202	
Hori.	7206.000	PK	44.3	35.9	8.0	36.3	51.9	73.9	22.0	100	0	
Hori.	9608.000	PK	45.4	38.8	10.1	36.7	57.6	73.9	16.3	100	0	
Hori.	12010.000	PK	45.1	38.9	10.7	36.0	58.7	73.9	15.2	100	0	
Hori.	2389.083	AV	33.2	27.4	14.4	36.9	38.1	53.9	15.8	100	0	
Hori.	2390.000	AV	33.3	27.4	14.4	36.9	38.2	53.9	15.7	100	350	
Hori.	2400.000	AV	35.4	27.4	14.4	36.9	40.3	53.9	13.6	100	350	
Hori.	4804.000	AV	32.9	30.9	6.7	36.1	34.4	53.9	19.5	100	202	
Hori.	7206.000	AV	31.1	35.9	8.0	36.3	38.7	53.9	15.2	100	0	
Hori.	9608.000	AV	31.6	38.8	10.1	36.7	43.8	53.9	10.1	100	0	
Hori.	12010.000	AV	31.4	38.9	10.7	36.0	45.0	53.9	8.9	100	0	
Vert.	72.001	QP	39.0	6.6	7.3	27.6	25.3	40.0	14.7	165	154	
Vert.	360.002	QP	35.2	16.2	9.3	27.4	33.3	46.0	12.7	100	357	
Vert.	719.998	QP	31.5	20.8	11.1	28.4	35.0	46.0	11.0	100	140	
Vert.	791.996	QP	30.1	22.0	11.3	28.3	35.1	46.0	10.9	100	97	
Vert.	2389.083	PK	46.5	27.4	14.4	36.9	51.4	73.9	22.5	100	0	
Vert.	2390.000	PK	46.1	27.4	14.4	36.9	51.0	73.9	22.9	134	139	
Vert.	2400.000	PK	48.0	27.4	14.4	36.9	52.9	73.9	21.0	134	139	
Vert.	4804.000	PK	46.0	30.9	6.7	36.1	47.5	73.9	26.4	110	129	
Vert.	7206.000	PK	45.8	35.9	8.0	36.3	53.4	73.9	20.5	100	0	
Vert.	9608.000	PK	45.0	38.8	10.1	36.7	57.2	73.9	16.7	100	0	
Vert.	12010.000	PK	44.7	38.9	10.7	36.0	58.3	73.9	15.6	100	0	
Vert.	2389.083	AV	33.2	27.4	14.4	36.9	38.1	53.9	15.8	100	0	
Vert.	2390.000	AV	33.3	27.4	14.4	36.9	38.2	53.9	15.7	134	139	
Vert.	2400.000	AV	35.6	27.4	14.4	36.9	40.5	53.9	13.4	134	139	
Vert.	4804.000	AV	33.1	30.9	6.7	36.1	34.6	53.9	19.3	110	129	
Vert.	7206.000	AV	31.1	35.9	8.0	36.3	38.7	53.9	15.2	100	0	
Vert.	9608.000	AV	31.5	38.8	10.1	36.7	43.7	53.9	10.2	100	0	
Vert.	12010.000	AV	31.4	38.9	10.7	36.0	45.0	53.9	8.9	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)

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

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	UL Japan, Inc. Yamakita EMC Lab.		No.1 Semi Anechoic Chamber
Date	September 4, 2012	September 5, 2012	
Temperature / Humidity	25 deg.C , 69 %RH	25 deg.C , 66 %RH	
Engineer	Yasumasa Owaki	Akira Sato	
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.	172.165	QP	31.3	15.9	8.2	27.3	28.1	43.5	15.4	196	297	PK:VBW 3MHz
Hori.	215.997	QP	32.9	16.9	8.5	27.1	31.2	43.5	12.3	160	187	AV:VBW 10Hz
Hori.	791.999	QP	31.4	22.0	11.3	28.3	36.4	46.0	9.6	100	133	
Hori.	935.998	QP	30.1	22.8	11.9	27.9	36.9	46.0	9.1	104	277	
Hori.	4882.000	PK	44.5	31.2	6.8	36.1	46.4	73.9	27.5	100	164	
Hori.	7323.000	PK	43.9	36.1	8.1	36.4	51.7	73.9	22.2	100	0	
Hori.	9764.000	PK	45.4	38.8	10.2	36.7	57.7	73.9	16.2	100	0	
Hori.	12205.000	PK	44.6	39.1	10.6	35.7	58.6	73.9	15.3	100	0	
Hori.	4882.000	AV	31.7	31.2	6.8	36.1	33.6	53.9	20.3	100	164	
Hori.	7323.000	AV	30.8	36.1	8.1	36.4	38.6	53.9	15.3	100	0	
Hori.	9764.000	AV	31.7	38.8	10.2	36.7	44.0	53.9	9.9	100	0	
Hori.	12205.000	AV	31.3	39.1	10.6	35.7	45.3	53.9	8.6	100	0	
Vert.	72.000	QP	39.5	6.6	7.3	27.6	25.8	40.0	14.2	166	152	
Vert.	360.000	QP	35.3	16.2	9.3	27.4	33.4	46.0	12.6	100	7	
Vert.	647.998	QP	34.9	20.0	10.8	28.5	37.2	46.0	8.8	100	158	
Vert.	4882.000	PK	44.9	31.2	6.8	36.1	46.8	73.9	27.1	110	199	
Vert.	7323.000	PK	43.8	36.1	8.1	36.4	51.6	73.9	22.3	100	0	
Vert.	9764.000	PK	45.0	38.8	10.2	36.7	57.3	73.9	16.6	100	0	
Vert.	12205.000	PK	44.5	39.1	10.6	35.7	58.5	73.9	15.4	100	0	
Vert.	4882.000	AV	31.9	31.2	6.8	36.1	33.8	53.9	20.1	110	199	
Vert.	7323.000	AV	30.8	36.1	8.1	36.4	38.6	53.9	15.3	100	0	
Vert.	9764.000	AV	31.7	38.8	10.2	36.7	44.0	53.9	9.9	100	0	
Vert.	12205.000	AV	31.3	39.1	10.6	35.7	45.3	53.9	8.6	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)

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

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	UL Japan, Inc. Yamakita EMC Lab.	No.1 Semi Anechoic Chamber
Date	September 4, 2012	September 5, 2012
Temperature / Humidity	25 deg.C , 69 %RH	25 deg.C , 66 %RH
Engineer	Yasumasa Owaki	Akira Sato
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.	215.995	QP	33.0	16.9	8.5	27.1	31.3	43.5	12.2	152	181	PK:VBW 3MHz
Hori.	245.547	QP	33.8	17.3	8.7	27.0	32.8	46.0	13.2	139	97	AV:VBW 10Hz
Hori.	791.989	QP	31.6	22.0	11.3	28.3	36.6	46.0	9.4	100	124	
Hori.	936.002	QP	30.6	22.8	11.9	27.9	37.4	46.0	8.6	104	272	
Hori.	2483.500	PK	46.6	27.3	14.5	36.9	51.5	73.9	22.4	102	16	
Hori.	4960.000	PK	43.9	31.4	6.7	36.0	46.0	73.9	27.9	100	159	
Hori.	7440.000	PK	43.7	36.3	8.1	36.5	51.6	73.9	22.3	100	0	
Hori.	9920.000	PK	45.0	38.9	10.2	36.6	57.5	73.9	16.4	100	0	
Hori.	12400.000	PK	44.0	39.3	10.7	35.4	58.6	73.9	15.3	100	0	
Hori.	2483.500	AV	29.1	27.3	14.5	36.9	34.0	53.9	19.9	102	16	
Hori.	4960.000	AV	31.2	31.4	6.7	36.0	33.3	53.9	20.6	100	159	
Hori.	7440.000	AV	31.0	36.3	8.1	36.5	38.9	53.9	15.0	100	0	
Hori.	9920.000	AV	31.9	38.9	10.2	36.6	44.4	53.9	9.5	100	0	
Hori.	12400.000	AV	30.7	39.3	10.7	35.4	45.3	53.9	8.6	100	0	
Vert.	72.000	QP	39.3	6.6	7.3	27.6	25.6	40.0	14.4	170	147	
Vert.	647.999	QP	35.0	20.0	10.8	28.5	37.3	46.0	8.7	120	154	
Vert.	719.998	QP	31.9	20.8	11.1	28.4	35.4	46.0	10.6	100	150	
Vert.	2483.500	PK	46.9	27.3	14.5	36.9	51.8	73.9	22.1	124	151	
Vert.	4960.000	PK	44.4	31.4	6.7	36.0	46.5	73.9	27.4	100	119	
Vert.	7440.000	PK	43.5	36.3	8.1	36.5	51.4	73.9	22.5	100	0	
Vert.	9920.000	PK	45.1	38.9	10.2	36.6	57.6	73.9	16.3	100	0	
Vert.	12400.000	PK	44.2	39.3	10.7	35.4	58.8	73.9	15.1	100	0	
Vert.	2483.500	AV	27.7	27.3	14.5	36.9	32.6	53.9	21.3	124	151	
Vert.	4960.000	AV	31.4	31.4	6.7	36.0	33.5	53.9	20.4	100	119	
Vert.	7440.000	AV	31.0	36.3	8.1	36.5	38.9	53.9	15.0	100	0	
Vert.	9920.000	AV	32.0	38.9	10.2	36.6	44.5	53.9	9.4	100	0	
Vert.	12400.000	AV	30.7	39.3	10.7	35.4	45.3	53.9	8.6	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)

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

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	UL Japan, Inc. Yamakita EMC Lab.	No.1 Semi Anechoic Chamber
Date	September 4, 2012	September 5, 2012
Temperature / Humidity	25 deg.C , 69 %RH	25 deg.C , 66 %RH
Engineer	Yasumasa Owaki	Akira Sato
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.	215.998	QP	32.9	16.9	8.5	27.1	31.2	43.5	12.3	155	177	PK:VBW 3MHz
Hori.	268.123	QP	31.4	18.5	8.8	27.0	31.7	46.0	14.3	179	18	AV:VBW 10Hz
Hori.	360.000	QP	36.6	16.2	9.3	27.4	34.7	46.0	11.3	100	318	
Hori.	792.000	QP	31.9	22.0	11.3	28.3	36.9	46.0	9.1	98	128	
Hori.	935.995	QP	30.5	22.8	11.9	27.9	37.3	46.0	8.7	113	275	
Hori.	2390.000	PK	46.9	27.4	14.4	36.9	51.8	73.9	22.1	100	352	
Hori.	2400.000	PK	49.2	27.4	14.4	36.9	54.1	73.9	19.8	100	352	
Hori.	4804.000	PK	45.1	30.9	6.7	36.1	46.6	73.9	27.3	100	102	
Hori.	7206.000	PK	44.3	35.9	8.0	36.3	51.9	73.9	22.0	100	0	
Hori.	9608.000	PK	45.0	38.8	10.1	36.7	57.2	73.9	16.7	100	0	
Hori.	12010.000	PK	44.9	38.9	10.7	36.0	58.5	73.9	15.4	100	0	
Hori.	2390.000	AV	33.2	27.4	14.4	36.9	38.1	53.9	15.8	100	352	
Hori.	2400.000	AV	41.4	27.4	14.4	36.9	46.3	53.9	7.6	100	352	
Hori.	4804.000	AV	32.5	30.9	6.7	36.1	34.0	53.9	19.9	100	102	
Hori.	7206.000	AV	31.3	35.9	8.0	36.3	38.9	53.9	15.0	100	0	
Hori.	9608.000	AV	31.7	38.8	10.1	36.7	43.9	53.9	10.0	100	0	
Hori.	12010.000	AV	31.6	38.9	10.7	36.0	45.2	53.9	8.7	100	0	
Vert.	72.000	QP	39.5	6.6	7.3	27.6	25.8	40.0	14.2	161	155	
Vert.	647.996	QP	34.8	20.0	10.8	28.5	37.1	46.0	8.9	115	154	
Vert.	2390.000	PK	46.3	27.4	14.4	36.9	51.2	73.9	22.7	130	145	
Vert.	2400.000	PK	48.3	27.4	14.4	36.9	53.2	73.9	20.7	130	145	
Vert.	4804.000	PK	45.5	30.9	6.7	36.1	47.0	73.9	26.9	109	198	
Vert.	7206.000	PK	45.1	35.9	8.0	36.3	52.7	73.9	21.2	100	0	
Vert.	9608.000	PK	44.8	38.8	10.1	36.7	57.0	73.9	16.9	100	0	
Vert.	12010.000	PK	44.4	38.9	10.7	36.0	58.0	73.9	15.9	100	0	
Vert.	2390.000	AV	33.3	27.4	14.4	36.9	38.2	53.9	15.7	130	145	
Vert.	2400.000	AV	41.6	27.4	14.4	36.9	46.5	53.9	7.4	130	145	
Vert.	4804.000	AV	32.7	30.9	6.7	36.1	34.2	53.9	19.7	109	198	
Vert.	7206.000	AV	31.1	35.9	8.0	36.3	38.7	53.9	15.2	100	0	
Vert.	9608.000	AV	31.5	38.8	10.1	36.7	43.7	53.9	10.2	100	0	
Vert.	12010.000	AV	31.4	38.9	10.7	36.0	45.0	53.9	8.9	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)

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

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	UL Japan, Inc. Yamakita EMC Lab.	No.1 Semi Anechoic Chamber
Date	September 4, 2012	September 5, 2012
Temperature / Humidity	25 deg.C , 69 %RH	25 deg.C , 66 %RH
Engineer	Yasumasa Owaki	Akira Sato
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.	215.996	QP	33.0	16.9	8.5	27.1	31.3	43.5	12.2	158	187	PK:VBW 3MHz
Hori.	268.128	QP	31.5	18.5	8.8	27.0	31.8	46.0	14.2	200	18	AV:VBW 10Hz
Hori.	791.999	QP	32.0	22.0	11.3	28.3	37.0	46.0	9.0	100	129	
Hori.	935.996	QP	30.8	22.8	11.9	27.9	37.6	46.0	8.4	127	371	
Hori.	4882.000	PK	44.9	31.2	6.8	36.1	46.8	73.9	27.1	111	149	
Hori.	7323.000	PK	43.7	36.1	8.1	36.4	51.5	73.9	22.4	100	0	
Hori.	9764.000	PK	45.4	38.8	10.2	36.7	57.7	73.9	16.2	100	0	
Hori.	12205.000	PK	44.0	39.1	10.6	35.7	58.0	73.9	15.9	100	0	
Hori.	4882.000	AV	31.8	31.2	6.8	36.1	33.7	53.9	20.2	111	149	
Hori.	7323.000	AV	30.9	36.1	8.1	36.4	38.7	53.9	15.2	100	0	
Hori.	9764.000	AV	31.6	38.8	10.2	36.7	43.9	53.9	10.0	100	0	
Hori.	12205.000	AV	31.2	39.1	10.6	35.7	45.2	53.9	8.7	100	0	
Vert.	71.999	QP	39.3	6.6	7.3	27.6	25.6	40.0	14.4	164	138	
Vert.	359.998	QP	35.0	16.2	9.3	27.4	33.1	46.0	12.9	100	2	
Vert.	647.999	QP	34.8	20.0	10.8	28.5	37.1	46.0	8.9	114	154	
Vert.	4882.000	PK	44.4	31.2	6.8	36.1	46.3	73.9	27.6	111	199	
Vert.	7323.000	PK	44.0	36.1	8.1	36.4	51.8	73.9	22.1	100	0	
Vert.	9764.000	PK	46.0	38.8	10.2	36.7	58.3	73.9	15.6	100	0	
Vert.	12205.000	PK	44.5	39.1	10.6	35.7	58.5	73.9	15.4	100	0	
Vert.	4882.000	AV	31.9	31.2	6.8	36.1	33.8	53.9	20.1	111	199	
Vert.	7323.000	AV	30.9	36.1	8.1	36.4	38.7	53.9	15.2	100	0	
Vert.	9764.000	AV	31.6	38.8	10.2	36.7	43.9	53.9	10.0	100	0	
Vert.	12205.000	AV	31.2	39.1	10.6	35.7	45.2	53.9	8.7	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)

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

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Radiated Emission

Test place	UL Japan, Inc. Yamakita EMC Lab.	No.1 Semi Anechoic Chamber
Date	September 4, 2012	September 5, 2012
Temperature / Humidity	25 deg.C , 69 %RH	25 deg.C , 66 %RH
Engineer	Yasumasa Owaki	Akira Sato
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.	215.995	QP	32.8	16.9	8.5	27.1	31.1	43.5	12.4	161	180	PK:VBW 3MHz
Hori.	245.545	QP	34.2	17.3	8.7	27.0	33.2	46.0	12.8	144	93	AV:VBW 10Hz
Hori.	290.695	QP	28.7	19.8	9.0	27.0	30.5	46.0	15.5	124	203	
Hori.	791.995	QP	31.4	22.0	11.3	28.3	36.4	46.0	9.6	100	136	
Hori.	935.998	QP	30.6	22.8	11.9	27.9	37.4	46.0	8.6	114	38	
Hori.	2483.500	PK	46.3	27.3	14.5	36.9	51.2	73.9	22.7	102	23	
Hori.	4960.000	PK	44.6	31.4	6.7	36.0	46.7	73.9	27.2	100	150	
Hori.	7440.000	PK	44.2	36.3	8.1	36.5	52.1	73.9	21.8	100	0	
Hori.	9920.000	PK	45.3	38.9	10.2	36.6	57.8	73.9	16.1	100	0	
Hori.	12400.000	PK	44.9	39.3	10.7	35.4	59.5	73.9	14.4	100	0	
Hori.	2483.500	AV	32.0	27.3	14.5	36.9	36.9	53.9	17.0	102	23	
Hori.	4960.000	AV	31.1	31.4	6.7	36.0	33.2	53.9	20.7	100	150	
Hori.	7440.000	AV	30.9	36.3	8.1	36.5	38.8	53.9	15.1	100	0	
Hori.	9920.000	AV	31.8	38.9	10.2	36.6	44.3	53.9	9.6	100	0	
Hori.	12400.000	AV	30.6	39.3	10.7	35.4	45.2	53.9	8.7	100	0	
Vert.	72.000	QP	39.2	6.6	7.3	27.6	25.5	40.0	14.5	159	144	
Vert.	359.998	QP	35.9	16.2	9.3	27.4	34.0	46.0	12.0	100	355	
Vert.	2483.500	PK	46.7	27.3	14.5	36.9	51.6	73.9	22.3	125	160	
Vert.	4960.000	PK	45.3	31.4	6.7	36.0	47.4	73.9	26.5	100	124	
Vert.	7440.000	PK	44.6	36.3	8.1	36.5	52.5	73.9	21.4	100	0	
Vert.	9920.000	PK	45.8	38.9	10.2	36.6	58.3	73.9	15.6	100	0	
Vert.	12400.000	PK	44.5	39.3	10.7	35.4	59.1	73.9	14.8	100	0	
Vert.	2483.500	AV	29.7	27.3	14.5	36.9	34.6	53.9	19.3	125	160	
Vert.	4960.000	AV	31.3	31.4	6.7	36.0	33.4	53.9	20.5	100	124	
Vert.	7440.000	AV	31.0	36.3	8.1	36.5	38.9	53.9	15.0	100	0	
Vert.	9920.000	AV	31.8	38.9	10.2	36.6	44.3	53.9	9.6	100	0	
Vert.	12400.000	AV	30.6	39.3	10.7	35.4	45.2	53.9	8.7	100	0	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)

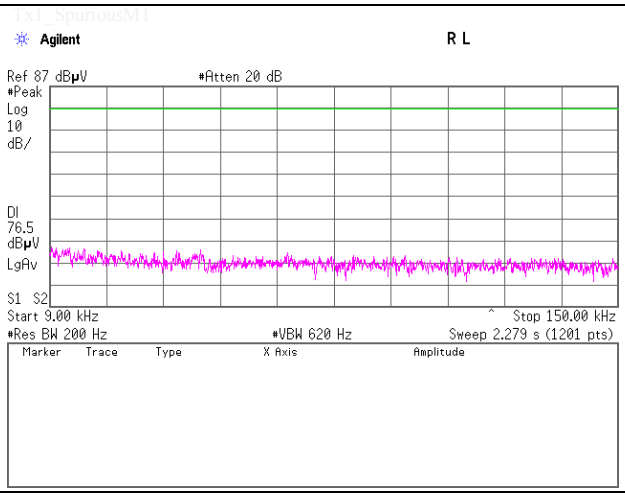
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Spurious emission (Conducted)

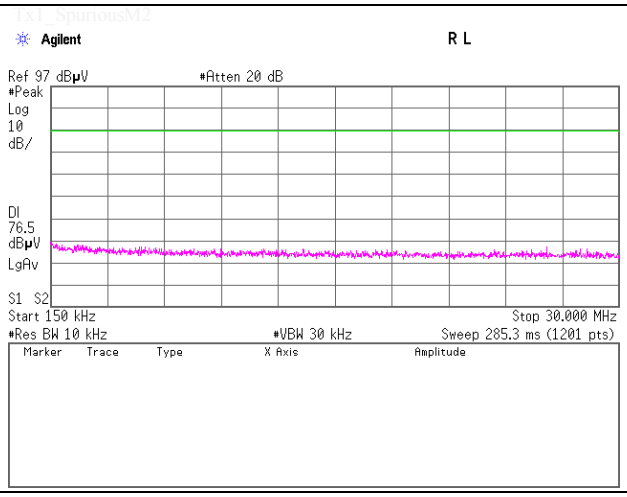
Tx, Bluetooth, BDR, PRBS9

Tx, 2402MHz (below 1GHz)

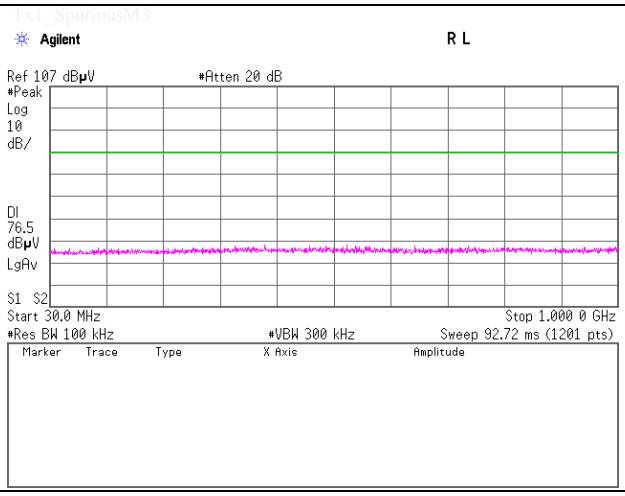
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

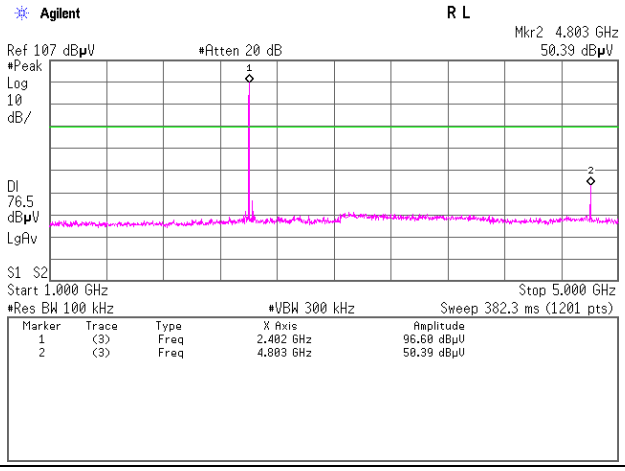
Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

Tx, 2402MHz (above 1GHz)

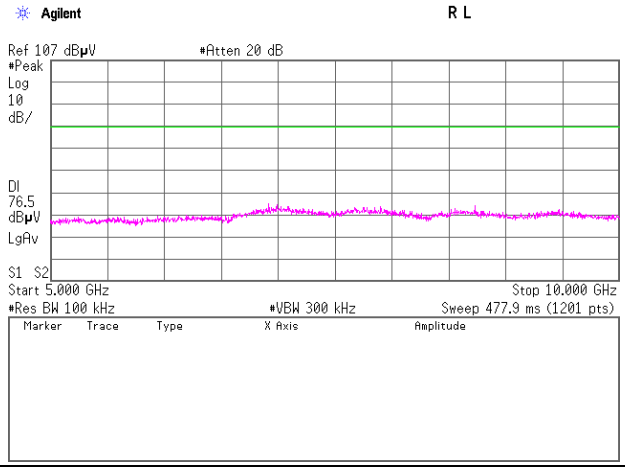
1GHz - 5GHz

Tx1_SpuriousG1



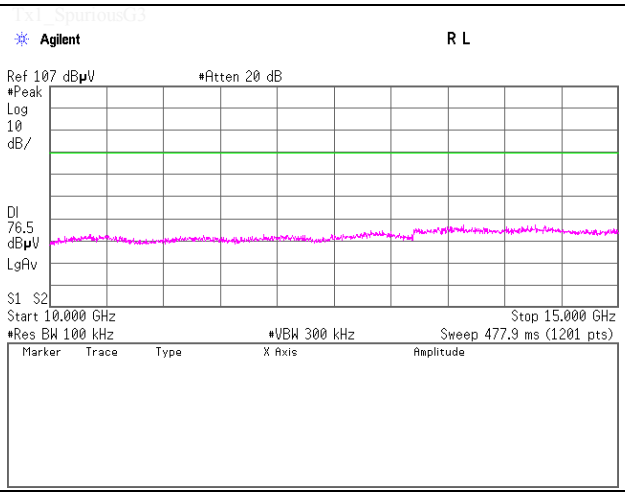
5GHz - 10GHz

Tx1_SpuriousG2



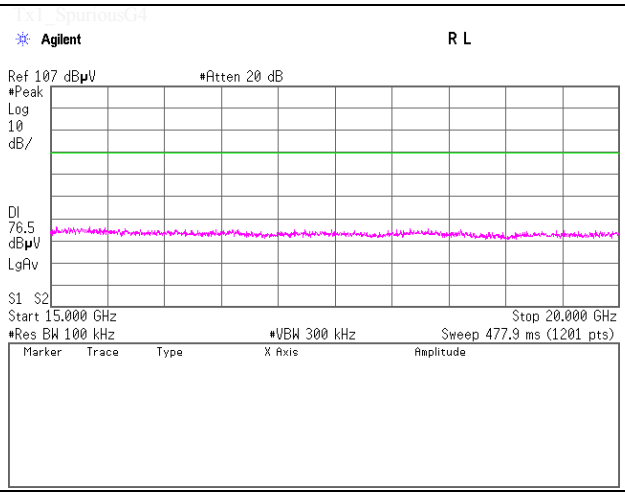
10GHz - 15GHz

Tx1_SpuriousG3



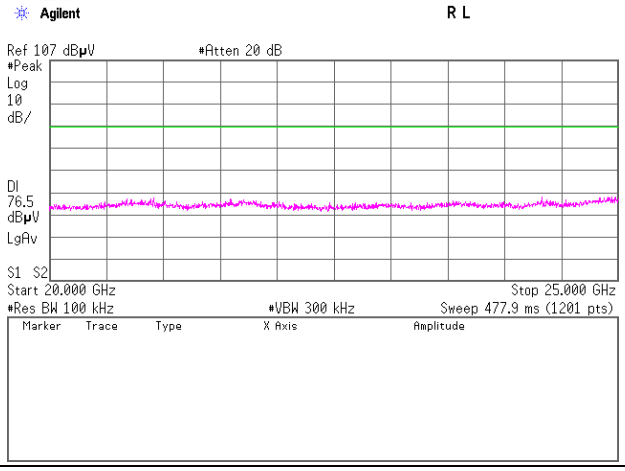
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6

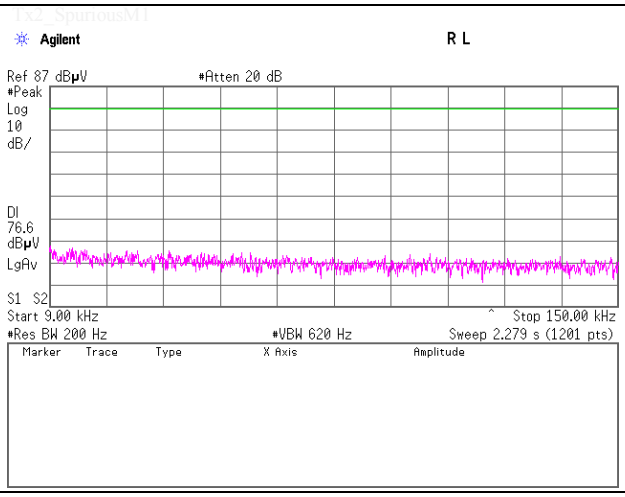
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

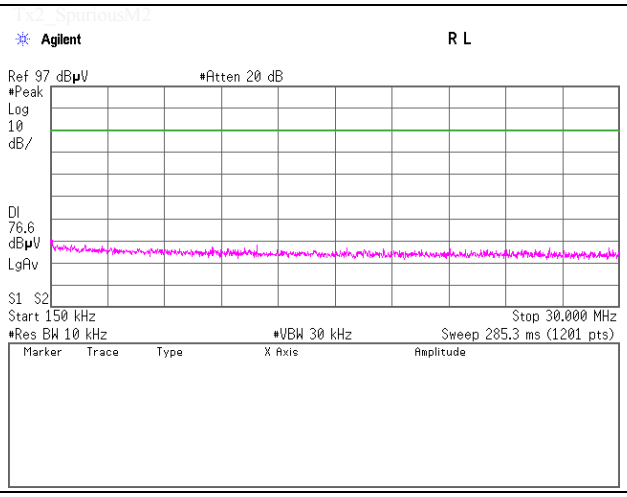
Tx, Bluetooth, BDR, PRBS9

Tx, 2441MHz (below 1GHz)

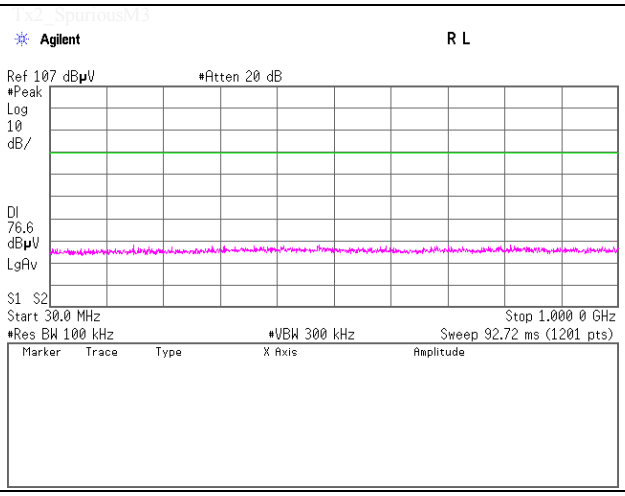
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



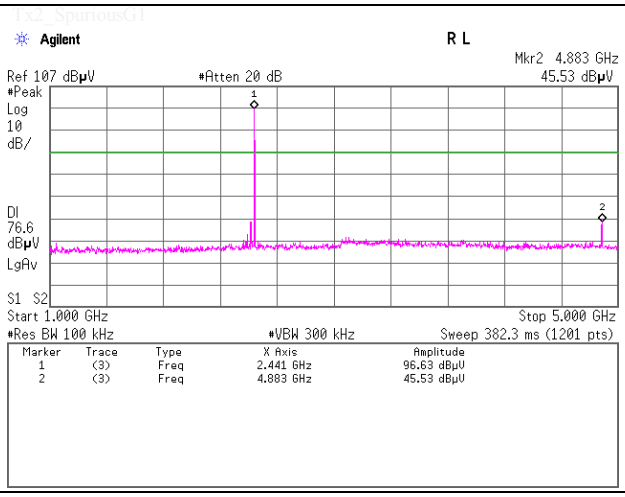
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

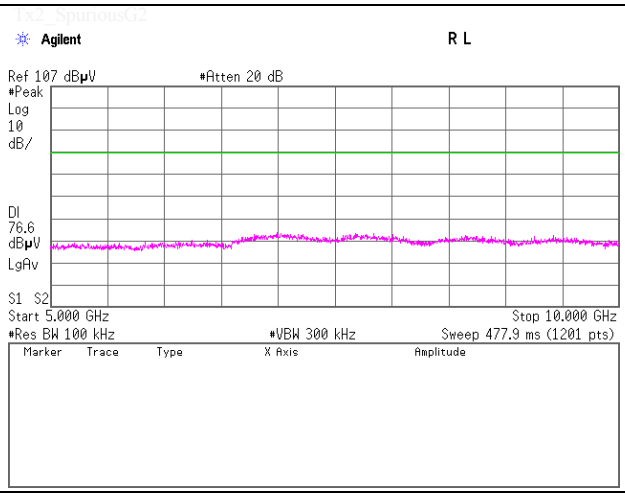
Tx, Bluetooth, BDR, PRBS9

Tx, 2441MHz (above 1GHz)

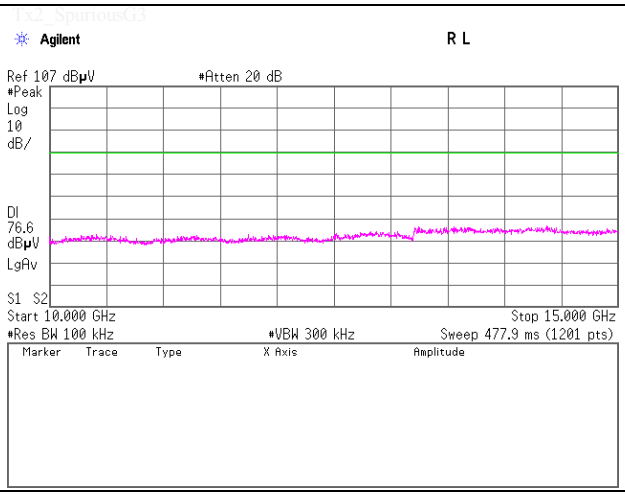
1GHz - 5GHz



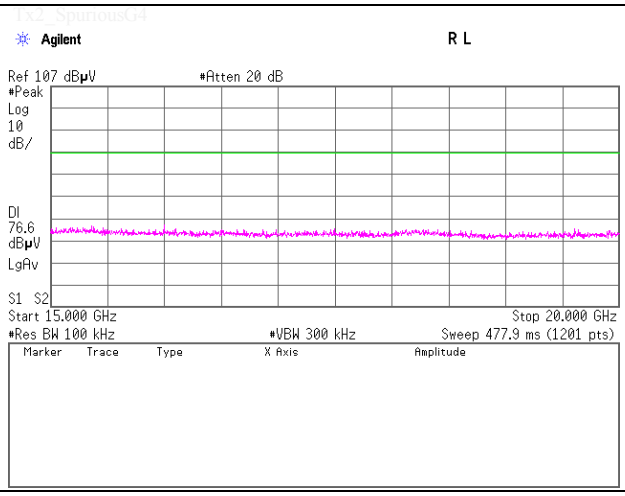
5GHz - 10GHz



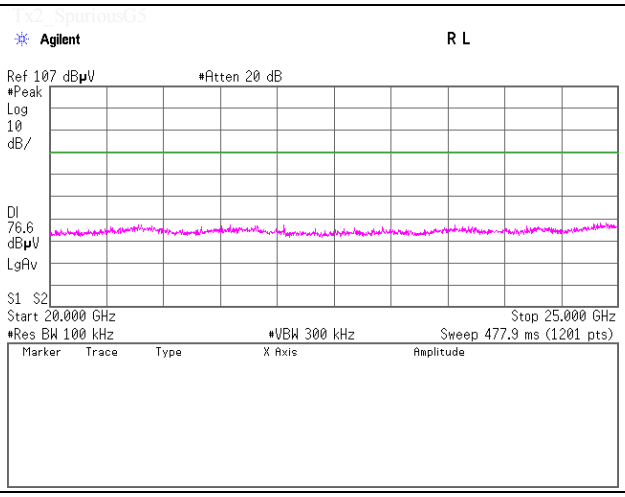
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



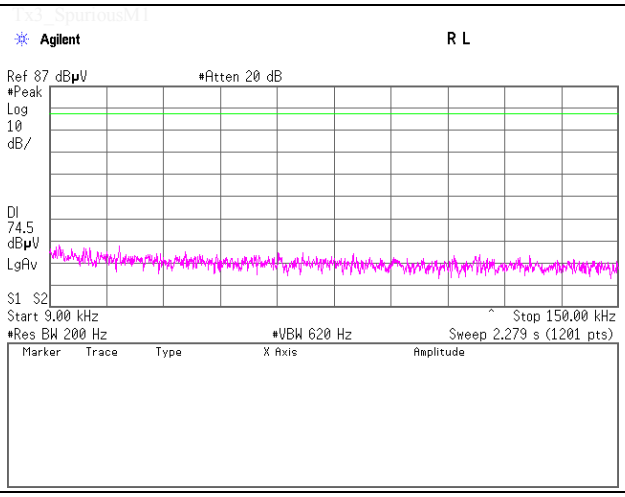
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

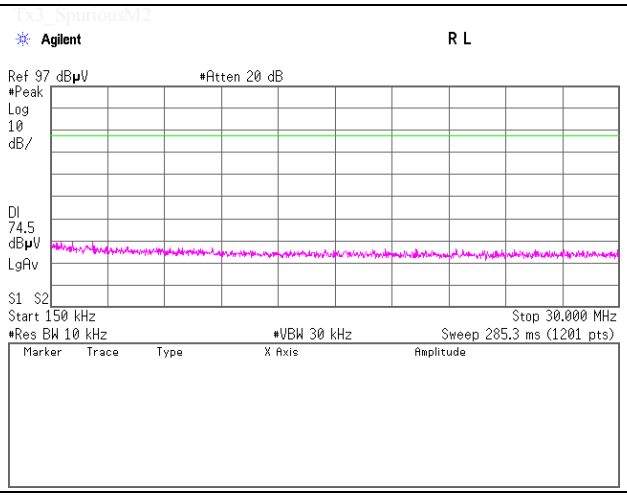
Tx, Bluetooth, BDR, PRBS9

Tx, 2480MHz (below 1GHz)

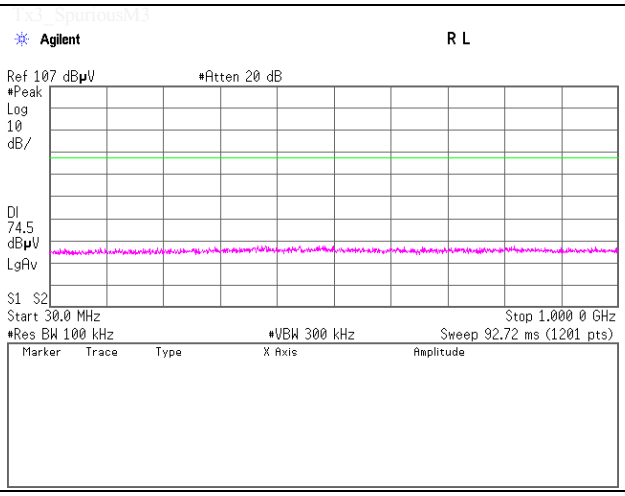
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

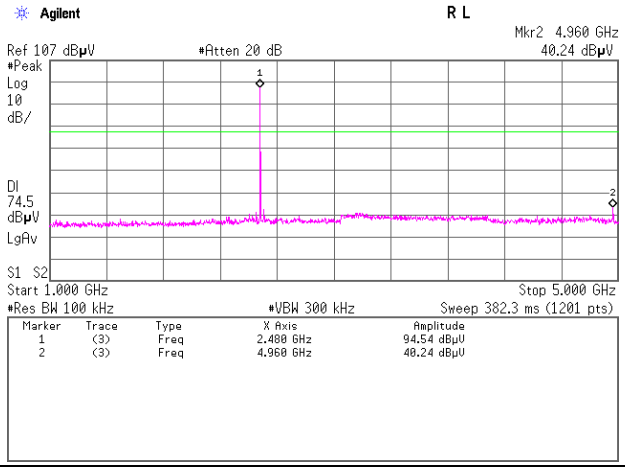
Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

Tx, 2480MHz (above 1GHz)

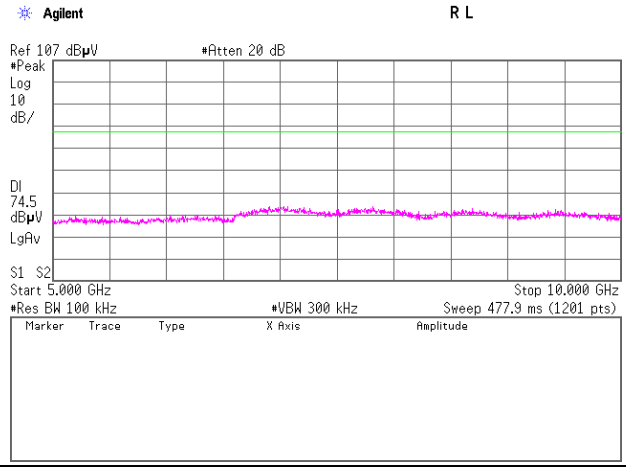
1GHz - 5GHz

Tx3_SpuriousG1



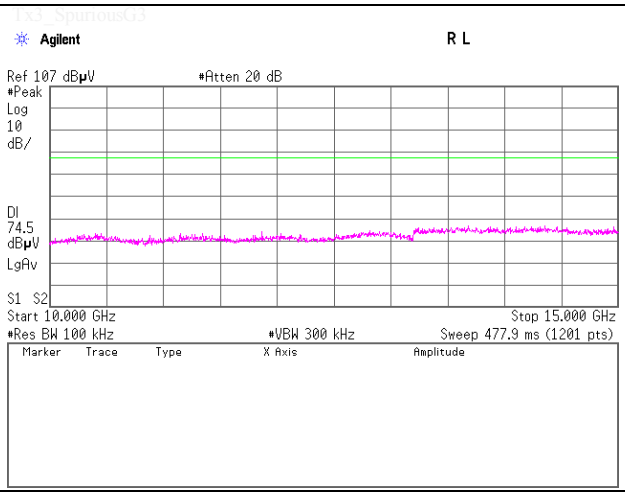
5GHz - 10GHz

Tx3_SpuriousG2



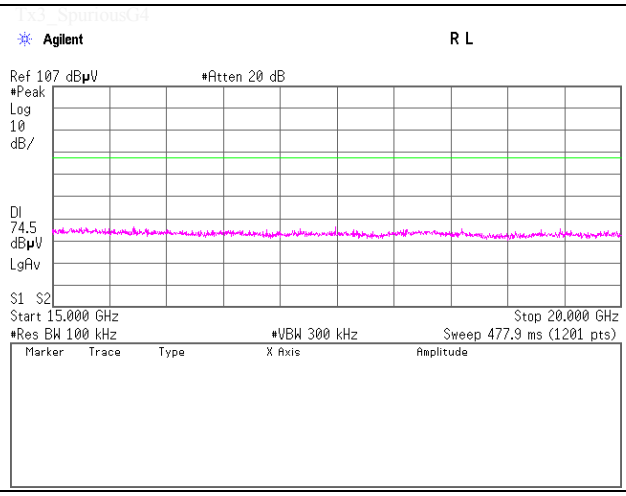
10GHz - 15GHz

Tx3_SpuriousG3



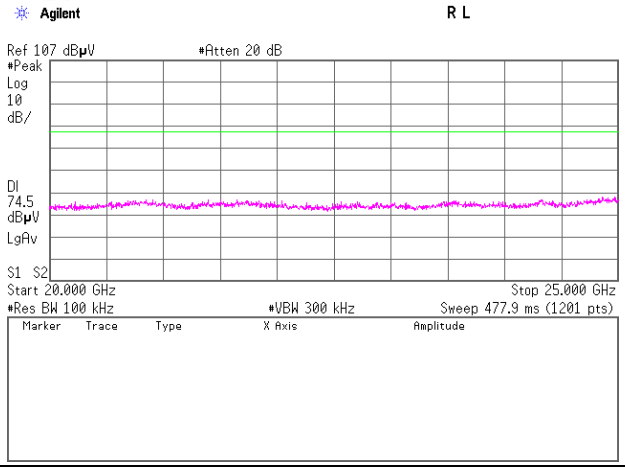
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



Tx3_SpuriousG6

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

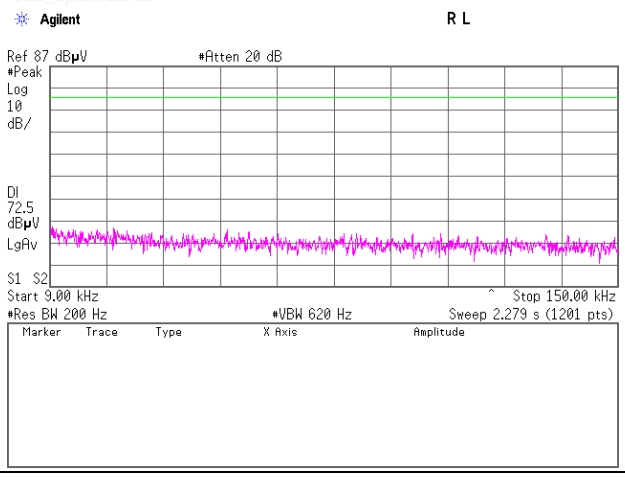
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2402MHz (below 1GHz)

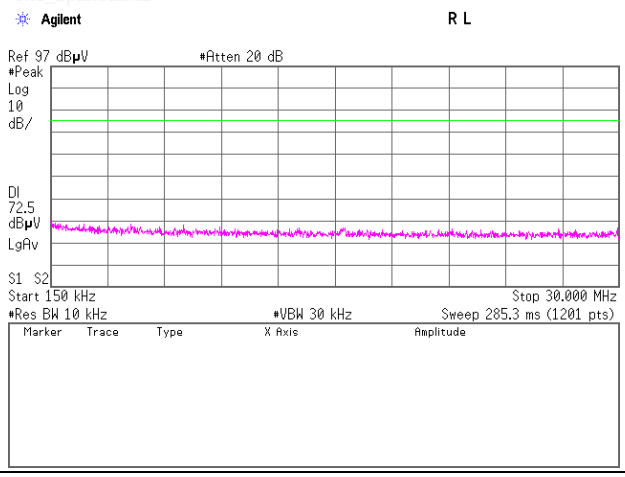
9kHz - 150kHz

Tx1_SpuriousM1



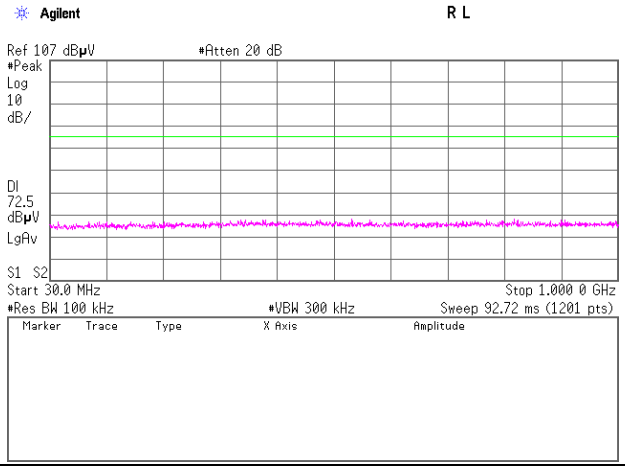
150kHz - 30MHz

Tx1_SpuriousM2



30MHz - 1GHz

Tx1_SpuriousM3



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

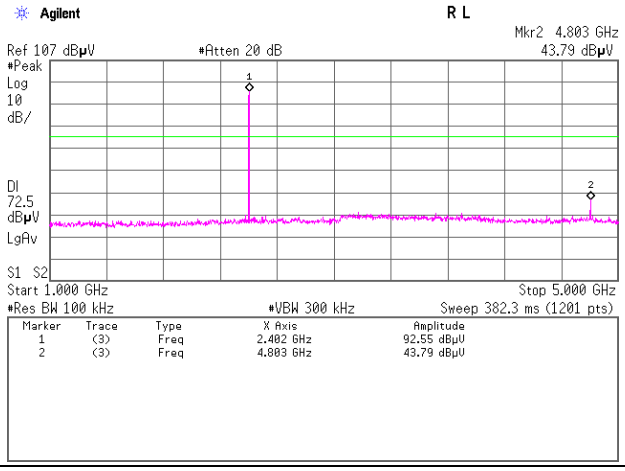
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2402MHz (above 1GHz)

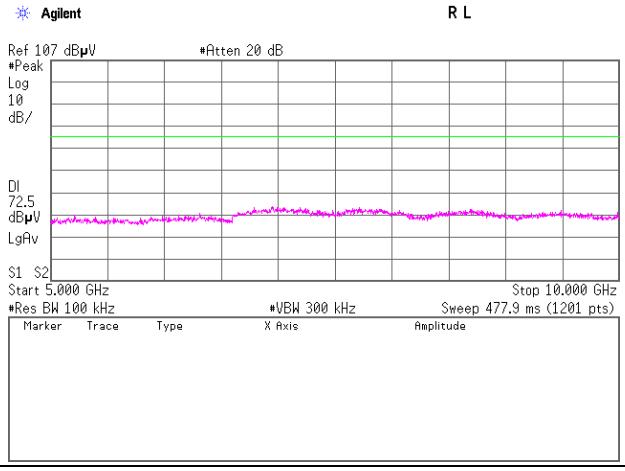
1GHz - 5GHz

Tx1_SpuriousG1



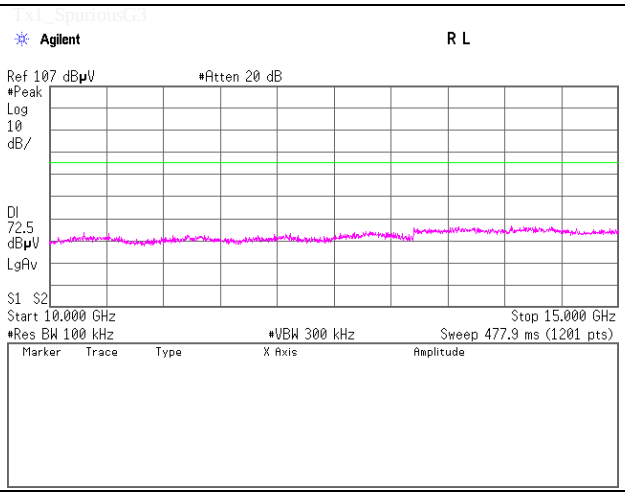
5GHz - 10GHz

Tx1_SpuriousG2



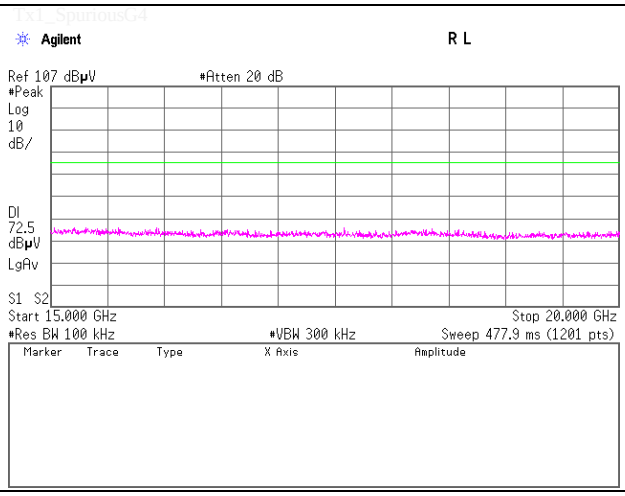
10GHz - 15GHz

Tx1_SpuriousG3



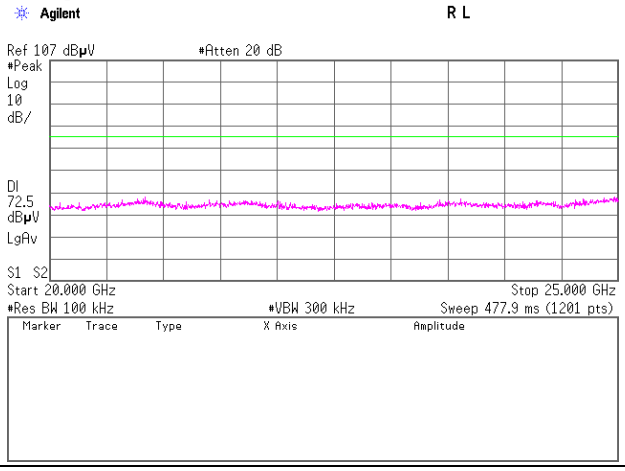
15GHz - 20GHz

Tx1_SpuriousG4



20GHz - 25GHz

Tx1_SpuriousG5



Tx1_SpuriousG6

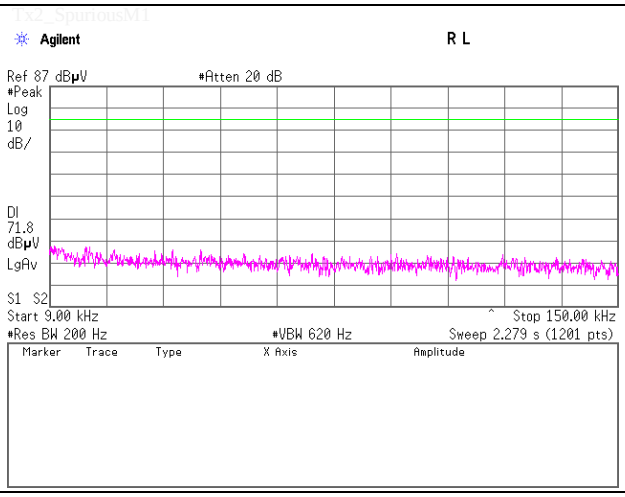
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

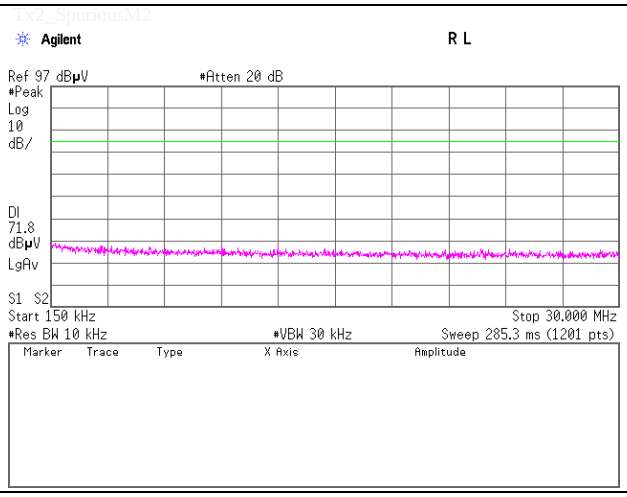
Tx, Bluetooth, EDR, PRBS9

Tx, 2441MHz (below 1GHz)

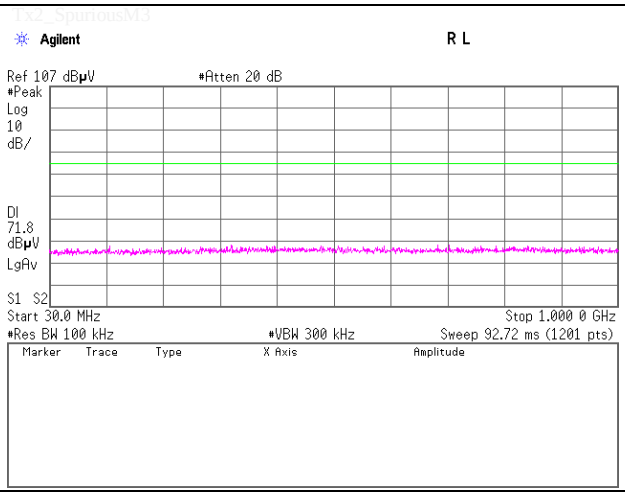
9kHz - 150kHz



150kHz - 30MHz



30MHz - 1GHz



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

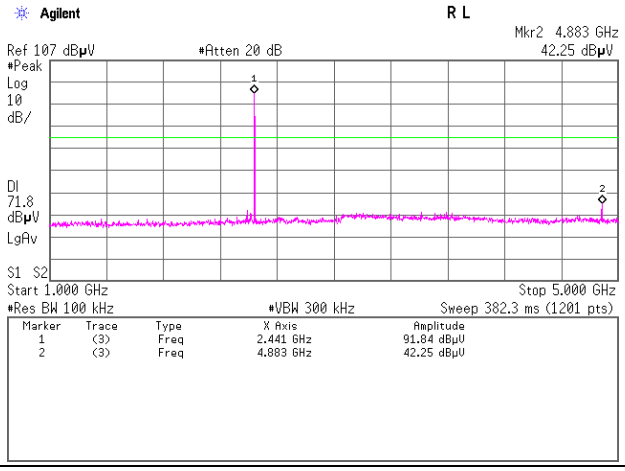
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2441MHz (above 1GHz)

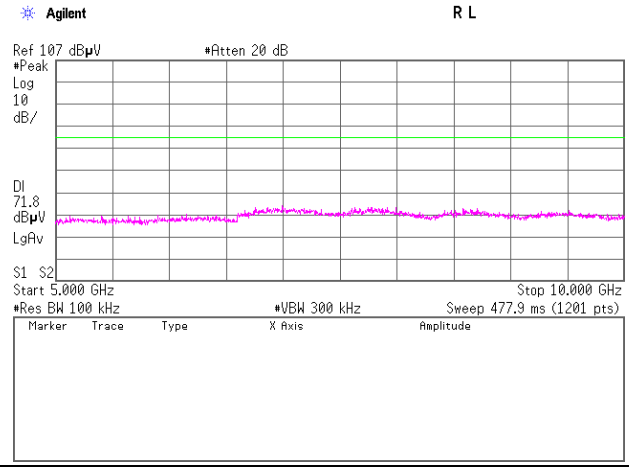
1GHz - 5GHz

Tx2_SpuriousG1



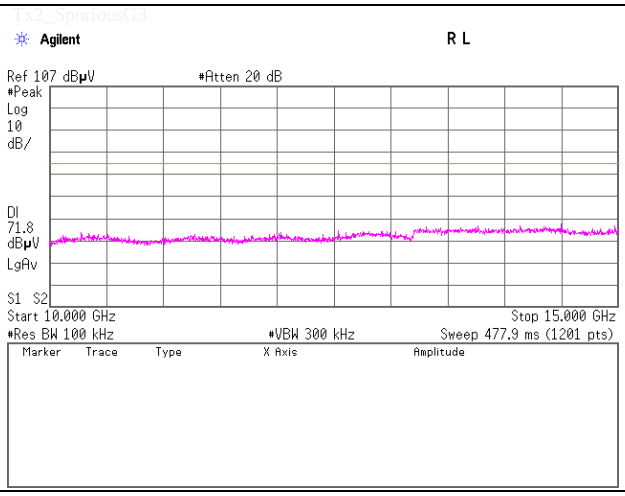
5GHz - 10GHz

Tx2_SpuriousG2



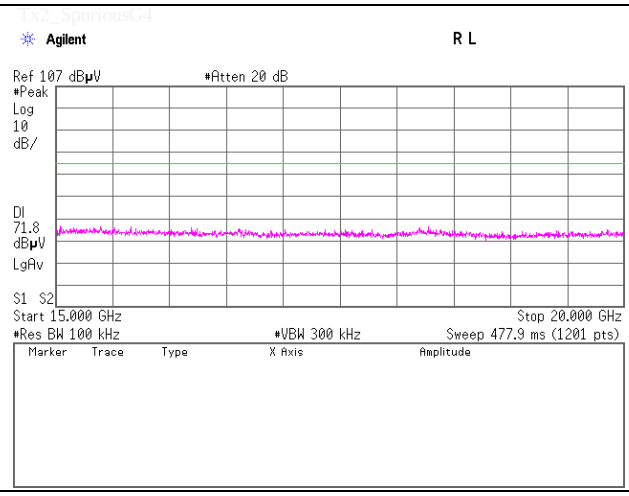
10GHz - 15GHz

Tx2_SpuriousG3



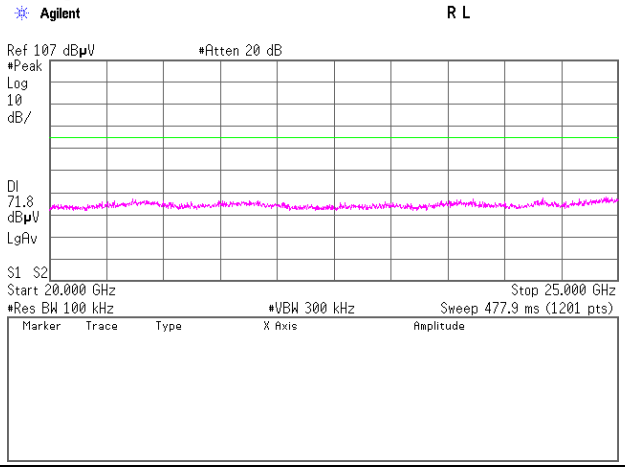
15GHz - 20GHz

Tx2_SpuriousG4



20GHz - 25GHz

Tx2_SpuriousG5



Tx2_SpuriousG6

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

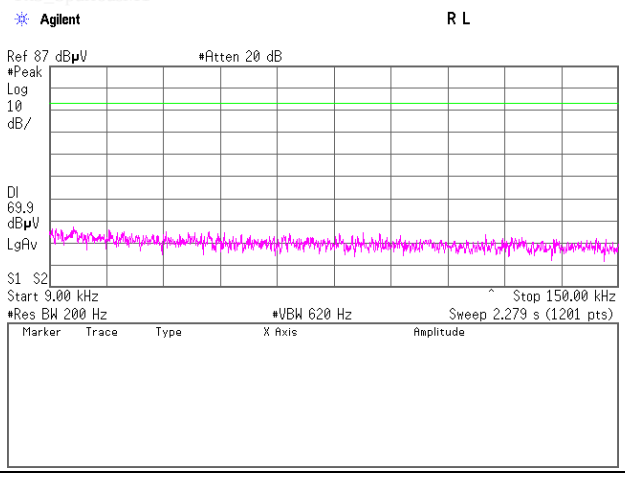
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2480MHz (below 1GHz)

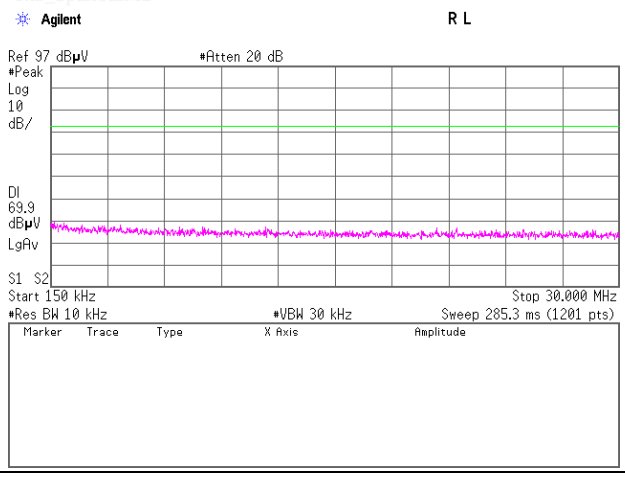
9kHz - 150kHz

Tx3_SpuriousM1



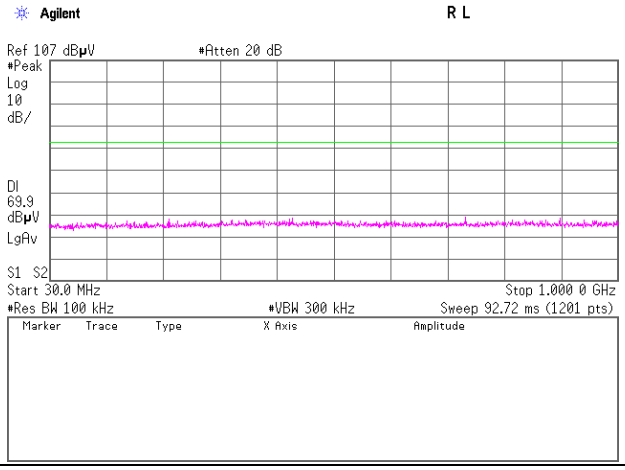
150kHz - 30MHz

Tx3_SpuriousM2



30MHz - 1GHz

Tx3_SpuriousM3



UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

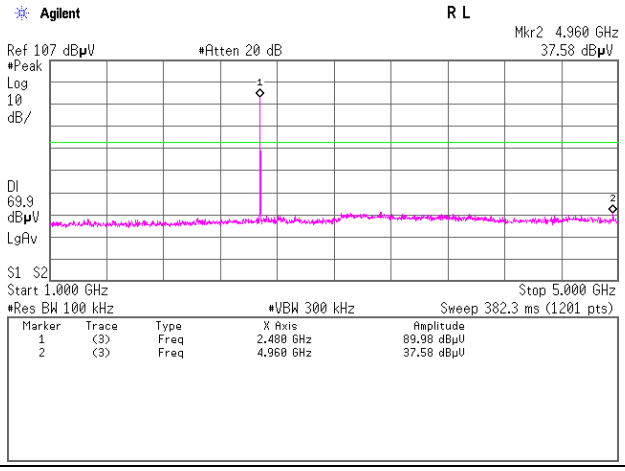
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2480MHz (above 1GHz)

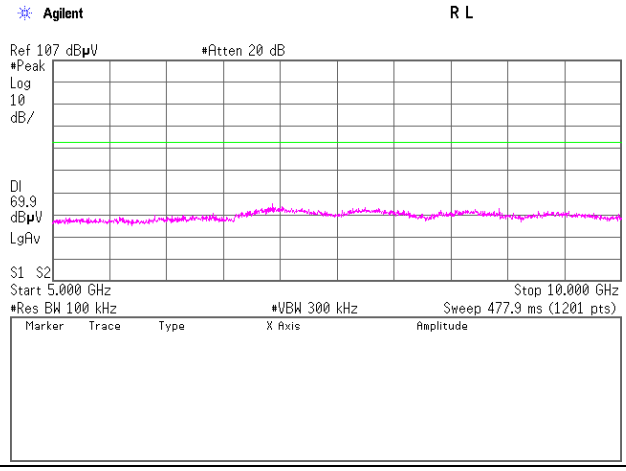
1GHz - 5GHz

Tx3_SpuriousG1



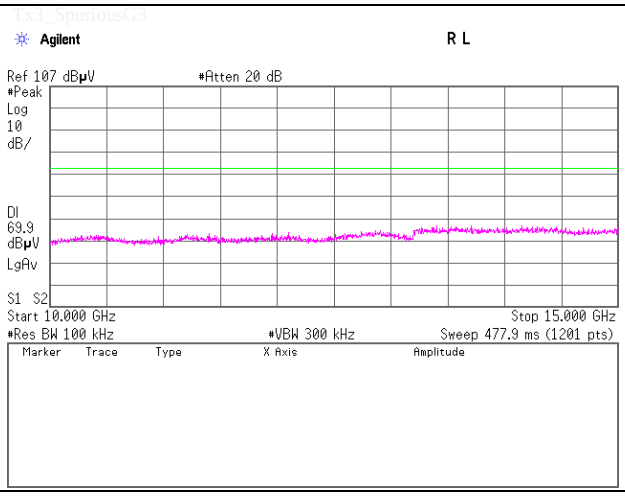
5GHz - 10GHz

Tx3_SpuriousG2



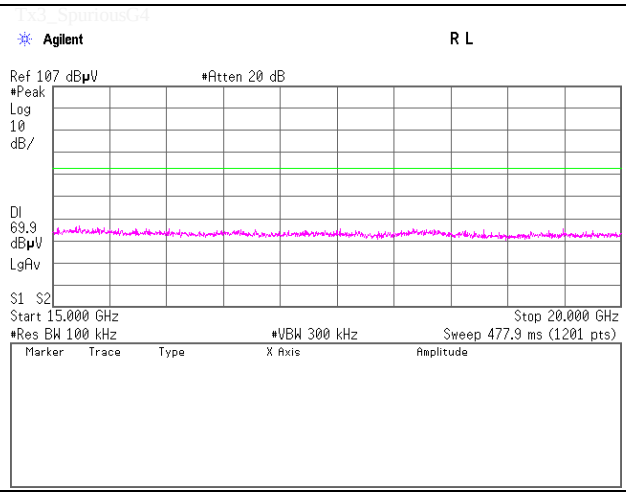
10GHz - 15GHz

Tx3_SpuriousG3



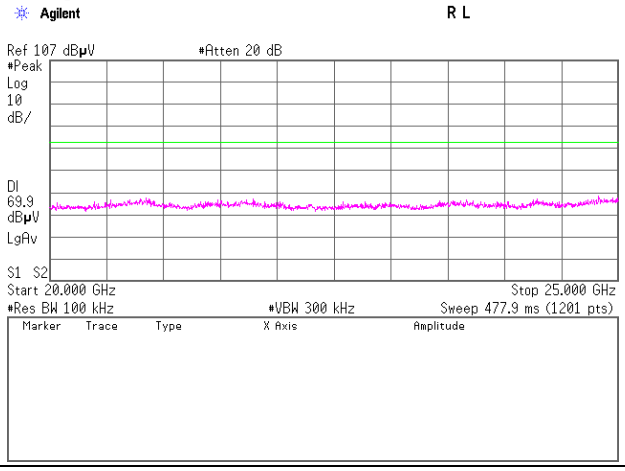
15GHz - 20GHz

Tx3_SpuriousG4



20GHz - 25GHz

Tx3_SpuriousG5



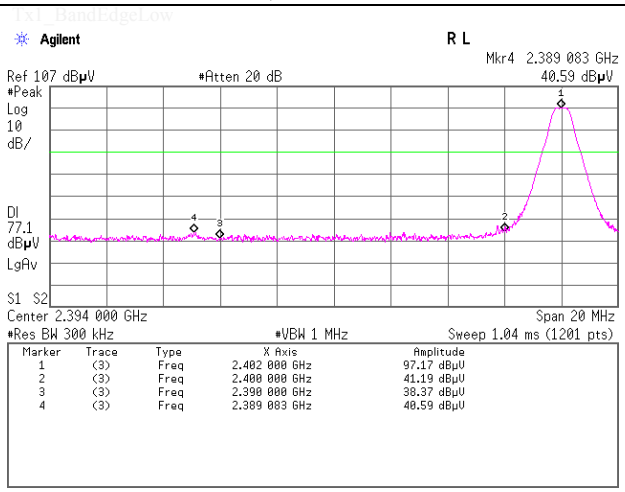
Tx3_SpuriousG6

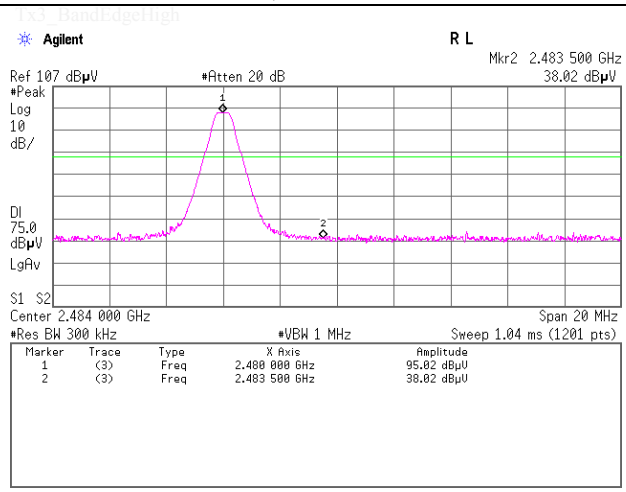
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

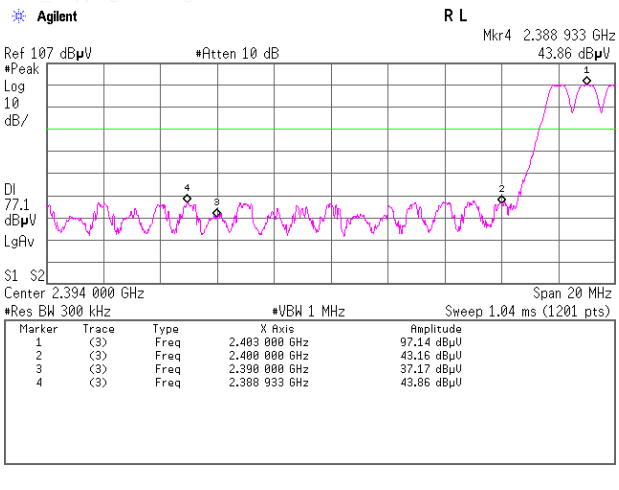
Band Edge compliance

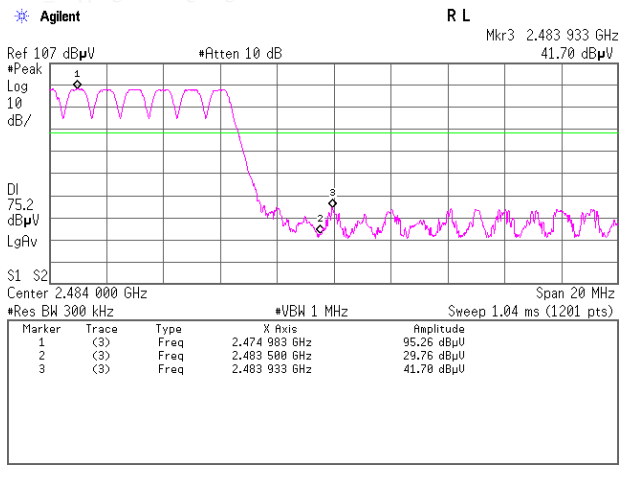
Tx, Bluetooth, BDR, PRBS9	
Tx, 2402MHz	**Tx, 2480MHz**





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





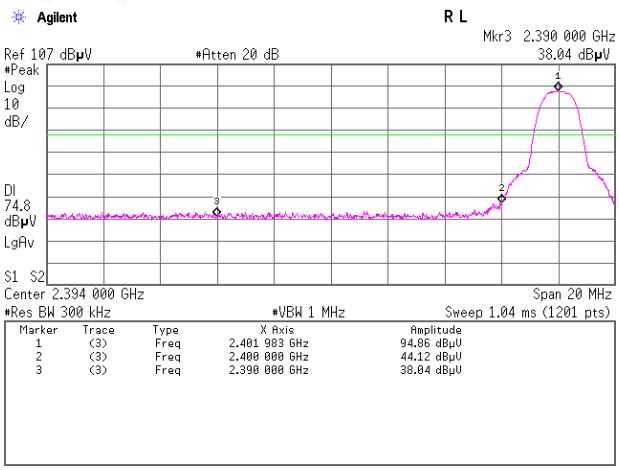
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

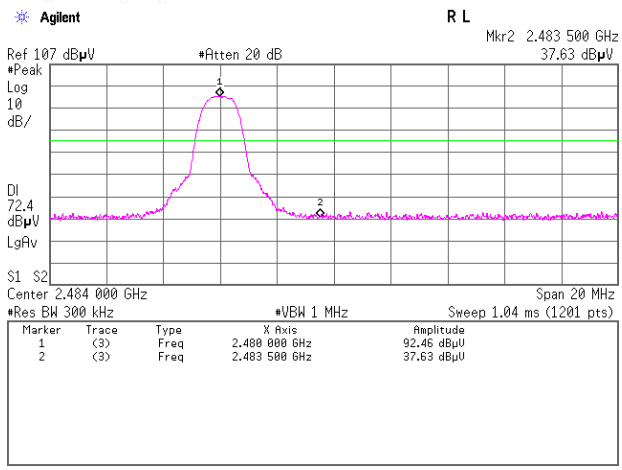
Band Edge compliance

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

Tx1_BandEdgeLow

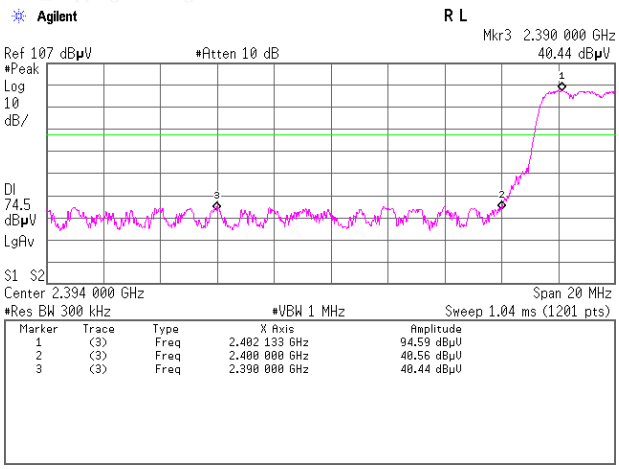


Tx3_BandEdgeHigh

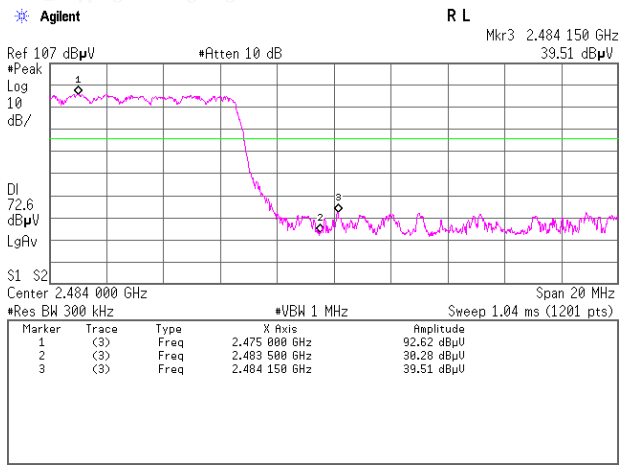


Tx, Bluetooth, EDR, PRBS9	
Hopping On (Low)	**Hopping On (High)**

Tx2_HoppingBandEdgeLow



Tx2_HoppingBandEdgeHigh

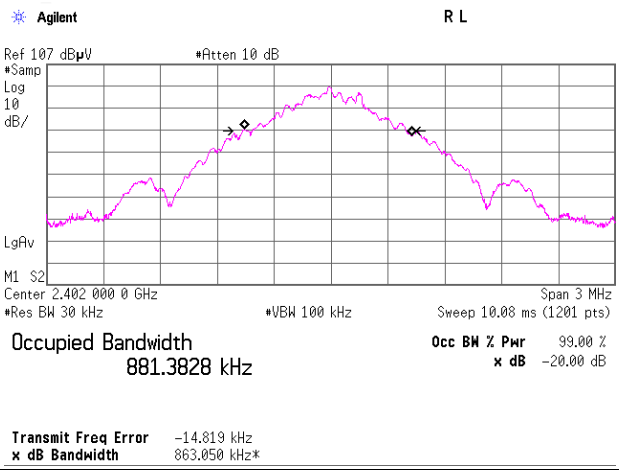


UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

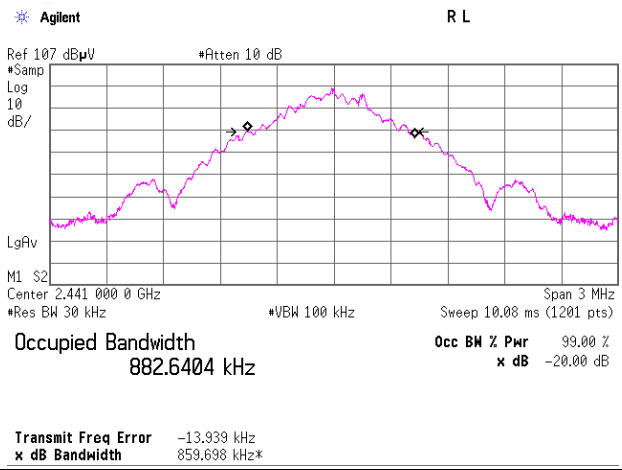
99% Occupied Bandwidth

Tx, Bluetooth, BDR, PRBS9

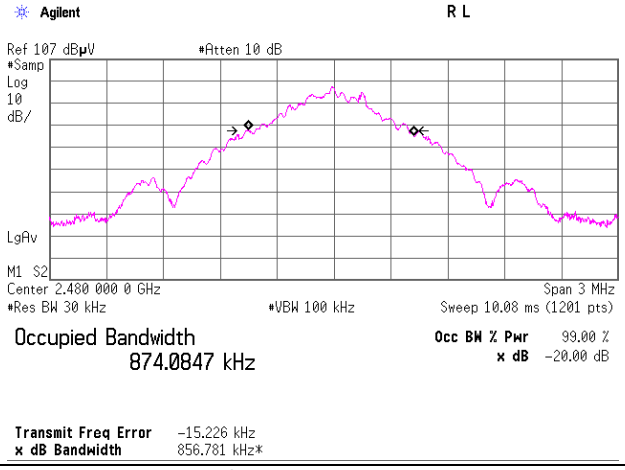
Tx, 2402MHz



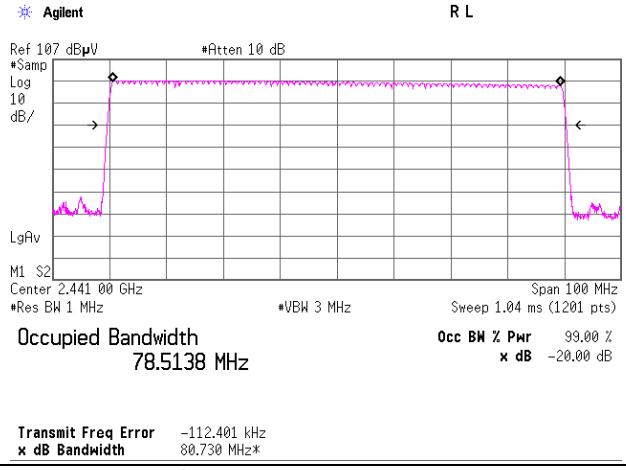
Tx, 2441MHz



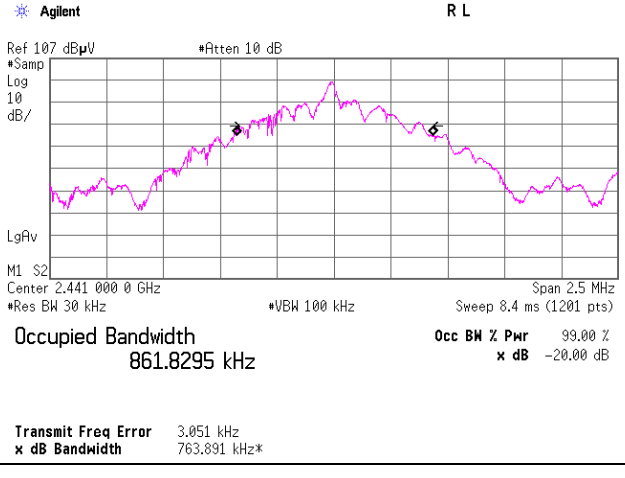
Tx, 2480MHz



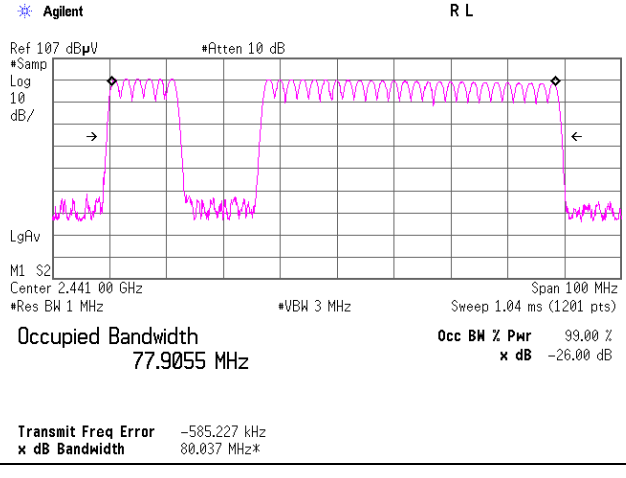
Tx, Hopping On



(Reference) Tx, Inquiry



(Reference) Tx, Inquiry, Hopping



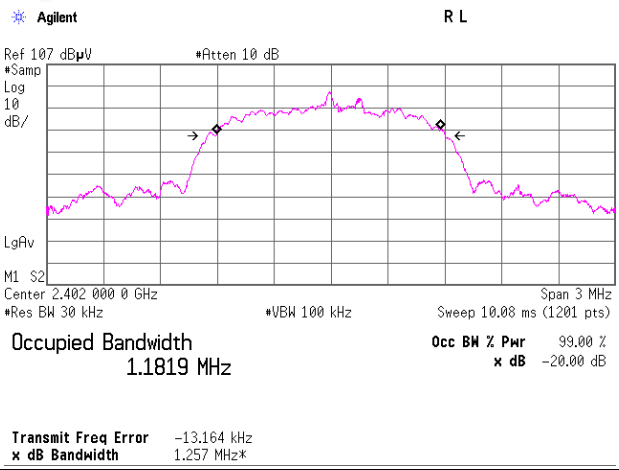
UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Tx, Bluetooth, EDR, PRBS9

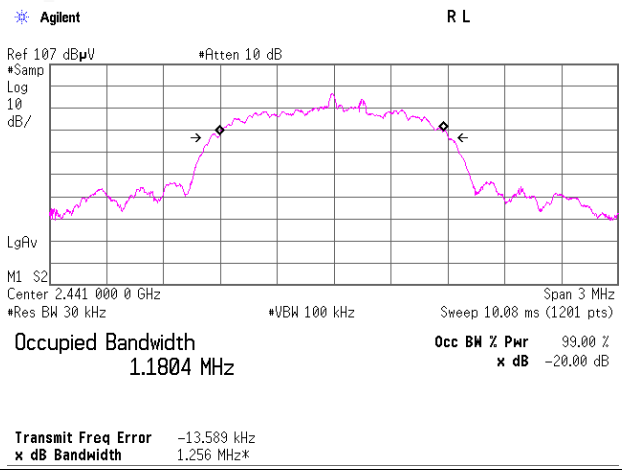
Tx, 2402MHz

Tx1_99OBW



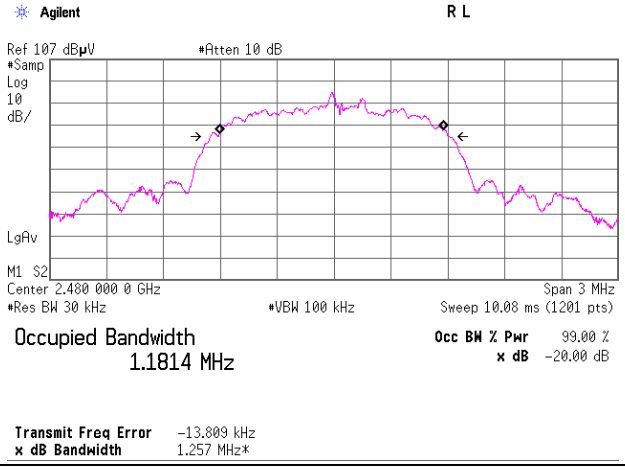
Tx, 2441MHz

Tx2_99OBW



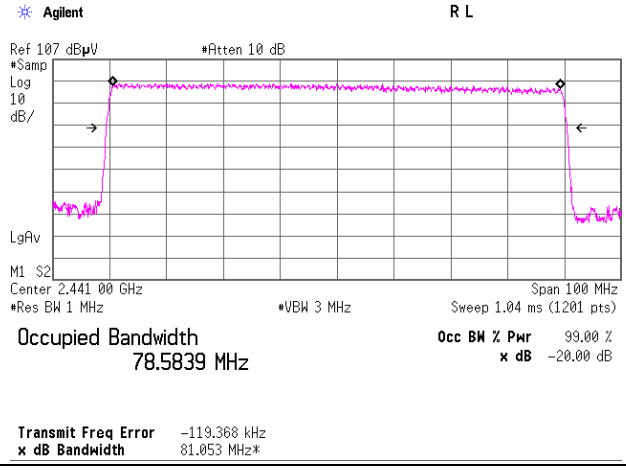
Tx, 2480MHz

Tx3_99OBW



Tx, Hopping On

Tx2_Hopping99OBW



Tx2_InquiryOBW

Tx2_InqHopping99OBW

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Test Report No :32KE0042-SH-02-A

APPENDIX 3
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
KAEC-01(NSA)	Anechoic Chamber	JSE	Semi 3m	1	RE	2012/08/27 * 12
KAF-03	Pre Amplifier	Hewlett Packard	8447D	2944A09947	RE	2011/11/04 * 12
KAT6-05	Attenuator	INMET	18N-6dB	-	RE	2012/08/12 * 12
KBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1926	RE	2011/11/16 * 12
KLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	170	RE	2011/10/23 * 12
KCC-42/31/32/34/37/KRM-03	Coaxial Cable/RF Relay Matrix	Fujikura/Suhner/TSJ	5D-2W/8D-2W/S04272B/RFM-E421	-/01055	RE	2011/10/31 * 12
KAF-02	Pre Amplifier	Hewlett Packard	8449B	3008A01268	RE	2012/04/06 * 12
KHA-02	Horn Antenna	Schwarzbeck	BBHA9120D	230	RE	2012/05/21 * 12
KHA-03	Horn Antenna	EMCO	3160-09	1239	RE	2012/05/21 * 12
KCC-D24/D25	Coaxial Cable	Suhner	SUCOFLEX 102	32718/2 / 32709/2	RE	2012/04/06 * 12
STR-01	Test Receiver	Rohde & Schwarz	ESU40	100093	RE	2011/10/22 * 12
KJM-09	Measure	KOMELON	KMC-36	-	RE	-
KOS-02	Humidity Indicator	Custom	CTH-190	K-02	RE	2012/08/21 * 12
KAT10-S2	Attenuator	Agilent	8490D 010	06036	RE	2011/12/27 * 12
KFL-01	Highpass Filter	Hewlett Packard	84300 80038	004	RE	2012/04/06 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFI,MF)	-	RE	-
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2012/04/19 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2012/04/19 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	AT	2012/03/16 * 12
SAT10-11	Attenuator	Weinschel Corp.	54A-10	37588	AT	2012/04/06 * 12
SCC-G12	Coaxial Cable	Suhner	SUCOFLEX 102	30790/2	AT	2012/03/12 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2012/03/26 * 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

End of Report