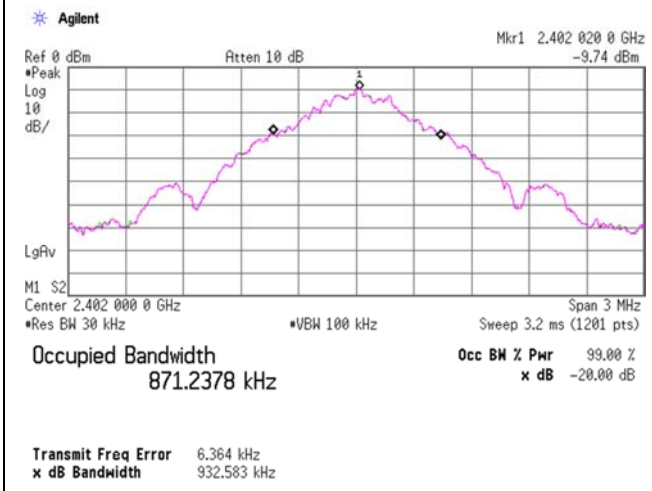
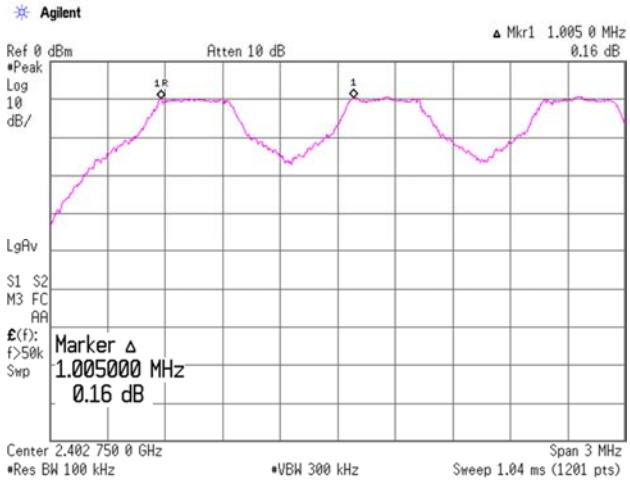
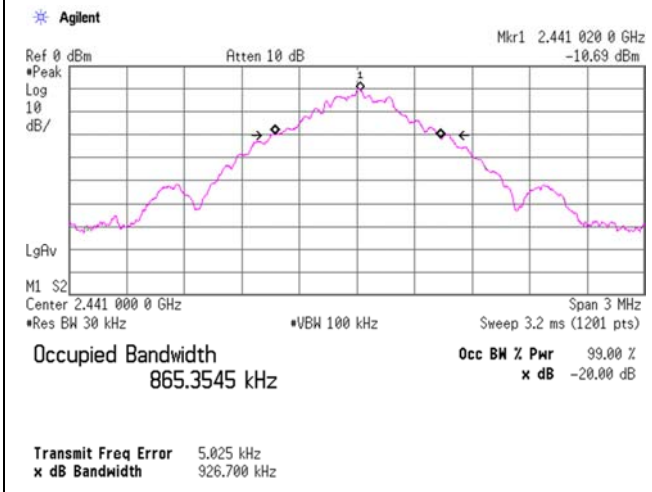
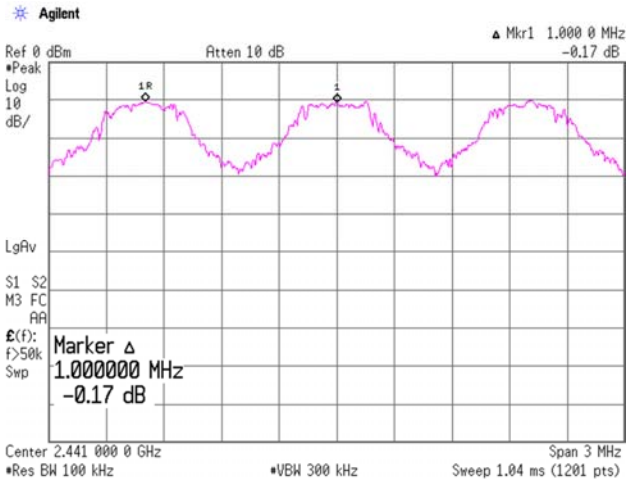
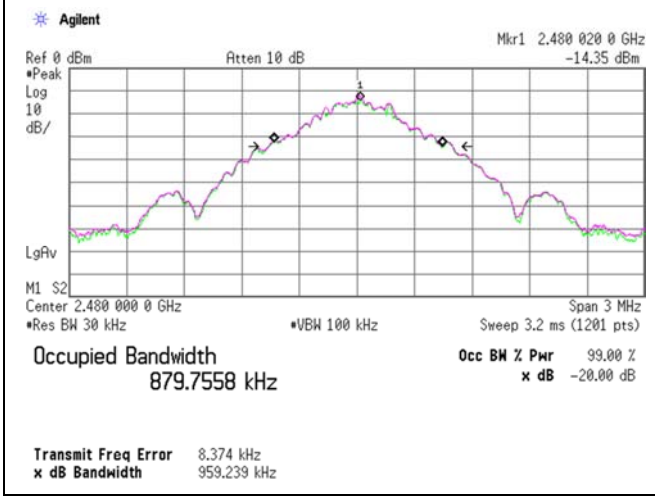
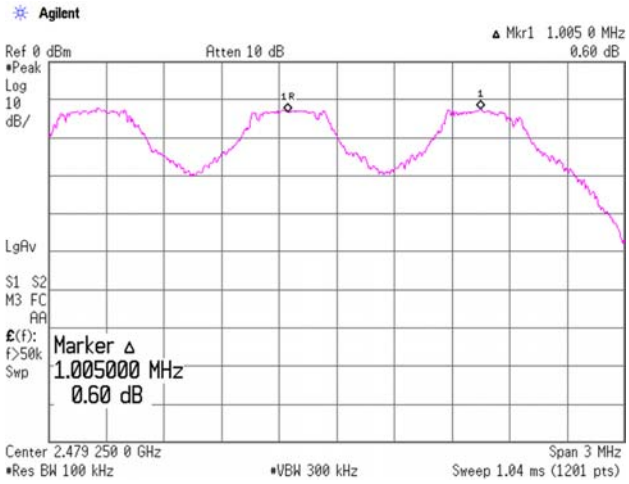
20dB Bandwidth and Carrier Frequency Separation

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Shielded Room
Date	December 8. 2010	
Temperature / Humidity	24deg.C. 38 %	
Engineer	Kenichi Adachi	
Mode	Tx	

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency Separation [MHz]
DH5	2402.0	0.933	1.005	>= 0.622
DH5	2441.0	0.927	1.000	>= 0.618
DH5	2480.0	0.959	1.005	>= 0.639
3DH5	2402.0	1.291	1.005	>= 0.861
3DH5	2441.0	1.278	1.006	>= 0.852
3DH5	2480.0	1.277	1.026	>= 0.851
Inquiry	2441.0	0.817	2.020	>= 0.545

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

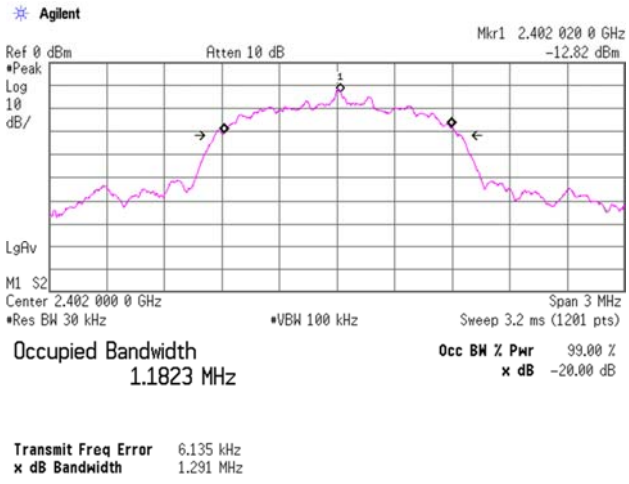
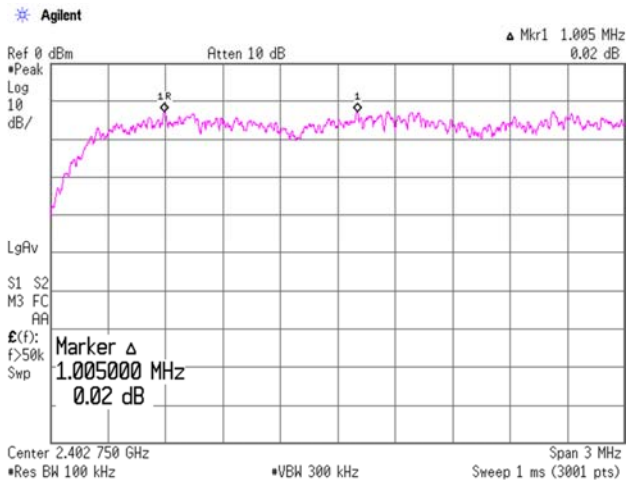
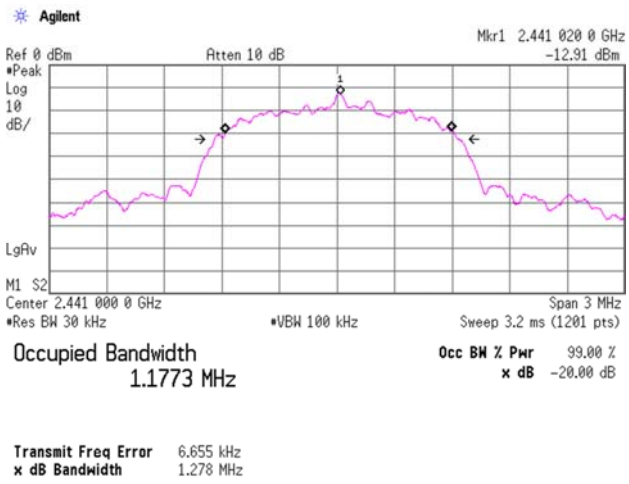
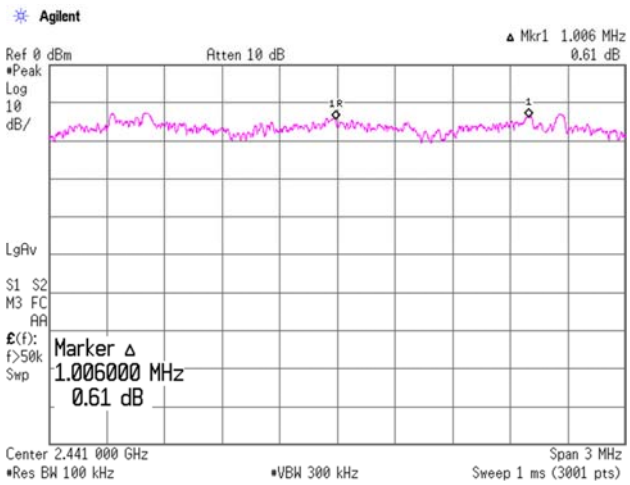
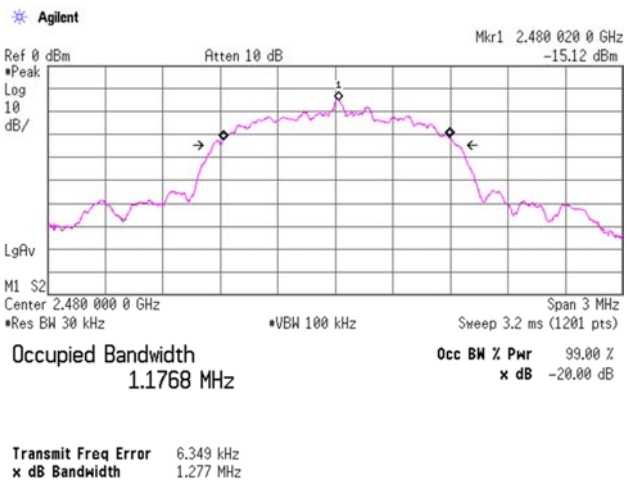
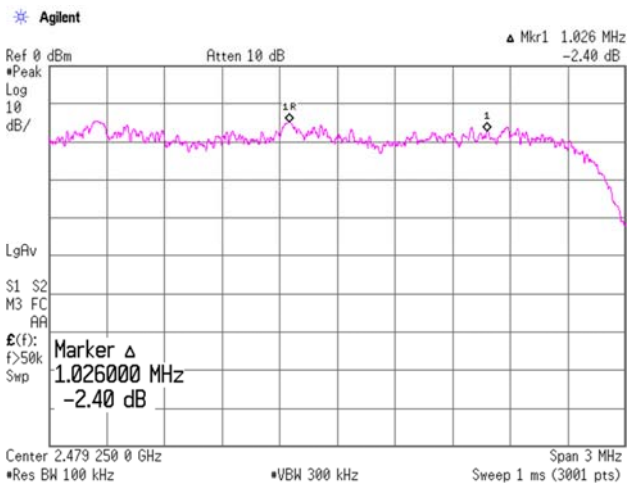
20dB Bandwidth and Carrier Frequency Separation

DH5	
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

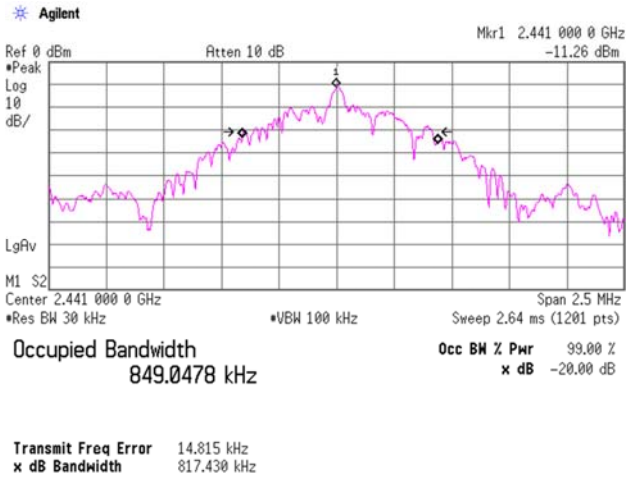
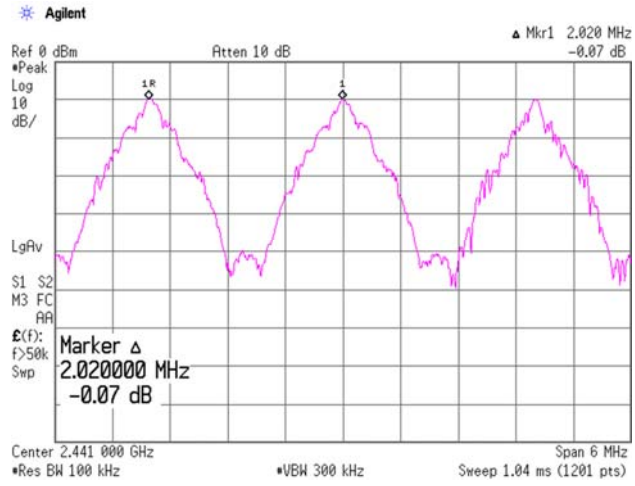
20dB Bandwidth and Carrier Frequency Separation

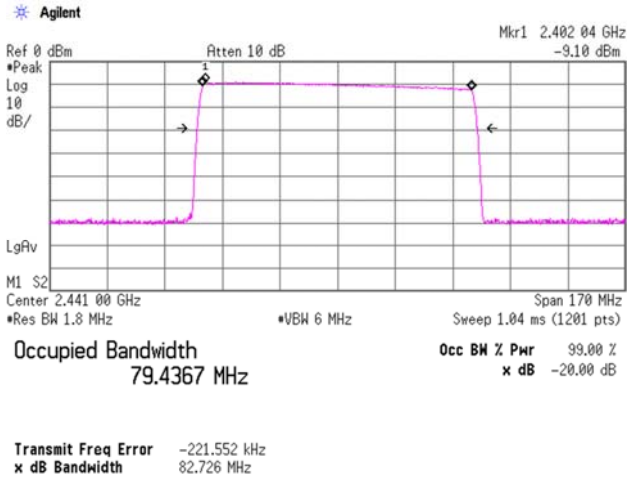
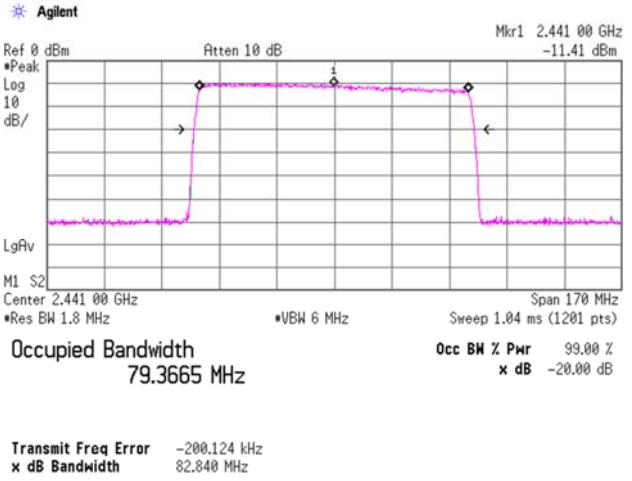
3-DH5	
20dB Bandwidth	**Carrier Frequency Separation**
Tx, 2402MHz	**Tx, 2402MHz**
	
Tx, 2441MHz	**Tx, 2441MHz**
	
Tx, 2480MHz	**Tx, 2480MHz**
	

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

Inquiry	
20dB Bandwidth	**Carrier Frequency Separation**
	

DH5 (Hopping on)	3-DH5 (Hopping on)
20dB Bandwidth (Reference)	**20dB Bandwidth (Rerefence)**
	

Number of Hopping Frequency (Conducted)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Shielded Room
Date	December 8. 2010	
Temperature / Humidity	24deg.C. 38 %	
Engineer	Kenichi Adachi	
Mode	Tx	

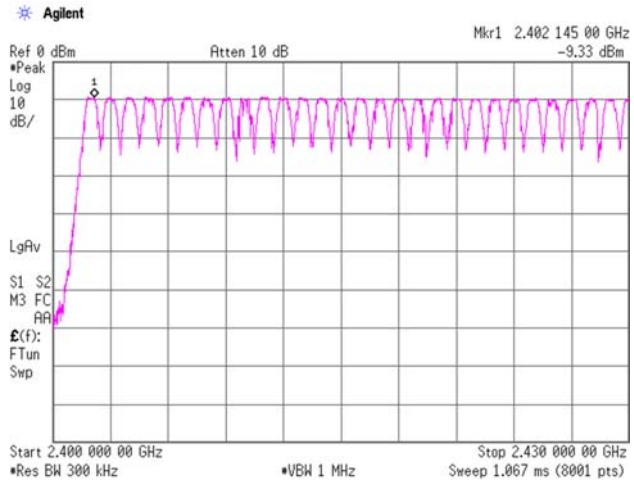
Mode	Number of Channel [times]	Limit [times]
DH5	79	>=15
3-DH5	79	>=15
Inquiry	32	>=15

UL Japan, Inc.
Shonan EMC Lab.

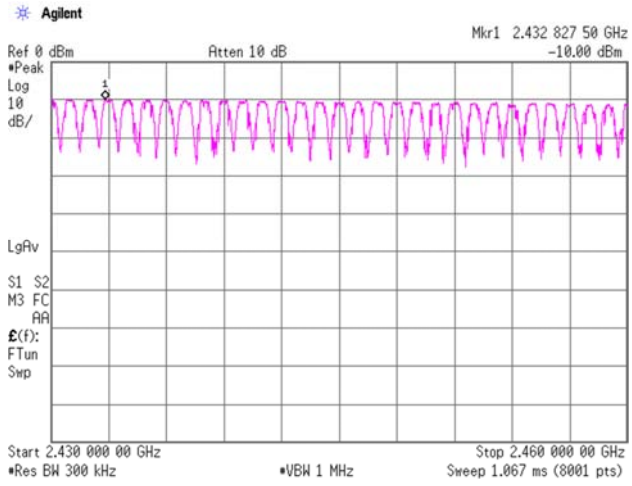
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Number of Hopping Frequency

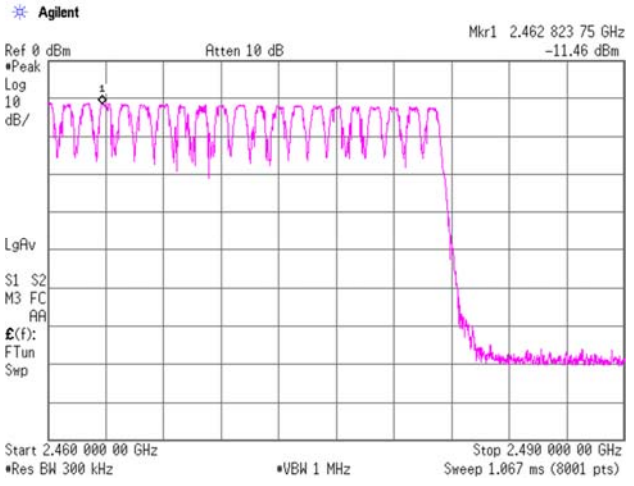
DH5 (1/3)



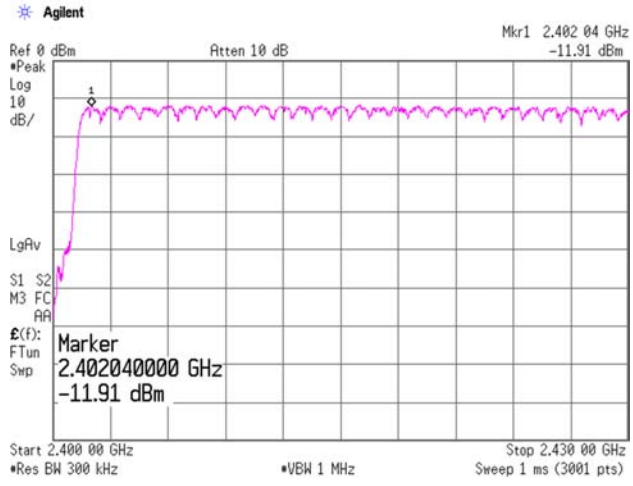
3-DH5 (1/3)



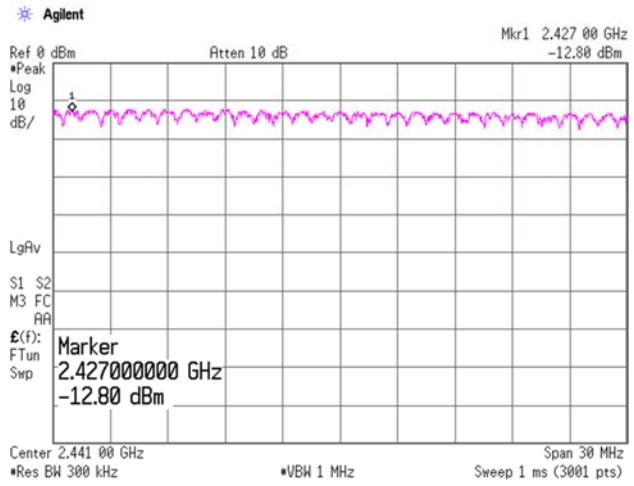
DH5 (2/3)



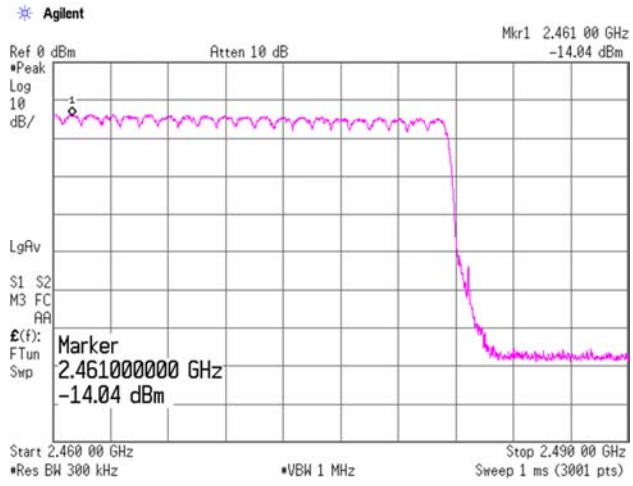
3-DH5 (2/3)



DH5 (3/3)



3-DH5 (3/3)

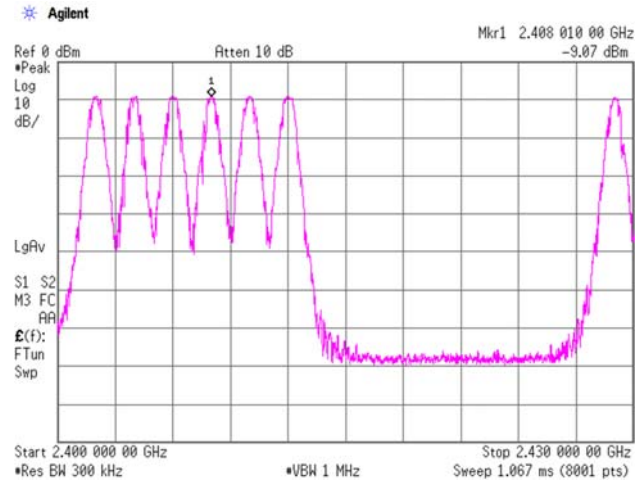


UL Japan, Inc.
Shonan EMC Lab.

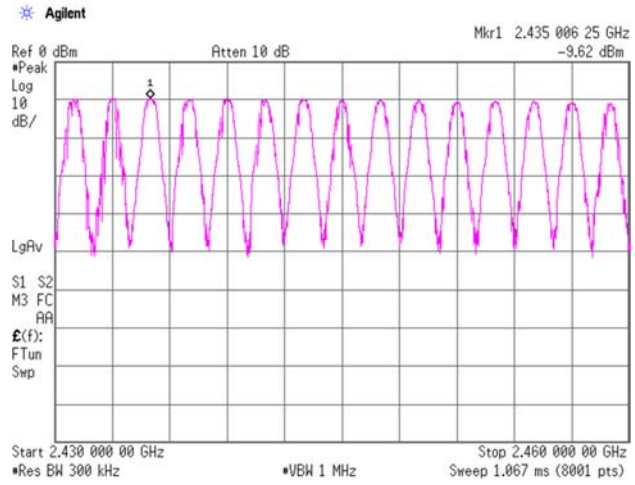
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Number of Hopping Frequency

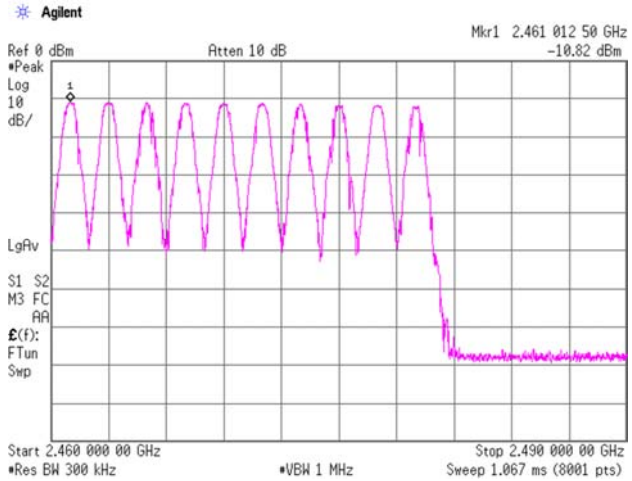
Inquiry (1/3)



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 (Conducted)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room	No.6 Shielded Room
Date	December 7, 2010	December 15, 2010	
Temperature / Humidity	24deg.C. , 42%	21deg.C. ,51%	
Engineer	Kenichi Adachi	Hikaru Shirasawa	
Mode	Tx,		

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	87.6 times / 31.6 sec. x 31.6 sec. = 88 times	0.394	35	400
DH3	84.8 times / 31.6 sec. x 31.6 sec. = 85 times	1.651	140	400
DH5	86.6 times / 31.6 sec. x 31.6 sec. = 87 times	2.900	252	400
3DH1	88.6 times / 31.6 sec. x 31.6 sec. = 89 times	0.404	36	400
3DH3	84.6 times / 31.6 sec. x 31.6 sec. = 85 times	1.654	141	400
3DH5	85.0 times / 31.6 sec. x 31.6 sec. = 85 times	2.907	247	400
Inquiry	100.0 times / 1.0 sec. x 12.8 sec. = 1280 times	0.096	122	400

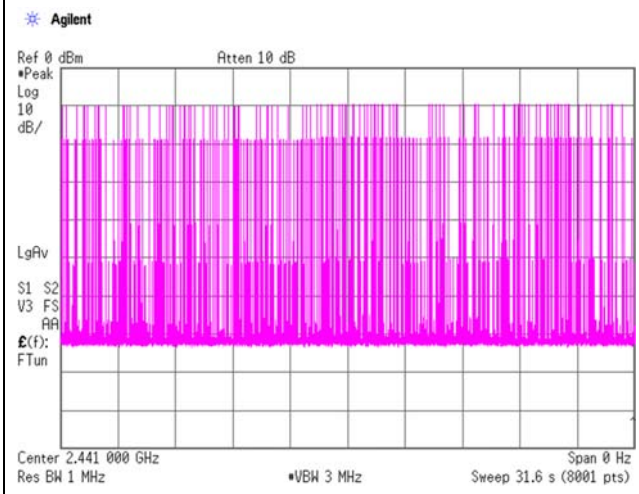
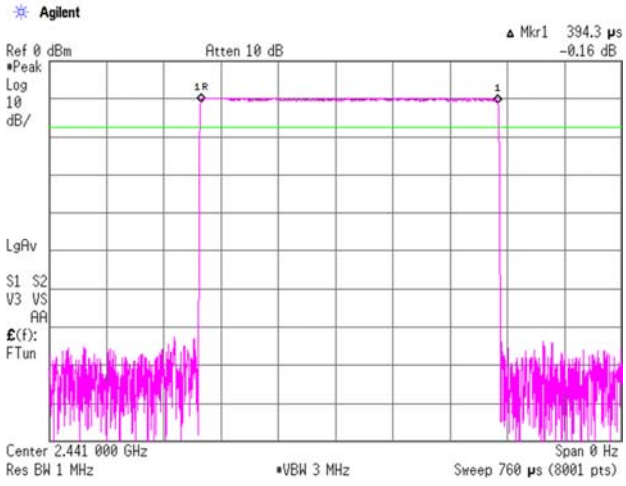
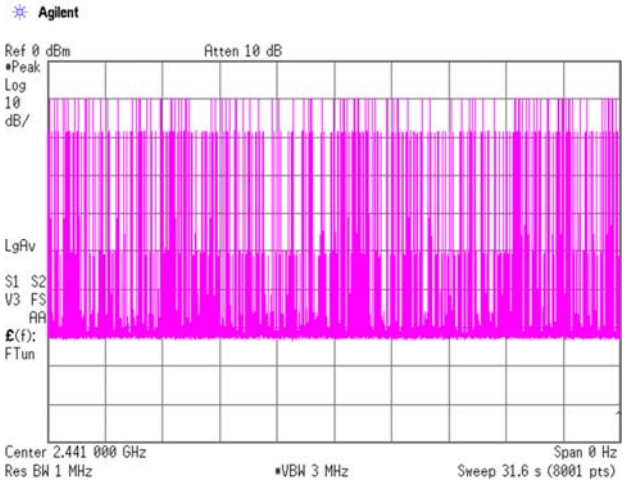
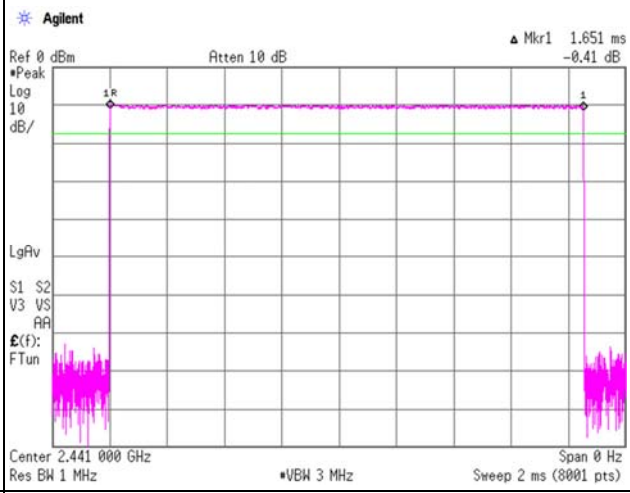
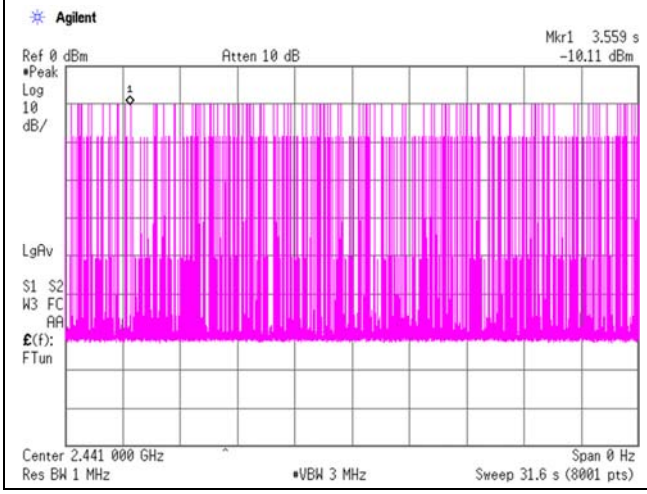
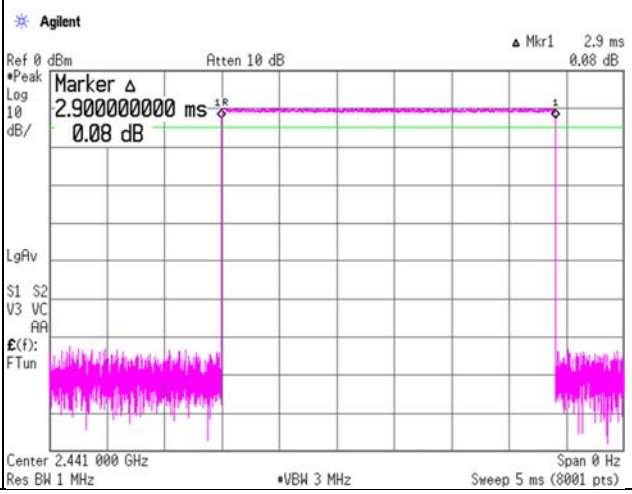
Sample Calculation
Result = Number of transmission x Length of transmition time

*Average data of 5 tests.(except Inquiry)

Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	89	90	91	86	82	87.6
DH3	89	87	87	83	78	84.8
DH5	95	83	73	96	86	86.6
3DH1	83	90	93	87	90	88.6
3DH3	88	87	76	89	83	84.6
3DH5	93	75	90	79	88	85.0

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

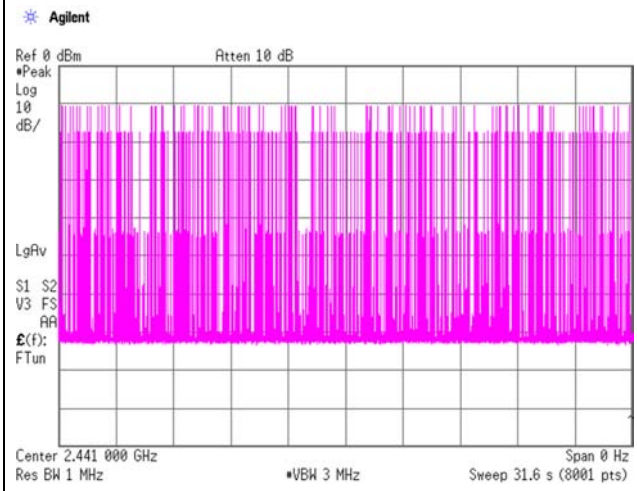
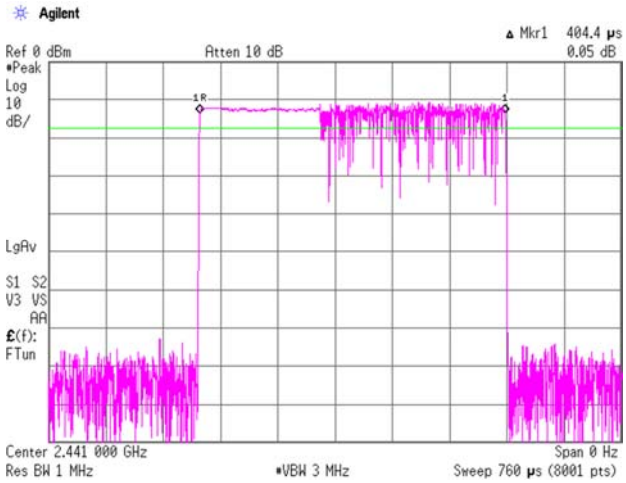
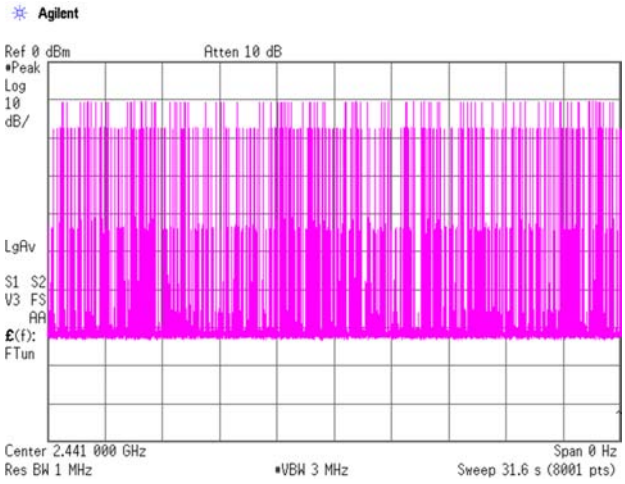
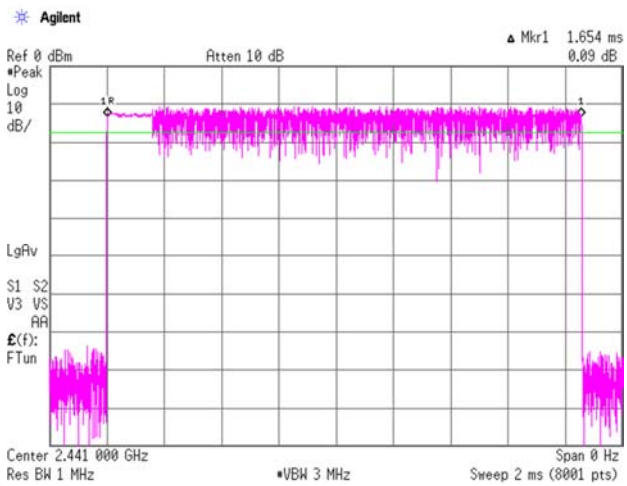
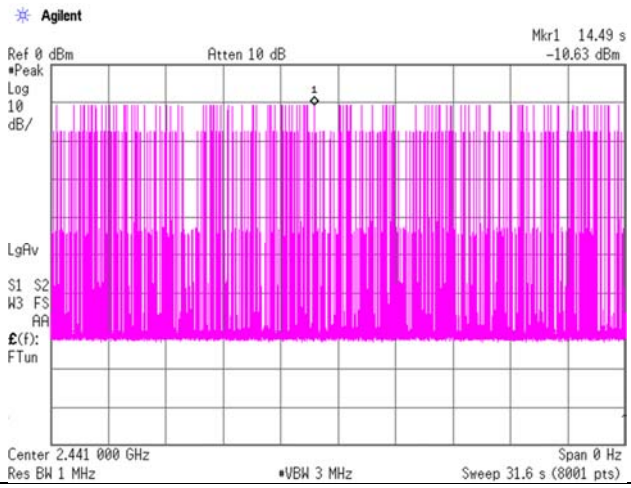
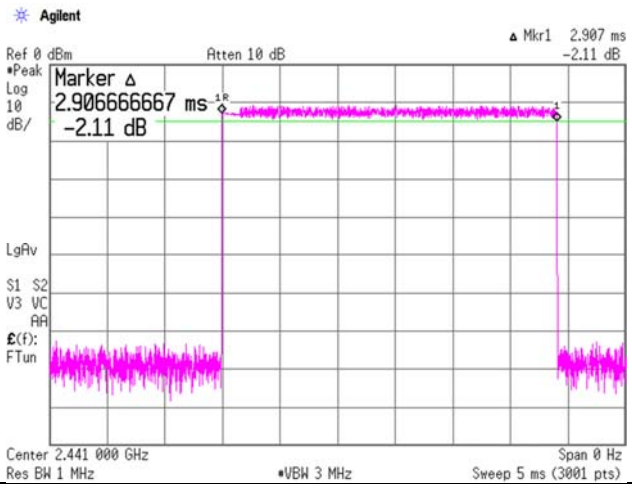
Dwell time

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

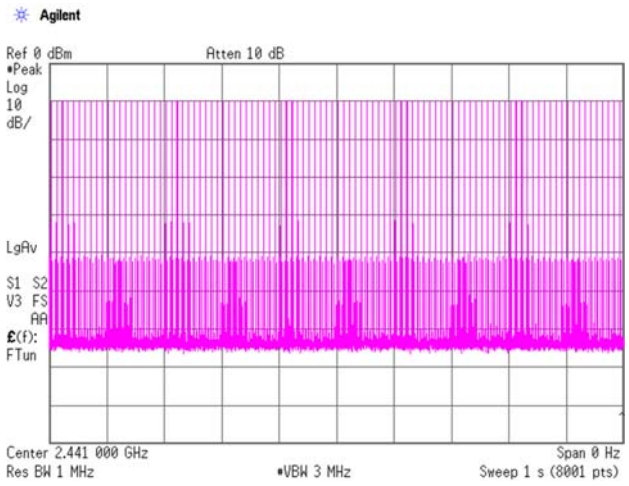
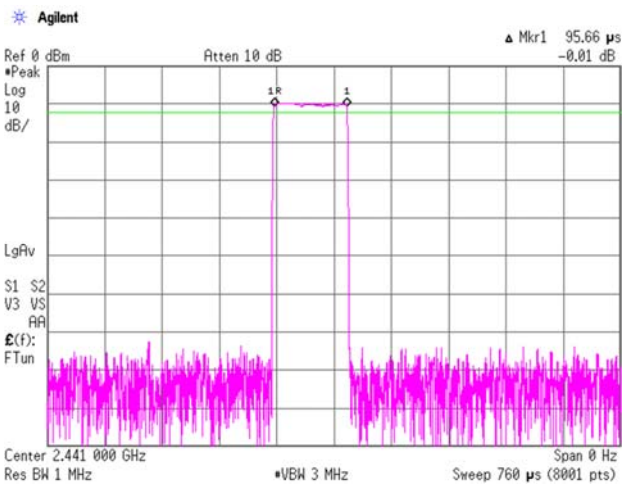
Dwell time

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

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

Peak Output Power (Conducted)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 7, 2010	
Temperature / Humidity	24deg.C. , 42%	
Engineer	Kenichi Adachi	
Mode	Tx,	

BDR (DH5)

Ch	Freq.	P/M (PK) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2402.0	-8.98	1.00	9.97	1.99	1.58	20.97	125	18.98
Mid	2441.0	-9.73	1.00	9.97	1.24	1.33	20.97	125	19.73
High	2480.0	-11.61	1.00	9.97	-0.64	0.86	20.97	125	21.61

EDR (2-DH5)

Ch	Freq.	P/M (PK) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2402.0	-9.54	1.00	9.97	1.43	1.39	20.97	125	19.54
Mid	2441.0	-10.27	1.00	9.97	0.70	1.17	20.97	125	20.27
High	2480.0	-12.23	1.00	9.97	-1.26	0.75	20.97	125	22.23

EDR (3-DH5)

Ch	Freq.	P/M (PK) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2402.0	-9.14	1.00	9.97	1.83	1.52	20.97	125	19.14
Mid	2441.0	-9.85	1.00	9.97	1.12	1.29	20.97	125	19.85
High	2480.0	-11.78	1.00	9.97	-0.81	0.83	20.97	125	21.78

Sample Calculation:
Result = Reading + Cable Loss (supplied by customer) + Atten. Loss
* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date January 30, 2011
Temperature / Humidity 24deg.C./32%
Engineer Makoto Hosaka
Mode Tx, 2402 MHz
Bluetooth, DH5,

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.	156.367	QP	44.0	14.9	7.6	32.0	34.5	43.5	9.0	200	292	
Hori.	169.313	QP	42.0	15.5	7.7	32.0	33.2	43.5	10.3	190	307	
Hori.	179.992	QP	45.0	15.7	7.7	32.0	36.4	43.5	7.1	186	279	
Hori.	347.994	QP	44.0	14.9	8.6	31.9	35.6	46.0	10.4	118	45	
Hori.	683.995	QP	40.2	19.6	10.0	31.9	37.9	46.0	8.1	111	37	
Hori.	791.992	QP	40.3	20.2	10.3	31.6	39.2	46.0	6.8	100	0	
Hori.	2390.000	PK	49.6	27.5	13.3	40.2	50.2	73.9	23.7	100	33	
Hori.	2400.000	PK	56.5	27.5	13.3	40.2	57.1	73.9	16.8	100	67	
Hori.	4804.000	PK	49.4	31.5	5.6	40.1	46.4	73.9	27.5	100	0	
Hori.	7206.000	PK	50.5	36.4	6.8	38.3	55.4	73.9	18.5	100	0	
Hori.	9608.000	PK	47.3	37.9	8.0	37.3	55.9	73.9	18.0	100	0	
Hori.	12010.000	PK	48.3	39.4	9.2	38.4	58.5	73.9	15.4	100	0	
Hori.	24020.000	PK	47.0	39.7	-2.1	46.8	37.8	73.9	36.1	100	0	
Vert.	137.384	QP	42.7	13.4	7.5	32.1	31.5	43.5	12.0	100	80	
Vert.	683.991	QP	38.3	19.6	10.0	31.9	36.0	43.5	7.5	100	4	
Vert.	2390.000	PK	48.8	27.5	13.3	40.2	49.4	73.9	24.5	100	29	
Vert.	2400.000	PK	65.5	27.5	13.3	40.2	66.1	73.9	7.8	100	187	
Vert.	4804.000	PK	49.1	31.5	5.6	40.1	46.1	73.9	27.8	100	0	
Vert.	7206.000	PK	50.3	36.4	6.8	38.3	55.2	73.9	18.7	100	0	
Vert.	9608.000	PK	48.3	37.9	8.0	37.3	56.9	73.9	17.0	100	0	
Vert.	12010.000	PK	46.8	39.4	9.2	38.4	57.0	73.9	16.9	100	0	
Vert.	24020.000	PK	46.3	39.7	-2.1	46.8	37.1	73.9	36.8	100	0	

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

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

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

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

Dwell time factor relaxation

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Dwell Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	34.5	27.5	13.3	40.2	-24.7	10.4	53.9	43.5	VBW:300Hz
Hori.	2400.000	AV	54.3	27.5	13.3	40.2	-24.7	30.2	53.9	23.7	VBW:300Hz
Hori.	4804.000	AV	35.3	31.5	5.6	40.1	-24.7	7.6	53.9	46.3	VBW:300Hz
Hori.	7206.000	AV	36.2	36.4	6.8	38.3	-24.7	16.4	53.9	37.5	VBW:300Hz
Hori.	9608.000	AV	33.9	37.9	8.0	37.3	-24.7	17.8	53.9	36.1	VBW:300Hz
Hori.	12010.000	AV	34.2	39.4	9.2	38.4	-24.7	19.7	53.9	34.2	VBW:300Hz
Hori.	24020.000	AV	34.1	39.7	-2.1	46.8	-24.7	0.2	53.9	53.7	VBW:300Hz
Vert.	2390.000	AV	34.6	27.5	13.3	40.2	-24.7	10.5	53.9	43.4	VBW:300Hz
Vert.	2400.000	AV	63.2	27.5	13.3	40.2	-24.7	39.1	53.9	14.8	VBW:300Hz
Vert.	4804.000	AV	34.4	31.5	5.6	40.1	-24.7	6.7	53.9	47.2	VBW:300Hz
Vert.	7206.000	AV	35.3	36.4	6.8	38.3	-24.7	15.5	53.9	38.4	VBW:300Hz
Vert.	9608.000	AV	33.7	37.9	8.0	37.3	-24.7	17.6	53.9	36.3	VBW:300Hz
Vert.	12010.000	AV	35.3	39.4	9.2	38.4	-24.7	20.8	53.9	33.1	VBW:300Hz
Vert.	24020.000	AV	33.4	39.7	-2.1	46.8	-24.7	-0.5	53.9	54.4	VBW:300Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)
- Gain(Amprifier) + Dwell time factor (Refer to dwell time data sheet)

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

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date January 30, 2011
Temperature / Humidity 24deg.C./32%
Engineer Makoto Hosaka
Mode Tx, 2441 MHz
Bluetooth, DH5,

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.	156.412	QP	44.0	14.9	7.6	32.0	34.5	43.5	9.0	191	285	
Hori.	179.996	QP	44.1	15.7	7.7	32.0	35.5	43.5	8.0	168	287	
Hori.	225.737	QP	41.4	16.7	8.0	32.0	34.1	46.0	11.9	134	315	
Hori.	232.906	QP	36.4	16.8	8.1	32.0	29.3	46.0	16.7	150	311	
Hori.	323.997	QP	44.7	14.5	8.5	31.9	35.8	46.0	10.2	100	44	
Hori.	791.993	QP	39.9	20.2	10.3	31.6	38.8	46.0	7.2	100	358	
Hori.	4882.000	PK	49.1	31.7	5.7	40.0	46.5	73.9	27.4	100	0	
Hori.	7323.000	PK	49.1	36.7	6.9	38.5	54.2	73.9	19.7	100	0	
Hori.	9764.000	PK	47.4	38.2	8.0	37.4	56.2	73.9	17.7	100	0	
Hori.	12205.000	PK	48.3	39.2	9.2	38.1	58.6	73.9	15.3	100	0	
Hori.	24410.000	PK	46.3	40.1	-2.1	46.5	37.8	73.9	36.1	100	0	
Vert.	141.079	QP	44.7	13.7	7.5	32.1	33.8	43.5	9.7	100	51	
Vert.	157.985	QP	43.0	15.1	7.6	32.0	33.7	43.5	9.8	100	68	
Vert.	503.998	QP	38.2	17.2	9.3	31.9	32.8	46.0	13.2	100	184	
Vert.	4882.000	PK	48.7	31.7	5.7	40.0	46.1	73.9	27.8	100	0	
Vert.	7323.000	PK	49.2	36.7	6.9	38.5	54.3	73.9	19.6	100	0	
Vert.	9764.000	PK	46.9	38.2	8.0	37.4	55.7	73.9	18.2	100	0	
Vert.	12205.000	PK	48.0	39.2	9.2	38.1	58.3	73.9	15.6	100	0	
Vert.	24410.000	PK	47.0	40.1	-2.1	46.5	38.5	73.9	35.4	100	0	

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

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

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

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

Dwell time factor relaxation

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Dwell Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4882.000	AV	35.2	31.7	5.7	40.0	-24.7	7.9	53.9	46.0	VBW:300Hz
Hori.	7323.000	AV	34.8	36.7	6.9	38.5	-24.7	15.2	53.9	38.7	VBW:300Hz
Hori.	9764.000	AV	33.2	38.2	8.0	37.4	-24.7	17.3	53.9	36.6	VBW:300Hz
Hori.	12205.000	AV	33.7	39.2	9.2	38.1	-24.7	19.3	53.9	34.6	VBW:300Hz
Hori.	24410.000	AV	33.9	40.1	-2.1	46.5	-24.7	0.7	53.9	53.2	VBW:300Hz
Vert.	4882.000	AV	34.2	31.7	5.7	40.0	-24.7	6.9	53.9	47.0	VBW:300Hz
Vert.	7323.000	AV	35.0	36.7	6.9	38.5	-24.7	15.4	53.9	38.5	VBW:300Hz
Vert.	9764.000	AV	33.5	38.2	8.0	37.4	-24.7	17.6	53.9	36.3	VBW:300Hz
Vert.	12205.000	AV	34.3	39.2	9.2	38.1	-24.7	19.9	53.9	34.0	VBW:300Hz
Vert.	24410.000	AV	34.5	40.1	-2.1	46.5	-24.7	1.3	53.9	52.6	VBW:300Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)
- Gain(Amprifier) + Dwell time factor (Refer to dwell time data sheet)

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

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date January 30, 2011
Temperature / Humidity 24deg.C./32%
Engineer Makoto Hosaka
Mode Tx, 2480 MHz
Bluetooth, DH5,

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.	155.994	QP	44.4	14.9	7.6	32.0	34.9	43.5	8.6	201	296	
Hori.	179.998	QP	45.0	15.7	7.7	32.0	36.4	43.5	7.1	100	295	
Hori.	323.986	QP	44.7	14.9	8.6	31.9	36.3	46.0	9.7	100	40	
Hori.	683.990	QP	39.8	19.6	10.0	31.9	37.5	46.0	8.5	110	39	
Hori.	792.421	QP	40.0	20.2	10.3	31.6	38.9	46.0	7.1	100	0	
Hori.	2483.500	PK	48.5	27.6	13.3	40.1	49.3	73.9	24.6	100	0	
Hori.	4960.000	PK	48.1	31.9	5.7	40.0	45.7	73.9	28.2	100	0	
Hori.	7440.000	PK	48.2	36.9	6.9	38.7	53.3	73.9	20.6	100	0	
Hori.	9920.000	PK	48.9	38.4	8.1	37.5	57.9	73.9	16.0	100	0	
Hori.	12400.000	PK	48.0	39.1	9.3	37.9	58.5	73.9	15.4	100	0	
Hori.	24800.000	PK	46.6	40.6	-2.1	46.6	38.5	73.9	35.4	100	0	
Vert.	141.082	QP	44.5	13.7	7.5	32.1	33.6	43.5	9.9	100	106	
Vert.	503.993	QP	38.2	17.2	9.3	31.9	32.8	46.0	13.2	101	340	
Vert.	2483.500	PK	49.2	27.6	13.3	40.1	50.0	73.9	23.9	100	0	
Vert.	4960.000	PK	49.3	31.9	5.7	40.0	46.9	73.9	27.0	100	0	
Vert.	7440.000	PK	48.5	36.9	6.9	38.7	53.6	73.9	20.3	100	0	
Vert.	9920.000	PK	47.1	38.4	8.1	37.5	56.1	73.9	17.8	100	0	
Vert.	12400.000	PK	47.7	39.1	9.3	37.9	58.2	73.9	15.7	100	0	
Vert.	24800.000	PK	45.6	40.6	-2.1	46.6	37.5	73.9	36.4	100	0	

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

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

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

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

Dwell time factor relaxation

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Dwell Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	35.0	27.6	13.3	40.1	-24.7	11.1	53.9	42.8	VBW:300Hz
Hori.	4960.000	AV	34.8	31.9	5.7	40.0	-24.7	7.7	53.9	46.2	VBW:300Hz
Hori.	7440.000	AV	35.9	36.9	6.9	38.7	-24.7	16.3	53.9	37.6	VBW:300Hz
Hori.	9920.000	AV	35.0	38.4	8.1	37.5	-24.7	19.3	53.9	34.6	VBW:300Hz
Hori.	12400.000	AV	34.3	39.1	9.3	37.9	-24.7	20.1	53.9	33.8	VBW:300Hz
Hori.	24800.000	AV	36.7	40.6	-2.1	46.6	-24.7	3.9	53.9	50.0	VBW:300Hz
Vert.	2483.500	AV	35.3	27.6	13.3	40.1	-24.7	11.4	53.9	42.5	VBW:300Hz
Vert.	4960.000	AV	35.1	31.9	5.7	40.0	-24.7	8.0	53.9	45.9	VBW:300Hz
Vert.	7440.000	AV	36.0	36.9	6.9	38.7	-24.7	16.4	53.9	37.5	VBW:300Hz
Vert.	9920.000	AV	33.3	38.4	8.1	37.5	-24.7	17.6	53.9	36.3	VBW:300Hz
Vert.	12400.000	AV	33.8	39.1	9.3	37.9	-24.7	19.6	53.9	34.3	VBW:300Hz
Vert.	24800.000	AV	36.0	40.6	-2.1	46.6	-24.7	3.2	53.9	50.7	VBW:300Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)
- Gain(Amprifier) + Dwell time factor (Refer to dwell time data sheet)

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

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date January 30, 2011
Temperature / Humidity 24deg.C./32%
Engineer Makoto Hosaka
Mode Tx, 2402 MHz
Bluetooth, 3-DH5,

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.	156.390	QP	44.0	14.9	7.6	32.0	34.5	43.5	9.0	201	272	
Hori.	180.002	QP	43.4	15.8	7.7	32.0	34.9	43.5	8.6	170	290	
Hori.	190.743	QP	41.0	16.1	7.8	32.0	32.9	43.5	10.6	161	300	
Hori.	348.001	QP	43.8	14.9	8.7	31.9	35.5	46.0	10.5	100	42	
Hori.	791.992	QP	40.0	20.2	10.3	31.6	38.9	46.0	7.1	100	2	
Hori.	2390.000	PK	49.1	27.5	13.3	40.2	49.7	73.9	24.2	100	0	
Hori.	2400.000	PK	67.0	27.5	13.3	40.2	67.6	73.9	6.3	100	67	
Hori.	4804.000	PK	48.6	31.5	5.6	40.1	45.6	73.9	28.3	100	0	
Hori.	7206.000	PK	49.7	36.4	6.8	38.3	54.6	73.9	19.3	100	0	
Hori.	9608.000	PK	49.1	37.9	8.0	37.3	57.7	73.9	16.2	100	0	
Hori.	12010.000	PK	47.0	39.4	9.2	38.4	57.2	73.9	16.7	100	0	
Hori.	24020.000	PK	45.8	39.7	-2.1	46.8	36.6	73.9	37.3	100	0	
Vert.	141.110	QP	44.5	13.7	7.5	32.1	33.6	43.5	9.9	100	98	
Vert.	156.364	QP	41.8	14.9	7.6	32.0	32.3	43.5	11.2	100	152	
Vert.	504.003	QP	38.6	17.2	9.3	31.9	33.2	46.0	12.8	123	0	
Vert.	2390.000	PK	48.9	27.5	13.3	40.2	49.5	73.9	24.4	100	0	
Vert.	2400.000	PK	66.8	27.5	13.3	40.2	67.4	73.9	6.5	100	181	
Vert.	4804.000	PK	48.9	31.5	5.6	40.1	45.9	73.9	28.0	100	0	
Vert.	7206.000	PK	50.8	36.4	6.8	38.3	55.7	73.9	18.2	100	0	
Vert.	9608.000	PK	47.6	37.9	8.0	37.3	56.2	73.9	17.7	100	0	
Vert.	12010.000	PK	48.4	39.4	9.2	38.4	58.6	73.9	15.3	100	0	
Vert.	24020.000	PK	46.4	39.7	-2.1	46.8	37.2	73.9	36.7	100	0	

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

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

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

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

Dwell time factor relaxation

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Dwell Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	33.9	27.5	13.3	40.2	-24.7	9.8	53.9	44.1	VBW:300Hz
Hori.	2400.000	AV	53.1	27.5	13.3	40.2	-24.7	29.0	53.9	24.9	VBW:300Hz
Hori.	4804.000	AV	35.0	31.5	5.6	40.1	-24.7	7.3	53.9	46.6	VBW:300Hz
Hori.	7206.000	AV	35.6	36.4	6.8	38.3	-24.7	15.8	53.9	38.1	VBW:300Hz
Hori.	9608.000	AV	33.1	37.9	8.0	37.3	-24.7	17.0	53.9	36.9	VBW:300Hz
Hori.	12010.000	AV	34.8	39.4	9.2	38.4	-24.7	20.3	53.9	33.6	VBW:300Hz
Hori.	24020.000	AV	35.2	39.7	-2.1	46.8	-24.7	1.3	53.9	52.6	VBW:300Hz
Vert.	2390.000	AV	34.5	27.5	13.3	40.2	-24.7	10.4	53.9	43.5	VBW:300Hz
Vert.	2400.000	AV	53.4	27.5	13.3	40.2	-24.7	29.3	53.9	24.6	VBW:300Hz
Vert.	4804.000	AV	35.5	31.5	5.6	40.1	-24.7	7.8	53.9	46.1	VBW:300Hz
Vert.	7206.000	AV	35.8	36.4	6.8	38.3	-24.7	16.0	53.9	37.9	VBW:300Hz
Vert.	9608.000	AV	34.0	37.9	8.0	37.3	-24.7	17.9	53.9	36.0	VBW:300Hz
Vert.	12010.000	AV	34.7	39.4	9.2	38.4	-24.7	20.2	53.9	33.7	VBW:300Hz
Vert.	24020.000	AV	33.5	39.7	-2.1	46.8	-24.7	-0.4	53.9	54.3	VBW:300Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)
- Gain(Amprifier) + Dwell time factor (Refer to dwell time data sheet)

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

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date January 30, 2011
Temperature / Humidity 24deg.C./32%
Engineer Makoto Hosaka
Mode Tx, 2441 MHz
Bluetooth, 3-DH5,

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.	156.359	QP	44.0	14.9	7.6	32.0	34.5	43.5	9.0	197	279	
Hori.	169.307	QP	42.8	15.5	7.7	32.0	34.0	43.5	9.5	190	60	
Hori.	180.007	QP	43.2	15.8	7.7	32.0	34.7	43.5	8.8	174	288	
Hori.	347.995	QP	43.8	14.9	8.6	31.9	35.4	46.0	10.6	100	40	
Hori.	683.991	QP	39.6	19.6	10.0	31.9	37.3	46.0	8.7	112	40	
Hori.	791.989	QP	39.5	20.2	10.3	31.6	38.4	46.0	7.6	100	357	
Hori.	4882.000	PK	48.8	31.7	5.7	40.0	46.2	73.9	27.7	100	0	
Hori.	7323.000	PK	48.9	36.7	6.9	38.5	54.0	73.9	19.9	100	0	
Hori.	9764.000	PK	48.1	38.2	8.0	37.4	56.9	73.9	17.0	100	0	
Hori.	12205.000	PK	48.6	39.2	9.2	38.1	58.9	73.9	15.0	100	0	
Hori.	24410.000	PK	45.5	40.1	-2.1	46.5	37.0	73.9	36.9	100	0	
Vert.	141.082	QP	45.1	13.7	7.5	32.1	34.2	43.5	9.3	100	72	
Vert.	157.983	QP	42.6	15.1	7.6	32.0	33.3	43.5	10.2	100	133	
Vert.	683.993	QP	37.6	19.6	10.0	31.9	35.3	46.0	10.7	104	13	
Vert.	4882.000	PK	49.1	31.7	5.7	40.0	46.5	73.9	27.4	100	0	
Vert.	7323.000	PK	48.7	36.7	6.9	38.5	53.8	73.9	20.1	100	0	
Vert.	9764.000	PK	48.2	38.2	8.0	37.4	57.0	73.9	16.9	100	0	
Vert.	12205.000	PK	48.6	39.2	9.2	38.1	58.9	73.9	15.0	100	0	
Vert.	24410.000	PK	46.9	40.1	-2.1	46.5	38.4	73.9	35.5	100	0	

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

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

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

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

Dwell time factor relaxation

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Dwell Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4882.000	AV	35.0	31.7	5.7	40.0	-24.7	7.7	53.9	46.2	VBW:300Hz
Hori.	7323.000	AV	34.8	36.7	6.9	38.5	-24.7	15.2	53.9	38.7	VBW:300Hz
Hori.	9764.000	AV	32.9	38.2	8.0	37.4	-24.7	17.0	53.9	36.9	VBW:300Hz
Hori.	12205.000	AV	33.9	39.2	9.2	38.1	-24.7	19.5	53.9	34.4	VBW:300Hz
Hori.	24410.000	AV	34.2	40.1	-2.1	46.5	-24.7	1.0	53.9	52.9	VBW:300Hz
Vert.	4882.000	AV	36.0	31.7	5.7	40.0	-24.7	8.7	53.9	45.2	VBW:300Hz
Vert.	7323.000	AV	35.2	36.7	6.9	38.5	-24.7	15.6	53.9	38.3	VBW:300Hz
Vert.	9764.000	AV	33.0	38.2	8.0	37.4	-24.7	17.1	53.9	36.8	VBW:300Hz
Vert.	12205.000	AV	33.9	39.2	9.2	38.1	-24.7	19.5	53.9	34.4	VBW:300Hz
Vert.	24410.000	AV	35.3	40.1	-2.1	46.5	-24.7	2.1	53.9	51.8	VBW:300Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)
- Gain(Amprifier) + Dwell time factor (Refer to dwell time data sheet)

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

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date January 30, 2011
Temperature / Humidity 24deg.C./32%
Engineer Makoto Hosaka
Mode Tx, 2480 MHz
Bluetooth, 3-DH5,

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.	157.120	QP	46.5	15.0	7.6	32.0	37.1	43.5	6.4	197	288	
Hori.	166.724	QP	42.4	15.4	7.7	32.0	33.5	43.5	10.0	200	56	
Hori.	180.009	QP	47.8	15.8	7.7	32.0	39.3	43.5	4.2	189	295	
Hori.	184.657	QP	44.7	15.9	7.8	32.0	36.4	43.5	7.1	171	292	
Hori.	611.992	QP	38.7	18.4	9.7	31.9	34.9	46.0	11.1	134	27	
Hori.	683.994	QP	38.4	19.6	10.0	31.9	36.1	46.0	9.9	111	358	
Hori.	791.991	QP	40.3	20.2	10.3	31.6	39.2	46.0	6.8	100	357	
Hori.	2483.500	PK	49.1	27.6	13.3	40.1	49.9	73.9	24.0	100	0	
Hori.	4960.000	PK	46.8	31.9	5.7	40.0	44.4	73.9	29.5	100	0	
Hori.	7440.000	PK	47.9	36.9	6.9	38.7	53.0	73.9	20.9	100	0	
Hori.	9920.000	PK	48.1	38.4	8.1	37.5	57.1	73.9	16.8	100	0	
Hori.	12400.000	PK	48.1	39.1	9.3	37.9	58.6	73.9	15.3	100	0	
Hori.	24800.000	PK	45.9	40.6	-2.1	46.6	37.8	73.9	36.1	100	0	
Vert.	157.120	QP	43.0	15.0	7.6	32.0	33.6	43.5	9.9	100	277	
Vert.	683.996	QP	35.0	19.6	10.0	31.9	32.7	46.0	13.3	108	15	
Vert.	2483.500	PK	49.1	27.6	13.3	40.1	49.9	73.9	24.0	100	0	
Vert.	4960.000	PK	49.0	31.9	5.7	40.0	46.6	73.9	27.3	100	0	
Vert.	7440.000	PK	49.6	36.9	6.9	38.7	54.7	73.9	19.2	100	0	
Vert.	9920.000	PK	46.3	38.4	8.1	37.5	55.3	73.9	18.6	100	0	
Vert.	12400.000	PK	46.4	39.1	9.3	37.9	56.9	73.9	17.0	100	0	
Vert.	24800.000	PK	46.1	40.6	-2.1	46.6	38.0	73.9	35.9	100	0	

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

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

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

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

Dwell time factor relaxation

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Dwell Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	35.8	27.6	13.3	40.1	-24.7	11.9	53.9	42.0	VBW:300Hz
Hori.	4960.000	AV	36.5	31.9	5.7	40.0	-24.7	9.4	53.9	44.5	VBW:300Hz
Hori.	7440.000	AV	36.2	36.9	6.9	38.7	-24.7	16.6	53.9	37.3	VBW:300Hz
Hori.	9920.000	AV	36.3	38.4	8.1	37.5	-24.7	20.6	53.9	33.3	VBW:300Hz
Hori.	12400.000	AV	33.9	39.1	9.3	37.9	-24.7	19.7	53.9	34.2	VBW:300Hz
Hori.	24800.000	AV	36.2	40.6	-2.1	46.6	-24.7	3.4	53.9	50.5	VBW:300Hz
Vert.	2483.500	AV	35.0	27.6	13.3	40.1	-24.7	11.1	53.9	42.8	VBW:300Hz
Vert.	4960.000	AV	35.2	31.9	5.7	40.0	-24.7	8.1	53.9	45.8	VBW:300Hz
Vert.	7440.000	AV	34.3	36.9	6.9	38.7	-24.7	14.7	53.9	39.2	VBW:300Hz
Vert.	9920.000	AV	34.6	38.4	8.1	37.5	-24.7	18.9	53.9	35.0	VBW:300Hz
Vert.	12400.000	AV	34.0	39.1	9.3	37.9	-24.7	19.8	53.9	34.1	VBW:300Hz
Vert.	24800.000	AV	36.9	40.6	-2.1	46.6	-24.7	4.1	53.9	49.8	VBW:300Hz

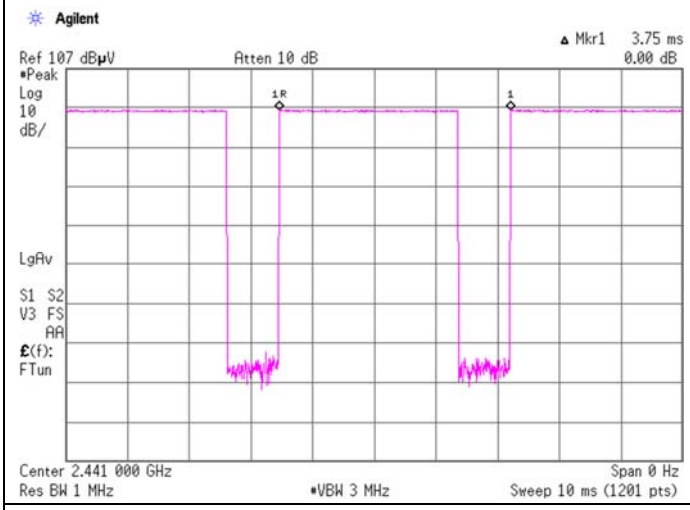
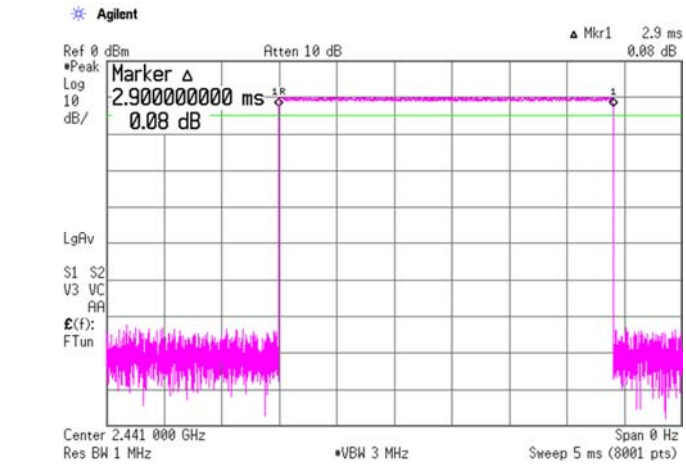
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amprifier)
- Gain(Amprifier) + Dwell time factor (Refer to dwell time data sheet)

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

Spurious emission (Radiated)

DH5,

VBW (AV) Calculation

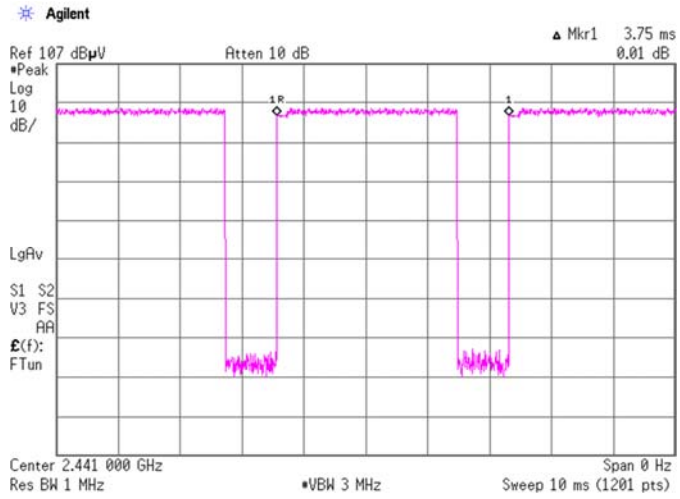
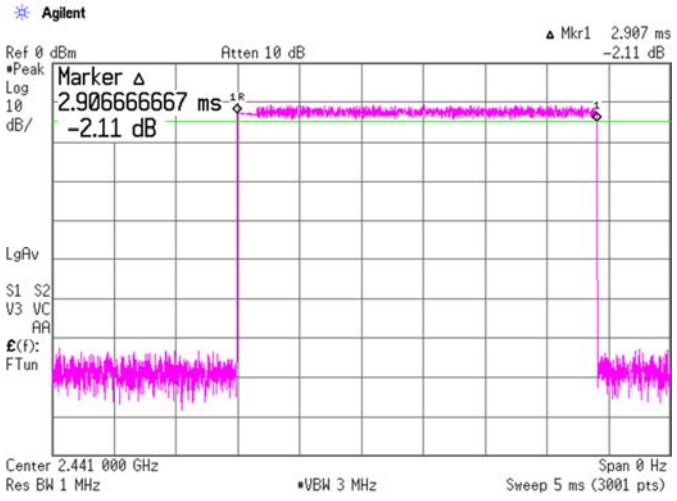
VBW: 1/x = 267Hz<300Hz **x: (Tx on+Tx off) =3.75ms**	
	
Worst 100ms, **Dwell time factor =20log(2.9*2/100) = -24.73dB**	
	

*1) ON time of some channel during 100ms: Twice
This the worst case in hopping sequence of Bluetooth.

Spurious emission (Radiated)

3-DH5,

VBW (AV) Calculation

VBW: 1/x = 267Hz<300Hz **x: (Tx on+Tx off) =3.75ms**	
	
Worst 100ms, **Dwell time factor =20log(2.9067*2/100) = -24.71dB**	
	

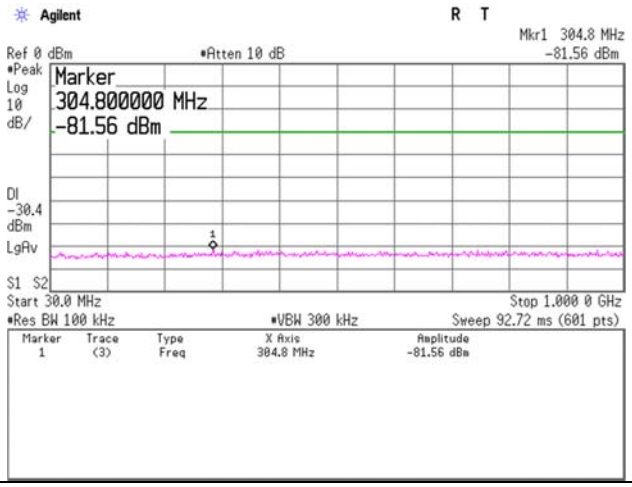
*1) ON time of some channel during 100ms: Twice
This the worst case in hopping sequence of Bluetooth.

Spurious emission (Conducted)

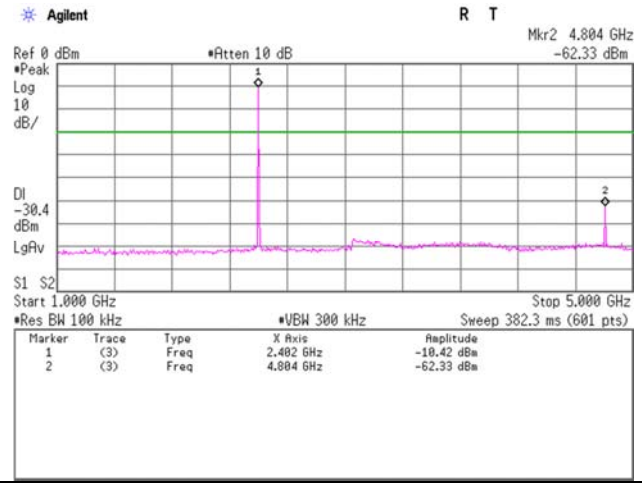
DH5,

Tx, 2402MHz

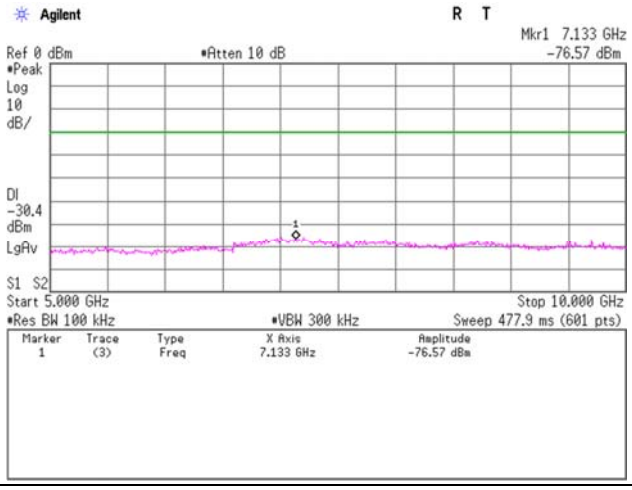
30MHz - 1GHz



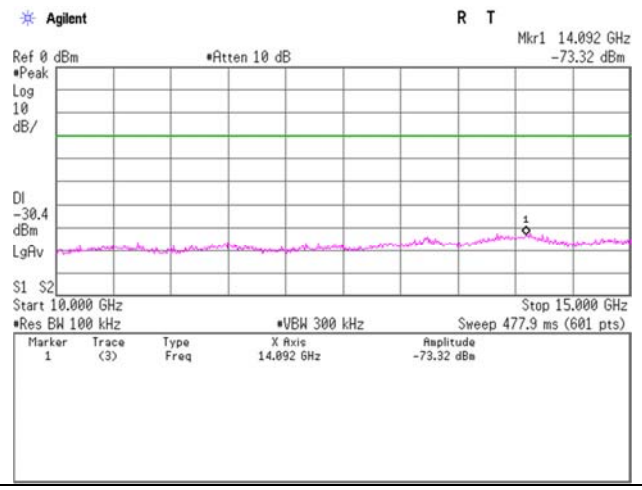
1GHz - 5GHz



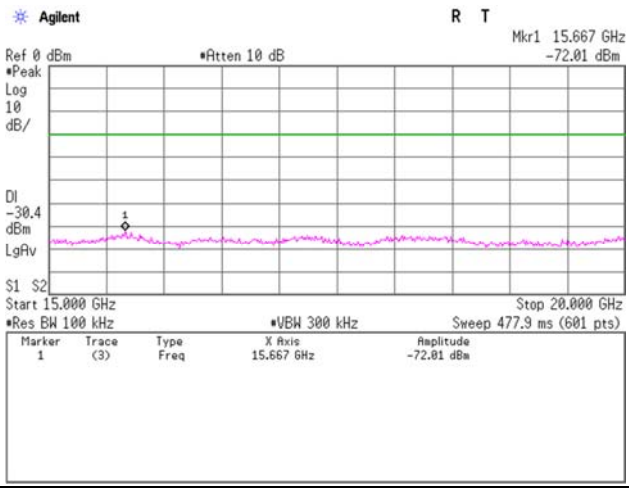
5GHz - 10GHz



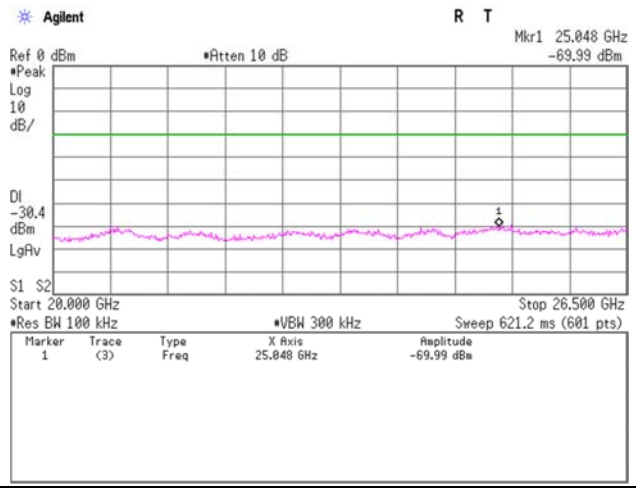
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz

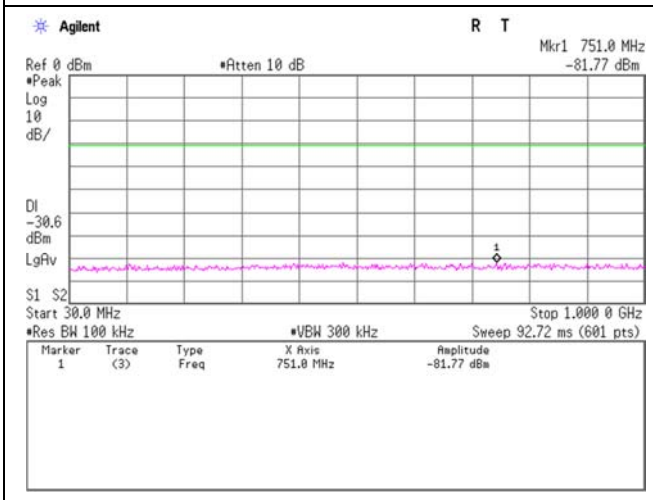


Spurious emission (Conducted)

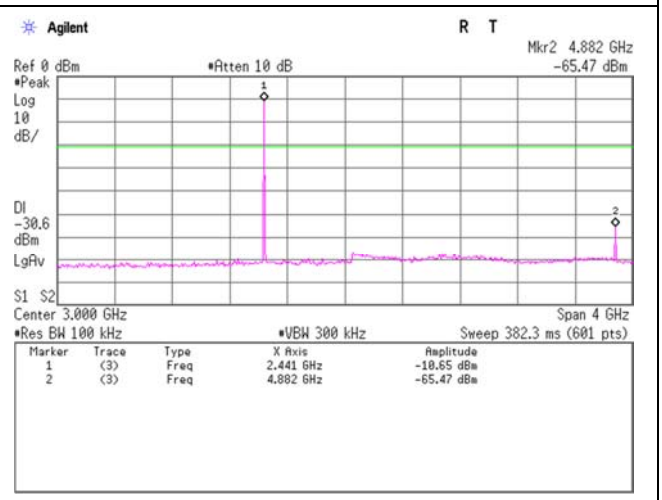
DH5,

Tx, 2441MHz

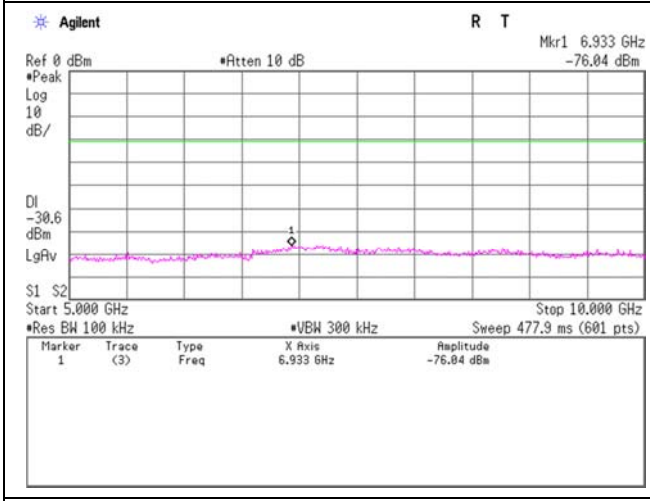
30MHz - 1GHz



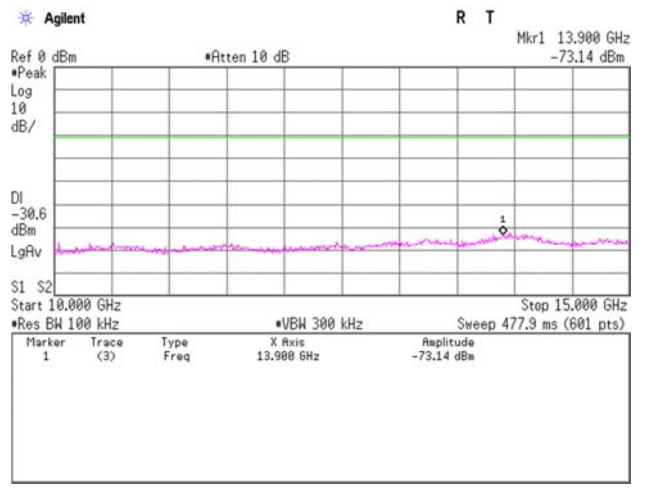
1GHz - 5GHz



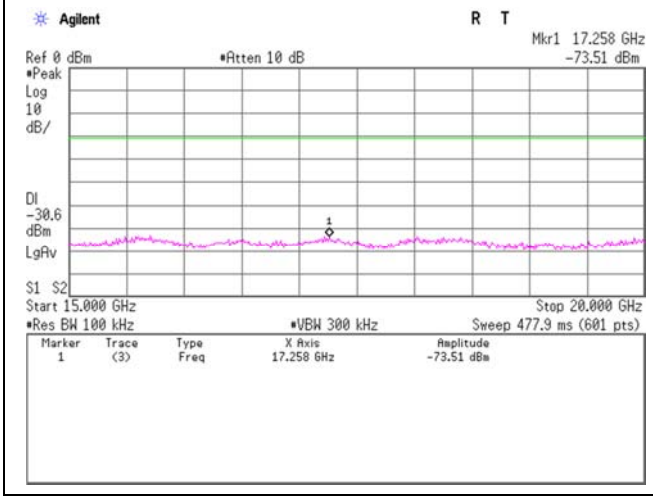
5GHz - 10GHz



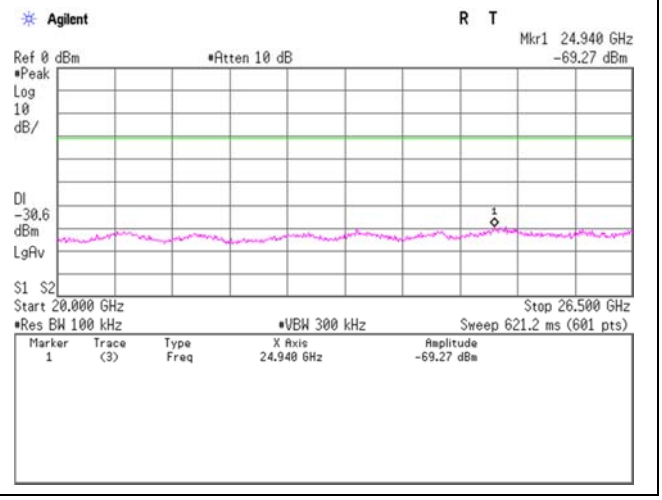
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



UL Japan, Inc.
Shonan EMC Lab.

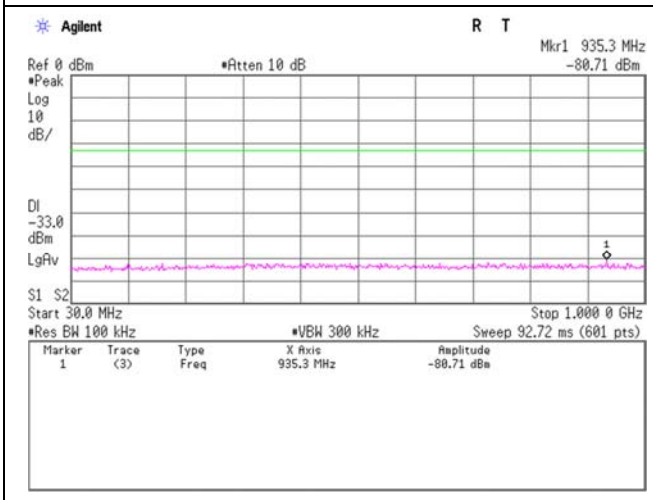
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

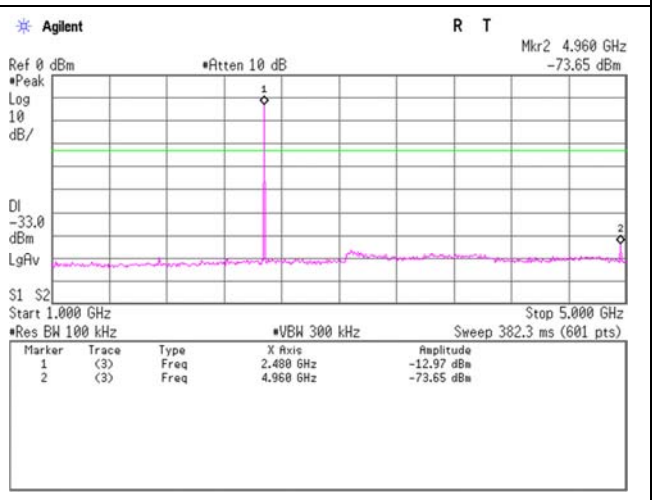
DH5,

Tx, 2480MHz

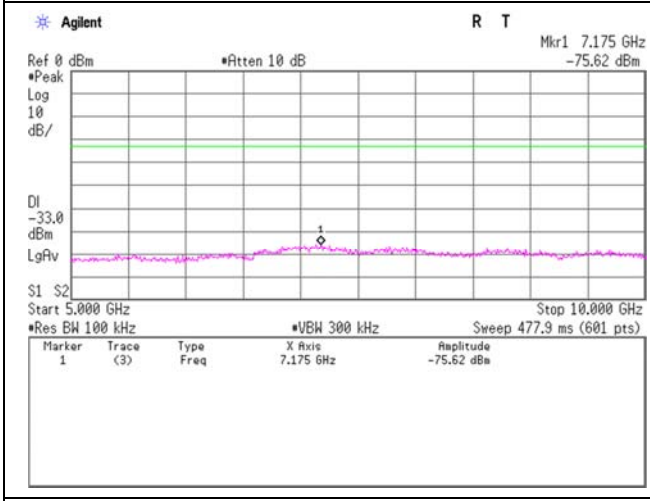
30MHz - 1GHz



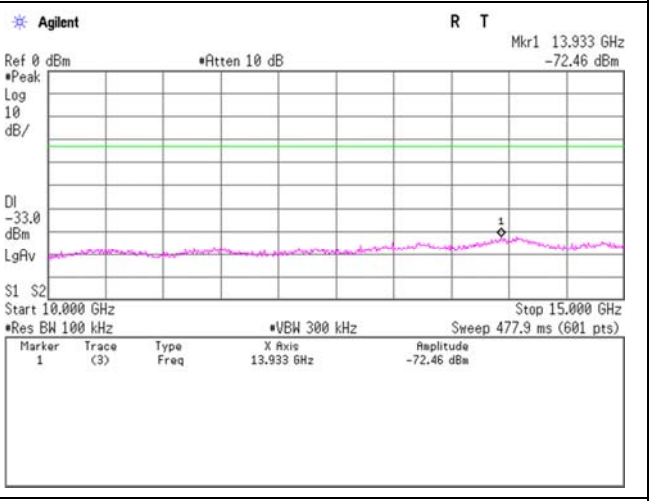
1GHz - 5GHz



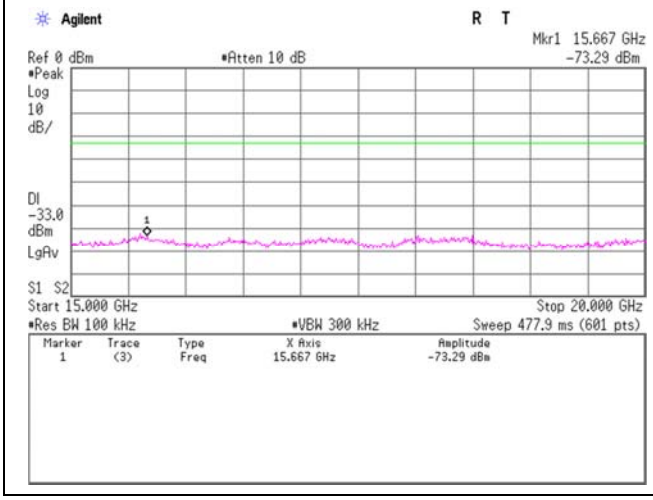
5GHz - 10GHz



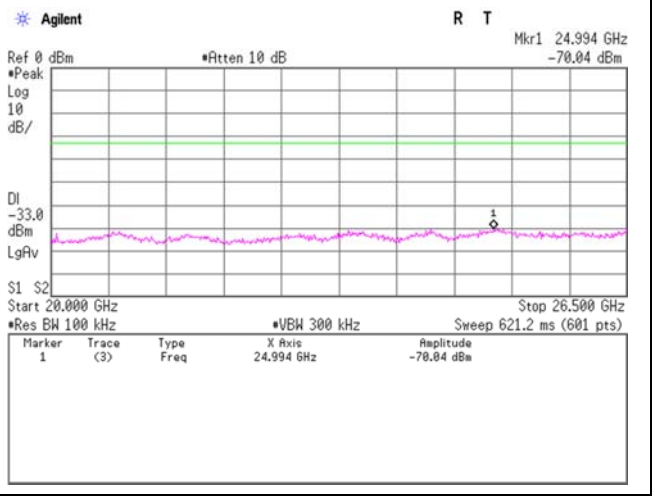
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



UL Japan, Inc.
Shonan EMC Lab.

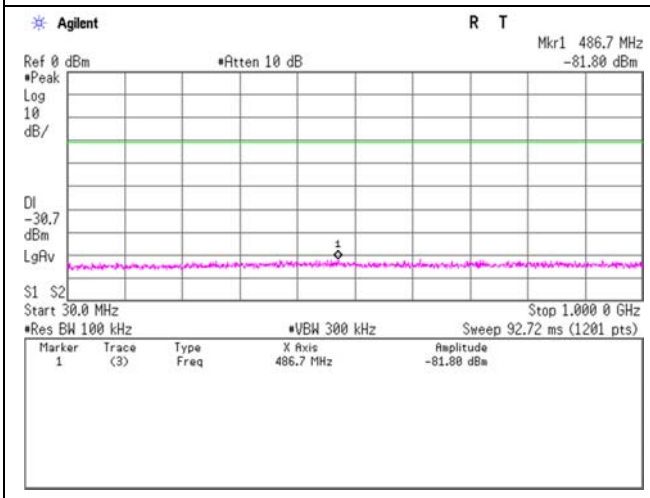
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

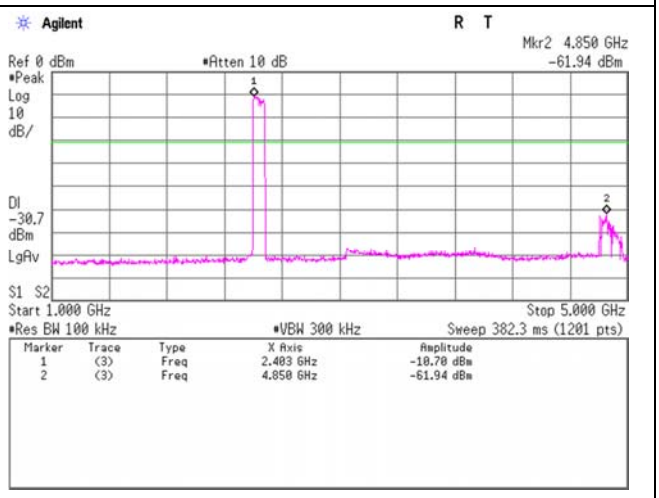
DH5,

Hopping

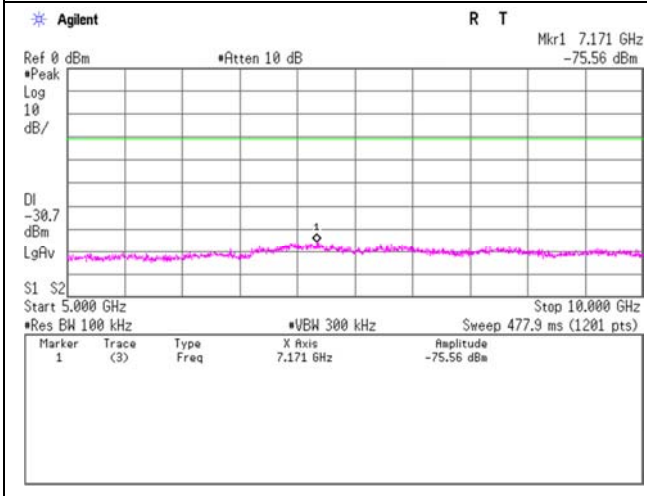
30MHz - 1GHz



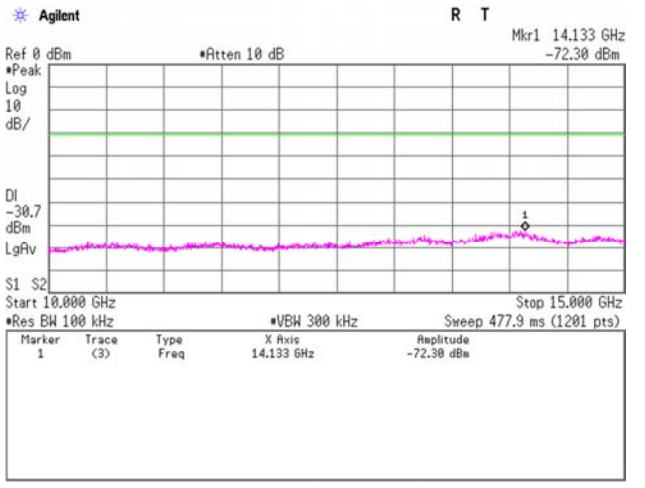
1GHz - 5GHz



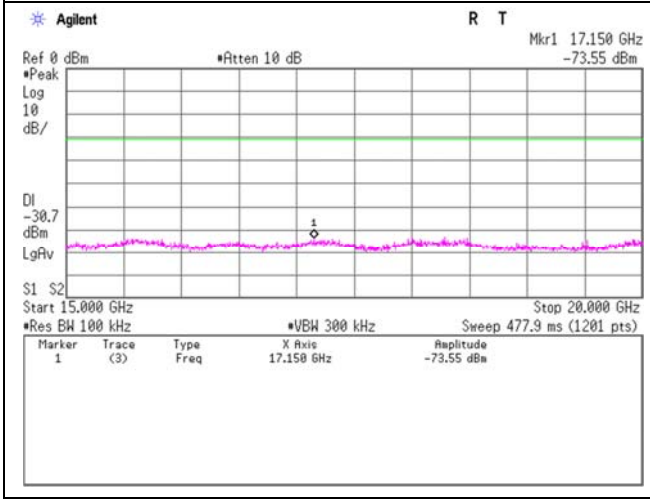
5GHz - 10GHz



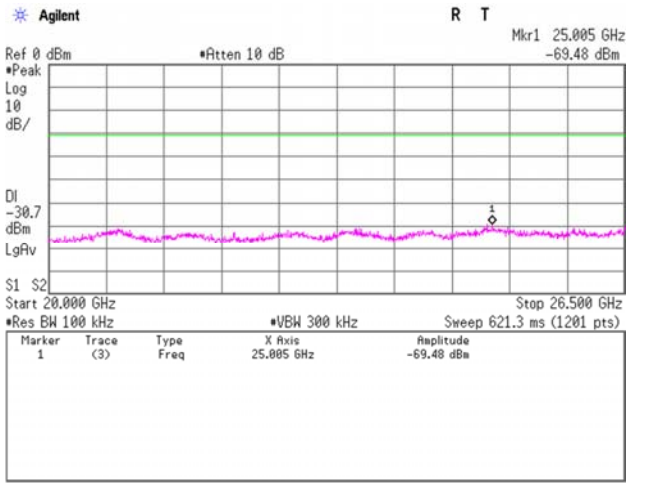
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz

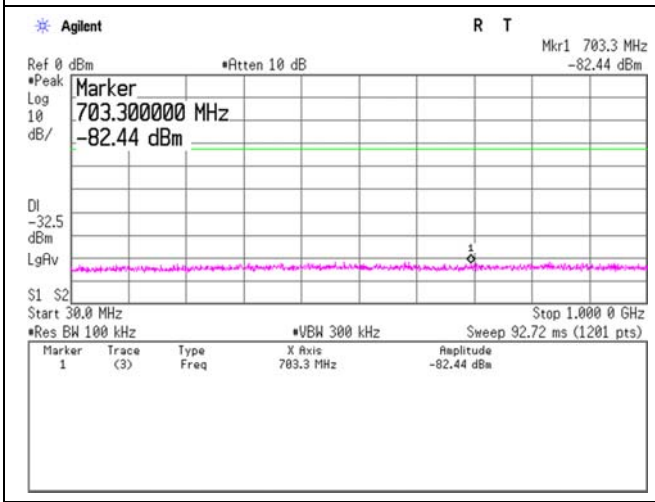


Spurious emission (Conducted)

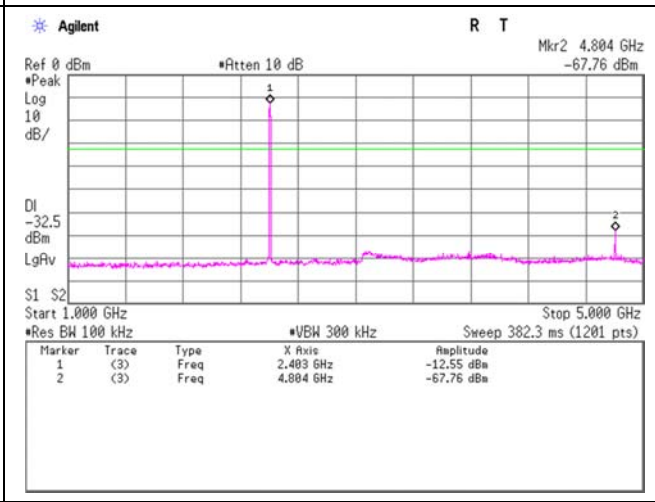
3-DH5,

Tx, 2402MHz

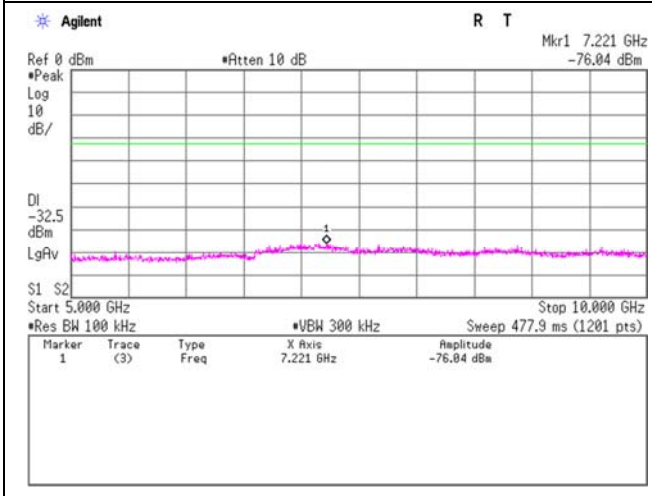
30MHz - 1GHz



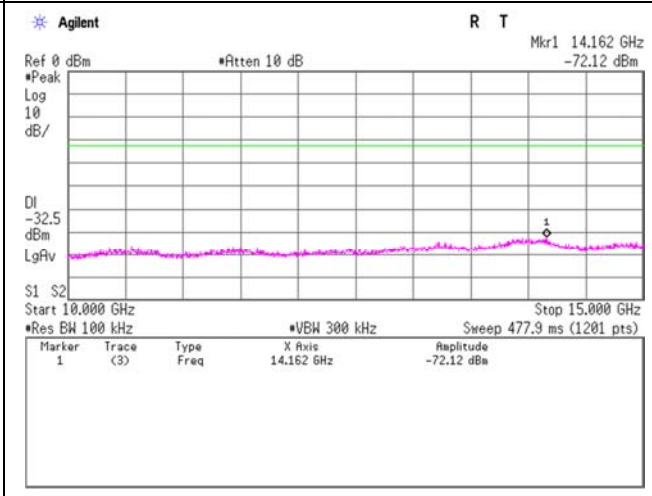
1GHz - 5GHz



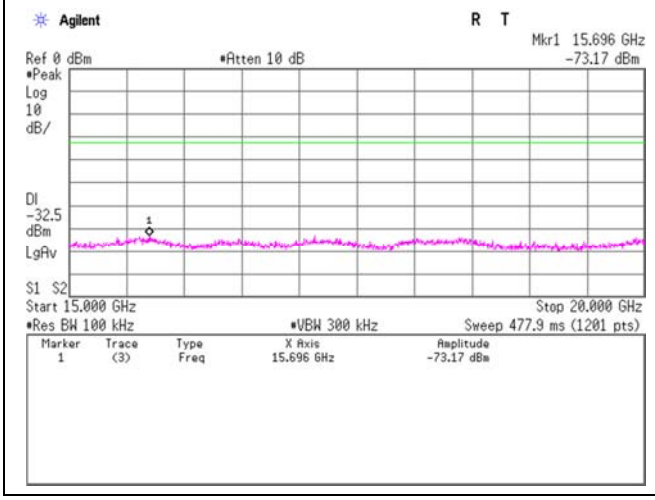
5GHz - 10GHz



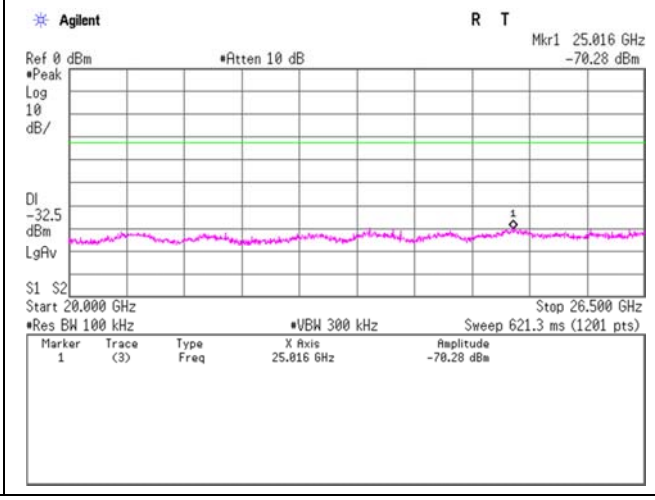
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



UL Japan, Inc.
Shonan EMC Lab.

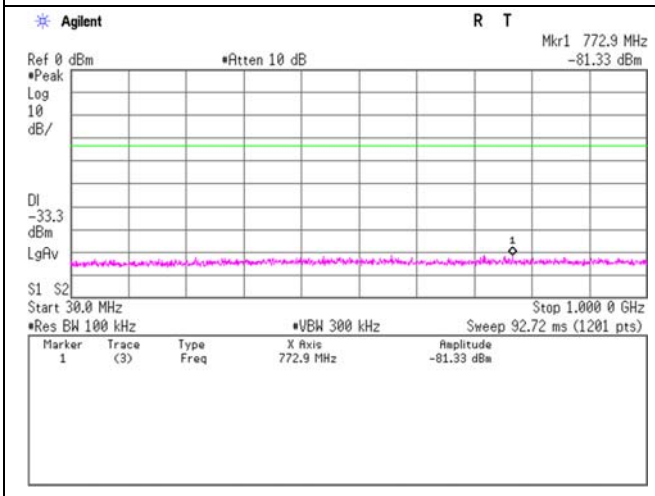
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

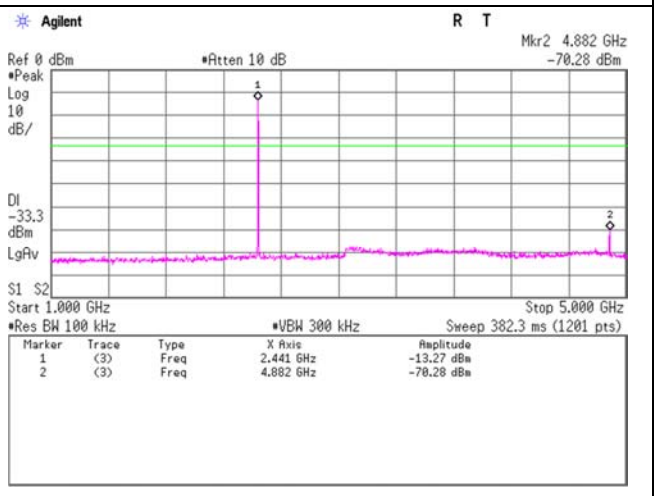
3-DH5,

Tx, 2441MHz

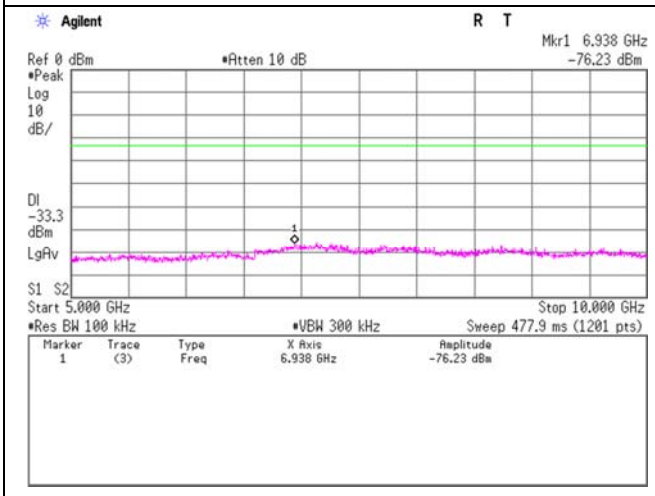
30MHz - 1GHz



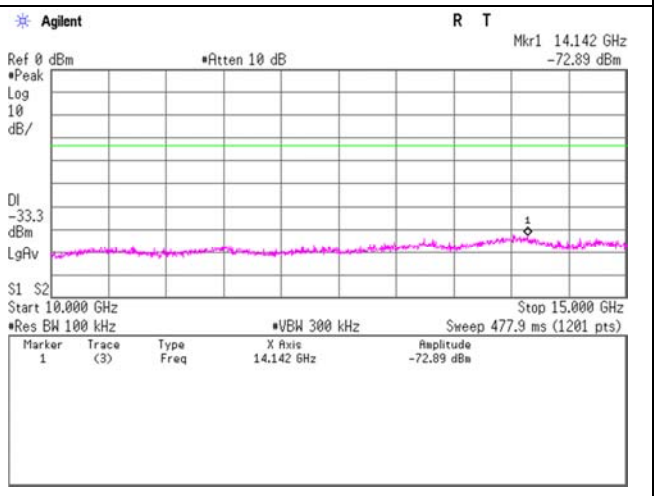
1GHz - 5GHz



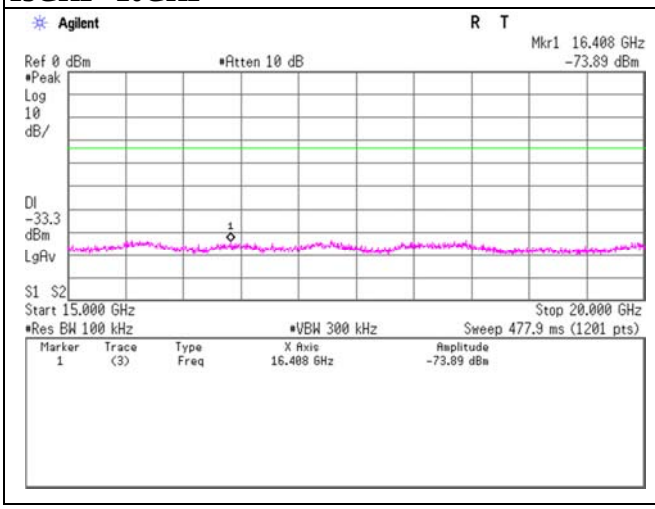
5GHz - 10GHz



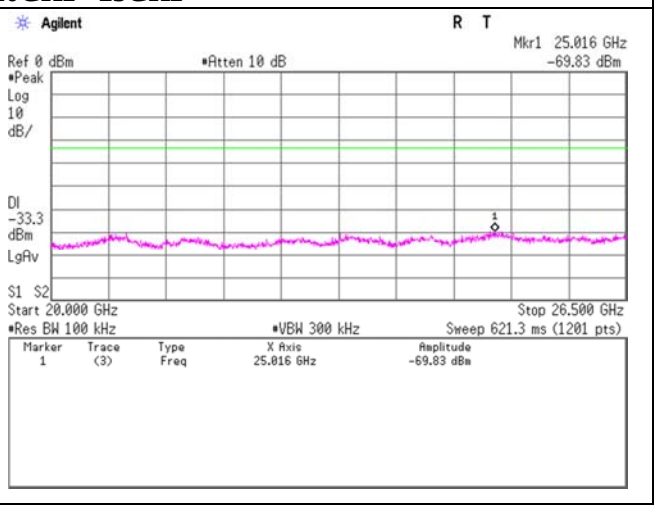
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



UL Japan, Inc.
Shonan EMC Lab.

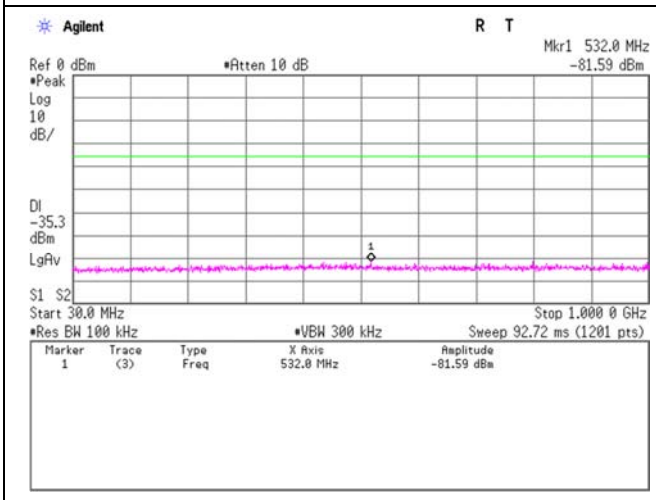
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

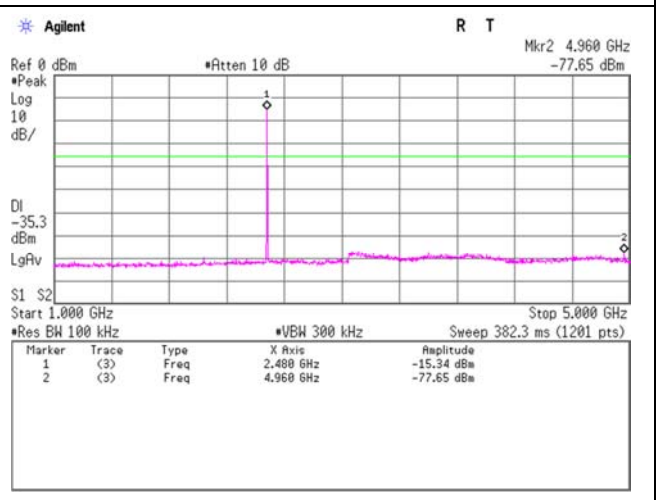
3-DH5,

Tx, 2480MHz

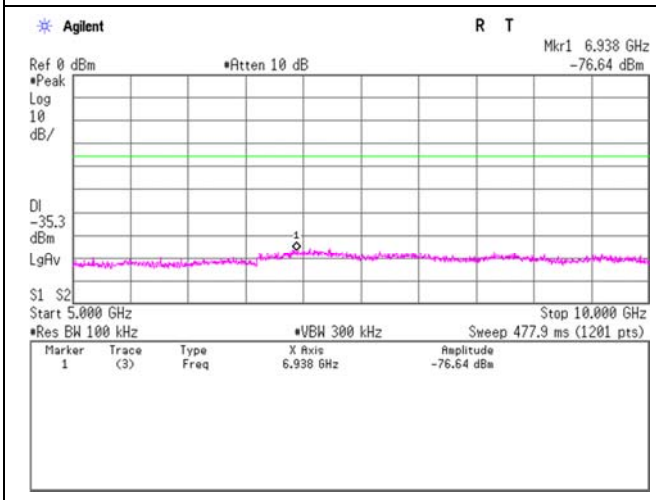
30MHz - 1GHz



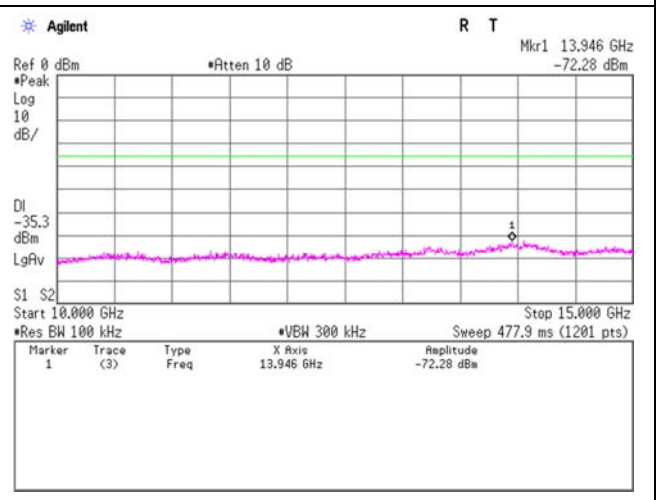
1GHz - 5GHz



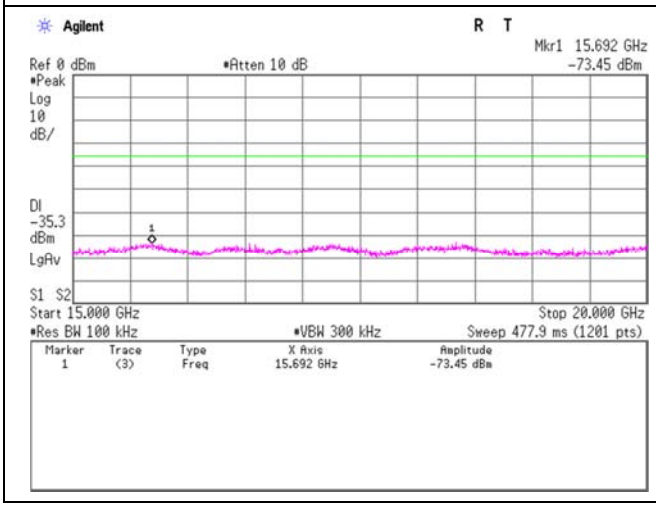
5GHz - 10GHz



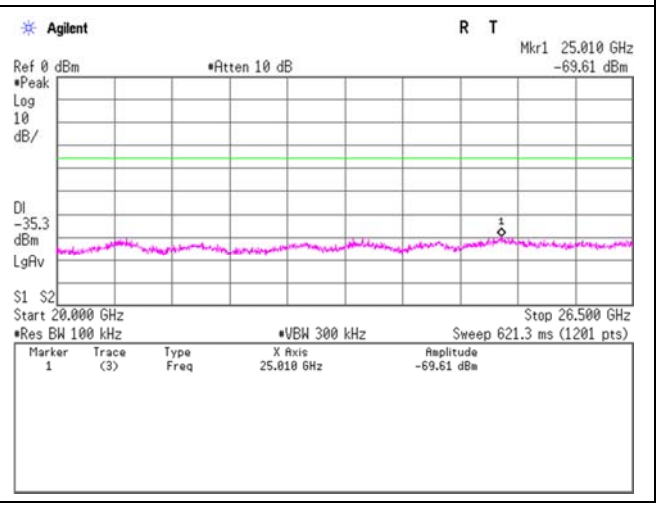
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



UL Japan, Inc.
Shonan EMC Lab.

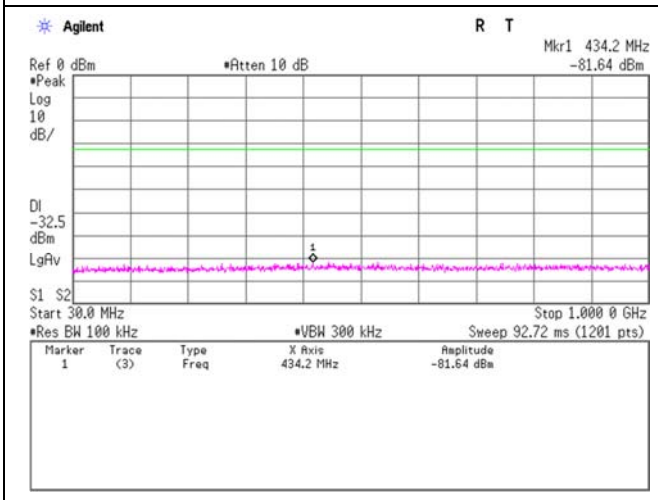
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

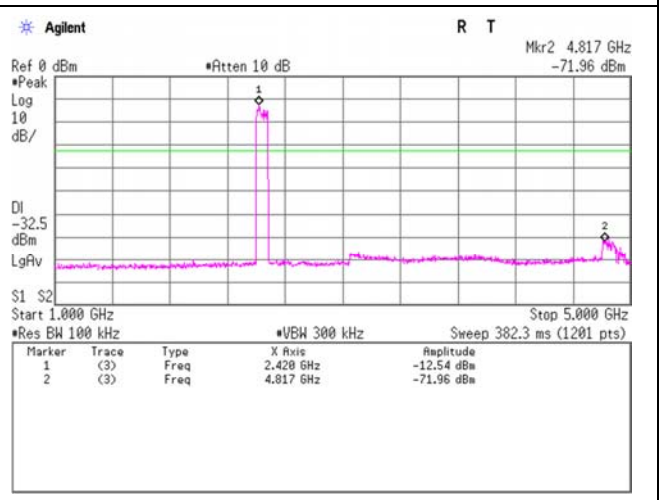
3-DH5,

Hopping

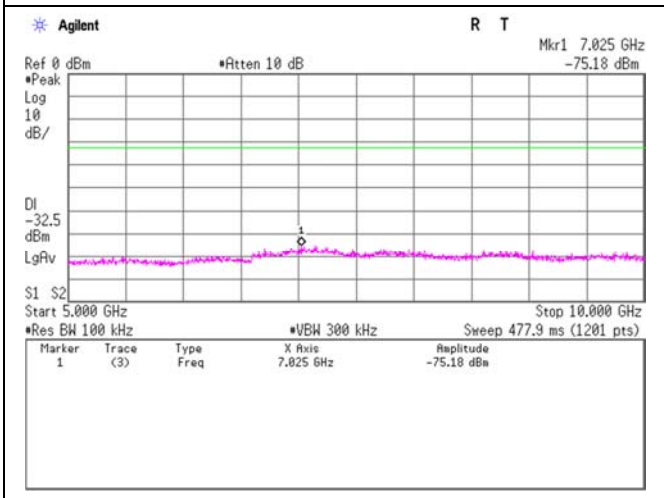
30MHz - 1GHz



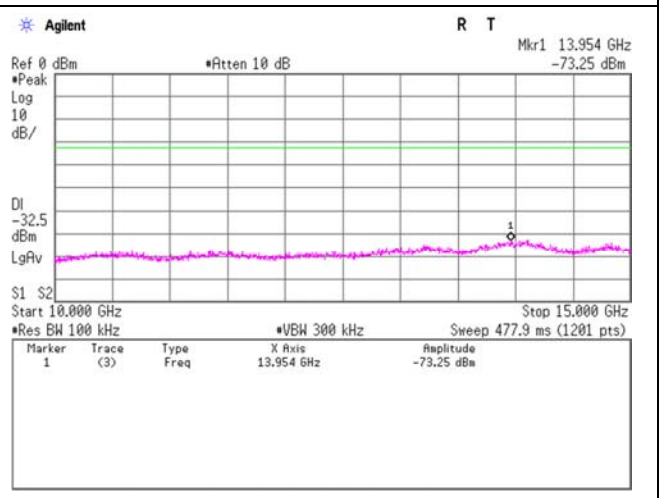
1GHz - 5GHz



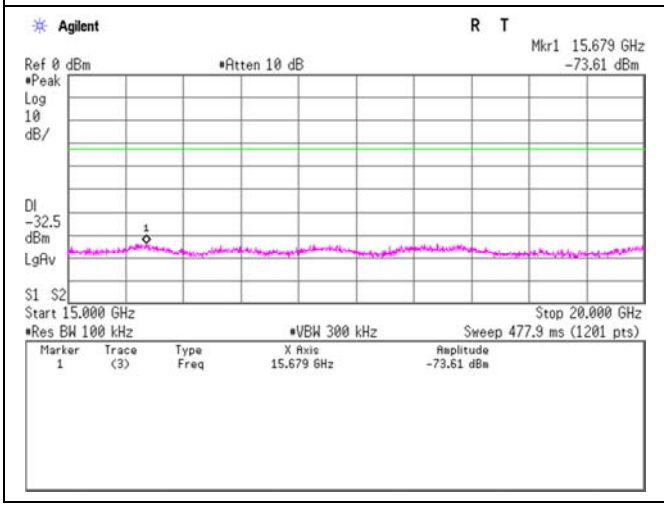
5GHz - 10GHz



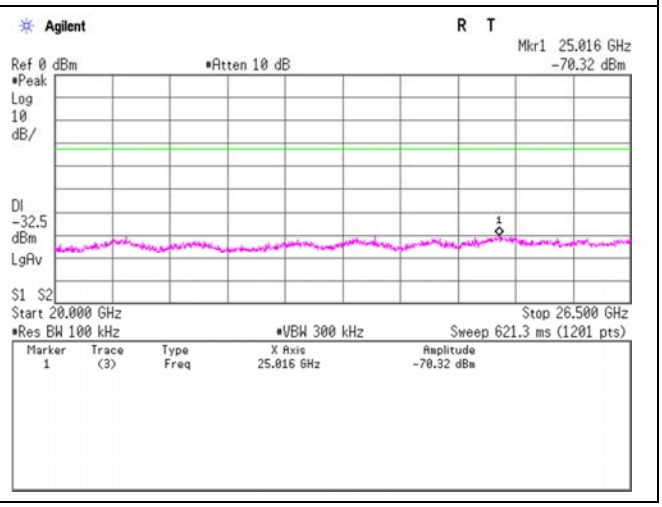
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



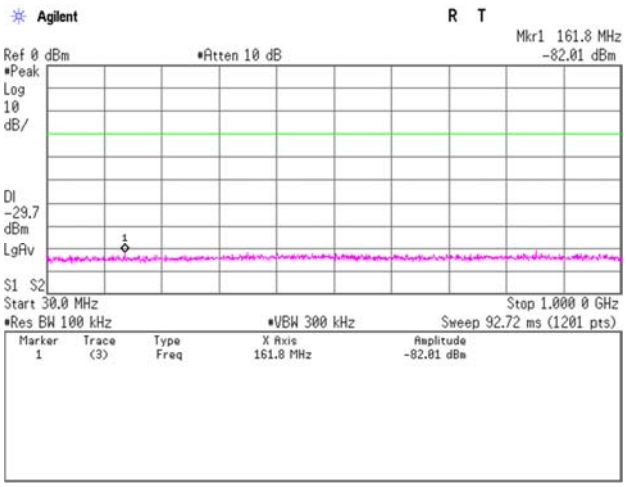
UL Japan, Inc.
Shonan EMC Lab.

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

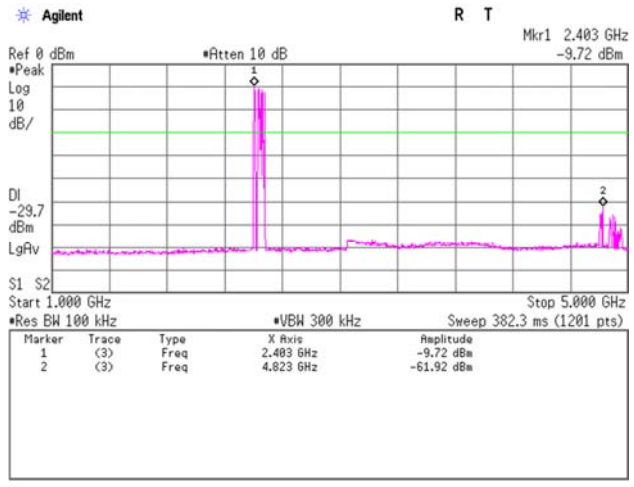
Spurious emission (Conducted)

Inquiry

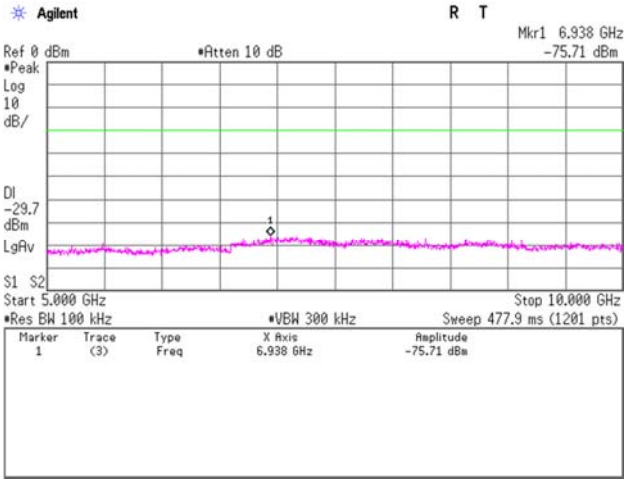
30MHz - 1GHz



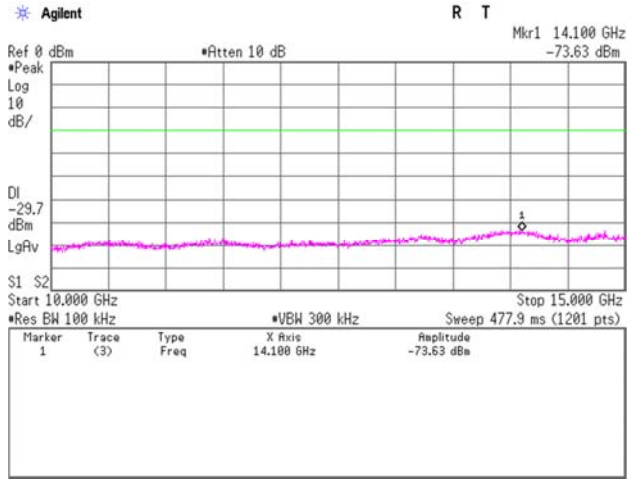
1GHz - 5GHz



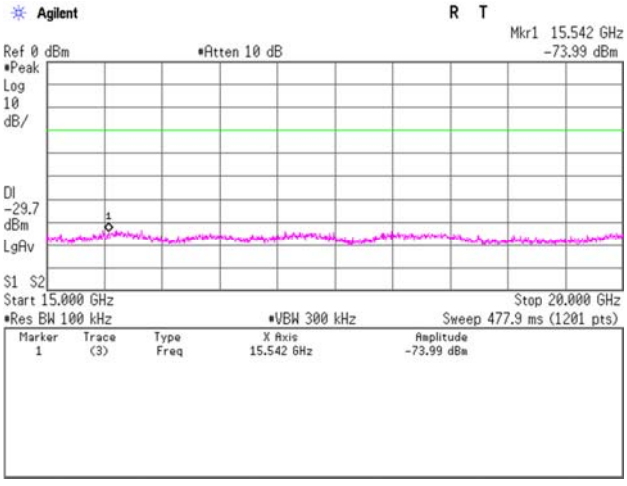
5GHz - 10GHz



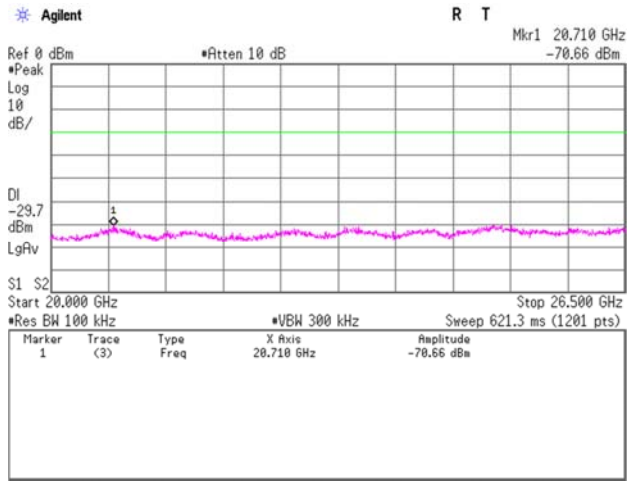
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



UL Japan, Inc.
Shonan EMC Lab.

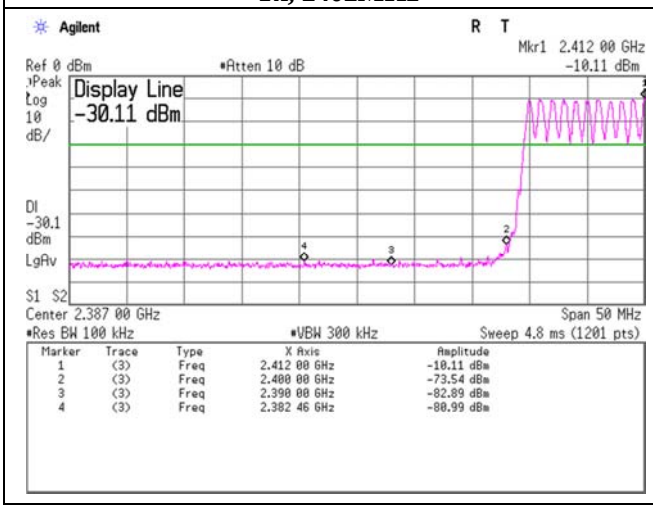
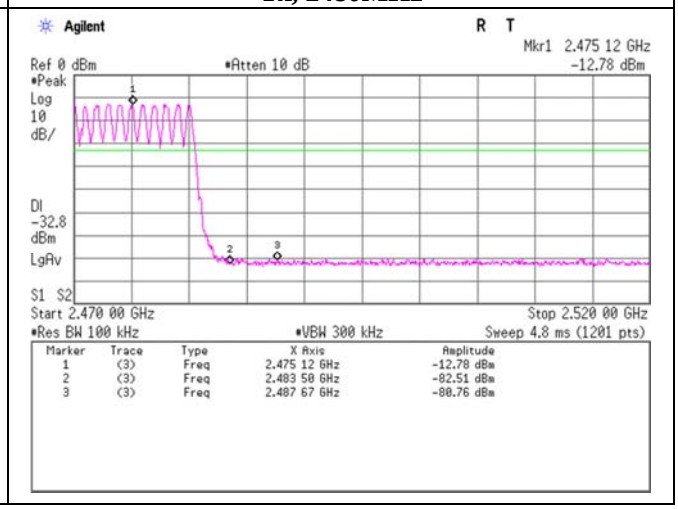
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

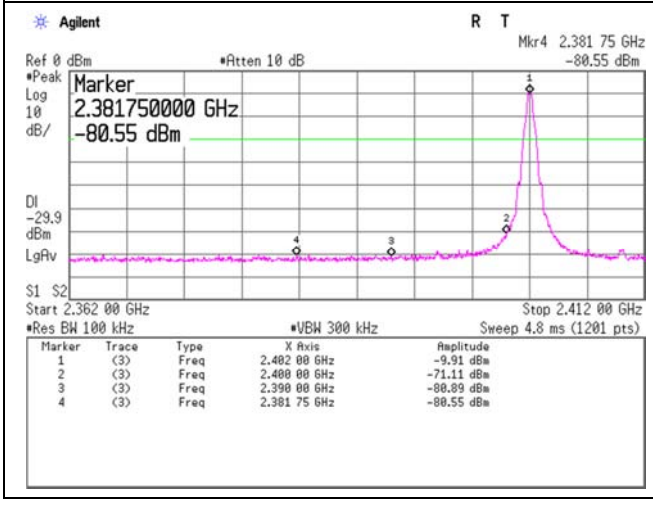
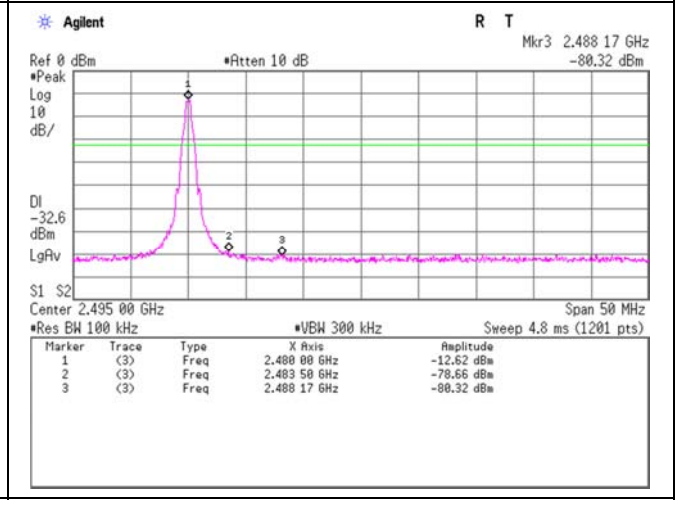
Band Edge compliance

DH5,

Hopping ON

Tx, 2402MHz	Tx, 2480MHz
	

Hopping OFF

Tx, 2402MHz	Tx, 2480MHz
	

UL Japan, Inc.
Shonan EMC Lab.

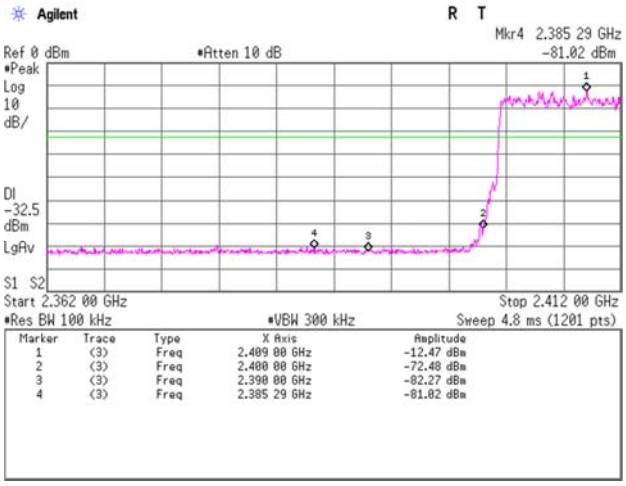
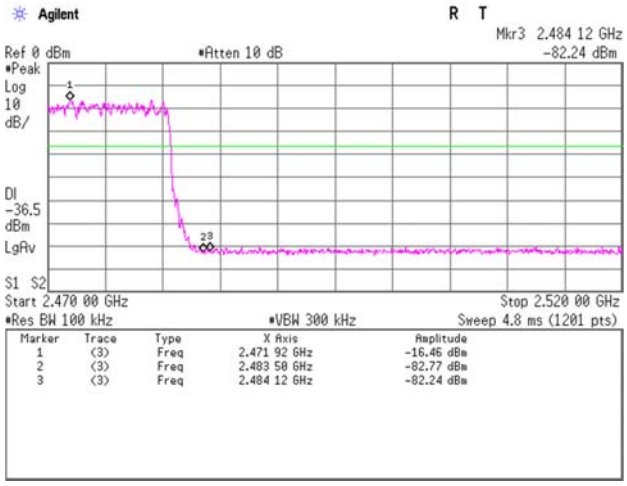
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

Spurious emission (Conducted)

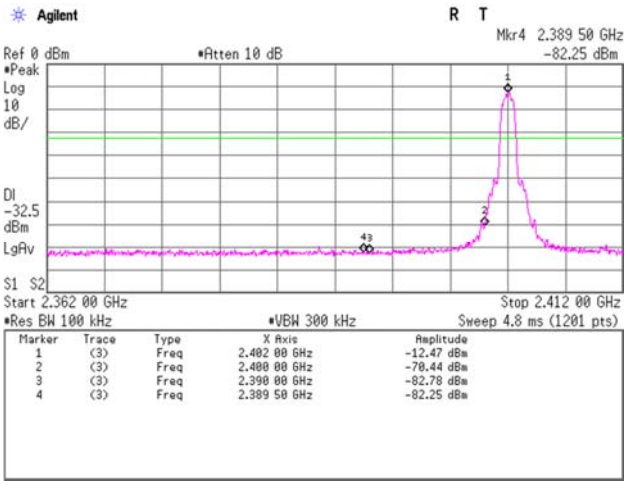
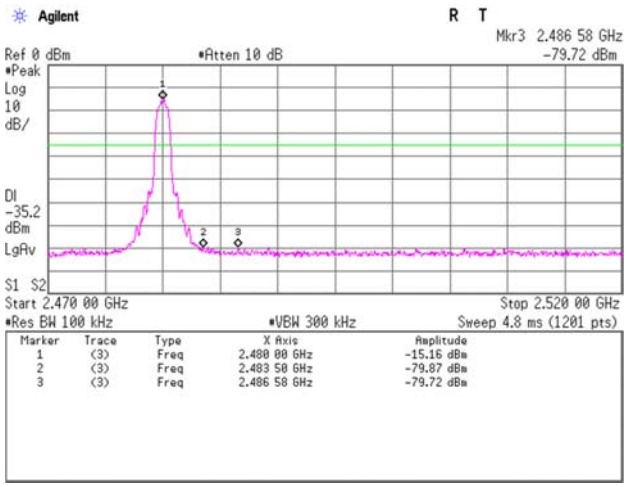
Band Edge compliance

3-DH5,

Hopping ON

Tx, 2402MHz	Tx, 2480MHz
	

Hopping OFF

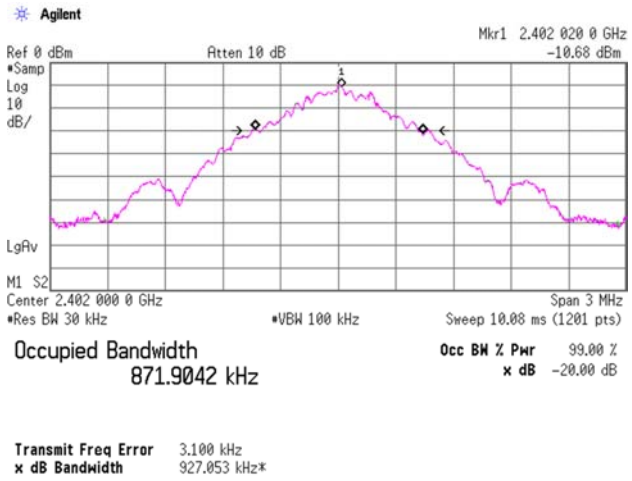
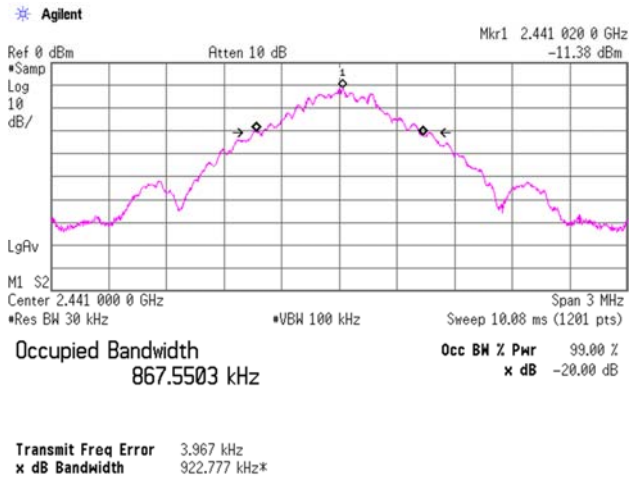
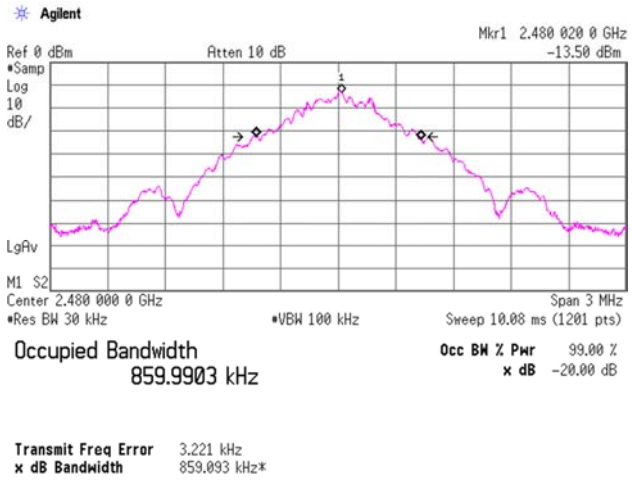
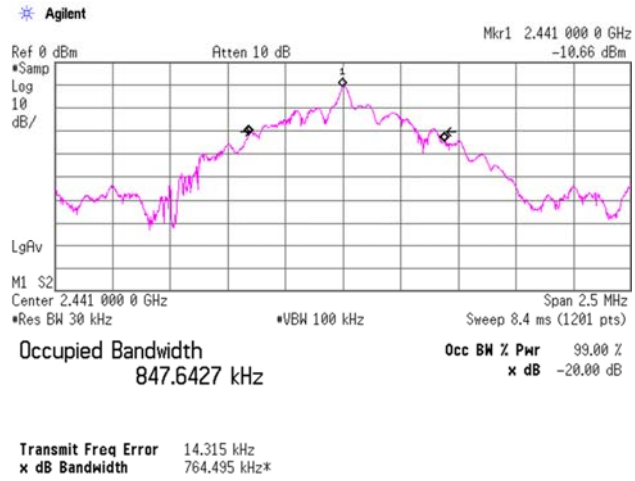
Tx, 2402MHz	Tx, 2480MHz
	

UL Japan, Inc.
Shonan EMC Lab.

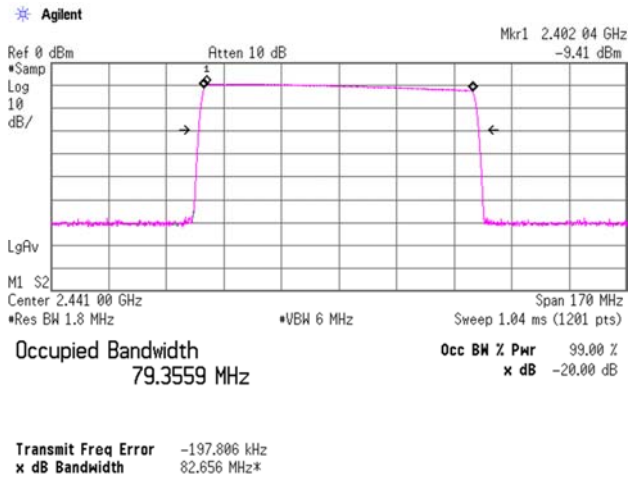
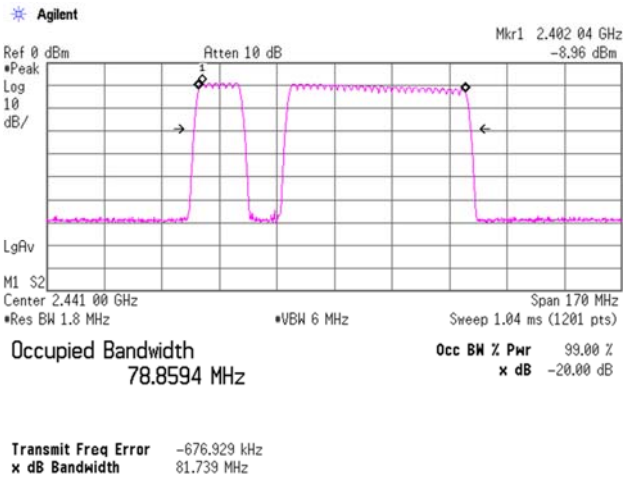
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
Telephone : +81 463 50 6400
Facsimile : +81 463 50 6401

99% Occupied Bandwidth

DH5, Hopping Off

Tx, 2402MHz	Tx, 2441MHz
	
Tx, 2480MHz	**Inquiry (Mid ch.)**
	

Hopping On

DH5	Inquiry
	

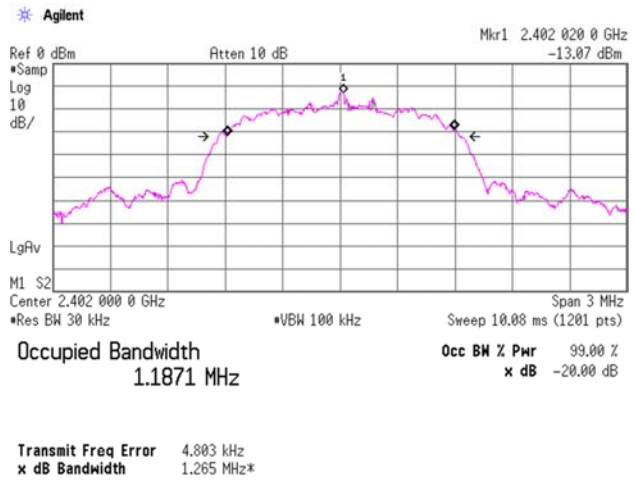
UL Japan, Inc.
Shonan EMC Lab.

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

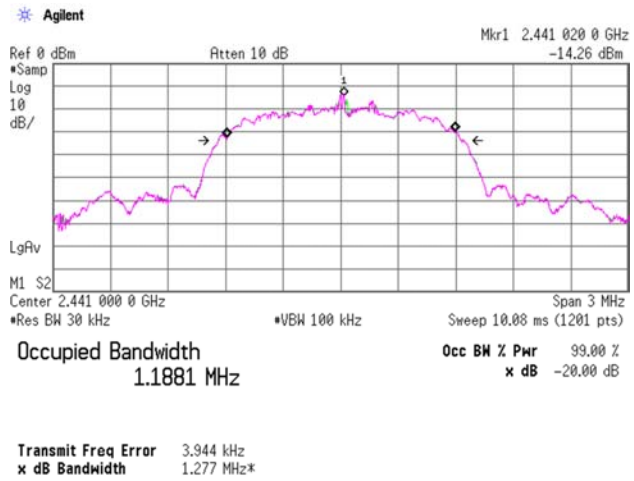
99% Occupied Bandwidth

3-DH5, Hopping Off

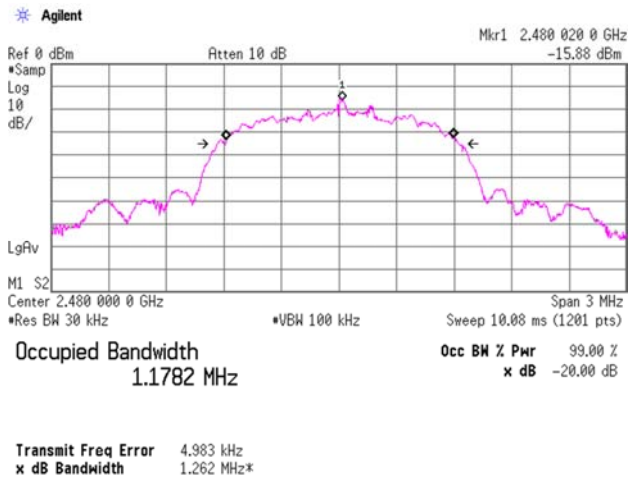
Tx, 2402MHz



Tx, 2441MHz

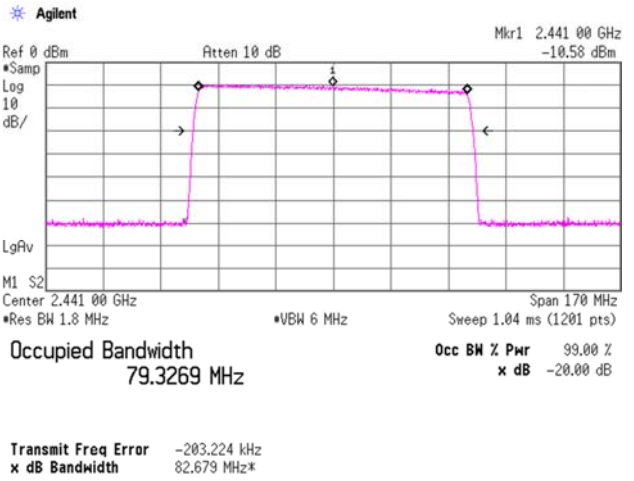


Tx, 2480MHz



Hopping On

3-DH5



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

APPENDIX 3
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2010/03/09 * 12
SAF-09	Pre Amplifier	TOYO Corporation	HAP18-26W	00000018	RE	2010/03/02 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2010/04/16 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2010/05/27 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2010/08/17 * 12
SHA-05	Horn Antenna	ETS LINDGREN	3160-09	LM4210	RE	2010/03/29 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2010/02/09 * 12
STR-03	Test Receiver	Rohde & Schwarz	ESI40	100054/040	RE	2010/07/21 * 12
SJM-10	Measure	PROMART	SEN1935	-	RE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV	-	RE	-
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2010/12/15 * 12
SAT10-04	Attenuator(above1GHz)	Agilent	8493C-010	74863	RE	2010/12/15 * 12
SCC-G18	Coaxial Cable	Suhner	SUCOFLEX 104A	46292/4A	RE	2010/03/02 * 12
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2010/04/01 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2010/04/01 * 12
SAT10-06	Attenuator(above1GHz)	Agilent	8493C-010	74865	AT	2010/03/05 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	AT	2010/06/22 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	AT	2010/11/16 * 12
SCC-G12	Coaxial Cable	Suhner	SUCOFLEX 102	30790/2	AT	2010/03/09 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2010/02/17 * 12
SCC-G11	Coaxial Cable	Suhner	SUCOFLEX 102	31595/2	AT	2010/03/31 * 12
SOS-02	Humidity Indicator	A&D	AD-5681	4063343	AT	2010/02/17 * 12
SOS-10	Humidity Indicator	A&D	AD-5681	4064561	AT	2010/02/09 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2010/02/06 * 12
SAT6-03	Attenuator	JFW	50HF-006N	-	RE	2010/02/06 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2010/10/15 * 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	2010/04/02 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2010/10/15 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2010/09/13 * 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 traceable calibrations . Each calibration is traceable to the national or international standards .
Test Item :
RE: Radiated emission ,
AT: Antenna terminal disturbance voltage