

Peak Output Power (Conducted)

Test place : UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date : 2010/12/8
 Temperature / Humidity : 21deg.C , 41%
 Engineer : Akio Hayashi
 Mode : Tx

BDR (DH5)

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2402.0	-1.14	0.77	0.00	-0.37	0.92	20.96	125	21.33
Mid	2441.0	-1.35	0.74	0.00	-0.61	0.87	20.96	125	21.57
High	2480.0	-1.90	0.74	0.00	-1.16	0.77	20.96	125	22.12

EDR (2-DH5)

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2402.0	0.70	0.77	0.00	1.47	1.40	20.96	125	19.49
Mid	2441.0	0.49	0.74	0.00	1.23	1.33	20.96	125	19.73
High	2480.0	-0.01	0.74	0.00	0.73	1.18	20.96	125	20.23

EDR (3-DH5)

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2402.0	1.06	0.77	0.00	1.83	1.52	20.96	125	19.13
Mid	2441.0	0.86	0.74	0.00	1.60	1.45	20.96	125	19.36
High	2480.0	0.35	0.74	0.00	1.09	1.29	20.96	125	19.87

Sample Calculation:

Result = Reading + Cable Loss + 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.

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

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Radiated Emission

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2010/10/28 2010/10/28 2010/12/12
 Temperature / Humidity : 25deg.C. , 32% 25deg.C. , 32% 22deg.C. , 33%
 Engineer : Tatsuya Arai Shinichi Takano Minoru Nakatake
 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.	729.011	QP	38.0	19.9	10.1	31.8	36.2	46.0	9.8	124	234	
Hori.	2390.000	PK	46.4	27.5	13.3	40.2	47.0	73.9	26.9	100	287	
Hori.	2400.000	PK	53.1	27.5	13.3	40.2	53.7	73.9	20.2	100	287	
Hori.	4804.000	PK	53.3	31.5	5.5	40.1	50.2	73.9	23.7	100	45	
Hori.	7206.000	PK	46.3	36.4	6.7	38.3	51.1	73.9	22.8	100	0	
Hori.	9608.000	PK	45.4	37.9	7.8	37.3	53.8	73.9	20.1	100	59	
Hori.	12010.000	PK	46.4	39.4	9.0	38.4	56.4	73.9	17.5	100	0	
Vert.	71.589	QP	50.8	6.4	6.9	32.1	32.0	40.0	8.0	100	211	
Vert.	86.020	QP	50.2	7.2	7.1	32.1	32.4	40.0	7.6	100	139	
Vert.	166.401	QP	40.7	15.4	7.7	32.0	31.8	43.5	11.7	100	242	
Vert.	200.229	QP	41.4	16.3	7.9	32.0	33.6	43.5	9.9	100	359	
Vert.	431.972	QP	34.0	16.3	9.0	31.9	27.4	46.0	18.6	100	215	
Vert.	729.009	QP	39.5	19.9	10.1	31.8	37.7	46.0	8.3	100	105	
Vert.	2390.000	PK	46.4	27.5	40.2	40.2	47.0	73.9	26.9	100	340	
Vert.	2400.000	PK	51.3	27.5	40.2	40.2	51.9	73.9	22.0	100	340	
Vert.	4804.000	PK	53.4	31.5	40.1	40.1	50.3	73.9	23.6	100	316	
Vert.	7206.000	PK	46.6	36.4	38.3	38.3	51.4	73.9	22.5	100	0	
Vert.	9608.000	PK	46.0	37.9	37.3	37.3	54.4	73.9	19.5	110	344	
Vert.	12010.000	PK	47.3	39.4	38.4	38.4	57.3	73.9	16.6	100	0	

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

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

*No noise was detected above the third order harmonics.

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	36.2	27.5	13.3	40.2	-24.7	12.1	53.9	41.8	VBW:300Hz
Hori.	2400.000	AV	41.4	27.5	13.3	40.2	-24.7	17.3	53.9	36.6	VBW:300Hz
Hori.	4804.000	AV	51.0	31.5	5.5	40.1	-24.7	23.2	53.9	30.7	VBW:300Hz
Hori.	7206.000	AV	36.8	36.4	6.7	38.3	-24.7	16.9	53.9	37.0	VBW:300Hz
Hori.	9608.000	AV	36.0	37.9	7.8	37.3	-24.7	19.7	53.9	34.2	VBW:300Hz
Hori.	12010.000	AV	36.9	39.4	9.0	38.4	-24.7	22.2	53.9	31.7	VBW:300Hz
Vert.	2390.000	AV	36.1	27.5	13.3	40.2	-24.7	12.0	53.9	41.9	VBW:300Hz
Vert.	2400.000	AV	41.7	27.5	13.3	40.2	-24.7	17.6	53.9	36.3	VBW:300Hz
Vert.	4804.000	AV	49.8	31.5	5.5	40.1	-24.7	22.0	53.9	31.9	VBW:300Hz
Vert.	7206.000	AV	36.7	36.4	6.7	38.3	-24.7	16.8	53.9	37.1	VBW:300Hz
Vert.	9608.000	AV	36.3	37.9	7.8	37.3	-24.7	20.0	53.9	33.9	VBW:300Hz
Vert.	12010.000	AV	36.7	39.4	9.0	38.4	-24.7	22.0	53.9	31.9	VBW:300Hz

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

- Gain(Amplifier) + 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).

*No noise was detected above the 5th order harmonics.

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/10/28 2010/10/28 2010/12/12
 Temperature / Humidity 25deg.C. , 32% 25deg.C. , 32% 22deg.C. , 33%
 Engineer Tatsuya Arai Shinichi Takano Minoru Nakatake
 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.	729.006	QP	39.2	19.9	10.1	31.8	37.4	46.0	8.6	124	241	
Hori.	2310.000	PK	47.4	27.5	13.3	40.2	48.0	73.9	25.9	100	0	
Hori.	4882.000	PK	53.8	31.7	5.6	40.0	51.1	73.9	22.8	100	38	
Hori.	7323.000	PK	47.3	36.7	6.9	38.5	52.4	73.9	21.5	100	0	
Hori.	9764.000	PK	46.1	38.2	7.8	37.4	54.7	73.9	19.2	100	27	
Hori.	12205.000	PK	46.7	39.2	9.1	38.1	56.9	73.9	17.0	100	0	
Hori.	2310.000	AV	35.8	27.5	13.3	40.2	36.4	53.9	17.5	100	0	AV:VBW=10Hz
Vert.	71.592	QP	50.5	6.4	7.0	32.1	31.8	40.0	8.2	100	214	
Vert.	86.023	QP	50.3	7.2	7.1	32.1	32.5	40.0	7.5	100	130	
Vert.	166.462	QP	40.1	15.4	7.7	32.0	31.2	43.5	12.3	100	256	
Vert.	200.203	QP	40.1	16.3	7.9	32.0	32.3	43.5	11.2	100	355	
Vert.	431.968	QP	33.8	16.3	9.0	31.9	27.2	46.0	18.8	100	213	
Vert.	729.014	QP	39.7	19.9	10.1	31.8	37.9	46.0	8.1	100	131	
Vert.	4882.000	PK	55.3	31.7	5.6	40.0	52.6	73.9	21.3	103	345	
Vert.	7323.000	PK	45.9	36.7	6.9	38.5	51.0	73.9	22.9	100	0	
Vert.	9764.000	PK	44.2	38.2	7.8	37.4	52.8	73.9	21.1	100	340	
Vert.	12205.000	PK	45.4	39.2	9.1	38.1	55.6	73.9	18.3	100	0	
Vert.	2310.000	AV	36.2	27.5	13.3	40.2	36.8	53.9	17.1	100	0	AV:VBW=10Hz

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

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

*No noise was detected above the third order harmonics.

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	50.3	31.7	5.6	40.0	-24.7	22.9	53.9	31.0	VBW:300Hz
Hori.	7323.000	AV	37.5	36.7	6.9	38.5	-24.7	17.9	53.9	36.0	VBW:300Hz
Hori.	9764.000	AV	37.1	38.2	7.8	37.4	-24.7	21.0	53.9	32.9	VBW:300Hz
Hori.	12205.000	AV	37.1	39.2	9.1	38.1	-24.7	22.6	53.9	31.3	VBW:300Hz
Vert.	4882.000	AV	52.9	31.7	5.6	40.0	-24.7	25.5	53.9	28.4	VBW:300Hz
Vert.	7323.000	AV	36.0	36.7	6.9	38.5	-24.7	16.4	53.9	37.5	VBW:300Hz
Vert.	9764.000	AV	36.0	38.2	7.8	37.4	-24.7	19.9	53.9	34.0	VBW:300Hz
Vert.	12205.000	AV	35.5	39.2	9.1	38.1	-24.7	21.0	53.9	32.9	VBW:300Hz

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

- Gain(Amplifier) + 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).

*No noise was detected above the 5th order harmonics.

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/10/28 2010/10/28 2010/12/12
 Temperature / Humidity 25deg.C. , 32% 25deg.C. , 32% 22deg.C. , 33%
 Engineer Tatsuya Arai Shinichi Takano Minoru Nakatake
 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.	729.008	QP	38.7	19.9	10.1	31.8	36.9	46.0	9.1	126	244	
Hori.	2350.000	PK	46.4	27.5	13.3	40.2	47.0	73.9	26.9	100	0	
Hori.	2483.500	PK	45.0	27.6	13.4	40.1	45.9	73.9	28.0	120	283	
Hori.	2483.980	PK	45.4	27.6	13.4	40.1	46.3	73.9	27.6	120	283	
Hori.	4960.000	PK	52.6	31.9	5.6	40.0	50.1	73.9	23.8	100	36	
Hori.	7440.000	PK	45.7	36.9	7.1	38.7	51.0	73.9	22.9	100	0	
Hori.	9920.000	PK	43.8	38.4	8.0	37.5	52.7	73.9	21.2	100	336	
Hori.	12400.000	PK	43.5	39.1	9.4	37.9	54.1	73.9	19.8	100	0	
Hori.	2350.000	AV	35.9	27.5	13.3	40.2	36.5	53.9	17.4	100	0	AV:VBW=10Hz
Vert.	71.589	QP	51.0	6.4	6.9	32.1	32.2	40.0	7.8	100	229	
Vert.	86.022	QP	49.1	7.2	7.1	32.1	31.3	40.0	8.7	100	108	
Vert.	166.462	QP	40.8	15.4	7.7	32.0	31.9	43.5	11.6	100	260	
Vert.	200.248	QP	39.6	16.3	7.9	32.0	31.8	43.5	11.7	100	336	
Vert.	433.018	QP	34.3	16.3	9.0	31.9	27.7	46.0	18.3	100	211	
Vert.	729.000	QP	40.2	19.9	10.1	31.8	38.4	46.0	7.6	100	123	
Vert.	2350.000	PK	46.2	27.5	13.3	40.2	46.8	73.9	27.1	100	0	
Vert.	2483.500	PK	46.6	27.6	13.4	40.1	47.5	73.9	26.4	100	191	
Vert.	2483.980	PK	46.4	27.6	13.4	40.1	47.3	73.9	26.6	100	191	
Vert.	4960.000	PK	54.4	31.9	5.6	40.0	51.9	73.9	22.0	103	353	
Vert.	7440.000	PK	46.1	36.9	7.1	38.7	51.4	73.9	22.5	100	0	
Vert.	9920.000	PK	43.5	38.4	8.0	37.5	52.4	73.9	21.5	108	347	
Vert.	12400.000	PK	43.0	39.1	9.4	37.9	53.6	73.9	20.3	100	0	
Vert.	2350.000	AV	35.8	27.5	13.3	40.2	36.4	53.9	17.5	100	0	AV:VBW=10Hz

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

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

*No noise was detected above the third order harmonics.

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	36.2	27.6	13.4	40.1	-24.7	12.4	53.9	41.5	VBW:300Hz
Hori.	2483.980	AV	36.3	27.6	13.4	40.1	-24.7	12.5	53.9	41.4	VBW:300Hz
Hori.	4960.000	AV	48.9	31.9	5.6	40.0	-24.7	21.7	53.9	32.2	VBW:300Hz
Hori.	7440.000	AV	35.8	36.9	7.1	38.7	-24.7	16.4	53.9	37.5	VBW:300Hz
Hori.	9920.000	AV	35.8	38.4	8.0	37.5	-24.7	20.0	53.9	33.9	VBW:300Hz
Hori.	12400.000	AV	34.0	39.1	9.4	37.9	-24.7	19.9	53.9	34.0	VBW:300Hz
Vert.	2483.500	AV	36.3	27.6	13.4	40.1	-24.7	12.5	53.9	41.4	VBW:300Hz
Vert.	2483.980	AV	36.4	27.6	13.4	40.1	-24.7	12.6	53.9	41.3	VBW:300Hz
Vert.	4960.000	AV	51.4	31.9	5.6	40.0	-24.7	24.2	53.9	29.7	VBW:300Hz
Vert.	7440.000	AV	35.9	36.9	7.1	38.7	-24.7	16.5	53.9	37.4	VBW:300Hz
Vert.	9920.000	AV	35.1	38.4	8.0	37.5	-24.7	19.3	53.9	34.6	VBW:300Hz
Vert.	12400.000	AV	33.0	39.1	9.4	37.9	-24.7	18.9	53.9	35.0	VBW:300Hz

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

- Gain(Amplifier) + 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).

*No noise was detected above the 5th order harmonics.

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2010/10/28 2010/10/28 2010/12/12
 Temperature / Humidity : 25deg.C. , 32% 25deg.C. , 32% 22deg.C. , 33%
 Engineer : Tatsuya Arai Shinichi Takano Minoru Nakatake
 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.	729.000	QP	38.9	19.9	10.1	31.8	37.1	46.0	8.9	123	241	
Hori.	2273.000	PK	45.6	27.4	13.2	40.3	45.9	73.9	28.0	100	0	
Hori.	2390.000	PK	46.0	27.5	13.3	40.2	46.6	73.9	27.3	100	289	
Hori.	2400.000	PK	51.2	27.5	13.3	40.2	51.8	73.9	22.1	100	289	
Hori.	4804.000	PK	53.2	31.5	5.5	40.1	50.1	73.9	23.8	100	35	
Hori.	7206.000	PK	46.8	36.4	6.7	38.3	51.6	73.9	22.3	100	0	
Hori.	9608.000	PK	46.3	37.9	7.8	37.3	54.7	73.9	19.2	100	336	
Hori.	12010.000	PK	46.3	39.4	9.0	38.4	56.3	73.9	17.6	100	0	
Hori.	2273.000	AV	33.4	27.4	13.2	40.3	33.7	53.9	20.2	100	0	AV:VBW=10Hz
Vert.	71.584	QP	51.1	6.4	6.9	32.1	32.3	40.0	7.7	100	233	
Vert.	86.006	QP	48.7	7.2	7.1	32.1	30.9	40.0	9.1	100	97	
Vert.	166.454	QP	40.6	15.4	7.7	32.0	31.7	43.5	11.8	100	263	
Vert.	200.218	QP	42.1	16.3	7.9	32.0	34.3	43.5	9.2	100	356	
Vert.	433.058	QP	34.4	16.3	9.0	31.9	27.8	46.0	18.2	100	211	
Vert.	729.007	QP	39.7	19.9	10.1	31.8	37.9	46.0	8.1	100	135	
Vert.	2273.000	PK	45.3	27.4	13.2	40.3	45.6	73.9	28.3	100	0	
Vert.	2390.000	PK	45.9	27.5	13.3	40.2	46.5	73.9	27.4	100	102	
Vert.	2400.000	PK	52.3	27.5	13.3	40.2	52.9	73.9	21.0	100	102	
Vert.	4804.000	PK	56.8	31.5	5.5	40.1	53.7	73.9	20.2	104	345	
Vert.	7206.000	PK	46.5	36.4	6.7	38.3	51.3	73.9	22.6	100	0	
Vert.	9608.000	PK	45.1	37.9	7.8	37.3	53.5	73.9	20.4	111	346	
Vert.	12010.000	PK	46.2	39.4	9.0	38.4	56.2	73.9	17.7	100	0	
Vert.	2273.000	AV	35.8	27.4	13.2	40.3	36.1	53.9	17.8	100	0	AV:VBW=10Hz

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

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

*No noise was detected above the third order harmonics.

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	33.8	27.5	13.3	40.2	-24.7	9.7	53.9	44.2	VBW:300Hz
Hori.	2400.000	AV	38.1	27.5	13.3	40.2	-24.7	14.0	53.9	39.9	VBW:300Hz
Hori.	4804.000	AV	50.3	31.5	5.5	40.1	-24.7	22.5	53.9	31.4	VBW:300Hz
Hori.	7206.000	AV	36.7	36.4	6.7	38.3	-24.7	16.8	53.9	37.1	VBW:300Hz
Hori.	9608.000	AV	36.0	37.9	7.8	37.3	-24.7	19.7	53.9	34.2	VBW:300Hz
Hori.	12010.000	AV	36.8	39.4	9.0	38.4	-24.7	22.1	53.9	31.8	VBW:300Hz
Vert.	2390.000	AV	36.1	27.5	13.3	40.2	-24.7	12.0	53.9	41.9	VBW:300Hz
Vert.	2400.000	AV	41.4	27.5	13.3	40.2	-24.7	17.3	53.9	36.6	VBW:300Hz
Vert.	4804.000	AV	54.4	31.5	5.5	40.1	-24.7	26.6	53.9	27.3	VBW:300Hz
Vert.	7206.000	AV	36.7	36.4	6.7	38.3	-24.7	16.8	53.9	37.1	VBW:300Hz
Vert.	9608.000	AV	36.7	37.9	7.8	37.3	-24.7	20.4	53.9	33.5	VBW:300Hz
Vert.	12010.000	AV	36.7	39.4	9.0	38.4	-24.7	22.0	53.9	31.9	VBW:300Hz

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

- Gain(Amplifier) + 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).

*No noise was detected above the 5th order harmonics.

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

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. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/10/28 2010/10/28 2010/12/12
 Temperature / Humidity 25deg.C. , 32% 25deg.C. , 32% 22deg.C. , 33%
 Engineer Tatsuya Arai Shinichi Takano Minoru Nakatake
 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.	729.015	QP	38.5	19.9	10.1	31.8	36.7	46.0	9.3	122	241	
Hori.	2310.000	PK	45.7	27.5	13.3	40.2	46.3	73.9	27.6	100	0	
Hori.	4882.000	PK	53.3	31.7	5.6	40.0	50.6	73.9	23.3	100	37	
Hori.	7323.000	PK	45.5	36.7	6.9	38.5	50.6	73.9	23.3	100	0	
Hori.	9764.000	PK	45.6	38.2	7.8	37.4	54.2	73.9	19.7	100	336	
Hori.	12205.000	PK	45.4	39.2	9.1	38.1	55.6	73.9	18.3	100	0	
Hori.	2310.000	AV	36.0	27.5	13.3	40.2	36.6	53.9	17.3	100	0	AV:VBW=10Hz
Vert.	71.578	QP	50.9	6.4	6.9	32.1	32.1	40.0	7.9	100	235	
Vert.	86.015	QP	48.8	7.2	7.1	32.1	31.0	40.0	9.0	100	99	
Vert.	166.425	QP	40.9	15.4	7.7	32.0	32.0	43.5	11.5	100	267	
Vert.	200.230	QP	39.6	16.3	7.9	32.0	31.8	43.5	11.7	100	356	
Vert.	432.914	QP	34.8	16.3	9.0	31.9	28.2	46.0	17.8	100	203	
Vert.	729.007	QP	40.4	19.9	10.1	31.8	38.6	46.0	7.4	100	120	
Vert.	2310.000	PK	46.0	27.5	13.3	40.2	46.6	73.9	27.3	100	0	
Vert.	4882.000	PK	55.0	31.7	5.6	40.0	52.3	73.9	21.6	103	353	
Vert.	7323.000	PK	45.8	36.7	6.9	38.5	50.9	73.9	23.0	100	0	
Vert.	9764.000	PK	44.9	38.2	7.8	37.4	53.5	73.9	20.4	100	347	
Vert.	12205.000	PK	45.3	39.2	9.1	38.1	55.5	73.9	18.4	100	0	
Vert.	2310.000	AV	35.9	27.5	13.3	40.2	36.5	53.9	17.4	100	0	AV:VBW=10Hz

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

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

*No noise was detected above the third order harmonics.

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	50.4	31.7	5.6	40.0	-24.7	23.0	53.9	30.9	VBW:300Hz
Hori.	7323.000	AV	36.0	36.7	6.9	38.5	-24.7	16.4	53.9	37.5	VBW:300Hz
Hori.	9764.000	AV	36.5	38.2	7.8	37.4	-24.7	20.4	53.9	33.5	VBW:300Hz
Hori.	12205.000	AV	35.5	39.2	9.1	38.1	-24.7	21.0	53.9	32.9	VBW:300Hz
Vert.	4882.000	AV	52.8	31.7	5.6	40.0	-24.7	25.4	53.9	28.5	VBW:300Hz
Vert.	7323.000	AV	35.9	36.7	6.9	38.5	-24.7	16.3	53.9	37.6	VBW:300Hz
Vert.	9764.000	AV	35.5	38.2	7.8	37.4	-24.7	19.4	53.9	34.5	VBW:300Hz
Vert.	12205.000	AV	35.6	39.2	9.1	38.1	-24.7	21.1	53.9	32.8	VBW:300Hz

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

*No noise was detected above the 5th order harmonics.

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/10/28 2010/10/28 2010/12/12
 Temperature / Humidity 25deg.C. , 32% 25deg.C. , 32% 22deg.C. , 33%
 Engineer Tatsuya Arai Shinichi Takano Minoru Nakatake
 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.	729.002	QP	38.9	19.9	10.1	31.8	37.1	46.0	8.9	120	237	
Hori.	2350.000	PK	46.1	27.5	13.3	40.2	46.7	73.9	27.2	100	0	
Hori.	2483.500	PK	45.6	27.6	13.4	40.1	46.5	73.9	27.4	121	280	
Hori.	2483.980	PK	45.4	27.6	13.4	40.1	46.3	73.9	27.6	121	280	
Hori.	4960.000	PK	52.7	31.9	5.6	40.0	50.2	73.9	23.7	100	41	
Hori.	7440.000	PK	45.4	36.9	7.1	38.7	50.7	73.9	23.2	100	0	
Hori.	9920.000	PK	45.2	38.4	8.0	37.5	54.1	73.9	19.8	100	334	
Hori.	12400.000	PK	43.8	39.1	9.4	37.9	54.4	73.9	19.5	100	0	
Hori.	2350.000	AV	35.9	27.5	13.3	40.2	36.5	53.9	17.4	100	0	AV:VBW=10Hz
Vert.	71.588	QP	51.6	6.4	6.9	32.1	32.8	40.0	7.2	100	239	
Vert.	86.020	QP	49.2	7.2	7.1	32.1	31.4	40.0	8.6	100	104	
Vert.	166.452	QP	40.3	15.4	7.7	32.0	31.4	43.5	12.1	100	266	
Vert.	200.234	QP	40.3	16.3	7.9	32.0	32.5	43.5	11.0	100	358	
Vert.	433.916	QP	33.5	16.3	9.0	31.9	26.9	46.0	19.1	100	209	
Vert.	729.005	QP	40.2	19.9	10.1	31.8	38.4	46.0	7.6	100	138	
Vert.	2350.000	PK	46.5	27.5	13.3	40.2	47.1	73.9	26.8	100	0	
Vert.	2483.500	PK	45.7	27.6	13.4	40.1	46.6	73.9	27.3	100	192	
Vert.	2483.980	PK	46.3	27.6	13.4	40.1	47.2	73.9	26.7	100	192	
Vert.	4960.000	PK	54.1	31.9	5.6	40.0	51.6	73.9	22.3	100	351	
Vert.	7440.000	PK	45.6	36.9	7.1	38.7	50.9	73.9	23.0	100	0	
Vert.	9920.000	PK	44.1	38.4	8.0	37.5	53.0	73.9	20.9	100	349	
Vert.	12400.000	PK	43.7	39.1	9.4	37.9	54.3	73.9	19.6	100	0	
Vert.	2350.000	AV	35.8	27.5	13.3	40.2	36.4	53.9	17.5	100	0	AV:VBW=10Hz

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

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

*No noise was detected above the third order harmonics.

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	36.1	27.6	13.4	40.1	-24.7	12.3	53.9	41.6	VBW:300Hz
Hori.	2483.980	AV	36.2	27.6	13.4	40.1	-24.7	12.4	53.9	41.5	VBW:300Hz
Hori.	4960.000	AV	49.2	31.9	5.6	40.0	-24.7	22.0	53.9	31.9	VBW:300Hz
Hori.	7440.000	AV	35.9	36.9	7.1	38.7	-24.7	16.5	53.9	37.4	VBW:300Hz
Hori.	9920.000	AV	35.7	38.4	8.0	37.5	-24.7	19.9	53.9	34.0	VBW:300Hz
Hori.	12400.000	AV	34.2	39.1	9.4	37.9	-24.7	20.1	53.9	33.8	VBW:300Hz
Vert.	2483.500	AV	36.2	27.6	13.4	40.1	-24.7	12.4	53.9	41.5	VBW:300Hz
Vert.	2483.980	AV	36.3	27.6	13.4	40.1	-24.7	12.5	53.9	41.4	VBW:300Hz
Vert.	4960.000	AV	51.3	31.9	5.6	40.0	-24.7	24.1	53.9	29.8	VBW:300Hz
Vert.	7440.000	AV	36.0	36.9	7.1	38.7	-24.7	16.6	53.9	37.3	VBW:300Hz
Vert.	9920.000	AV	35.0	38.4	8.0	37.5	-24.7	19.2	53.9	34.7	VBW:300Hz
Vert.	12400.000	AV	34.1	39.1	9.4	37.9	-24.7	20.0	53.9	33.9	VBW:300Hz

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

- Gain(Amplifier) + 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).

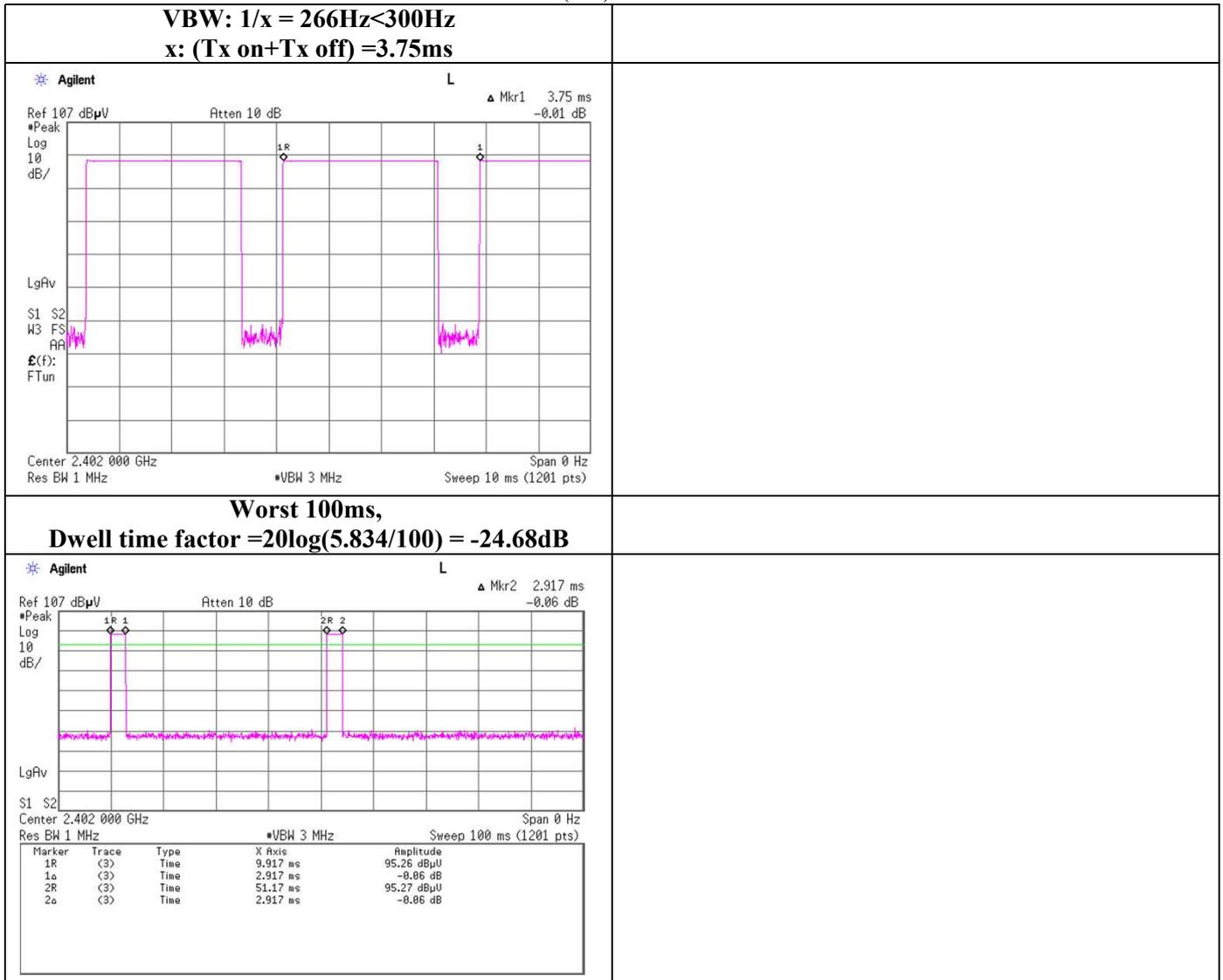
*No noise was detected above the 5th order harmonics.

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Spurious emission (Radiated)

DH5

VBW (AV) Calculation



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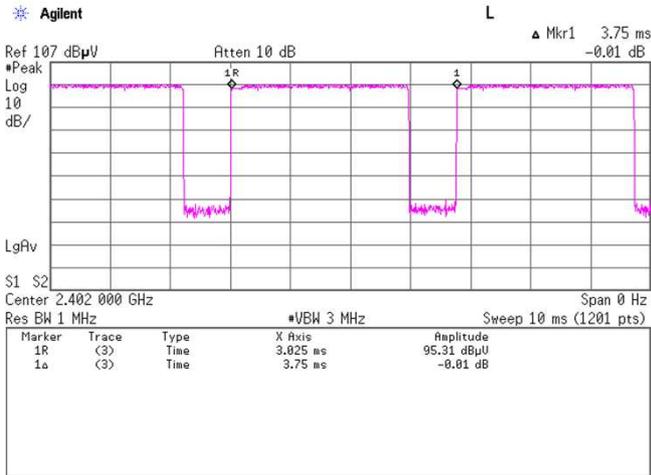
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
 Telephone : +81 463 50 6400
 Facsimile : +81 463 50 6401

Spurious emission (Radiated)

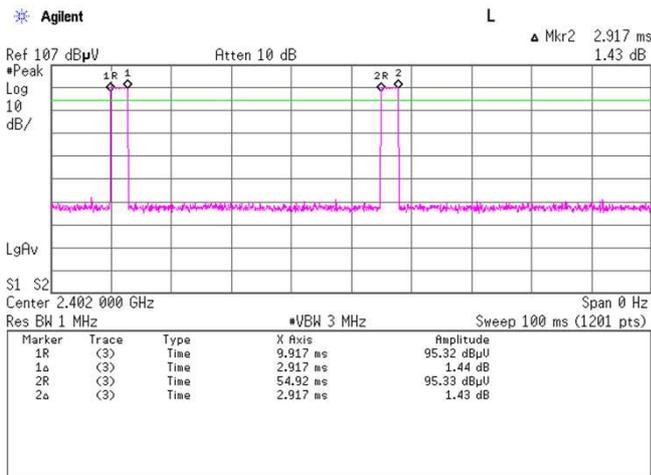
3-DH5,

VBW (AV) Calculation

**VBW: $1/x = 266\text{Hz} < 300\text{Hz}$
 $x: (\text{Tx on} + \text{Tx off}) = 3.75\text{ms}$**



**Worst 100ms,
 Dwell time factor = $20\log(5.834/100) = -24.68\text{dB}$**



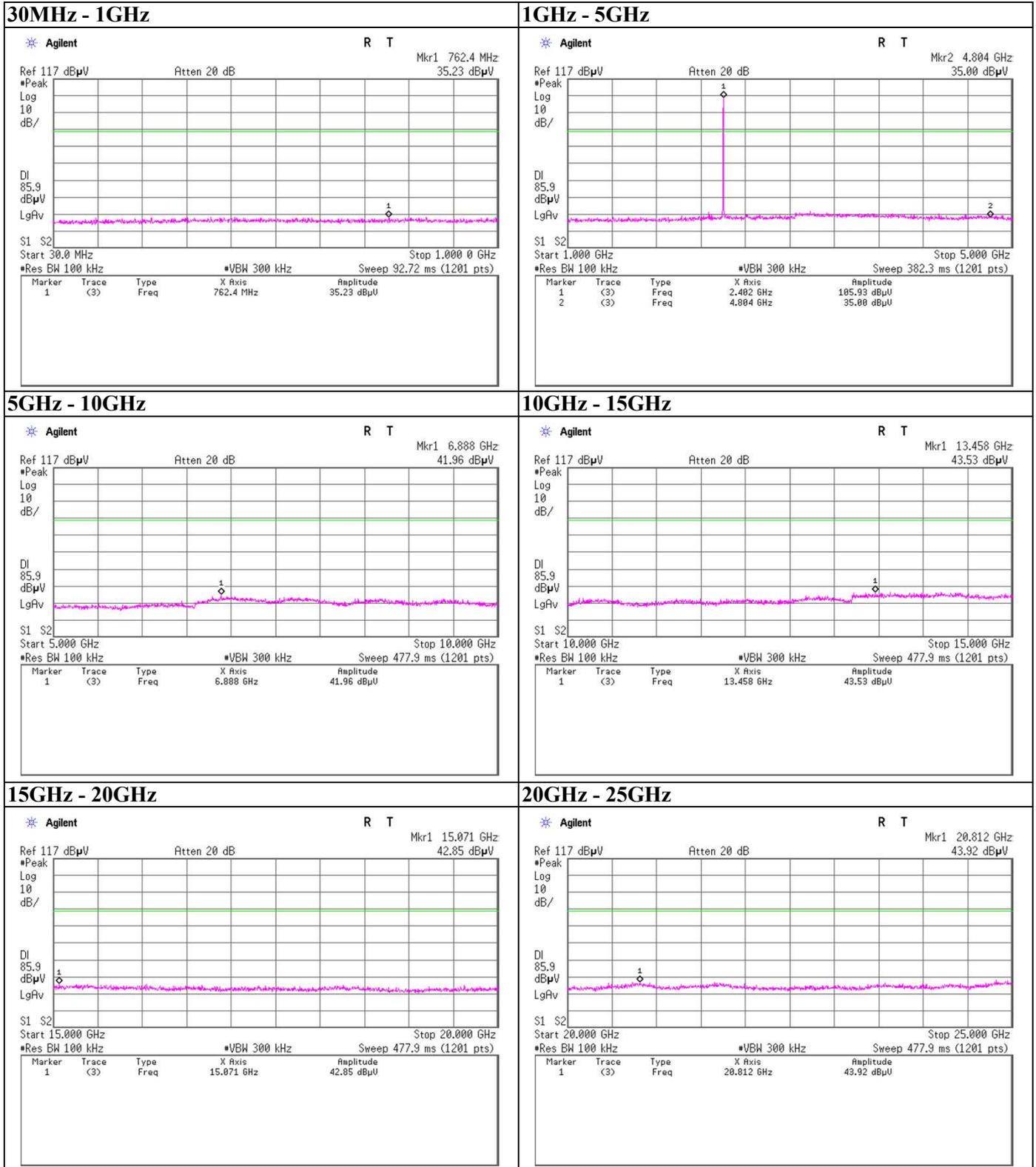
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Spurious emission (Conducted)

DH5

Tx, 2402MHz



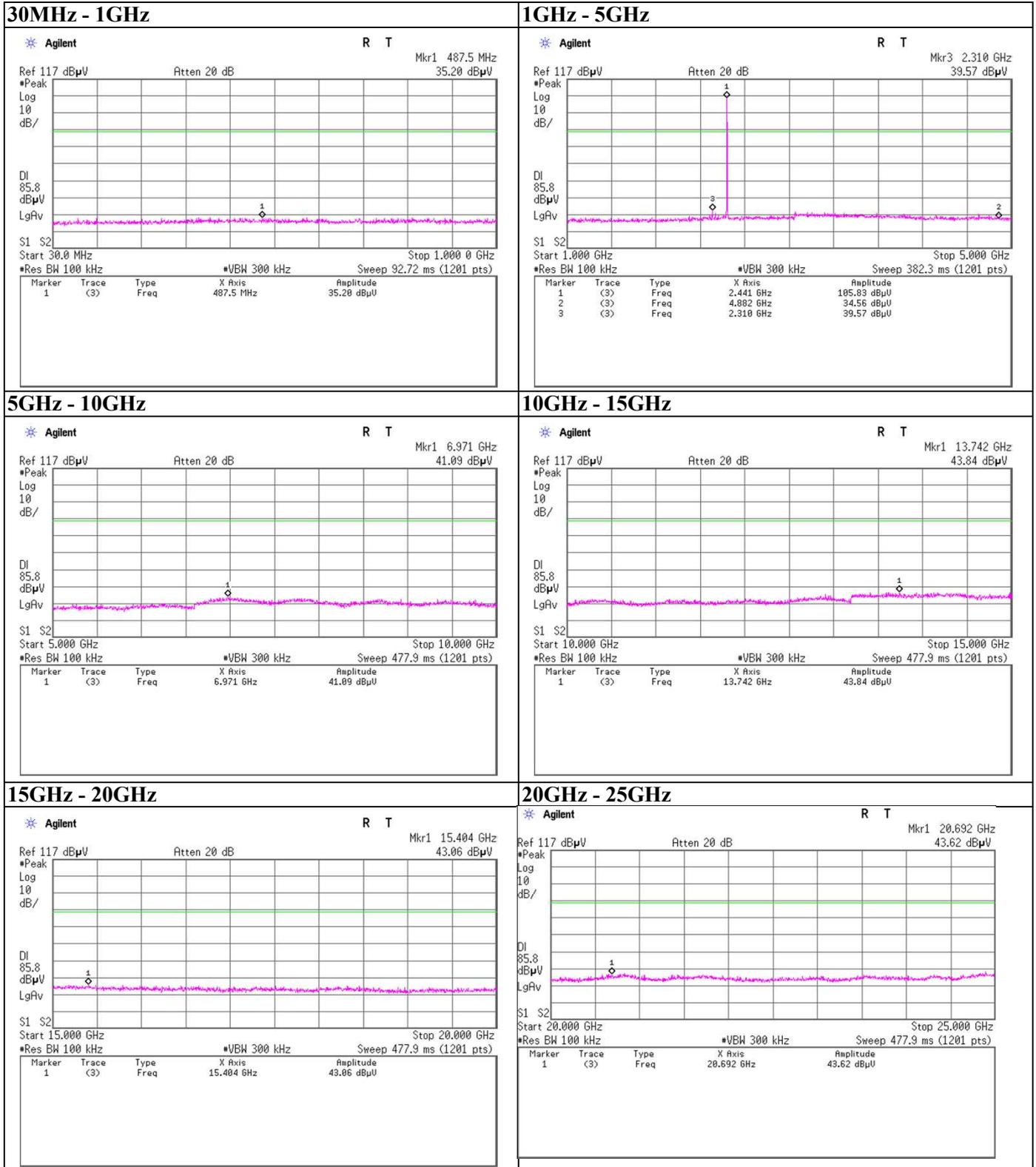
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Spurious emission (Conducted)

DH5

Tx, 2441MHz



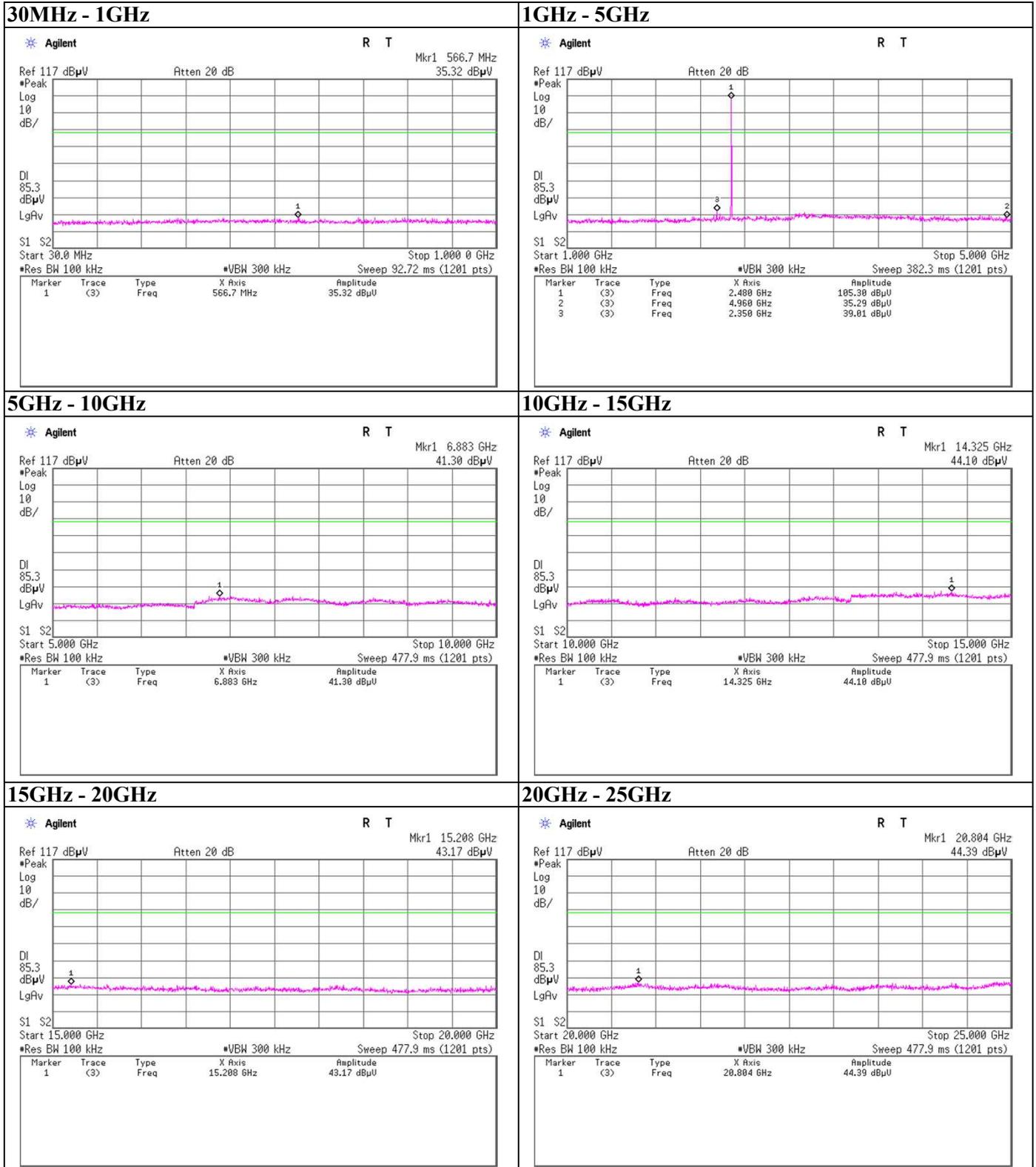
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Spurious emission (Conducted)

DH5

Tx, 2480MHz



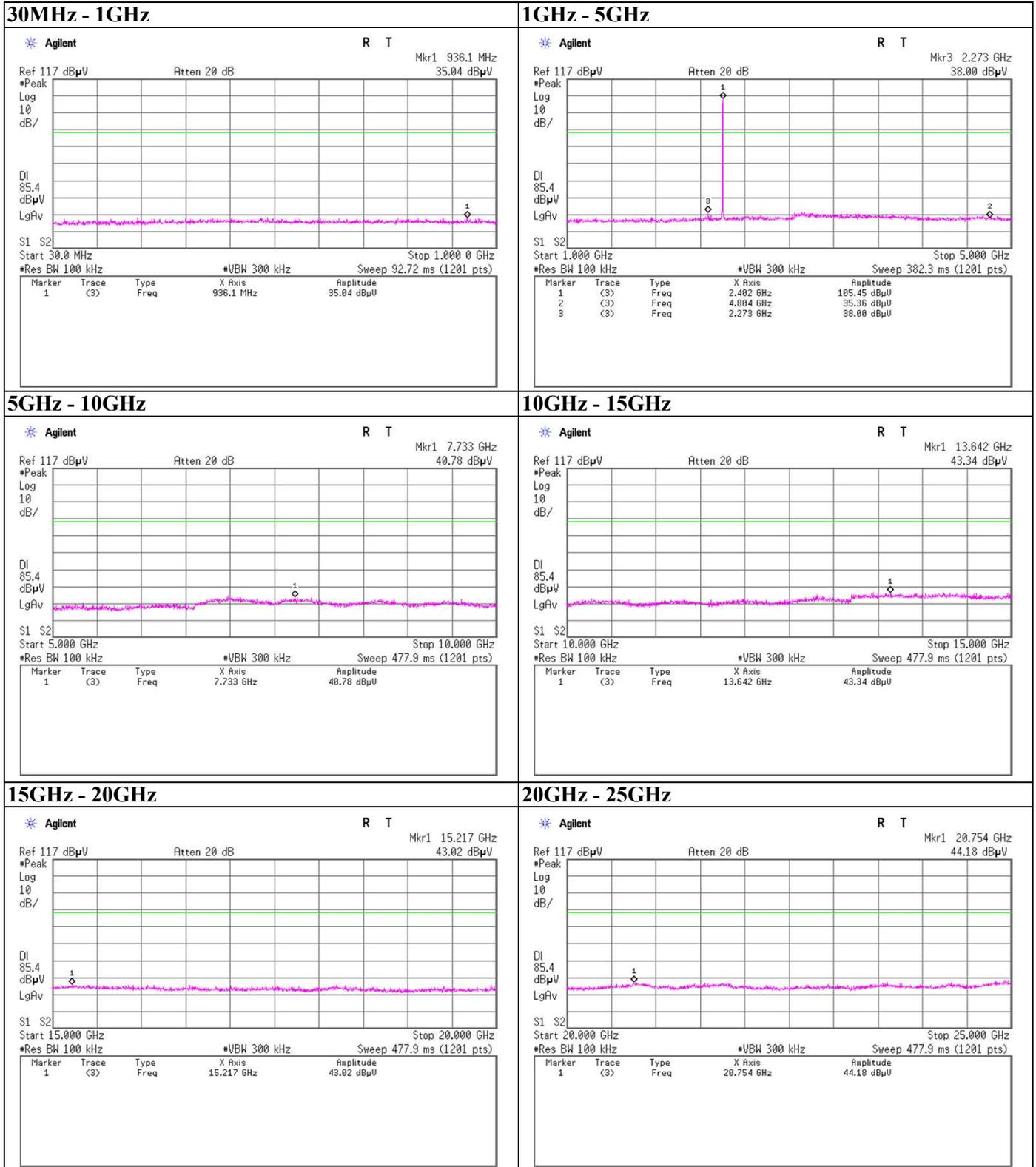
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Spurious emission (Conducted)

3-DH5

Tx, 2402MHz



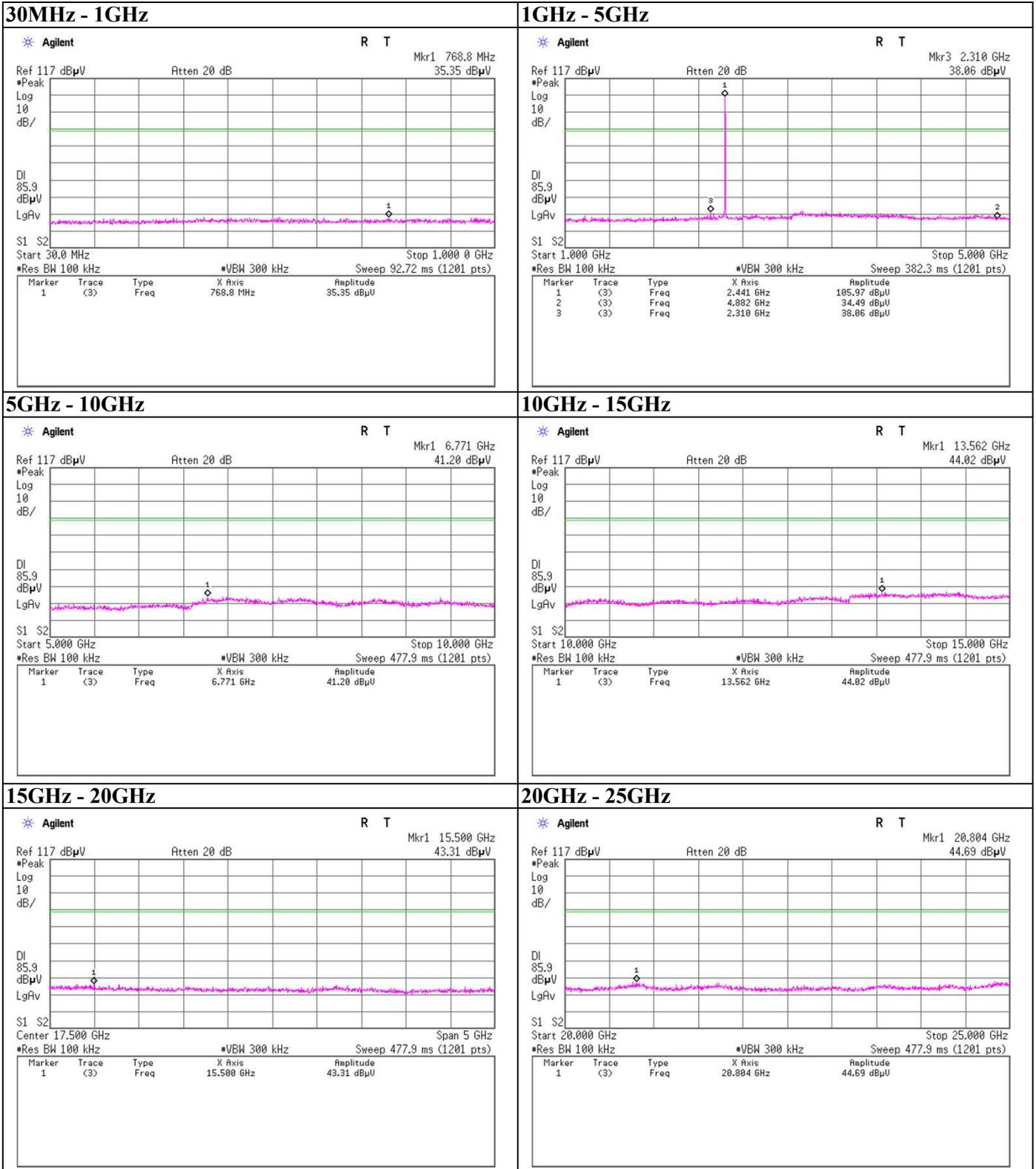
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 Telephone : +81 463 50 6400
 Facsimile : +81 463 50 6401

Spurious emission (Conducted)

3-DH5

Tx, 2441MHz



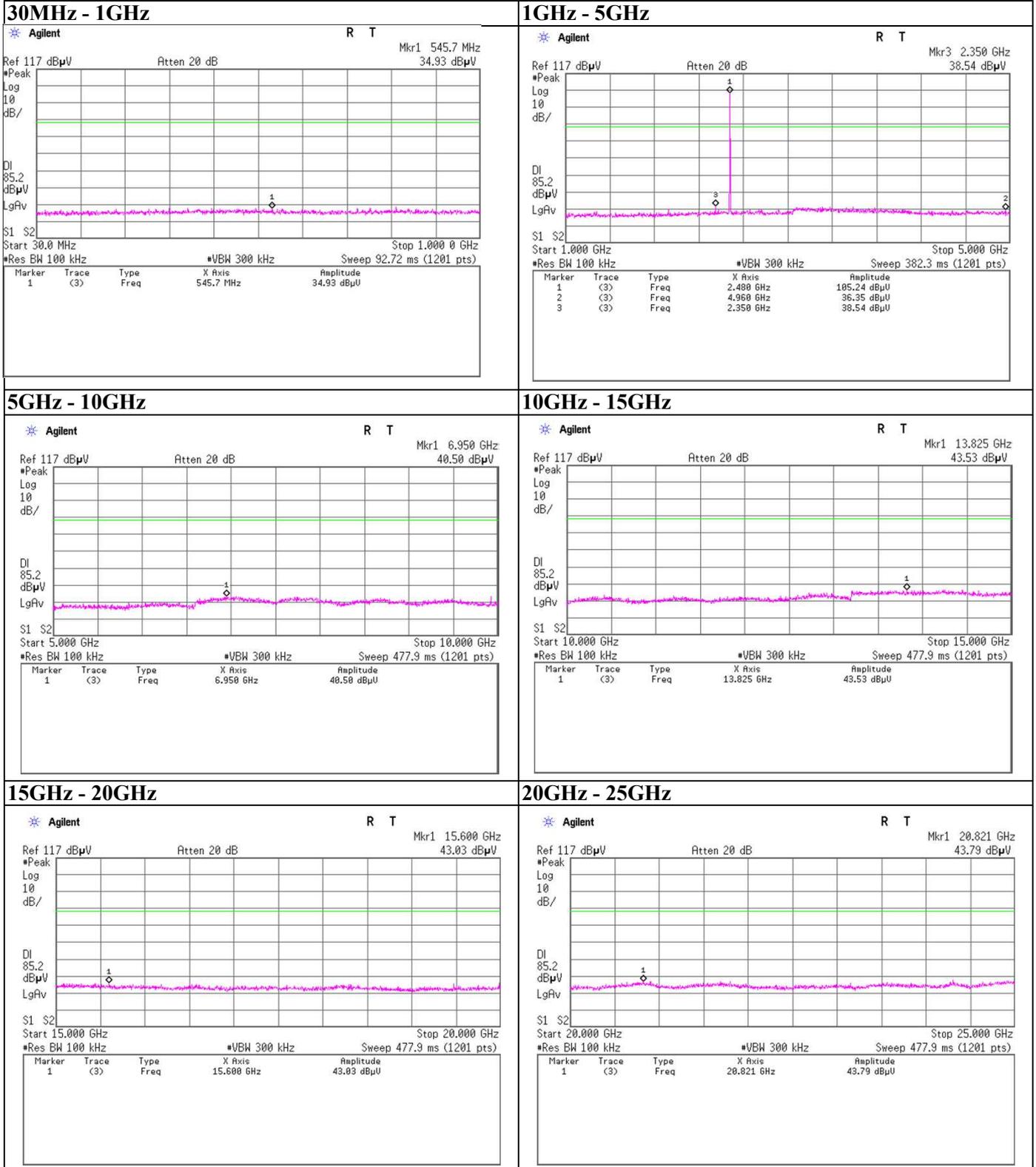
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Spurious emission (Conducted)

3-DH5

Tx, 2480MHz



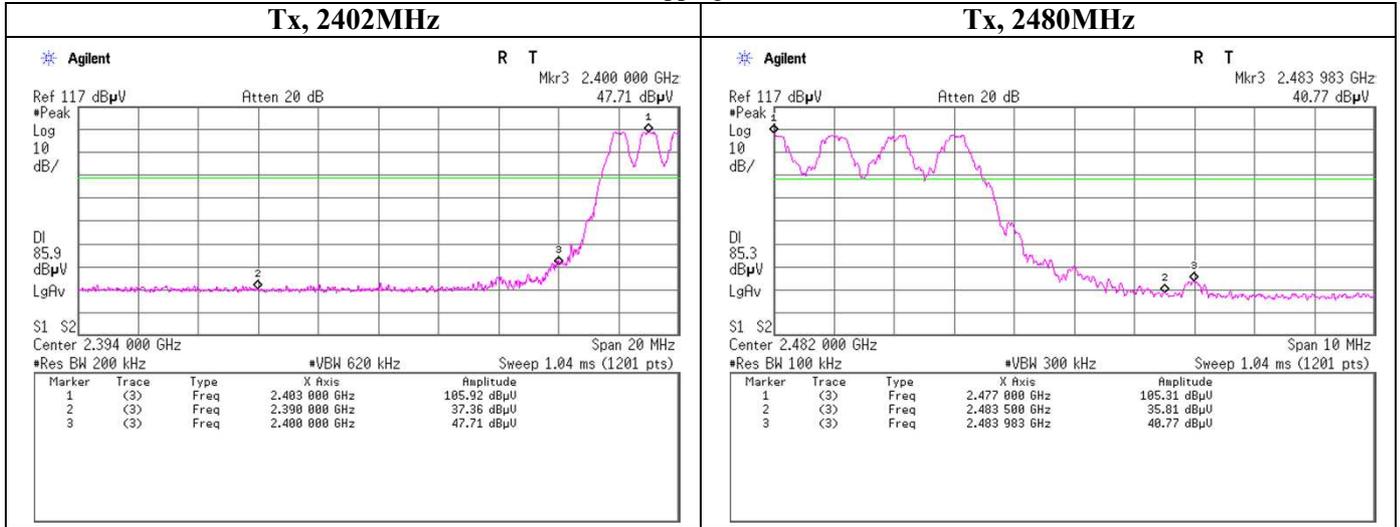
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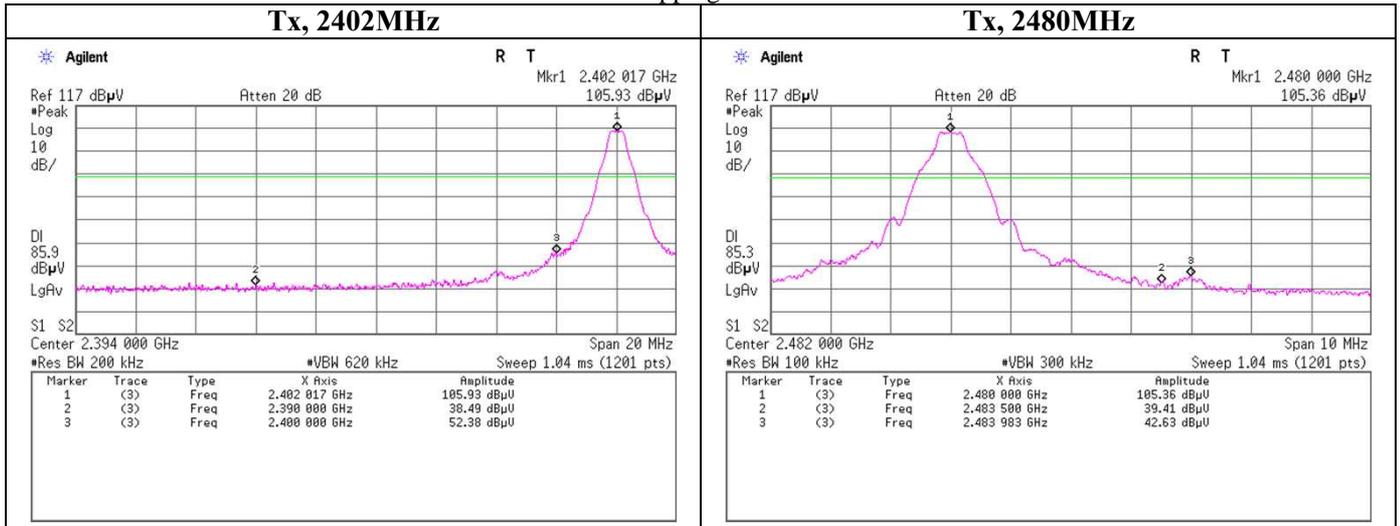
Spurious emission (Conducted)

Band Edge compliance
DH5

Hopping ON



Hopping OFF



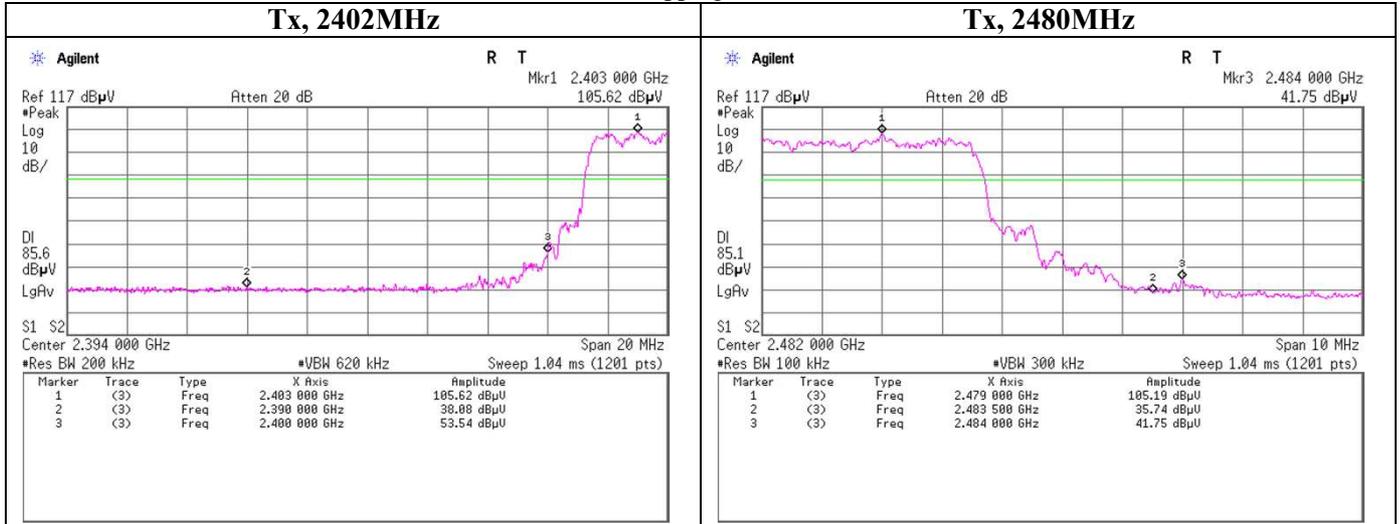
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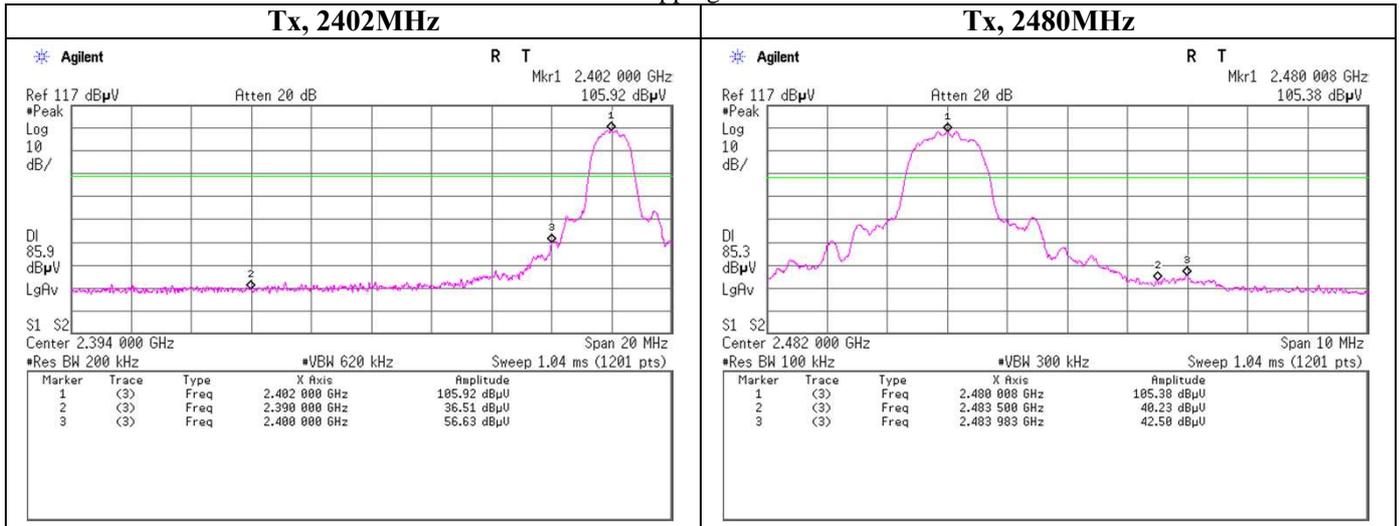
Spurious emission (Conducted)

Band Edge compliance
 3-DH5

Hopping ON



Hopping OFF

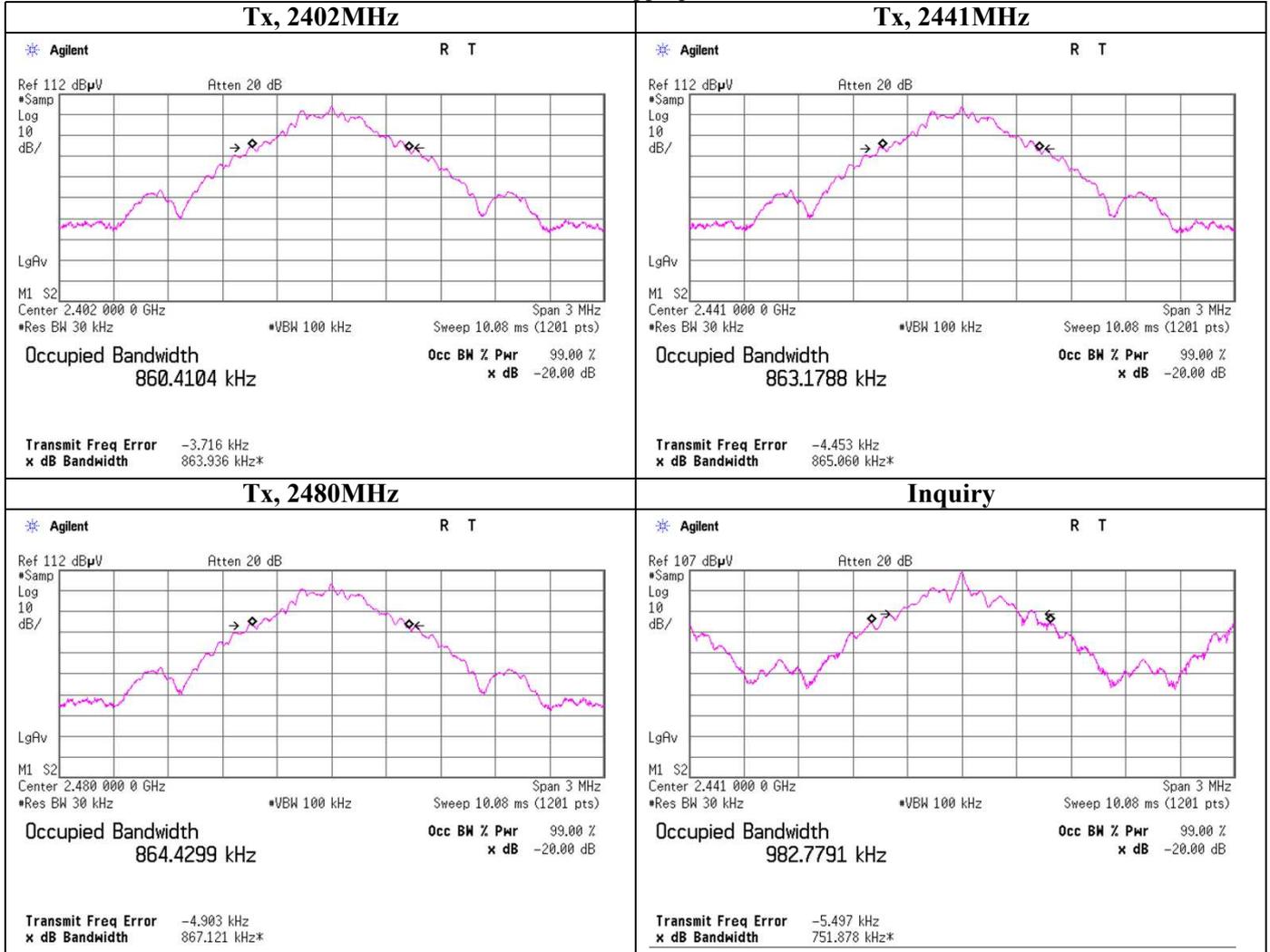


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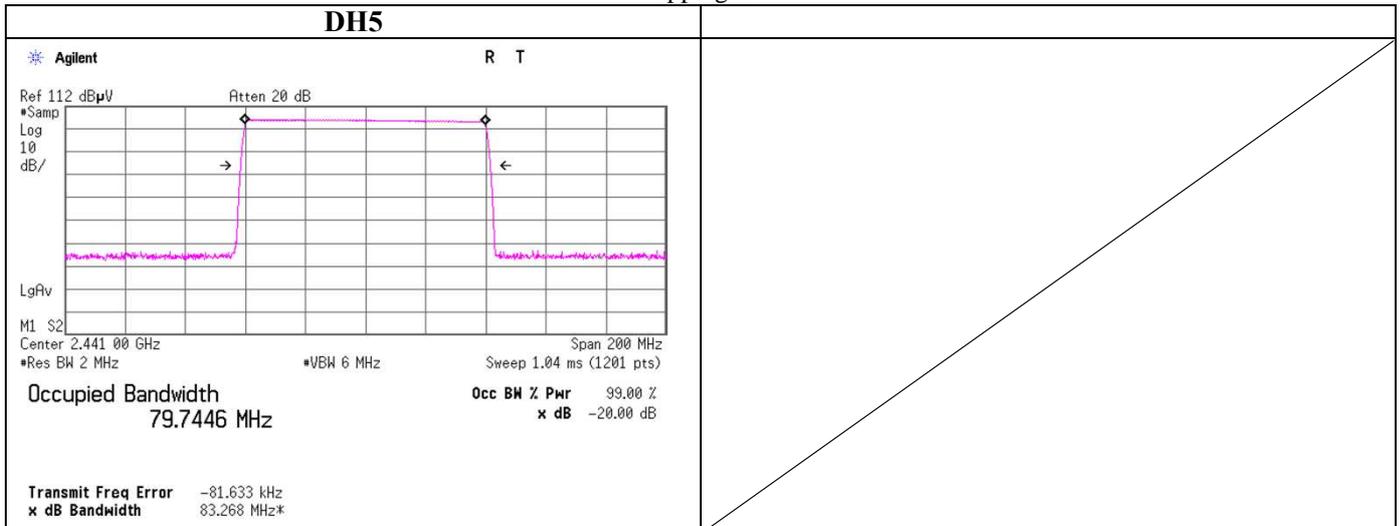
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
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99% Occupied Bandwidth

DH5, Hopping Off



Hopping On

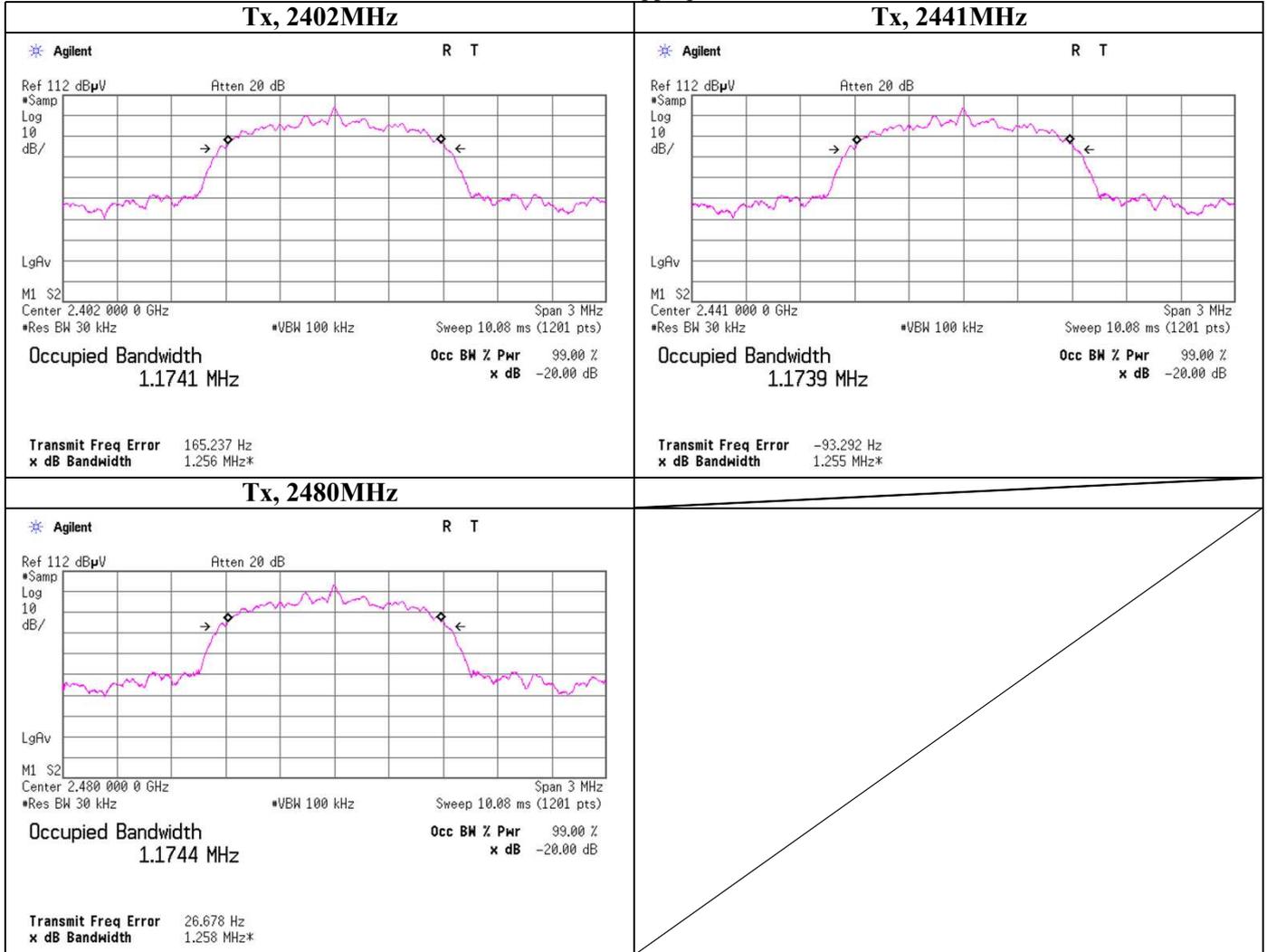


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Shonan EMC Lab.

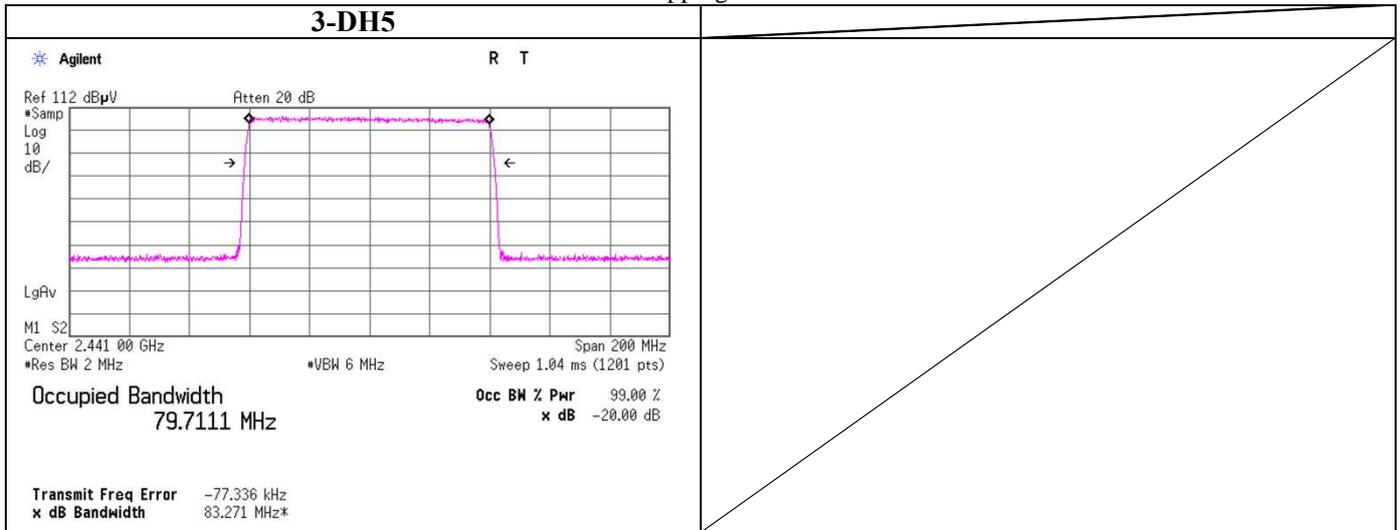
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99% Occupied Bandwidth

3-DH5, Hopping Off



Hopping On



UL Japan, Inc.
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**APPENDIX 3
Test Instruments**

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	AT	2010/02/17 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448 A	MY48250106	AT/RE	2010/06/22 * 12
SCC-H1	Microwave cable	Hirose Electric	U.FL-2LP-066J1-A-(200)	-	AT	Pre Check
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2010/03/09 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4 A	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
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2010/02/09 * 12
SJM-10	Measure	PROMART	SEN1935	-	RE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV	-	RE	-
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/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
STR-03	Test Receiver	Rohde & Schwarz	ESI40	100054/040	RE	2010/07/21 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2010/09/13 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2010/02/17 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448 A	MY48250152	AT	2010/11/16 * 12
SPM-06	Power Meter	Anritsu	ML2495 A	0850009	AT	2010/04/01 * 12
SPSS-03	Power sensor	Anritsu	MA2411 B	0917063	AT	2010/04/01 * 12
SHA-04	Horn Antenna	ETS LINDGREN	3160-09	LM3640	RE	2010/03/29 * 12
SAF-08	Pre Amplifier	TOYO Corporation	HAP18-26 W	00000019	RE	2010/03/02 * 12
SCC-G17	Coaxial Cable	Suhner	SUCOFLEX 104A	46291/4 A	RE	2010/03/02 * 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 :

- CE: Conducted emission ,
- RE: Radiated emission ,
- AT: Antenna terminal disturbance voltage