
APPENDIX 2: Data of EMI test

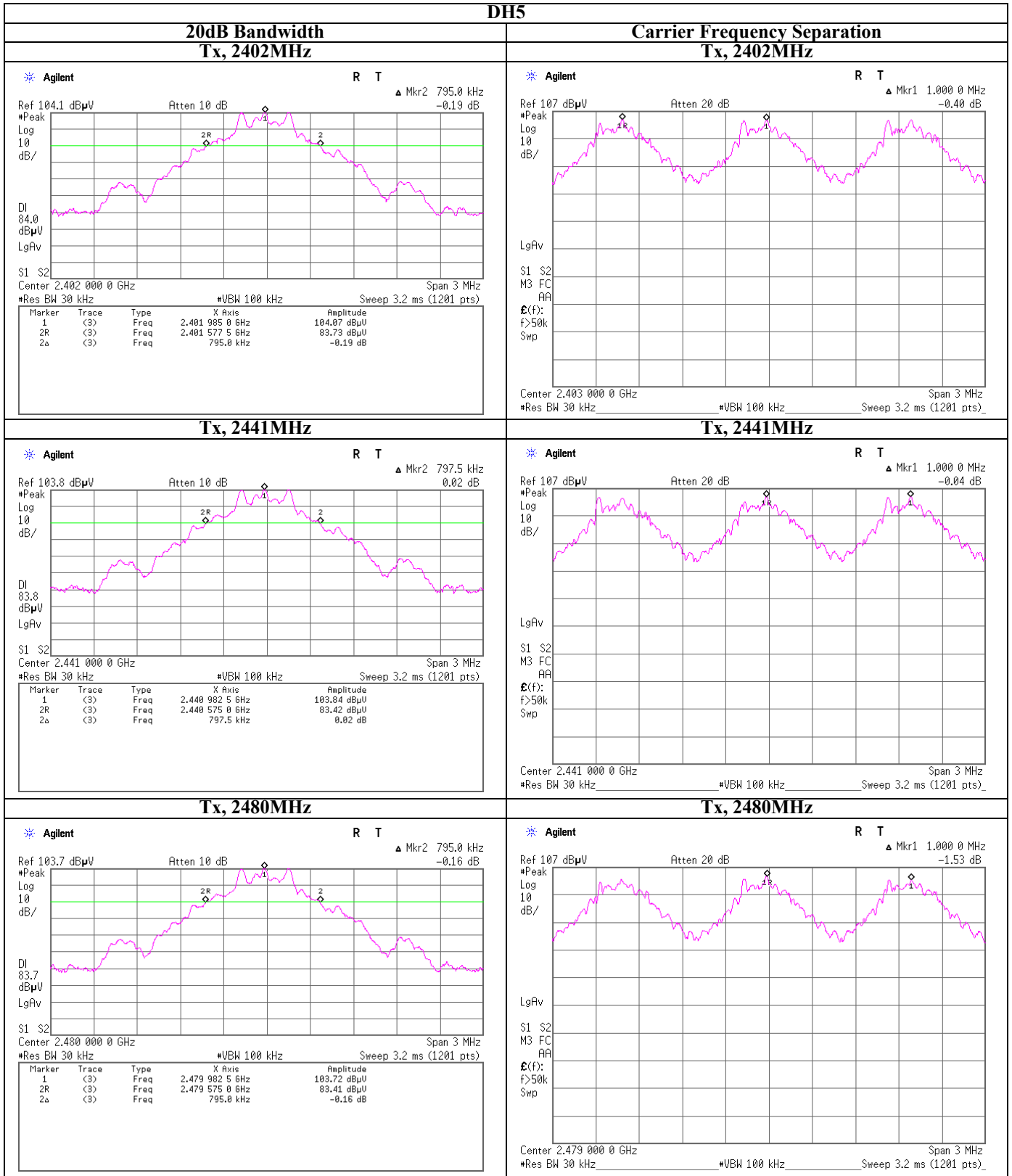
20dB Bandwidth and Carrier Frequency Separation

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date 2010/10/13
Temperature / Humidity 23deg.C. , 54%
Engineer Akio Hayashi
Mode Tx

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency Separation [MHz]
DH5	2402.0	0.795	1.000	>= 0.530
DH5	2441.0	0.798	1.000	>= 0.532
DH5	2480.0	0.795	1.000	>= 0.530
3DH5	2402.0	1.228	1.000	>= 0.818
3DH5	2441.0	1.230	1.000	>= 0.820
3DH5	2480.0	1.230	1.000	>= 0.820

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

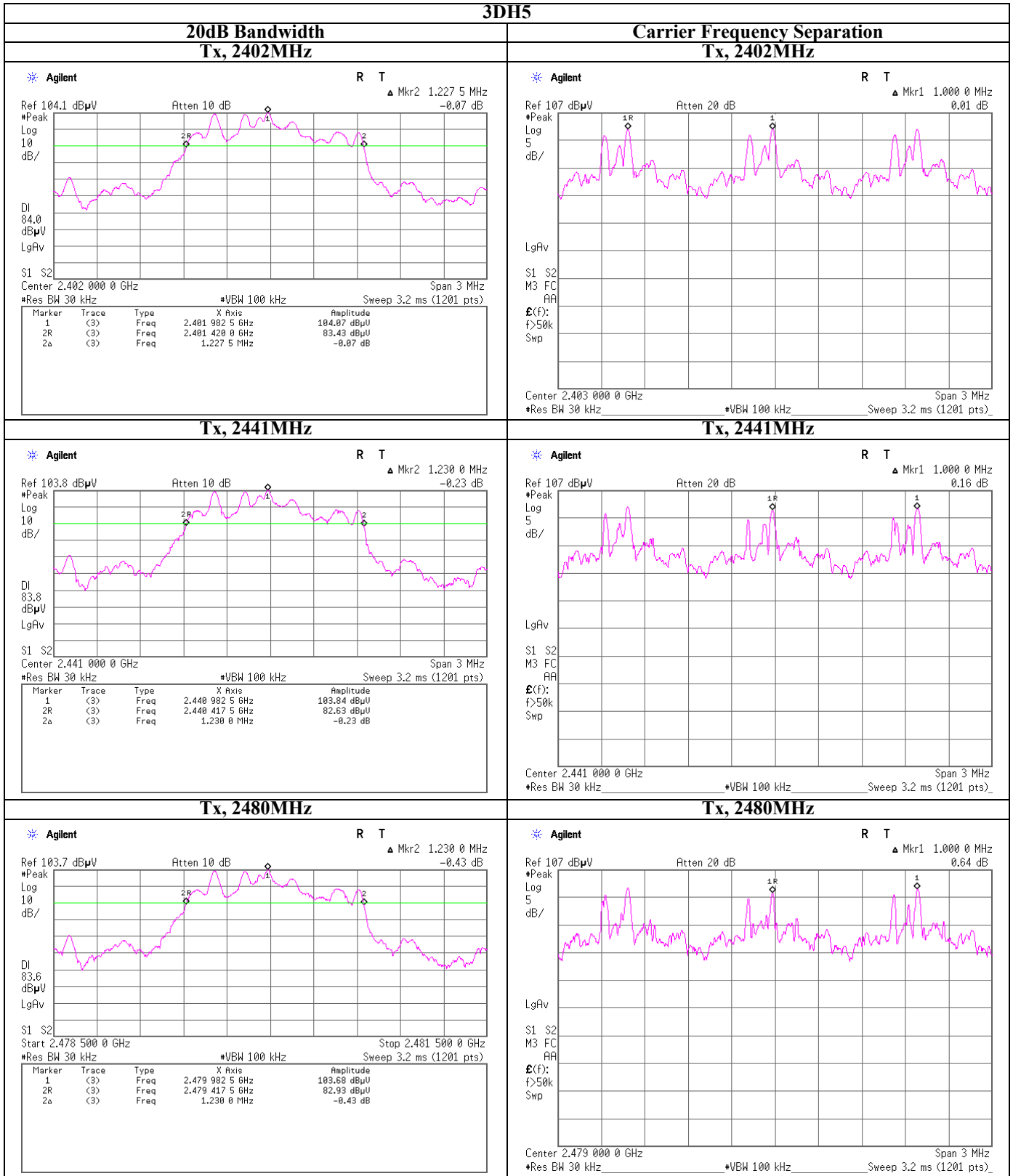
20dB Bandwidth and Carrier Frequency Separation



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20dB Bandwidth and Carrier Frequency Separation



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Number of Hopping Frequency (Conducted)

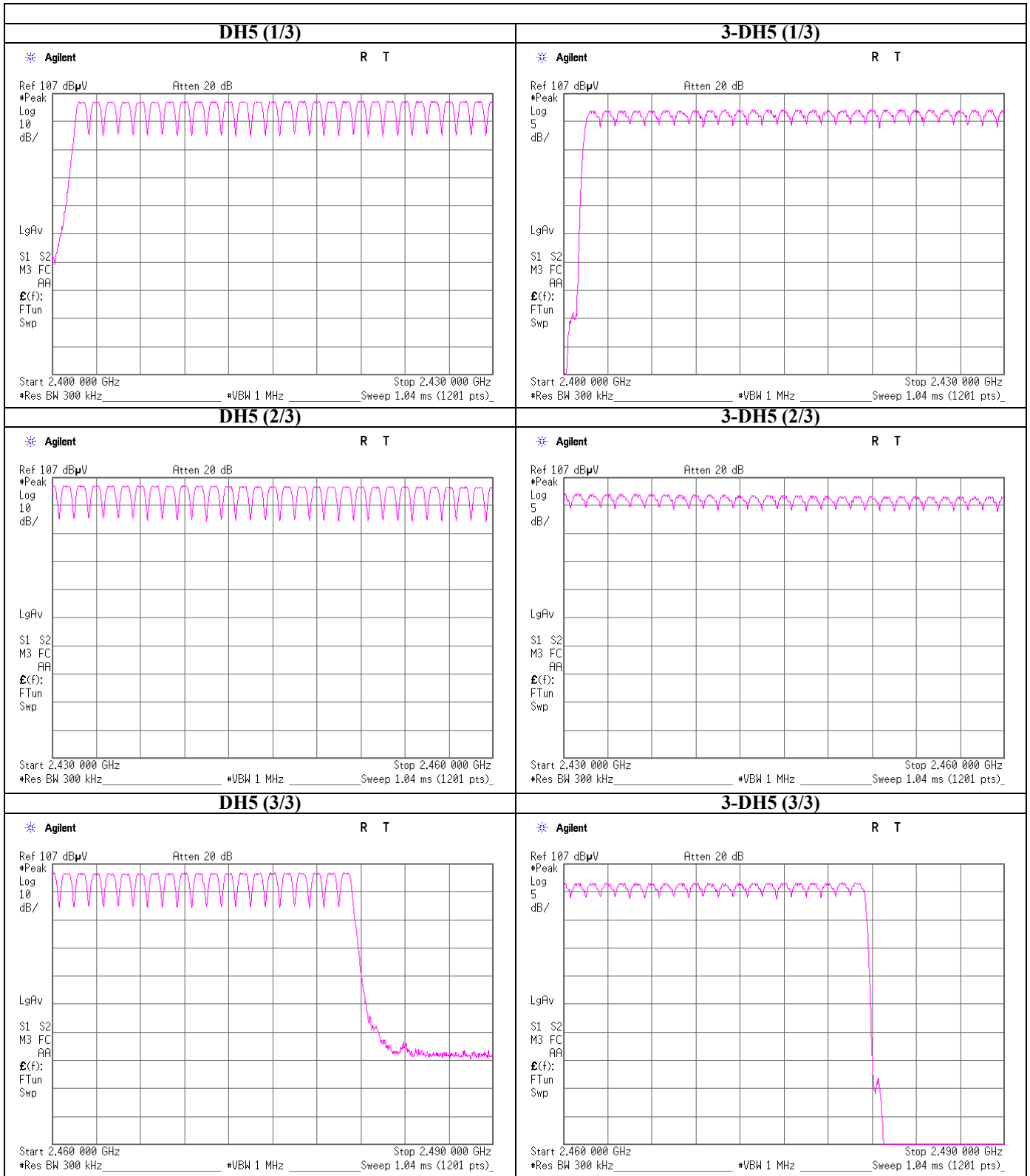
Test place UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date 2010/10/13
Temperature / Humidity 23deg.C. , 54%
Engineer Akio Hayashi
Mode Tx

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

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Number of Hopping Frequency



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Dwell Time (Conducted)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
 Date 2010/10/13
 Temperature / Humidity 23deg.C , 54%
 Engineer Akio Hayashi
 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	Limit
			[msec]	[msec]
DH1	49.0 times / 5 sec. x 31.6 sec. = 310 times	0.482	149	400
DH3	24.6 times / 5 sec. x 31.6 sec. = 156 times	1.740	271	400
DH5	18.2 times / 5 sec. x 31.6 sec. = 116 times	2.998	348	400
3DH1	49.6 times / 5 sec. x 31.6 sec. = 314 times	0.478	150	400
3DH3	26.8 times / 5 sec. x 31.6 sec. = 170 times	1.737	295	400
3DH5	20.2 times / 5 sec. x 31.6 sec. = 128 times	2.986	382	400

Sample Calculation

Result = Number of transmission x Length of transmission time

*Average data of 5 tests.(except Inquiry)

Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	46	51	49	51	48	49
DH3	22	25	24	23	29	24.6
DH5	24	14	18	17	18	18.2
3DH1	50	48	51	51	48	49.6
3DH3	29	24	24	28	29	26.8
3DH5	22	21	18	19	21	20.2

Sample Calculation

Average= Summation(Sampling 1 to 5) / 5

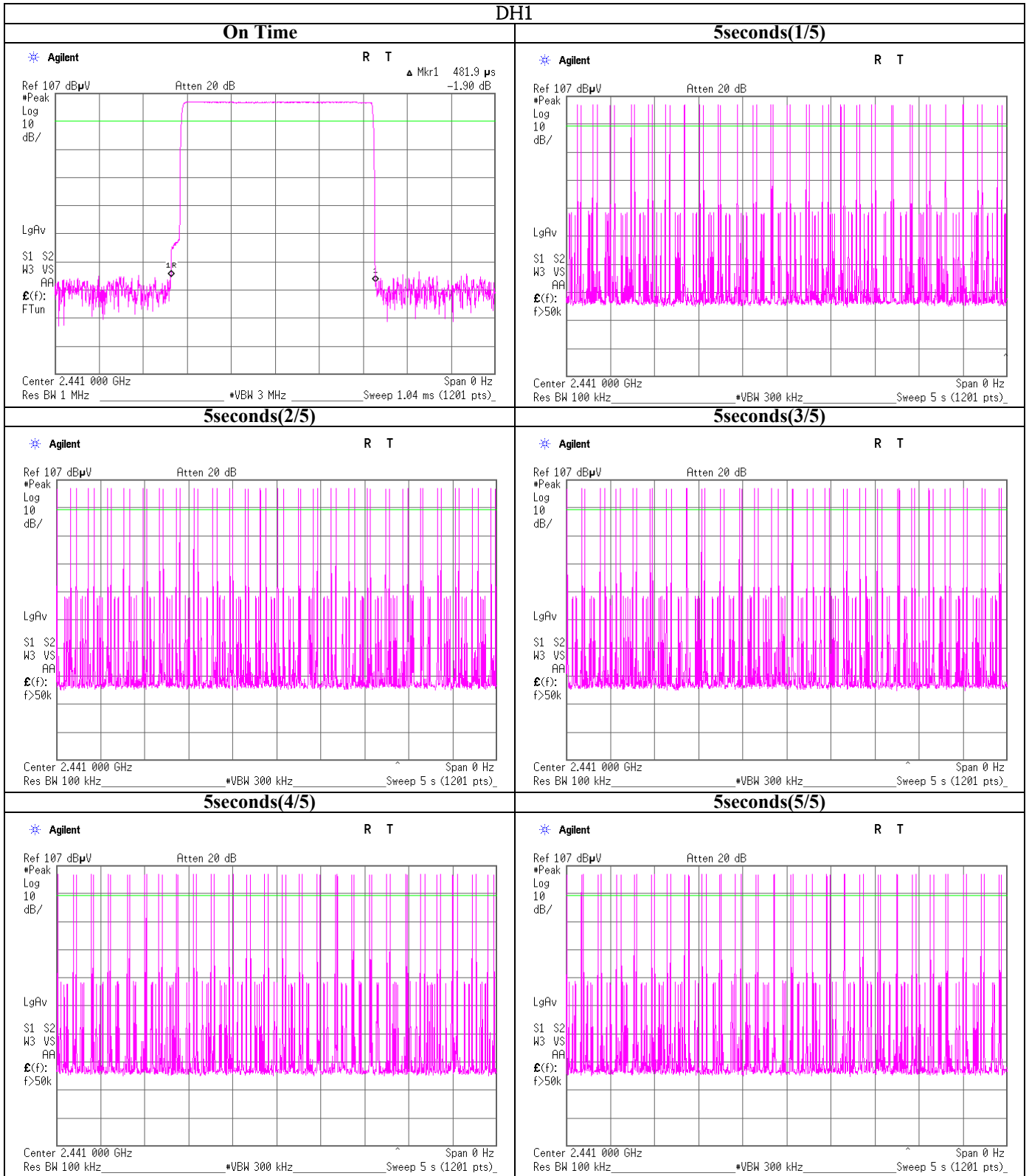
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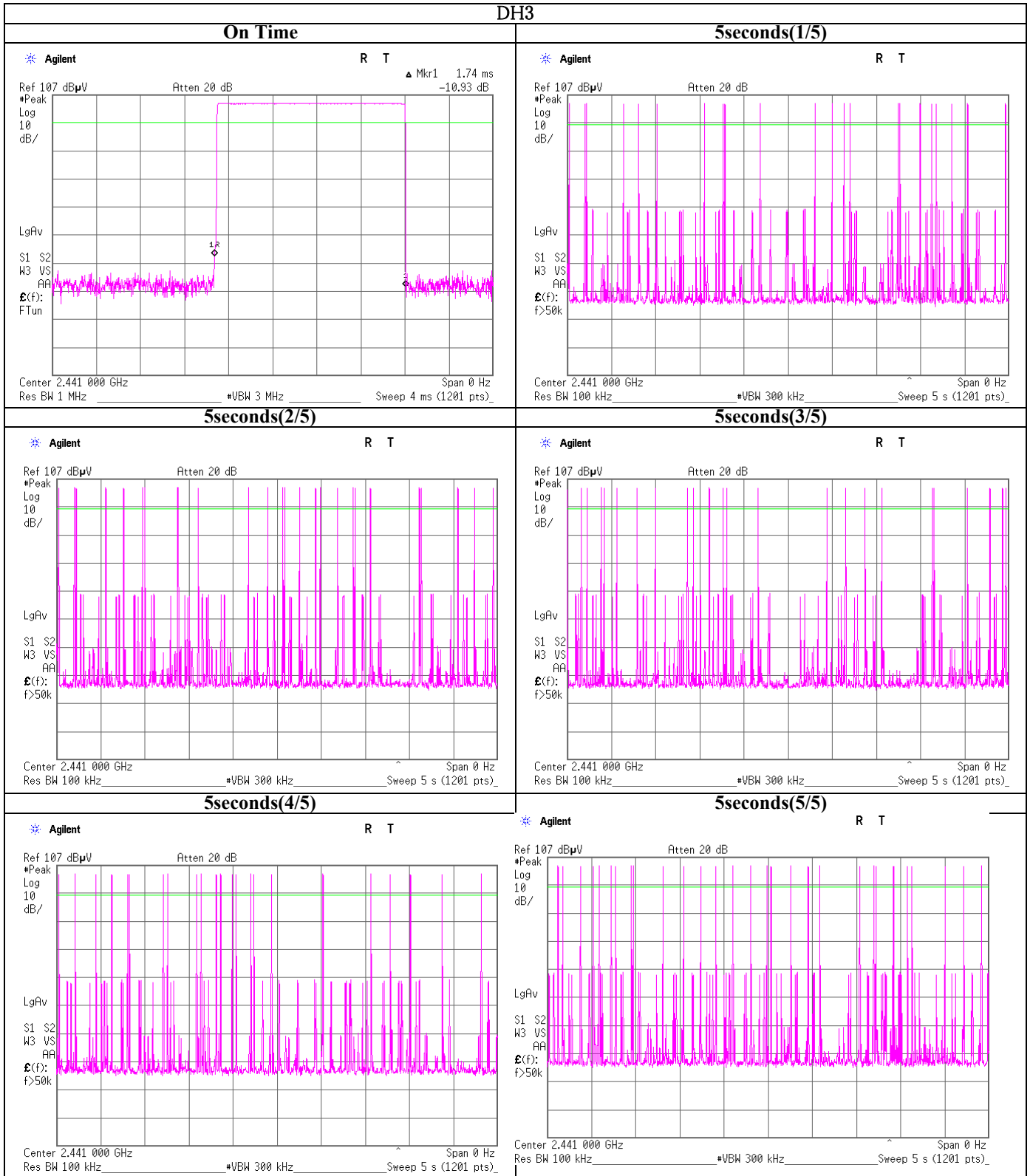
Dwell time



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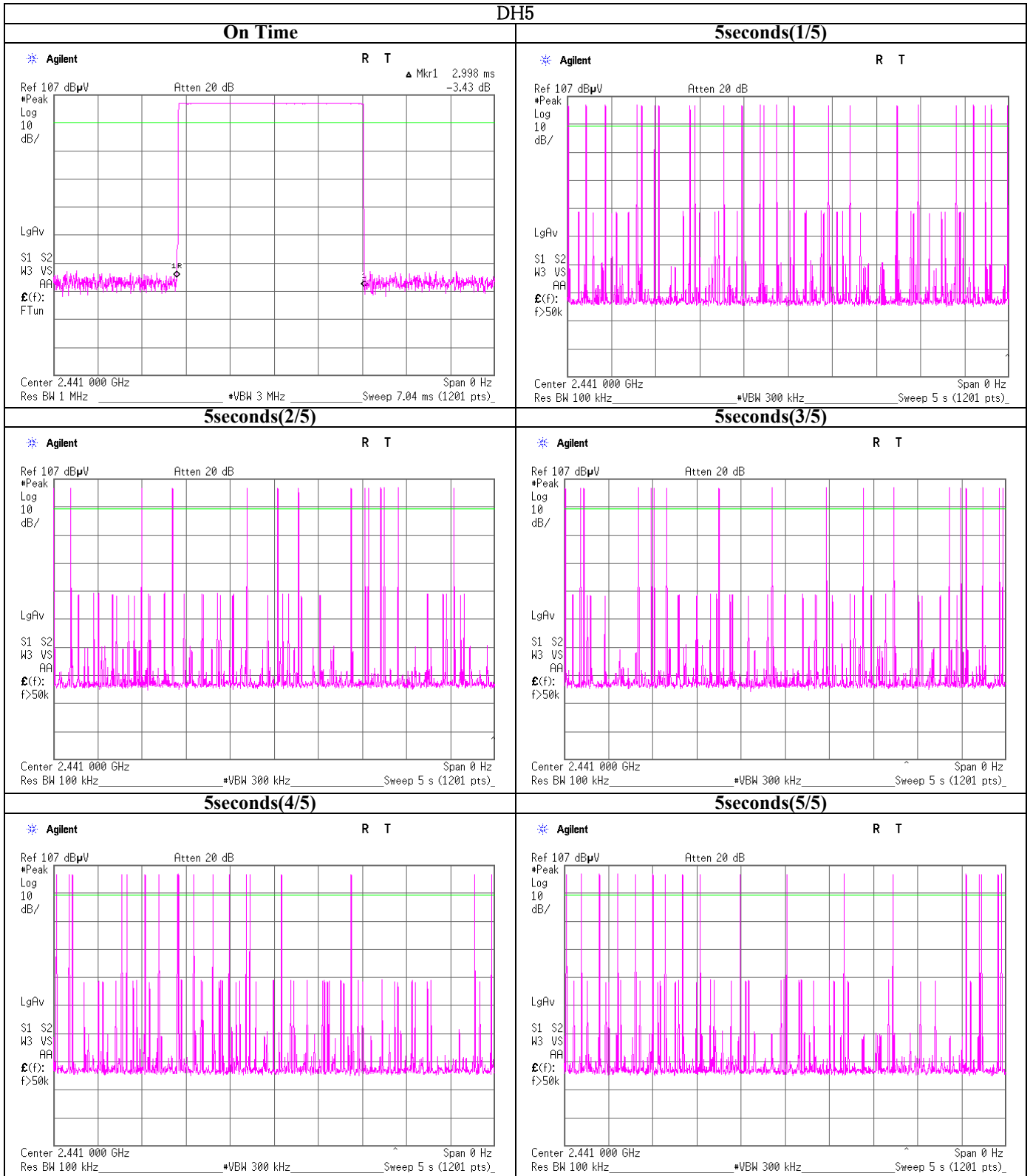
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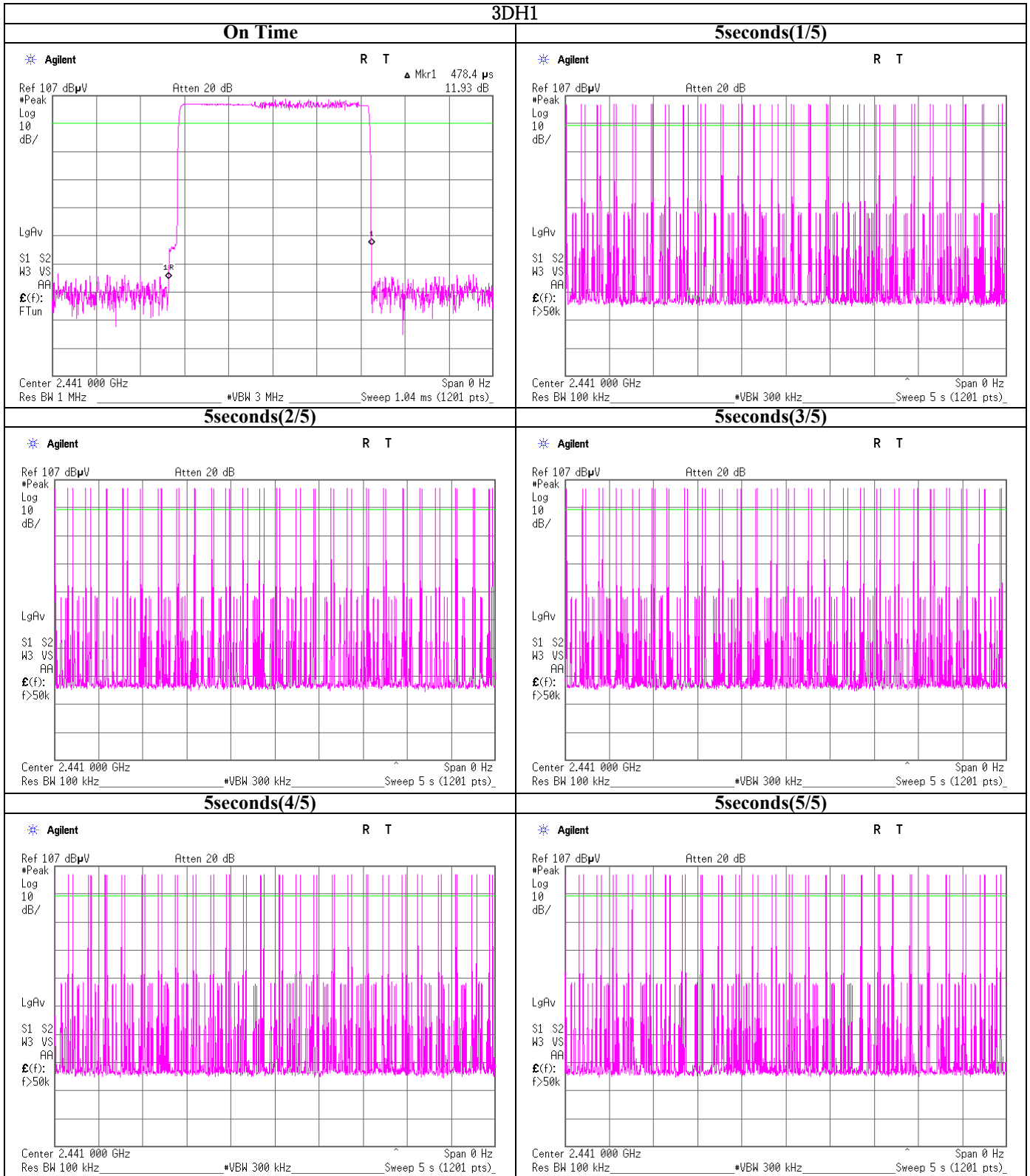
Dwell time



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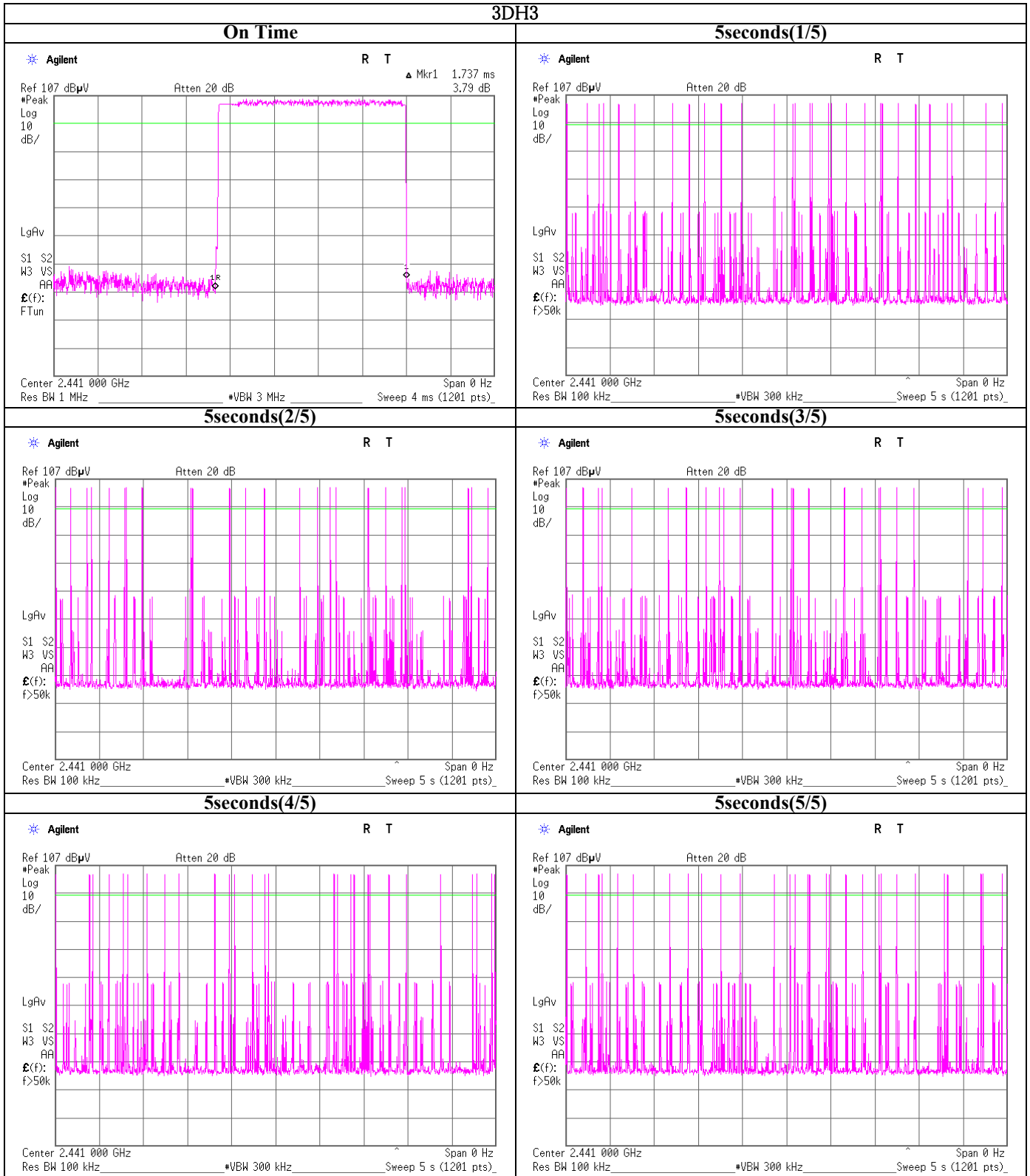
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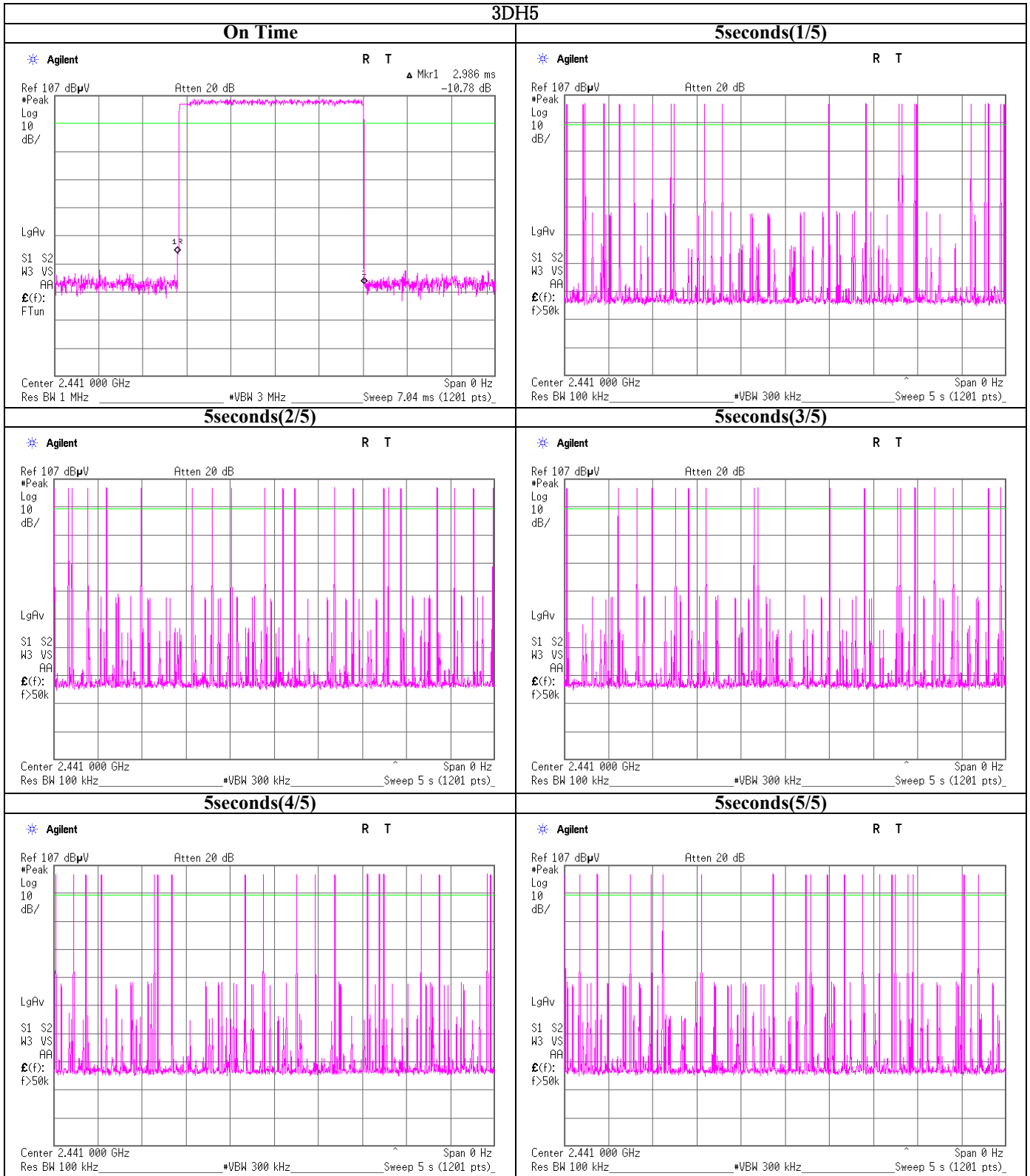
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Peak Output Power (Conducted)

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
 Date : 2010/10/13
 Temperature / Humidity : 23deg.C. , 54%
 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	-2.33	0.70	0.00	-1.63	0.69	20.96	125	22.59
Mid	2441.0	-2.52	0.70	0.00	-1.82	0.66	20.96	125	22.78
High	2480.0	-2.72	0.70	0.00	-2.02	0.63	20.96	125	22.98

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	-0.57	0.70	0.00	0.13	1.03	20.96	125	20.83
Mid	2441.0	-0.75	0.70	0.00	-0.05	0.99	20.96	125	21.01
High	2480.0	-0.93	0.70	0.00	-0.23	0.95	20.96	125	21.19

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	-0.54	0.70	0.00	0.16	1.04	20.96	125	20.80
Mid	2441.0	-0.70	0.70	0.00	0.00	1.00	20.96	125	20.96
High	2480.0	-0.93	0.70	0.00	-0.23	0.95	20.96	125	21.19

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.

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Radiated Emission

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2010/10/16 2010/10/17
 Temperature / Humidity : 24deg.C. , 53% 23deg.C. , 51%
 Engineer : Akio Hayashi Akio Hayashi
 Mode : Tx, 2402 MHz
 Bluetooth, DHS,

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.	187.455	QP	22.3	16.5	7.8	32	14.6	43.5	28.9	200	87	
Hori.	351.009	QP	31.5	16.1	8.7	31.9	24.4	46	21.6	100	117	
Hori.	360.097	QP	33.4	16.4	8.7	31.9	26.6	46	19.4	100	145	
Hori.	441.400	QP	22.6	17.7	9.1	31.9	17.5	46	28.5	100	121	
Hori.	2388.700	PK	46.0	27.5	13.3	40.2	46.6	73.9	27.3	100	88	
Hori.	2390.000	PK	46.4	27.5	13.3	40.2	47.0	73.9	26.9	100	88	
Hori.	2400.000	PK	55.7	27.5	13.3	40.2	56.3	-	-	100	88	
Hori.	3145.612	PK	51.8	29.1	4.9	41.0	44.8	73.9	29.1	157	328	
Hori.	4804.000	PK	48.6	31.5	5.5	40.1	45.5	73.9	28.4	154	303	
Hori.	7206.000	PK	47.2	36.4	6.7	38.3	52.0	73.9	21.9	100	0	Not Detected
Hori.	9608.000	PK	44.6	37.9	7.8	37.3	53.0	73.9	20.9	100	0	Not Detected
Hori.	12010.000	PK	47.0	39.4	9.0	38.4	57.0	73.9	16.9	100	0	Not Detected
Hori.	2388.700	AV	36.3	27.5	13.3	40.2	36.9	53.9	17.0	100	88	
Hori.	2390.000	AV	36.4	27.5	13.3	40.2	37.0	53.9	16.9	100	88	
Hori.	2400.000	AV	38.6	27.5	13.3	40.2	39.2	-	-	100	88	RBW:1MHz
Hori.	3145.612	AV	46.6	29.1	4.9	41.0	39.6	53.9	14.3	157	328	
Hori.	4804.000	AV	39.6	31.5	5.5	40.1	36.5	53.9	17.4	154	303	
Hori.	7206.000	AV	34.5	36.4	6.7	38.3	39.3	53.9	14.6	100	0	Not Detected
Hori.	9608.000	AV	31.6	37.9	7.8	37.3	40.0	53.9	13.9	100	0	Not Detected
Hori.	12010.000	AV	32.0	39.4	9.0	38.4	42.0	53.9	11.9	100	0	Not Detected
Vert.	65.550	QP	34.1	6.5	6.9	32.1	15.4	40	24.6	100	257	
Vert.	81.865	QP	32.2	6.9	7	32.1	14	40	26	100	261	
Vert.	120.035	QP	31.2	13.3	7.3	32.1	19.7	43.5	23.8	100	264	
Vert.	441.400	QP	22.5	17.7	9.1	31.9	17.4	46	28.6	100	303	
Vert.	2388.700	PK	47	27.5	13.3	40.2	47.6	73.9	26.3	100	35	
Vert.	2390.000	PK	47	27.5	13.3	40.2	47.6	73.9	26.3	100	35	
Vert.	2400.000	PK	54.4	27.5	13.3	40.2	55	-	-	100	35	
Vert.	3145.620	PK	51.9	29.1	4.9	41	44.9	73.9	29	141	241	
Vert.	4804.000	PK	48.2	31.5	5.5	40.1	45.1	73.9	28.8	167	45	
Vert.	7206.000	PK	47.2	36.4	6.7	38.3	52	73.9	21.9	100	0	Not Detected
Vert.	9608.000	PK	44.0	37.9	7.8	37.3	52.4	73.9	21.5	100	0	Not Detected
Vert.	12010.000	PK	44.6	39.4	9.0	38.4	54.6	73.9	19.3	100	0	Not Detected
Vert.	2388.700	AV	36.4	27.5	13.3	40.2	37	53.9	16.9	100	35	
Vert.	2390.000	AV	36.4	27.5	13.3	40.2	37	53.9	16.9	100	35	
Vert.	2400.000	AV	38.7	27.5	13.3	40.2	39.3	-	-	100	35	RBW:1MHz
Vert.	3145.620	AV	46.7	29.1	4.9	41	39.7	53.9	14.2	141	241	
Vert.	4804.000	AV	39.5	31.5	5.5	40.1	36.4	53.9	17.5	167	45	
Vert.	7206.000	AV	34.6	36.4	6.7	38.3	39.4	53.9	14.5	100	0	Not Detected
Vert.	9608.000	AV	31.7	37.9	7.8	37.3	40.1	53.9	13.8	100	0	Not Detected
Vert.	12010.000	AV	31.9	39.4	9	38.4	41.9	53.9	12.0	100	0	Not Detected

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.

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	92.4	27.5	13.3	40.2	93.0	-	-	Carrier
Hori.	2400.000	PK	37.8	27.5	13.3	40.2	38.4	73.0	34.6	
Vert.	2402.000	PK	93	27.5	13.3	40.2	93.6	-	-	Carrier
Vert.	2400.000	PK	37	27.5	13.3	40.2	37.6	73.6	36.0	

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

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/10/16 2010/10/17
 Temperature / Humidity 24deg.C. , 53% 23deg.C. , 51%
 Engineer Akio Hayashi Akio Hayashi
 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.	350.997	QP	31.4	16.1	8.7	31.9	24.3	46	21.7	100	2	
Hori.	360.063	QP	31.2	16.4	8.7	31.9	24.4	46	21.6	100	148	
Hori.	480.200	QP	22.4	17.7	9.2	31.9	17.4	46	28.6	100	291	
Hori.	3145.600	PK	52.5	29.1	4.9	41.0	45.5	73.9	28.4	131	291	
Hori.	4882.000	PK	49.2	31.7	5.6	40.0	46.5	73.9	27.4	128	312	
Hori.	7323.000	PK	45.4	36.7	6.9	38.5	50.5	73.9	23.4	0	0	Not Detected
Hori.	9764.000	PK	43.7	38.2	7.8	37.4	52.3	73.9	21.6	0	0	Not Detected
Hori.	12205.000	PK	44.5	39.2	9.1	38.1	54.7	73.9	19.2	0	0	Not Detected
Hori.	3145.600	AV	46.7	29.1	4.9	41.0	39.7	53.9	14.2	131	291	
Hori.	4882.000	AV	38.6	31.7	5.6	40.0	35.9	53.9	18.0	128	312	
Hori.	7323.000	AV	33.1	36.7	6.9	38.5	38.2	53.9	15.7	0	0	Not Detected
Hori.	9764.000	AV	31.2	38.2	7.8	37.4	39.8	53.9	14.1	0	0	Not Detected
Hori.	12205.000	AV	31.9	39.2	9.1	38.1	42.1	53.9	11.8	0	0	Not Detected
Vert.	65.559	QP	33.9	6.5	6.9	32.1	15.2	40	24.8	100	258	
Vert.	81.863	QP	32.1	6.9	7	32.1	13.9	40	26.1	100	257	
Vert.	120.039	QP	31.2	13.3	7.3	32.1	19.7	43.5	23.8	100	268	
Vert.	480.200	QP	22.3	17.7	9.2	31.9	17.3	46	28.7	100	75	
Vert.	546.214	QP	26.1	18.5	9.5	32	22.1	46	23.9	100	36	
Vert.	3145.570	PK	51.7	29.1	4.9	41	44.7	73.9	29.2	193	0	
Vert.	4882.000	PK	48.3	31.7	5.6	40	45.6	73.9	28.3	113	12	
Vert.	7323.000	PK	45.4	36.7	6.9	38.5	50.5	73.9	23.4	0	0	Not Detected
Vert.	9764.000	PK	44.2	38.2	7.8	37.4	52.8	73.9	21.1	0	0	Not Detected
Vert.	12205.000	PK	44.5	39.2	9.1	38.1	54.7	73.9	19.2	0	0	Not Detected
Vert.	3145.570	AV	46.1	29.1	4.9	41	39.1	53.9	14.8	193	0	
Vert.	4882.000	AV	39.1	31.7	5.6	40	36.4	53.9	17.5	113	12	
Vert.	7323.000	AV	33	36.7	6.9	38.5	38.1	53.9	15.8	0	0	Not Detected
Vert.	9764.000	AV	31.2	38.2	7.8	37.4	39.8	53.9	14.1	0	0	Not Detected
Vert.	12205.000	AV	31.9	39.2	9.1	38.1	42.1	53.9	11.8	0	0	Not Detected

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.

Radiated Emission

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2010/10/16 2010/10/17
 Temperature / Humidity : 24deg.C. , 53% 23deg.C. , 51%
 Engineer : Akio Hayashi Akio Hayashi
 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.	351.005	QP	31.4	16.1	8.7	31.9	24.3	46	21.7	100	19	
Hori.	360.071	QP	31.9	16.4	8.7	31.9	25.1	46	20.9	100	137	
Hori.	519.800	QP	22.1	18	9.4	31.9	17.6	46	28.4	100	351	
Hori.	603.239	QP	28.8	19.5	9.7	31.9	26.1	46	19.9	400	5	
Hori.	2483.500	PK	47.9	27.6	13.4	40.1	48.8	73.9	25.1	112	59	
Hori.	2484.150	PK	47.9	27.6	13.4	40.1	48.8	73.9	25.1	112	59	
Hori.	3145.606	PK	51.5	29.1	4.9	41.0	44.5	73.9	29.4	100	130	
Hori.	4960.000	PK	47.5	31.9	5.6	40.0	45.0	73.9	28.9	100	323	
Hori.	7440.000	PK	47.5	36.9	7.1	38.7	52.8	73.9	21.1	100	0	Not Detected
Hori.	9920.000	PK	44.4	38.4	8.0	37.5	53.3	73.9	20.6	100	0	Not Detected
Hori.	12400.000	PK	44.6	39.1	9.4	37.9	55.2	73.9	18.7	100	0	Not Detected
Hori.	2483.500	AV	36.7	27.6	13.4	40.1	37.6	53.9	16.3	112	59	
Hori.	2484.150	AV	36.7	27.6	13.4	40.1	37.6	53.9	16.3	112	59	
Hori.	3145.606	AV	45.5	29.1	4.9	41.0	38.5	53.9	15.4	100	130	
Hori.	4960.000	AV	35.8	31.9	5.6	40.0	33.3	53.9	20.6	100	323	
Hori.	7440.000	AV	35.1	36.9	7.1	38.7	40.4	53.9	13.5	100	0	Not Detected
Hori.	9920.000	AV	31.9	38.4	8.0	37.5	40.8	53.9	13.1	100	0	Not Detected
Hori.	12400.000	AV	31.9	39.1	9.4	37.9	42.5	53.9	11.4	100	0	Not Detected
Vert.	65.561	QP	34.1	6.5	6.9	32.1	15.4	40	24.6	100	250	
Vert.	81.862	QP	32.2	6.9	7	32.1	14	40	26	100	218	
Vert.	120.037	QP	32.1	13.3	7.3	32.1	20.6	43.5	22.9	100	251	
Vert.	519.800	QP	22.1	18	9.4	31.9	17.6	46	28.4	100	307	
Vert.	2483.500	PK	47.7	27.6	13.4	40.1	48.6	73.9	25.3	100	22	
Vert.	2484.150	PK	47.7	27.6	13.4	40.1	48.6	73.9	25.3	100	22	
Vert.	3145.594	PK	52.1	29.1	4.9	41.0	45.1	73.9	28.8	100	191	
Vert.	4960.000	PK	47.4	31.9	5.6	40.0	44.9	73.9	29.0	100	9	
Vert.	7440.000	PK	47.0	36.9	7.1	38.7	52.3	73.9	21.6	100	0	Not Detected
Vert.	9920.000	PK	44.2	38.4	8.0	37.5	53.1	73.9	20.8	100	0	Not Detected
Vert.	12400.000	PK	44.3	39.1	9.4	37.9	54.9	73.9	19.0	100	0	Not Detected
Vert.	2483.500	AV	36.6	27.6	13.4	40.1	37.5	53.9	16.4	100	22	
Vert.	2484.150	AV	36.5	27.6	13.4	40.1	37.4	53.9	16.5	100	22	
Vert.	3145.594	AV	46.3	29.1	4.9	41.0	39.3	53.9	14.6	100	191	
Vert.	4960.000	AV	38.3	31.9	5.6	40.0	35.8	53.9	18.1	100	9	
Vert.	7440.000	AV	35.1	36.9	7.1	38.7	40.4	53.9	13.5	100	0	Not Detected
Vert.	9920.000	AV	32.1	38.4	8.0	37.5	41.0	53.9	12.9	100	0	Not Detected
Vert.	12400.000	AV	32.0	39.1	9.4	37.9	42.6	53.9	11.3	100	0	Not Detected

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.

Radiated Emission

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2010/10/16 2010/10/17
 Temperature / Humidity : 24deg.C. , 53% 23deg.C. , 51%
 Engineer : Akio Hayashi Akio Hayashi
 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.	350.997	QP	30.8	16.1	8.7	31.9	23.7	46	22.3	100	358	
Hori.	360.110	QP	33.4	16.4	8.7	31.9	26.6	46	19.4	100	140	
Hori.	440.600	QP	22.9	17.7	9.1	31.9	17.8	46	28.2	150	158	
Hori.	2390.000	PK	48.7	27.5	13.3	40.2	49.3	73.9	24.6	100	88	
Hori.	2399.602	PK	44.1	27.5	13.3	40.2	44.7	-	-	100	88	
Hori.	2400.000	PK	64.5	27.5	13.3	40.2	65.1	-	-	100	88	
Hori.	3145.570	PK	52.2	29.1	4.9	41.0	45.2	73.9	28.7	108	141	
Hori.	4804.000	PK	49	31.5	5.5	40.1	45.9	73.9	28.0	154	308	
Hori.	7206.000	PK	47.7	36.4	6.7	38.3	52.5	73.9	21.4	100	0	Not Detected
Hori.	9608.000	PK	44.2	37.9	7.8	37.3	52.6	73.9	21.3	100	0	Not Detected
Hori.	12010.000	PK	44.7	39.4	9.0	38.4	54.7	73.9	19.2	100	0	Not Detected
Hori.	2390.000	AV	36.4	27.5	13.3	40.2	37.0	53.9	16.9	100	88	
Hori.	2399.602	AV	44	27.5	13.3	40.2	44.6	-	-	100	88	
Hori.	2400.000	AV	54.9	27.5	13.3	40.2	55.5	-	-	100	88	
Hori.	3145.570	AV	46.9	29.1	4.9	41.0	39.9	53.9	14.0	108	141	
Hori.	4804.000	AV	40.2	31.5	5.5	40.1	37.1	53.9	16.8	154	308	
Hori.	7206.000	AV	34.6	36.4	6.7	38.3	39.4	53.9	14.5	100	0	Not Detected
Hori.	9608.000	AV	31.8	37.9	7.8	37.3	40.2	53.9	13.7	100	0	Not Detected
Hori.	12010.000	AV	32.1	39.4	9.0	38.4	42.1	53.9	11.8	100	0	Not Detected
Vert.	32.783	QP	24.8	17.9	6.6	32.1	17.2	40	22.8	100	348	
Vert.	65.571	QP	34.1	6.5	6.9	32.1	15.4	40	24.6	100	275	
Vert.	81.860	QP	32.6	6.9	7	32.1	14.4	40	25.6	100	254	
Vert.	120.041	QP	31.3	13.3	7.3	32.1	19.8	43.5	23.7	100	236	
Vert.	440.600	QP	21.4	17.7	9.1	31.9	16.3	46	29.7	100	2	
Vert.	2390.000	PK	49.2	27.5	13.3	40.2	49.8	73.9	24.1	100	35	
Vert.	2399.606	PK	56.6	27.5	13.3	40.2	57.2	-	-	100	35	
Vert.	2400.000	PK	63.2	27.5	13.3	40.2	63.8	-	-	100	35	
Vert.	3145.600	PK	52.6	29.1	4.9	41	45.6	73.9	28.3	106	180	
Vert.	4804.000	PK	48.6	31.5	5.5	40.1	45.5	73.9	28.4	166	43	
Vert.	7206.000	PK	47.5	36.4	6.7	38.3	52.3	73.9	21.6	100	0	
Vert.	9608.000	PK	44.5	37.9	7.8	37.3	52.9	73.9	21.0	100	0	
Vert.	12010.000	PK	44.5	39.4	9.0	38.4	54.5	73.9	19.4	100	0	
Vert.	2390.000	AV	36.4	27.5	13.3	40.2	37.0	53.9	16.9	100	35	
Vert.	2399.606	AV	45.5	27.5	13.3	40.2	46.1	-	-	100	35	
Vert.	2400.000	AV	55.7	27.5	13.3	40.2	56.3	-	-	100	35	
Vert.	3145.600	AV	47.9	29.1	4.9	41.0	40.9	53.9	13.0	106	180	
Vert.	4804.000	AV	39.3	31.5	5.5	40.1	36.2	53.9	17.7	166	43	
Vert.	7206.000	AV	34.6	36.4	6.7	38.3	39.4	53.9	14.5	100	0	Not Detected
Vert.	9608.000	AV	31.6	37.9	7.8	37.3	40.0	53.9	13.9	100	0	Not Detected
Vert.	12010.000	AV	32	39.4	9.0	38.4	42.0	53.9	11.9	100	0	Not Detected

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.

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	92.2	27.5	13.3	40.2	92.8	-	-	Carrier
Hori.	2400.000	PK	41.7	27.5	13.3	40.2	42.3	72.8	30.5	
Hori.	2399.602	PK	53.5	27.5	13.3	40.2	54.1	72.8	18.7	
Vert.	2402.000	PK	93.1	27.5	13.3	40.2	93.7	-	-	Carrier
Vert.	2400.000	PK	41.6	27.5	13.3	40.2	42.2	73.7	31.5	
Vert.	2399.606	PK	45.2	27.5	13.3	40.2	45.8	73.7	27.9	

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

UL Japan, Inc.

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/10/16 2010/10/17
 Temperature / Humidity 24deg.C. , 53% 23deg.C. , 51%
 Engineer Akio Hayashi Akio Hayashi
 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.	350.997	QP	31	16.1	8.7	31.9	23.9	46	22.1	100	123	
Hori.	360.093	QP	33.5	16.4	8.7	31.9	26.7	46	19.3	100	138	
Hori.	480.200	QP	22.5	17.7	9.2	31.9	17.5	46	28.5	100	2	
Hori.	889.178	QP	20.5	22.2	10.6	31.1	22.2	46	23.8	100	347	
Hori.	3145.570	PK	51.7	29.1	4.9	41	44.7	73.9	29.2	105	136	
Hori.	4882.000	PK	48.2	31.7	5.6	40	45.5	73.9	28.4	102	302	
Hori.	7323.000	PK	45.3	36.7	6.9	38.5	50.4	73.9	23.5	100	0	Not Detected
Hori.	9764.000	PK	42.7	38.2	7.8	37.4	51.3	73.9	22.6	100	0	Not Detected
Hori.	12205.000	PK	44.1	39.2	9.1	38.1	54.3	73.9	19.6	100	0	Not Detected
Hori.	3145.570	AV	46.3	29.1	4.9	41.0	39.3	53.9	14.6	105	136	
Hori.	4882.000	AV	38.3	31.7	5.6	40.0	35.6	53.9	18.3	102	302	
Hori.	7323.000	AV	33.1	36.7	6.9	38.5	38.2	53.9	15.7	100	0	Not Detected
Hori.	9764.000	AV	31.4	38.2	7.8	37.4	40.0	53.9	13.9	100	0	Not Detected
Hori.	12205.000	AV	32.0	39.2	9.1	38.1	42.2	53.9	11.7	100	0	Not Detected
Vert.	65.569	QP	33.7	6.5	6.9	32.1	15	40	25	100	255	
Vert.	87.455	QP	29.3	7.9	7.1	32.1	12.2	40	27.8	100	276	
Vert.	120.037	QP	31.2	13.3	7.3	32.1	19.7	43.5	23.8	100	277	
Vert.	480.200	QP	22.3	17.7	9.2	31.9	17.3	46	28.7	100	37	
Vert.	3145.590	PK	52.2	29.1	4.9	41.0	45.2	73.9	28.7	100	193	
Vert.	4882.000	PK	48.8	31.7	5.6	40.0	46.1	73.9	27.8	112	0	
Vert.	7323.000	PK	44.6	36.7	6.9	38.5	49.7	73.9	24.2	100	0	Not Detected
Vert.	9764.000	PK	42.8	38.2	7.8	37.4	51.4	73.9	22.5	100	0	Not Detected
Vert.	12205.000	PK	43.8	39.2	9.1	38.1	54.0	73.9	19.9	100	0	Not Detected
Vert.	3145.590	AV	47.8	29.1	4.9	41.0	40.8	53.9	13.1	100	193	
Vert.	4882.000	AV	38.6	31.7	5.6	40.0	35.9	53.9	18.0	112	0	
Vert.	7323.000	AV	33.1	36.7	6.9	38.5	38.2	53.9	15.7	100	0	Not Detected
Vert.	9764.000	AV	31.4	38.2	7.8	37.4	40.0	53.9	13.9	100	0	Not Detected
Vert.	12205.000	AV	32.0	39.2	9.1	38.1	42.2	53.9	11.7	100	0	Not Detected

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.

Radiated Emission

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2010/10/16 2010/10/17
 Temperature / Humidity : 24deg.C. , 53% 23deg.C. , 51%
 Engineer : Akio Hayashi Akio Hayashi
 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.	239.997	QP	28.2	17	8.1	32	21.3	46	24.7	176	133	
Hori.	350.996	QP	31.2	16.1	8.7	31.9	24.1	46	21.9	100	359	
Hori.	360.095	QP	32.7	16.4	8.7	31.9	25.9	46	20.1	100	156	
Hori.	519.000	QP	22.3	18	9.4	31.9	17.8	46	28.2	165	4	
Hori.	2483.500	PK	46.3	27.6	13.4	40.1	47.2	73.9	26.7	107	59	
Hori.	2483.625	PK	46.3	27.6	13.4	40.1	47.2	73.9	26.7	107	59	
Hori.	3145.590	PK	52.3	29.1	4.9	41	45.3	73.9	28.6	106	136	
Hori.	4960.000	PK	47.7	31.9	5.6	40	45.2	73.9	28.7	147	13	
Hori.	7440.000	PK	46.4	36.9	7.1	38.7	51.7	73.9	22.2	100	0	Not Detected
Hori.	9929.000	PK	43.5	38.5	8	37.6	52.4	73.9	21.5	100	0	Not Detected
Hori.	12400.000	PK	43.9	39.1	9.4	37.9	54.5	73.9	19.4	100	0	Not Detected
Hori.	2483.500	AV	36.7	27.6	13.4	40.1	37.6	53.9	16.3	107	59	
Hori.	2483.625	AV	36.7	27.6	13.4	40.1	37.6	53.9	16.3	107	59	
Hori.	3145.590	AV	46.5	29.1	4.9	41.0	39.5	53.9	14.4	106	136	
Hori.	4960.000	AV	36.9	31.9	5.6	40.0	34.4	53.9	19.5	147	13	
Hori.	7440.000	AV	34.6	36.9	7.1	38.7	39.9	53.9	14.0	100	0	Not Detected
Hori.	9929.000	AV	31.7	38.5	8.0	37.6	40.6	53.9	13.3	100	0	Not Detected
Hori.	12400.000	AV	31.4	39.1	9.4	37.9	42.0	53.9	11.9	100	0	Not Detected
Vert.	65.571	QP	34.1	6.5	6.9	32.1	15.4	40	24.6	100	265	
Vert.	81.944	QP	32.1	6.9	7	32.1	13.9	40	26.1	100	248	
Vert.	120.015	QP	31.1	13.3	7.3	32.1	19.6	43.5	23.9	100	246	
Vert.	519.000	QP	22.3	18	9.4	31.9	17.8	46	28.2	100	346	
Vert.	2483.500	PK	46.7	27.6	13.4	40.1	47.6	73.9	26.3	100	38	
Vert.	2483.625	PK	46.7	27.6	13.4	40.1	47.6	73.9	26.3	100	38	
Vert.	3145.594	PK	54.0	29.1	3.9	41.0	46.0	73.9	27.9	105	328	
Vert.	4884.976	PK	50	31.7	5	40	46.7	73.9	27.2	100	359	
Vert.	3145.600	PK	52	29.1	4.9	41	45	73.9	28.9	100	249	
Vert.	4960.000	PK	48.2	31.9	5.6	40	45.7	73.9	28.2	100	11	
Vert.	7440.000	PK	46.3	36.9	7.1	38.7	51.6	73.9	22.3	100	0	Not Detected
Vert.	9929.000	PK	44.1	38.5	8	37.6	53	73.9	20.9	100	0	Not Detected
Vert.	12400.000	PK	43.4	39.1	9.4	37.9	54	73.9	19.9	100	0	Not Detected
Vert.	2483.500	AV	36.6	27.6	13.4	40.1	37.5	53.9	16.4	100	38	
Vert.	2483.625	AV	36.6	27.6	13.4	40.1	37.5	53.9	16.4	100	38	
Vert.	3145.600	AV	46.4	29.1	4.9	41	39.4	53.9	14.5	100	249	
Vert.	4960.000	AV	38.2	31.9	5.6	40	35.7	53.9	18.2	100	11	
Vert.	7440.000	AV	34.6	36.9	7.1	38.7	39.9	53.9	14	100	0	Not Detected
Vert.	9929.000	AV	31.5	38.5	8	37.6	40.4	53.9	13.5	100	0	Not Detected
Vert.	12400.000	AV	31.4	39.1	9.4	37.9	42	53.9	11.9	100	0	Not Detected

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

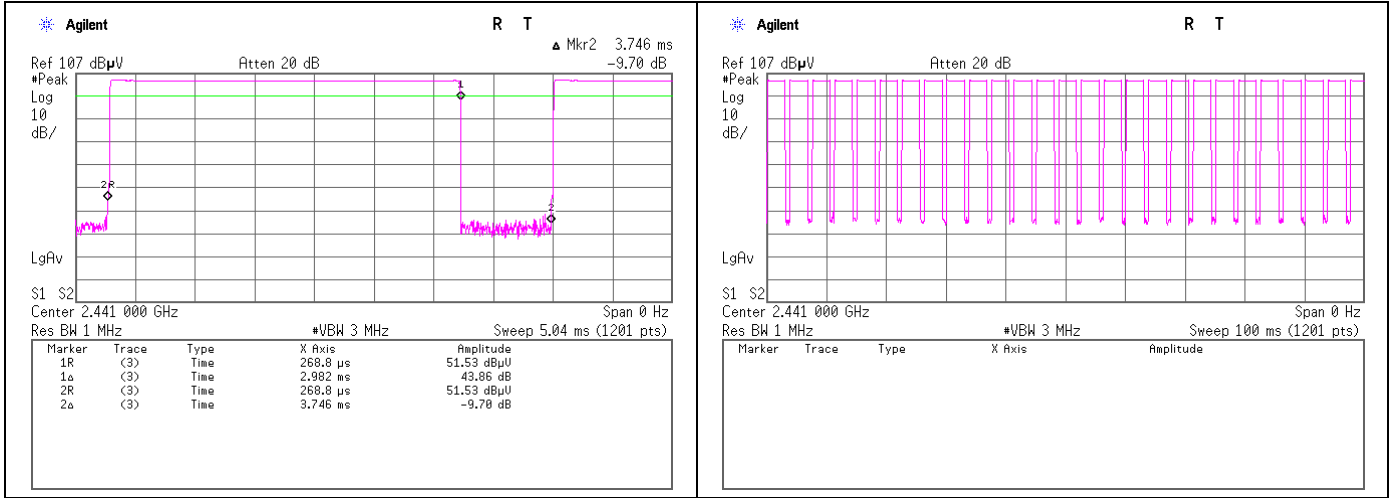
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*No noise was detected above the third order harmonics.

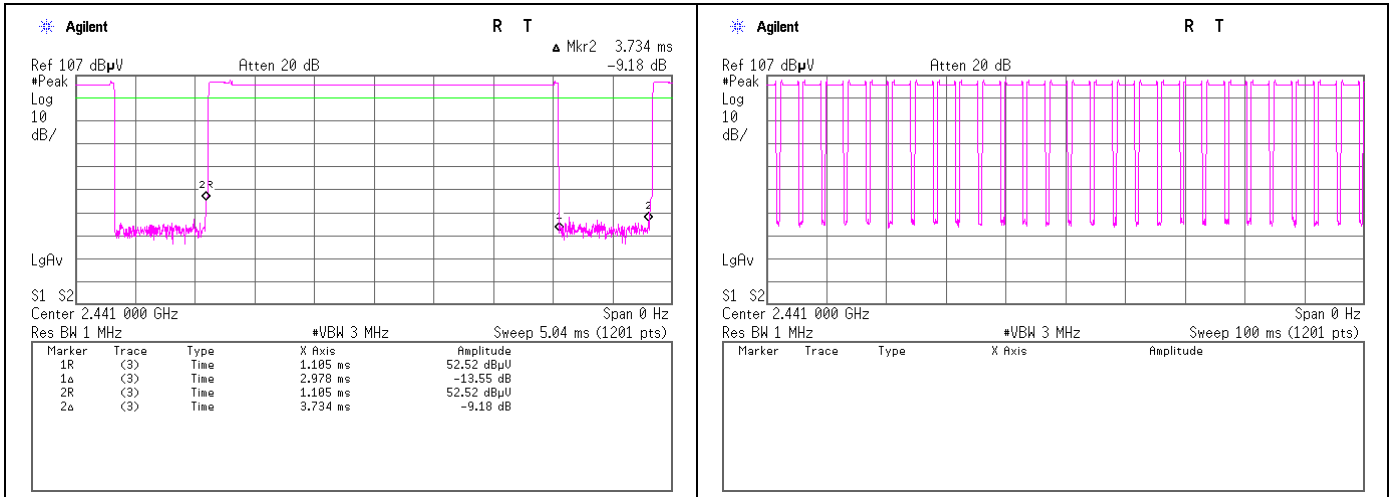
Spurious emission (Radiated)

The tested burst timing

DH5



3DH5



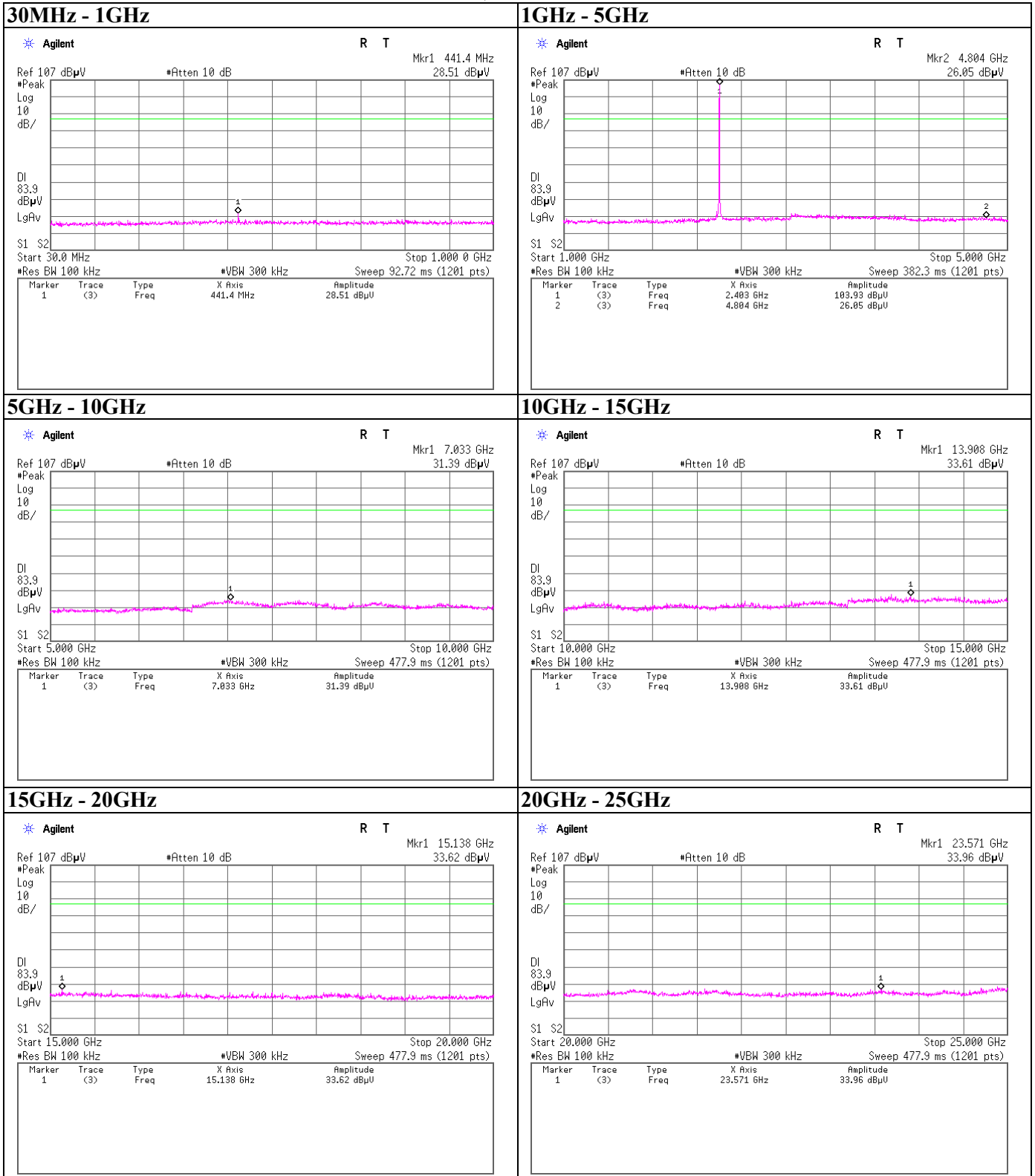
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Spurious emission (Conducted)

DH5

Tx, 2402MHz



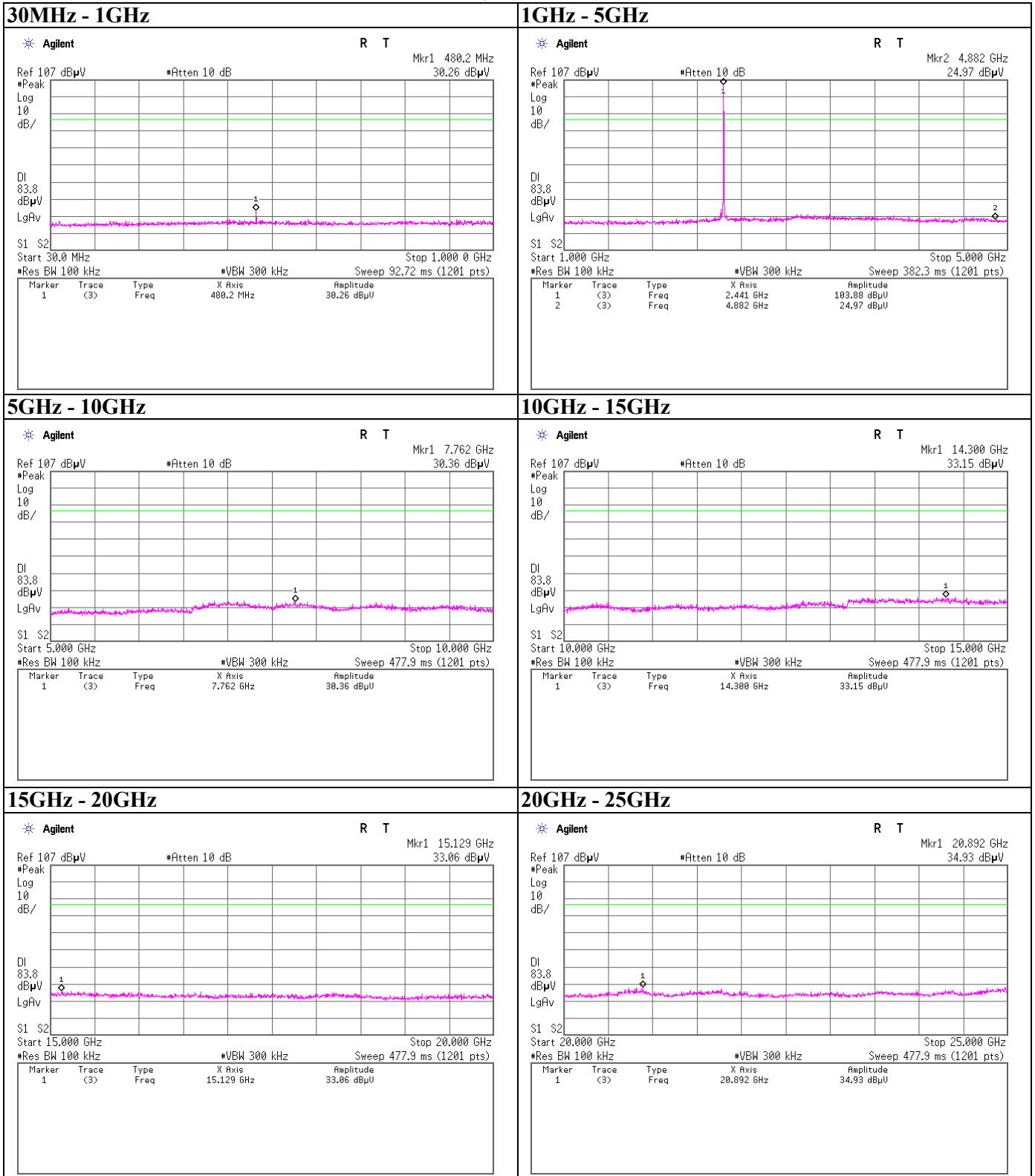
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Spurious emission (Conducted)

DH5

Tx, 2441MHz

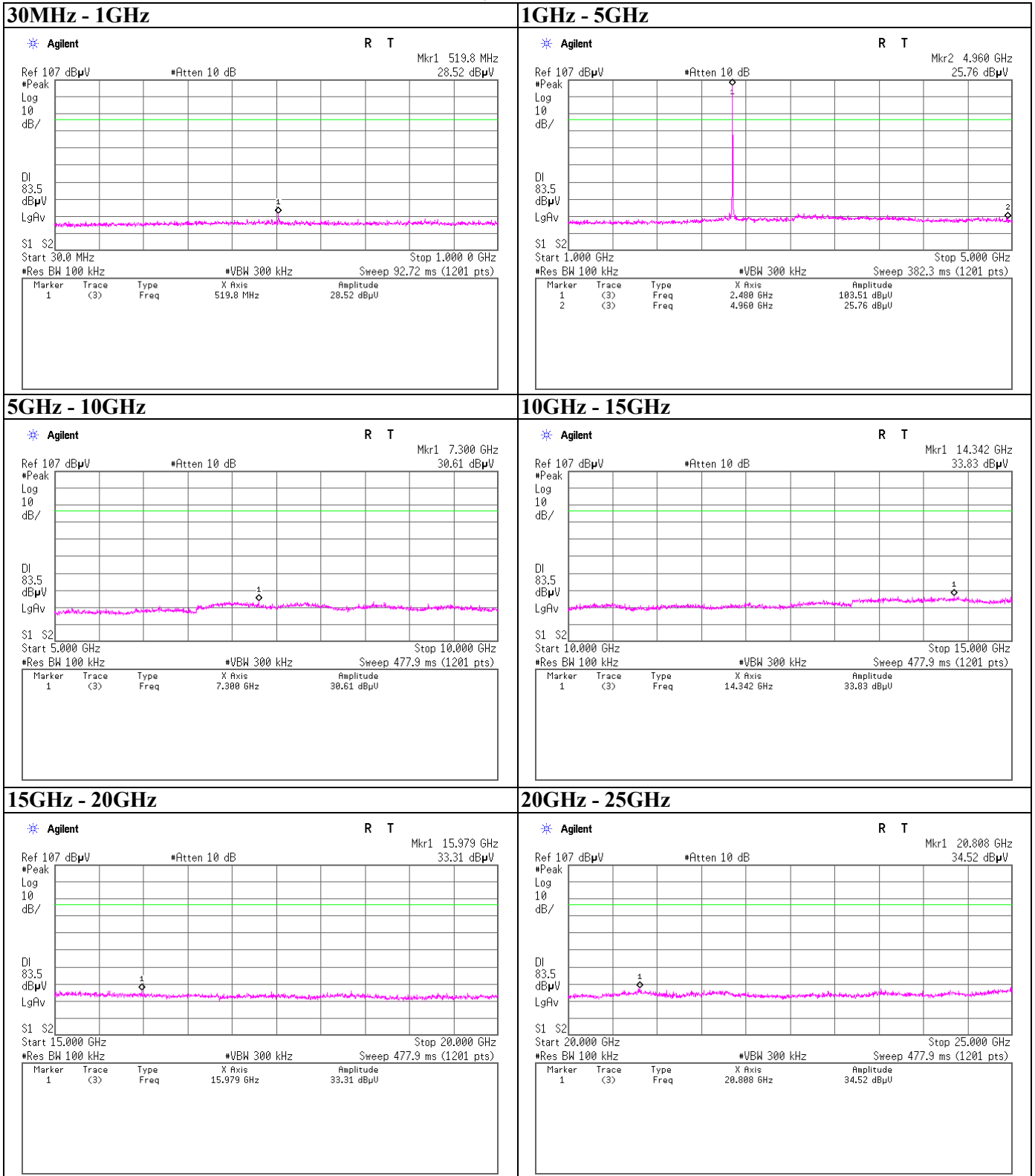


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Spurious emission (Conducted)

DH5
 Tx, 2480MHz



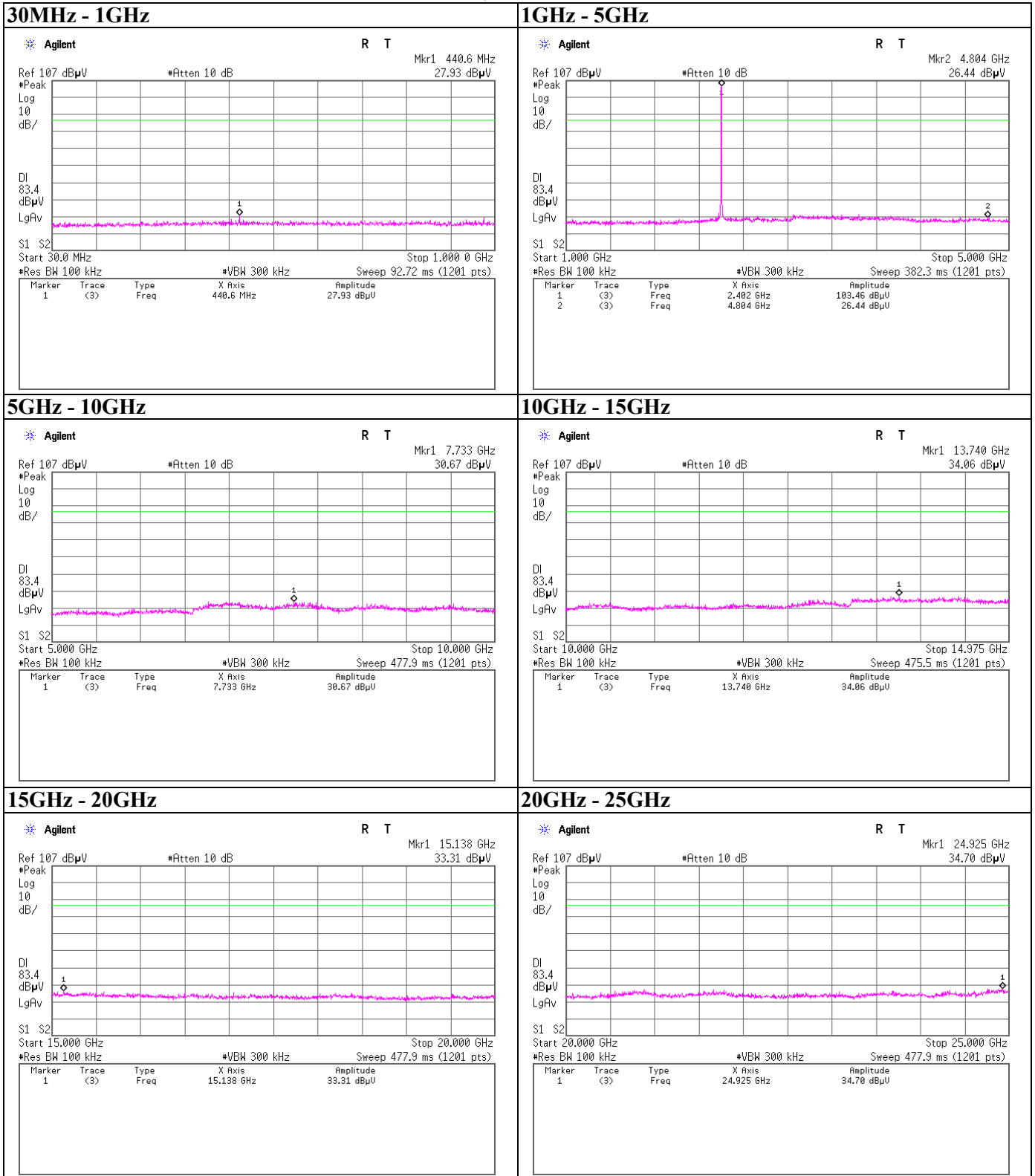
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Spurious emission (Conducted)

3-DH5

Tx, 2402MHz



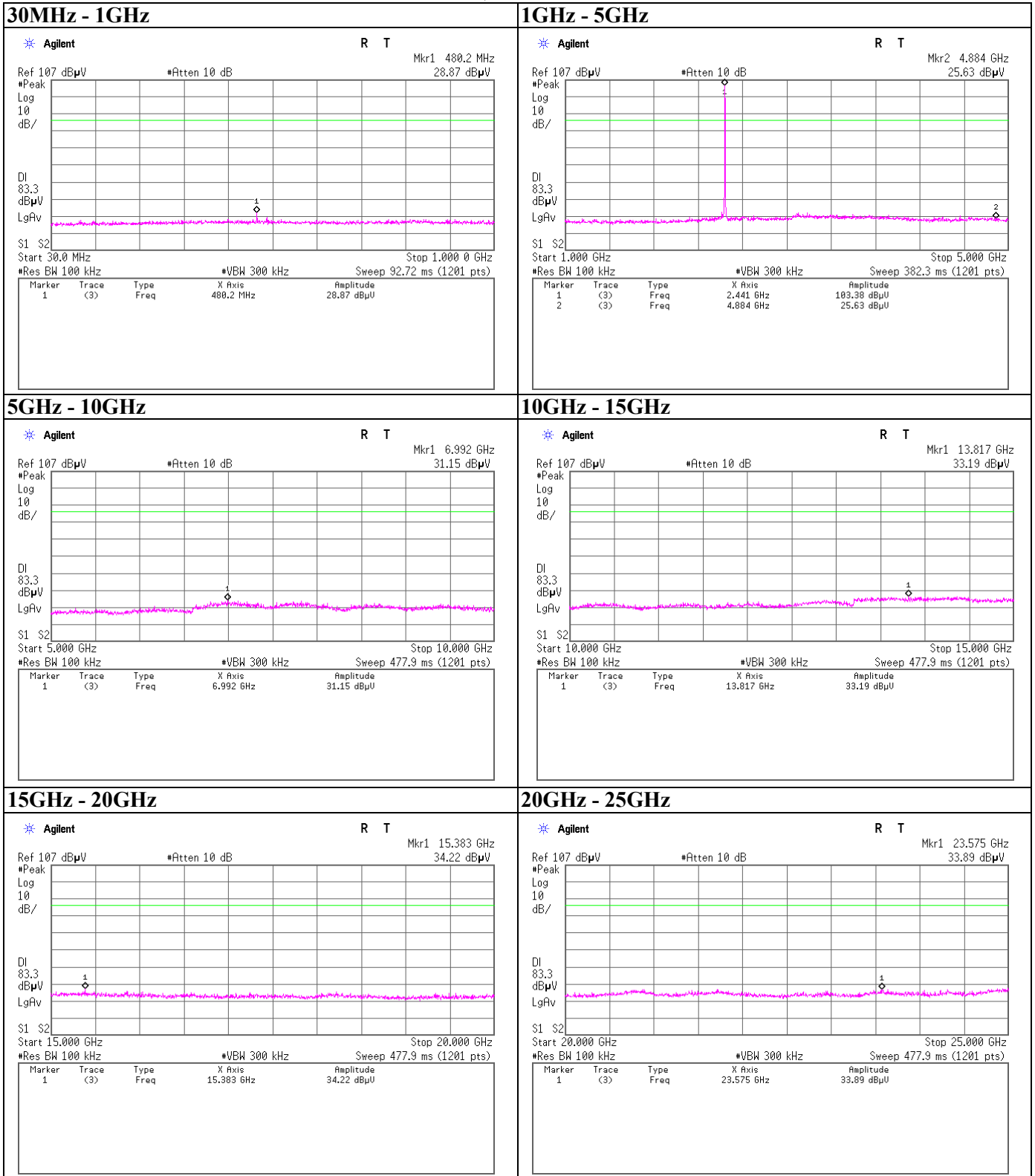
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Spurious emission (Conducted)

3-DH5

Tx, 2441MHz



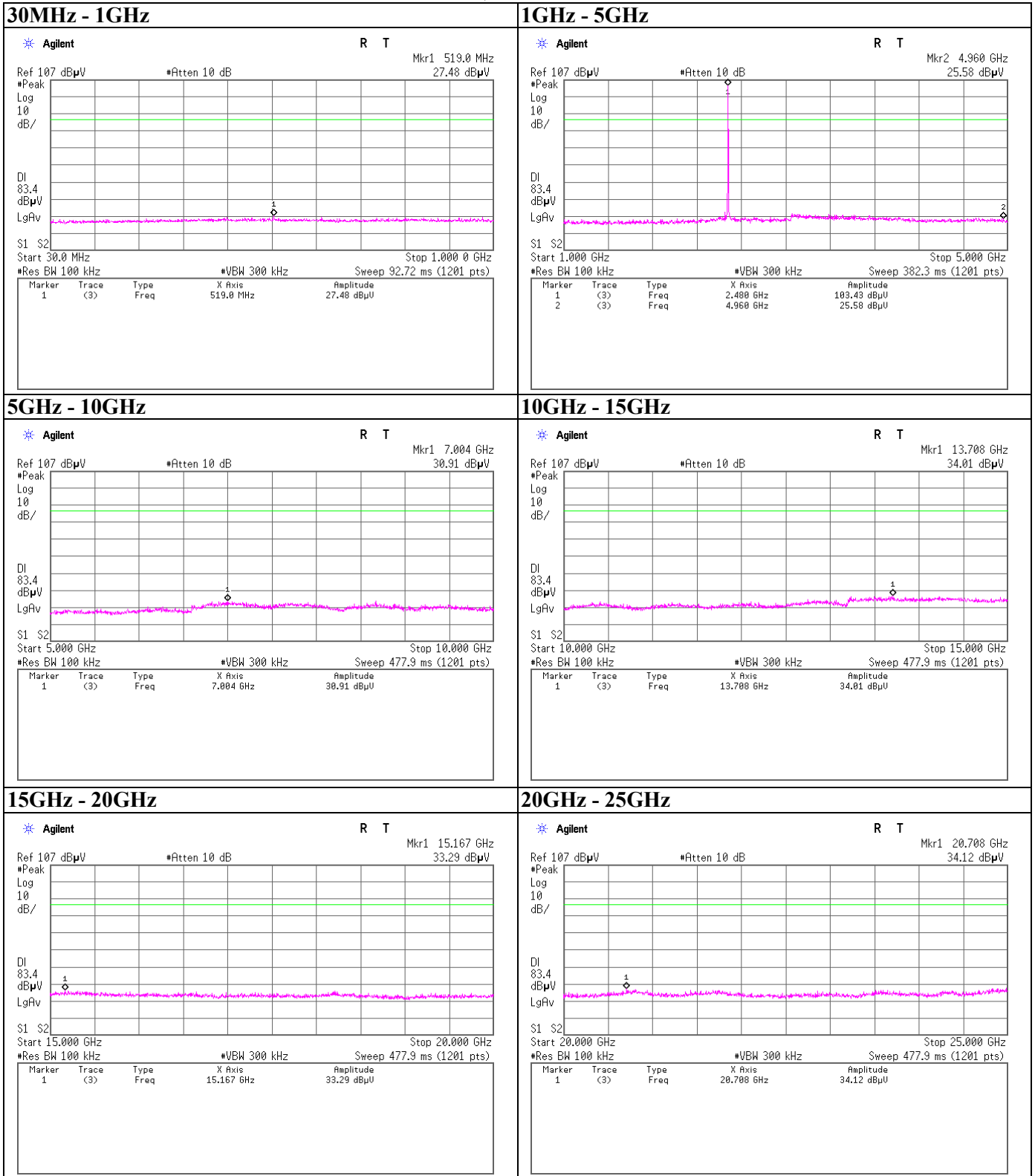
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Spurious emission (Conducted)

3-DH5

Tx, 2480MHz



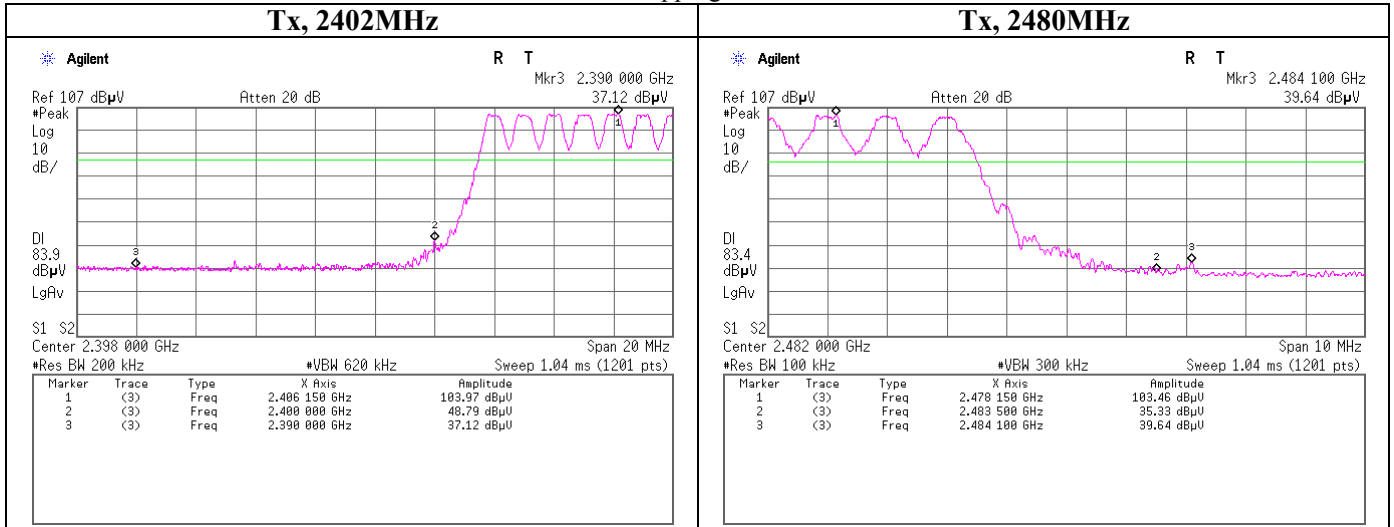
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Shonan EMC Lab.

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

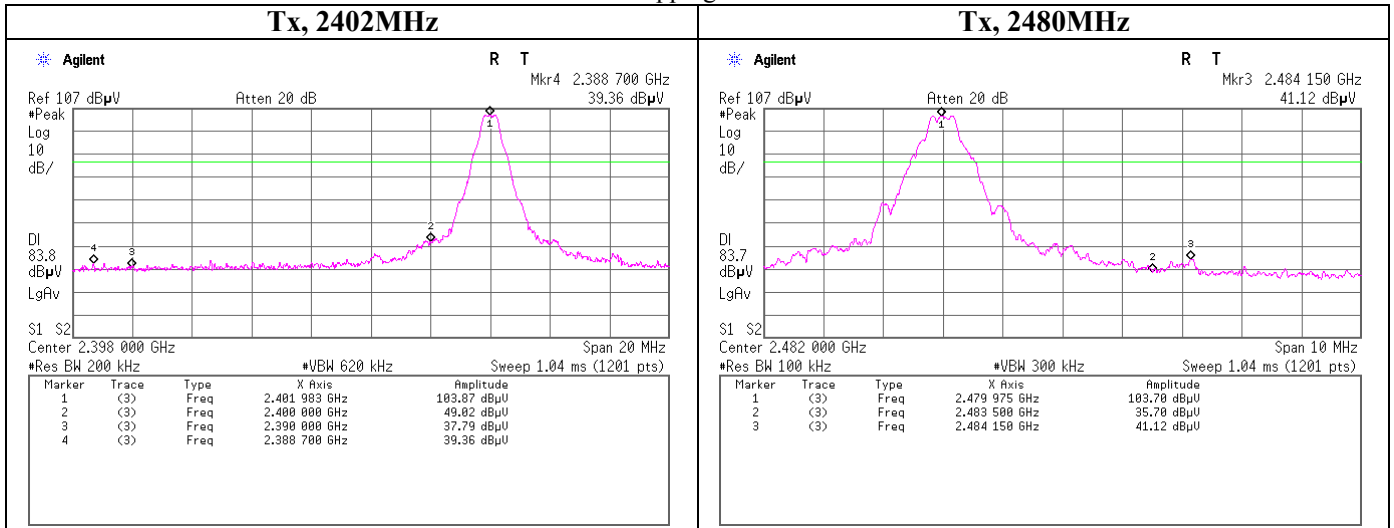
Spurious emission (Conducted)

Band Edge compliance
 DH5

Hopping ON



Hopping OFF



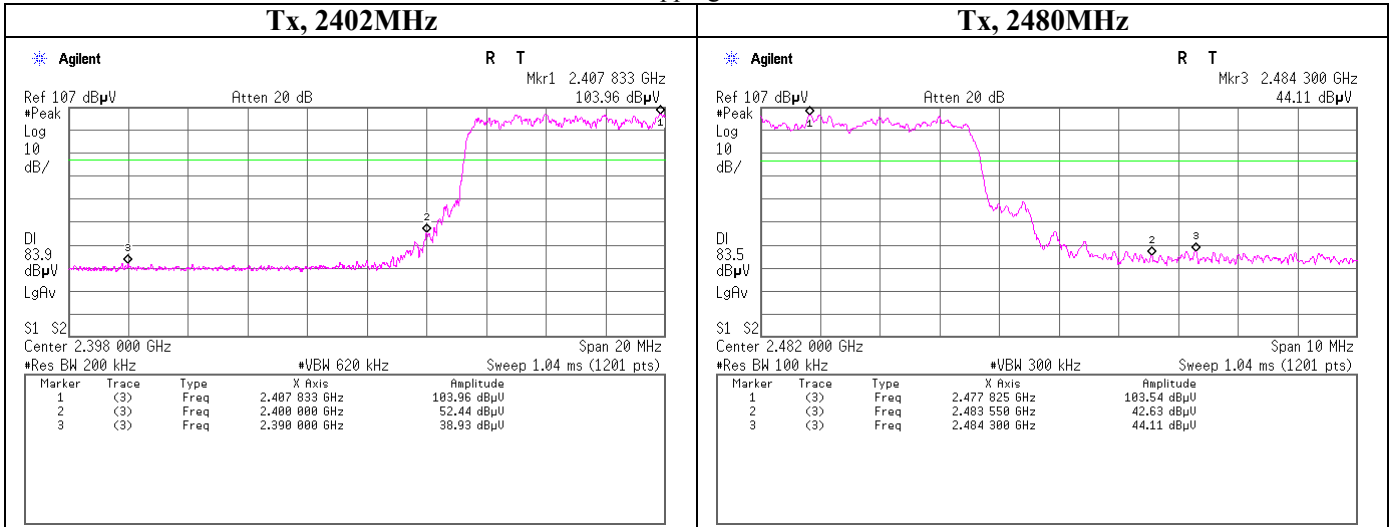
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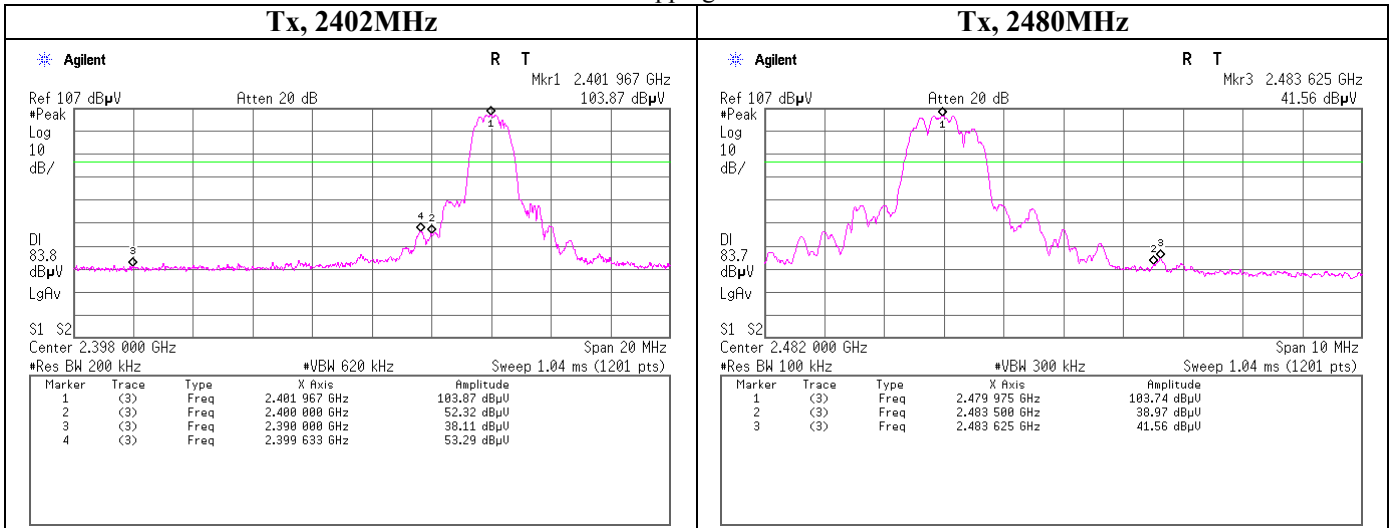
Spurious emission (Conducted)

Band Edge compliance
 3-DH5

Hopping ON



Hopping OFF

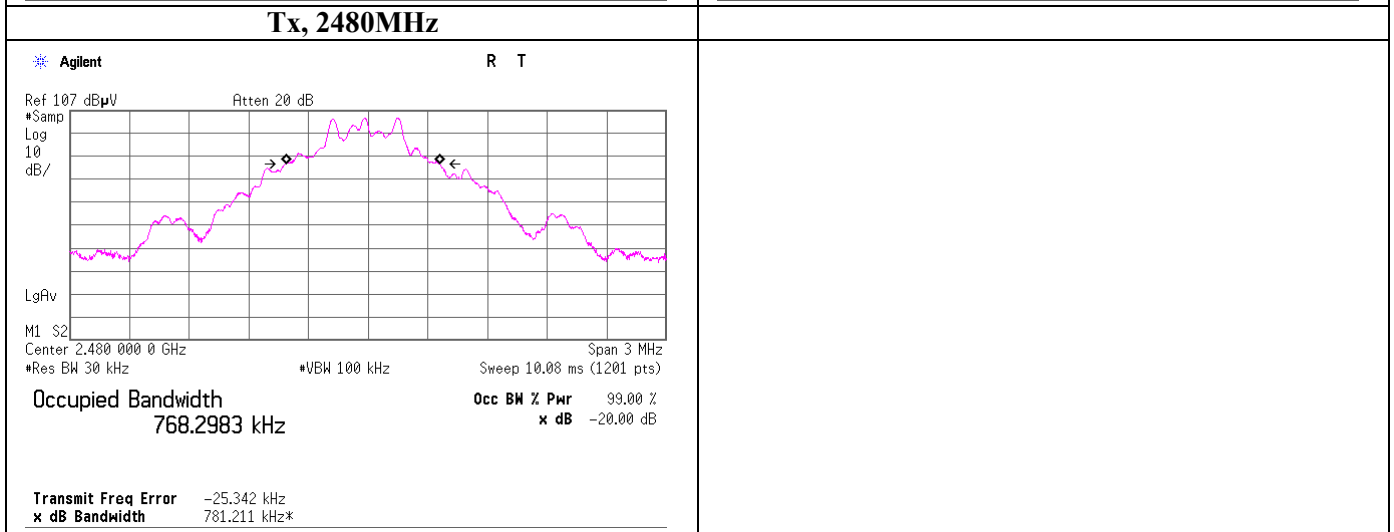
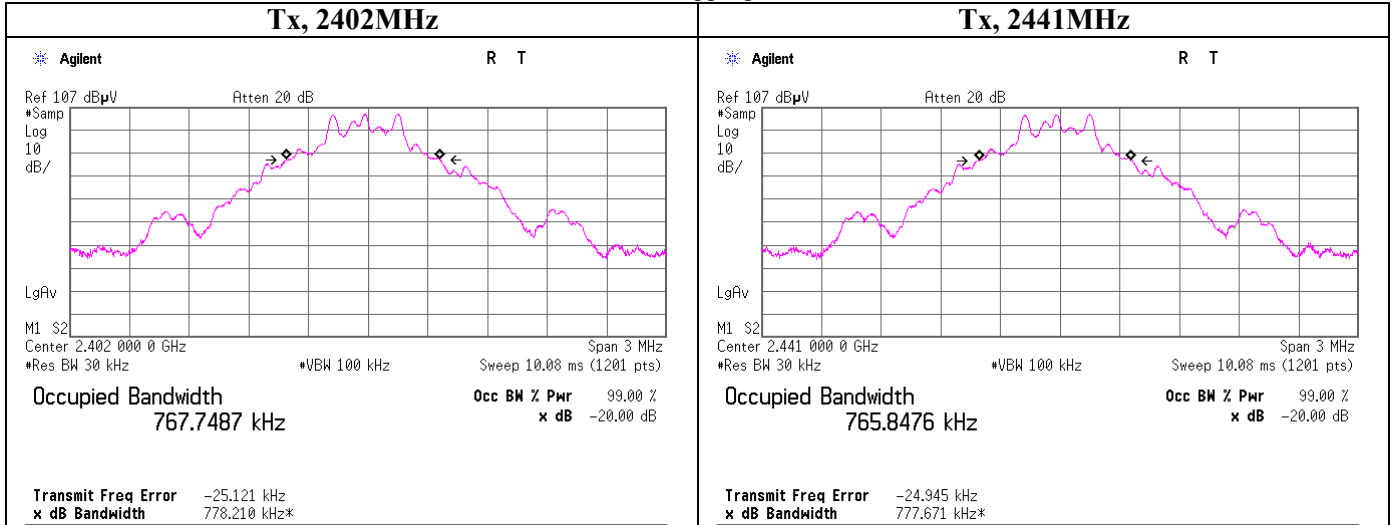


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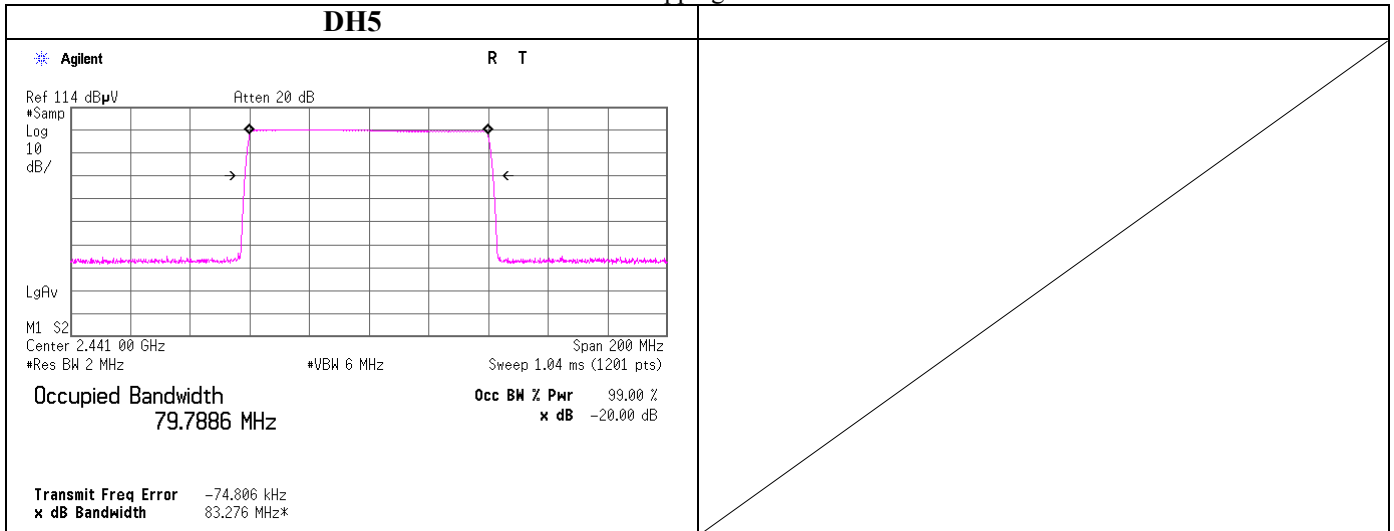
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99% Occupied Bandwidth

DH5, Hopping Off



Hopping On

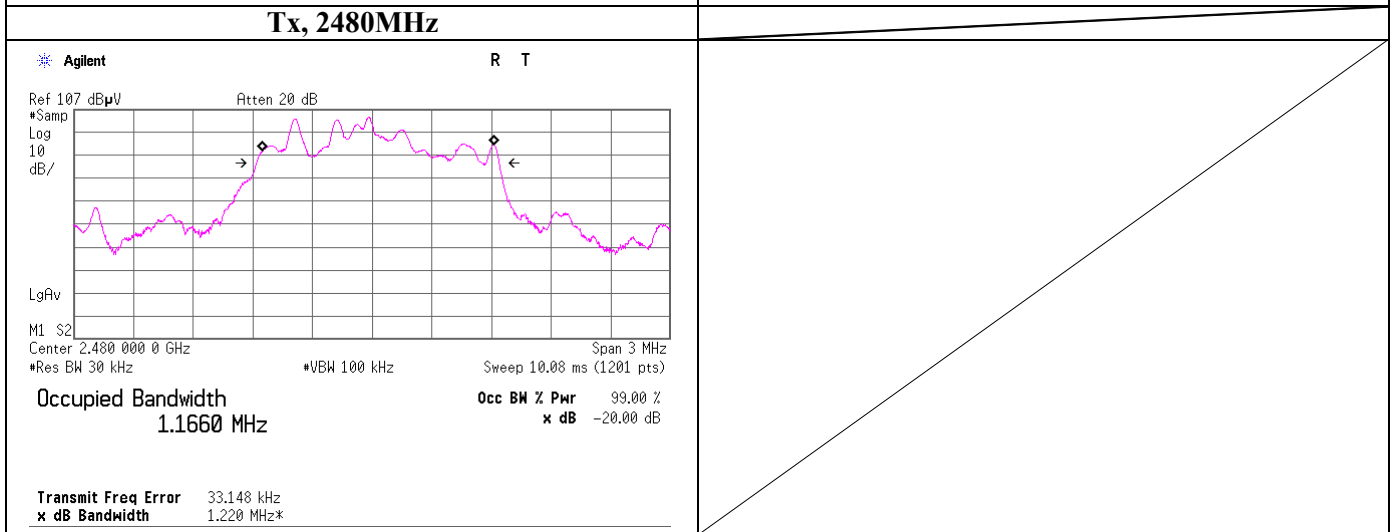
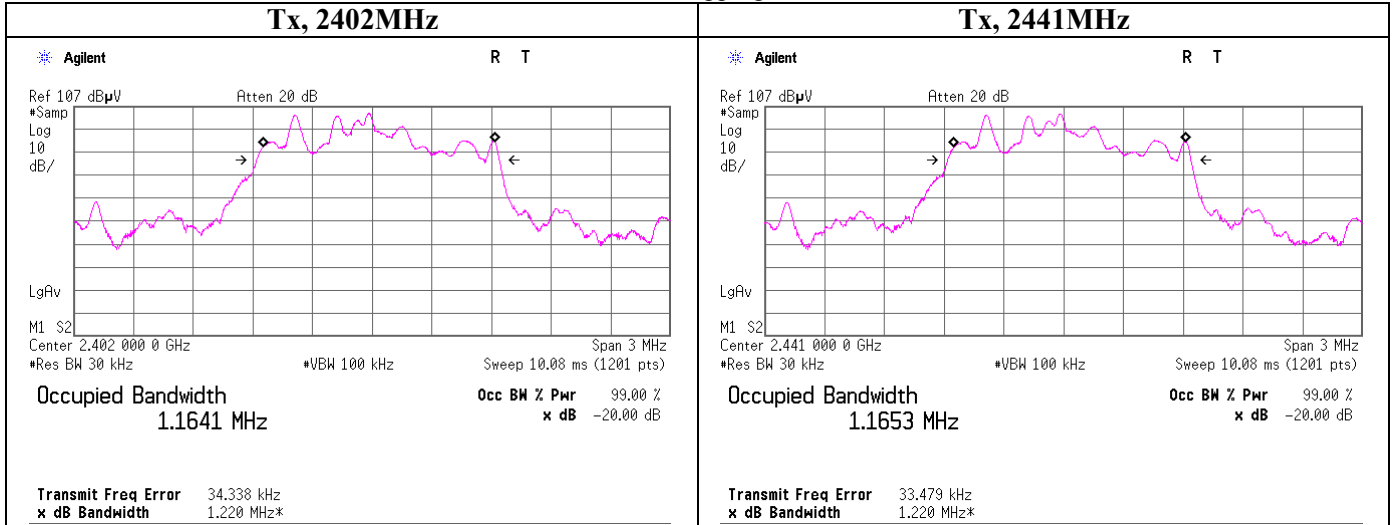


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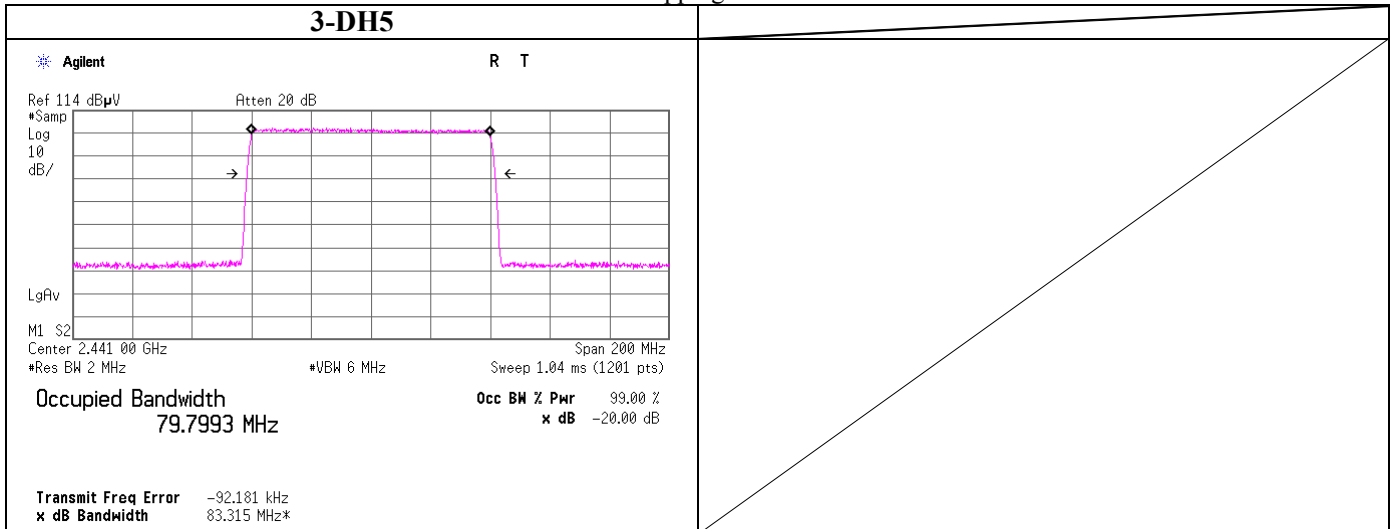
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99% Occupied Bandwidth

3-DH5, Hopping Off



Hopping On



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