

APPENDIX 2: Data of EMI test

Conducted Emission

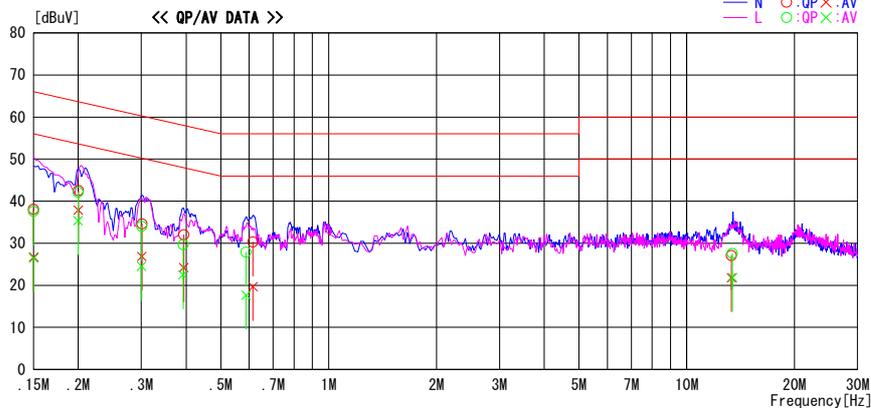
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
 Date : 2011/04/07

Report No. : 31HE0013-HO-01
 Temp./Humi. : 22deg. C. / 32% RH
 Engineer : Kazuya Yoshioka

Mode / Remarks : Tx DH5 2402MHz

LIMIT : FCC15.207 QP
 FCC15.207 AV

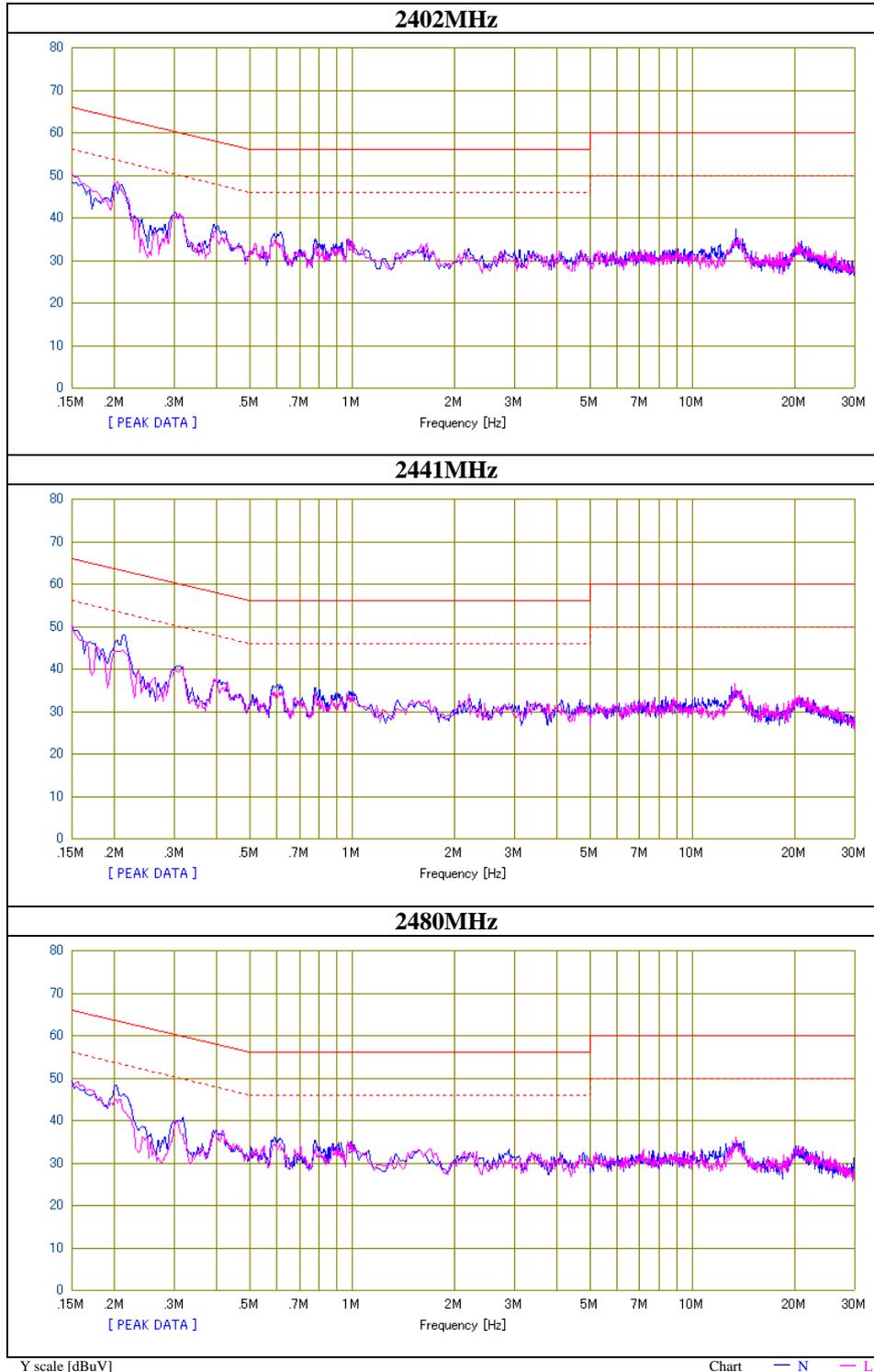


Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15000	25.0	13.6	13.1	38.1	26.7	66.0	56.0	27.9	29.3	N	
0.20020	29.2	24.6	13.3	42.5	37.9	63.6	53.6	21.1	15.7	N	
0.30100	21.3	13.6	13.3	34.6	26.9	60.2	50.2	25.6	23.3	N	
0.39400	18.7	10.9	13.3	32.0	24.2	58.0	48.0	26.0	23.8	N	
0.61442	17.0	6.4	13.3	30.3	19.7	56.0	46.0	25.7	26.3	N	
13.32876	12.9	7.6	14.2	27.1	21.8	60.0	50.0	32.9	28.2	N	
0.15000	24.5	13.4	13.1	37.6	26.5	66.0	56.0	28.4	29.5	L	
0.19978	29.0	22.3	13.1	42.1	35.4	63.6	53.6	21.5	18.2	L	
0.30048	20.7	11.2	13.3	34.0	24.5	60.2	50.2	26.2	25.7	L	
0.39220	16.4	9.2	13.3	29.7	22.5	58.0	48.0	28.3	25.5	L	
0.58810	14.6	4.4	13.3	27.9	17.7	56.0	46.0	28.1	28.3	L	
13.40301	13.4	7.7	14.2	27.6	21.9	60.0	50.0	32.4	28.1	L	

CHART: WITH FACTOR. Peak hold data. CALCULATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission

Test place	Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No.	31HE0013-HO-01
Date	04/07/2011
Temperature/ Humidity	22 deg.C/ 32% RH
Engineer	Kazuya Yoshioka
Mode	Tx DH5



Conducted Emission

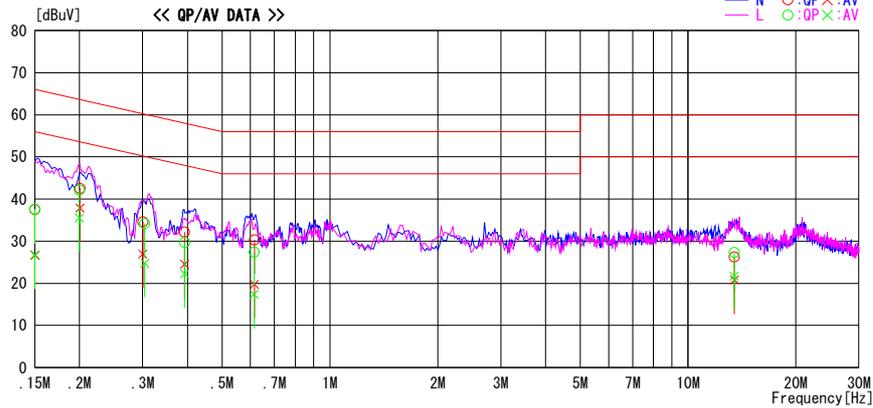
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2011/04/07

Report No. : 31HE0013-H0-01
Temp./Humi. : 22deg. C. / 32% RH
Engineer : Kazuya Yoshioka

Mode / Remarks : Tx 3DH5 2402MHz

LIMIT : FCC15. 207 QP
FCC15. 207 AV

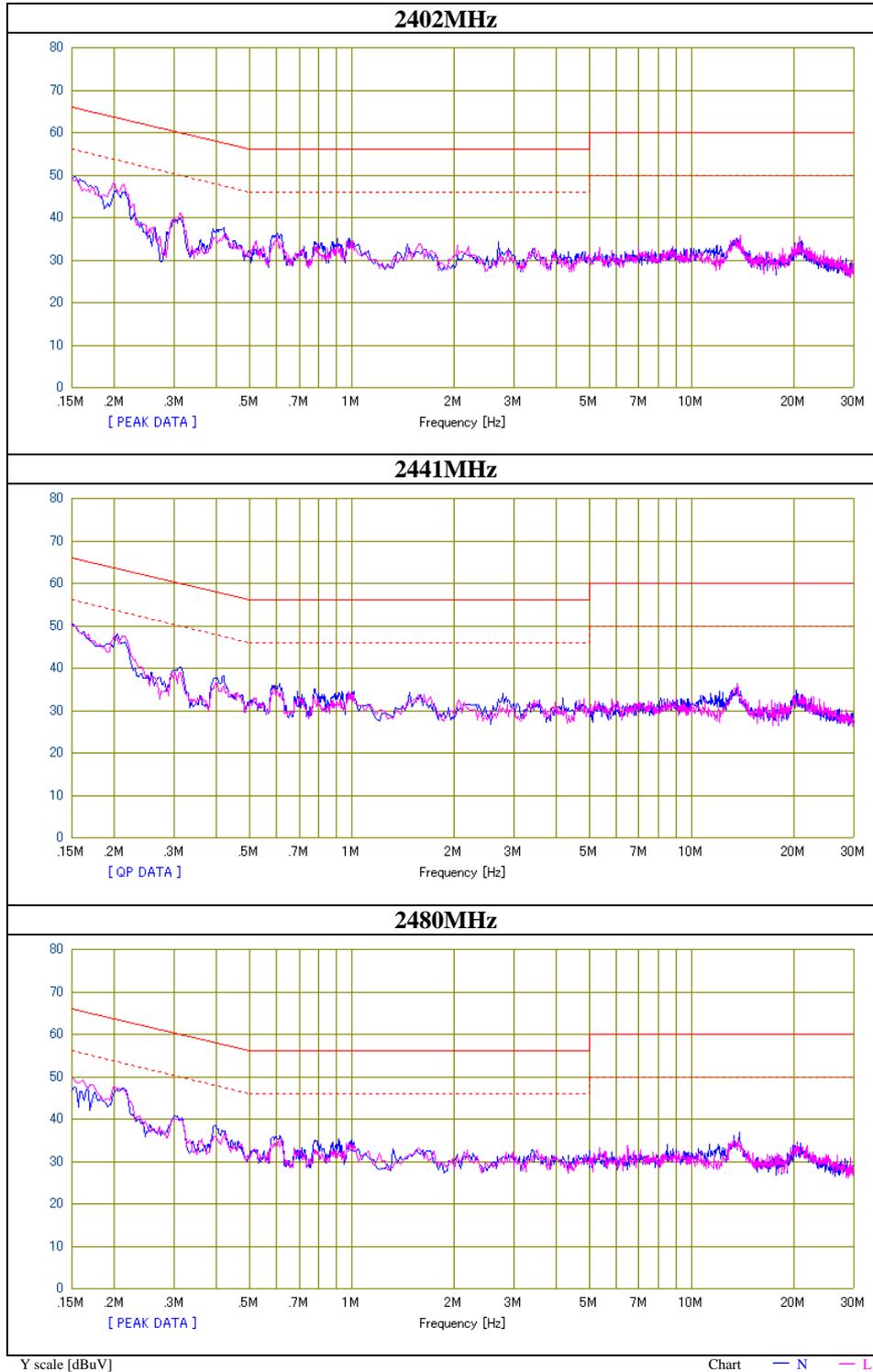


Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15000	24.4	13.5	13.1	37.5	26.6	66.0	56.0	28.5	29.4	N	
0.20060	29.2	24.6	13.3	42.5	37.9	63.6	53.6	21.1	15.7	N	
0.30025	21.3	13.7	13.3	34.6	27.0	60.2	50.2	25.6	23.2	N	
0.39250	18.9	11.2	13.3	32.2	24.5	58.0	48.0	25.8	23.5	N	
0.61517	17.0	6.5	13.3	30.3	19.8	56.0	46.0	25.7	26.2	N	
13.46288	12.1	6.6	14.2	26.3	20.8	60.0	50.0	33.7	29.2	N	
0.15000	24.5	13.7	13.1	37.6	26.8	66.0	56.0	28.4	29.2	L	
0.19968	29.0	22.4	13.1	42.1	35.5	63.6	53.6	21.5	18.1	L	
0.30393	20.9	11.5	13.3	34.2	24.8	60.1	50.1	25.9	25.3	L	
0.39330	16.4	9.0	13.3	29.7	22.3	58.0	48.0	28.3	25.7	L	
0.61400	14.1	4.1	13.3	27.4	17.4	56.0	46.0	28.6	28.6	L	
13.45001	13.1	7.5	14.2	27.3	21.7	60.0	50.0	32.7	28.3	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT=READING+C. F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

Test place	Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No.	31HE0013-HO-01
Date	04/07/2011
Temperature/ Humidity	22 deg.C/ 32% RH
Engineer	Kazuya Yoshioka
Mode	Tx 3DH5

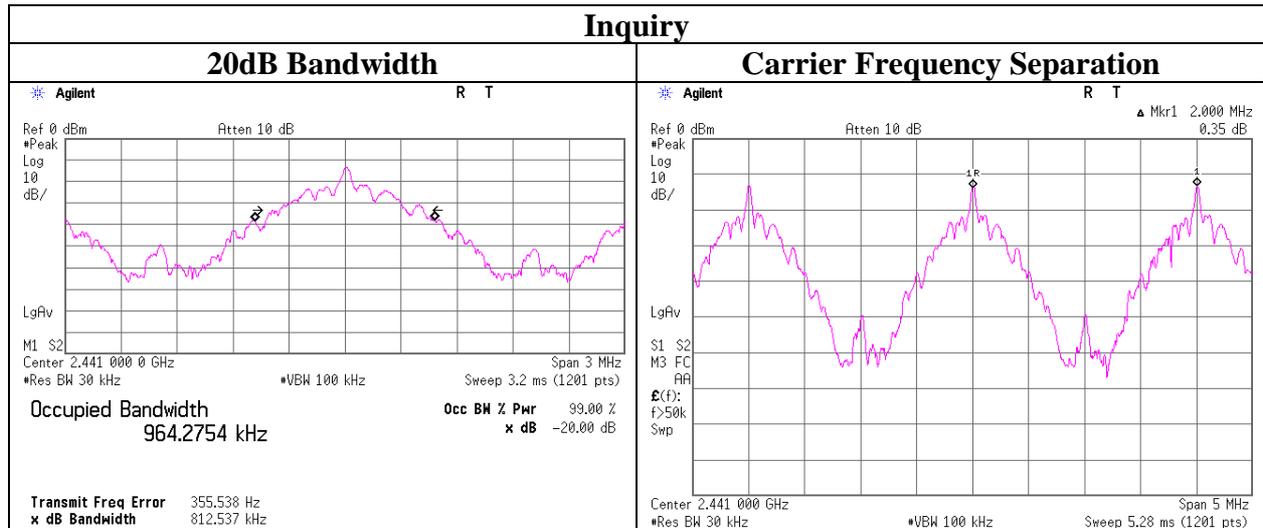


20dB Bandwidth and Carrier Frequency Separation

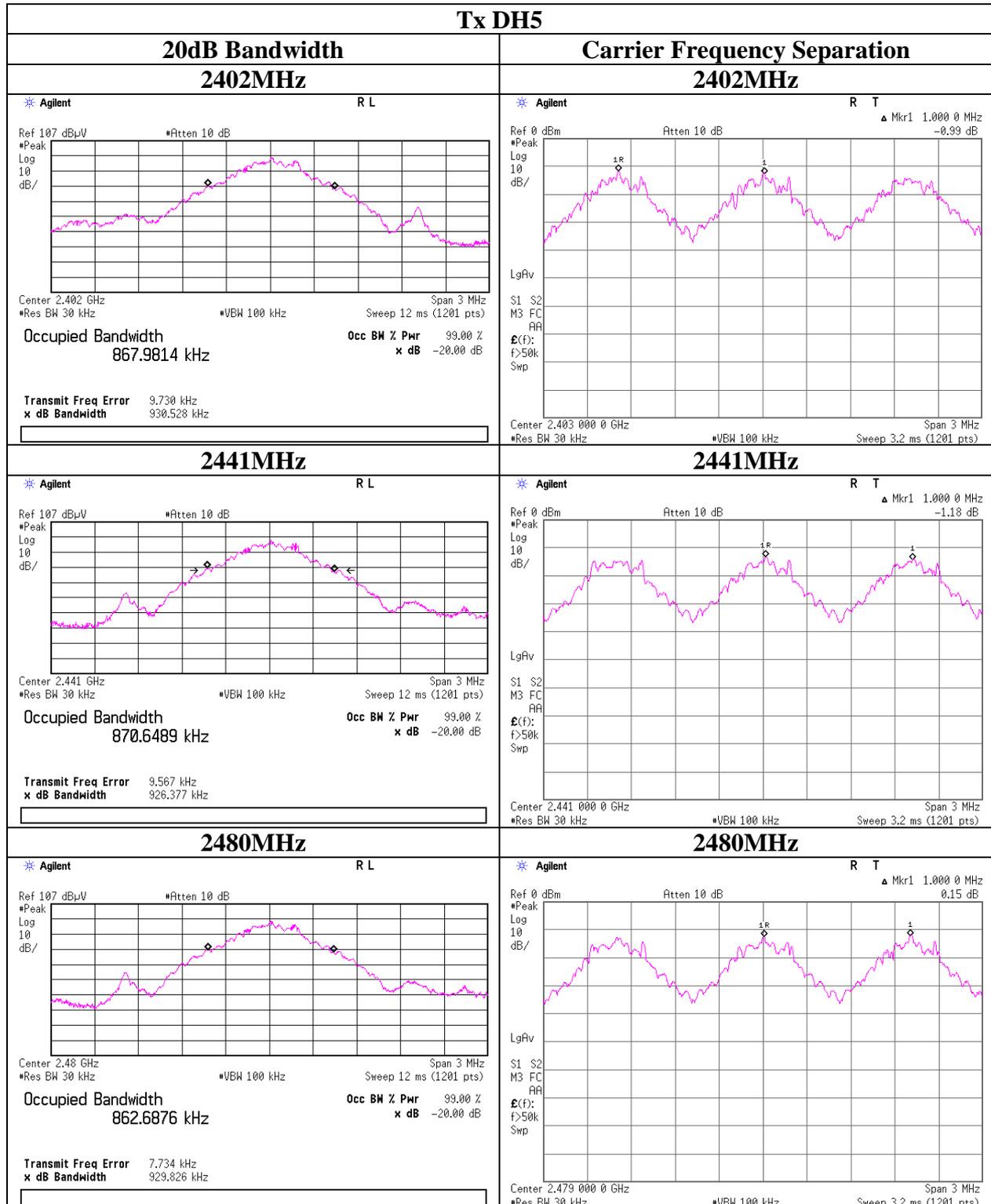
Test place	Head Office EMC Lab. No.2 and 6 Measurement Room	
Report No.	31HE0013-HO-01	
Date	02/15/2011	02/16/2011
Temperature/ Humidity	20 deg.C/ 30% RH	21 deg.C/ 31% RH
Engineer	Takeshi Choda	Keisuke Kawamura
Mode	Tx (Hopping on) DH5/3DH5/Inquiry	

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.931	1.000	≥ 0.620
DH5	2441.0	0.926	1.000	≥ 0.618
DH5	2480.0	0.930	1.000	≥ 0.620
3DH5	2402.0	1.274	1.008	≥ 0.849
3DH5	2441.0	1.263	1.018	≥ 0.842
3DH5	2480.0	1.266	1.000	≥ 0.844
Inquiry	2441.0	0.813	2.000	≥ 0.542

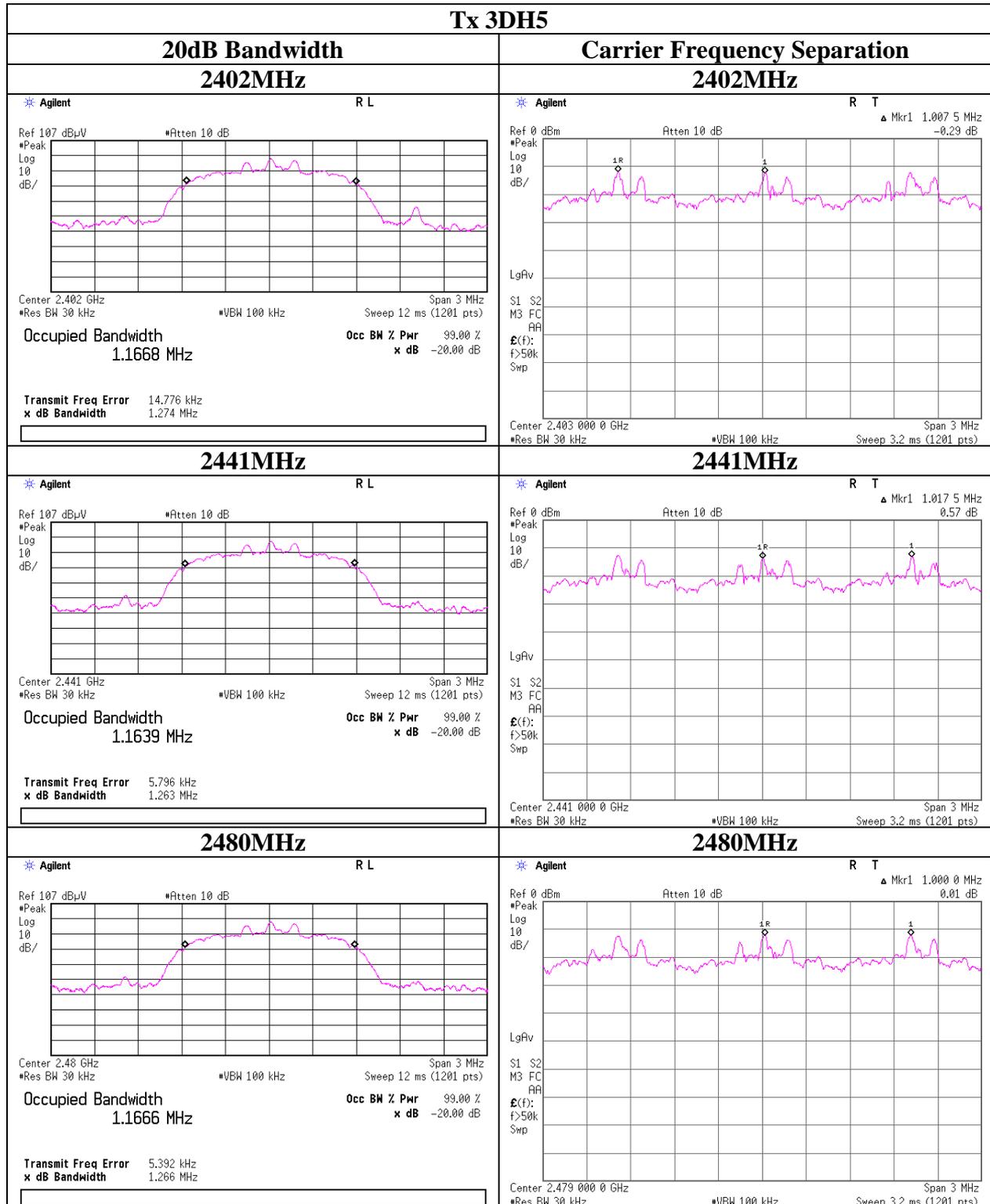
Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).
 No limit applies to 20dB Bandwidth.



20dB Bandwidth and Carrier Frequency Separation



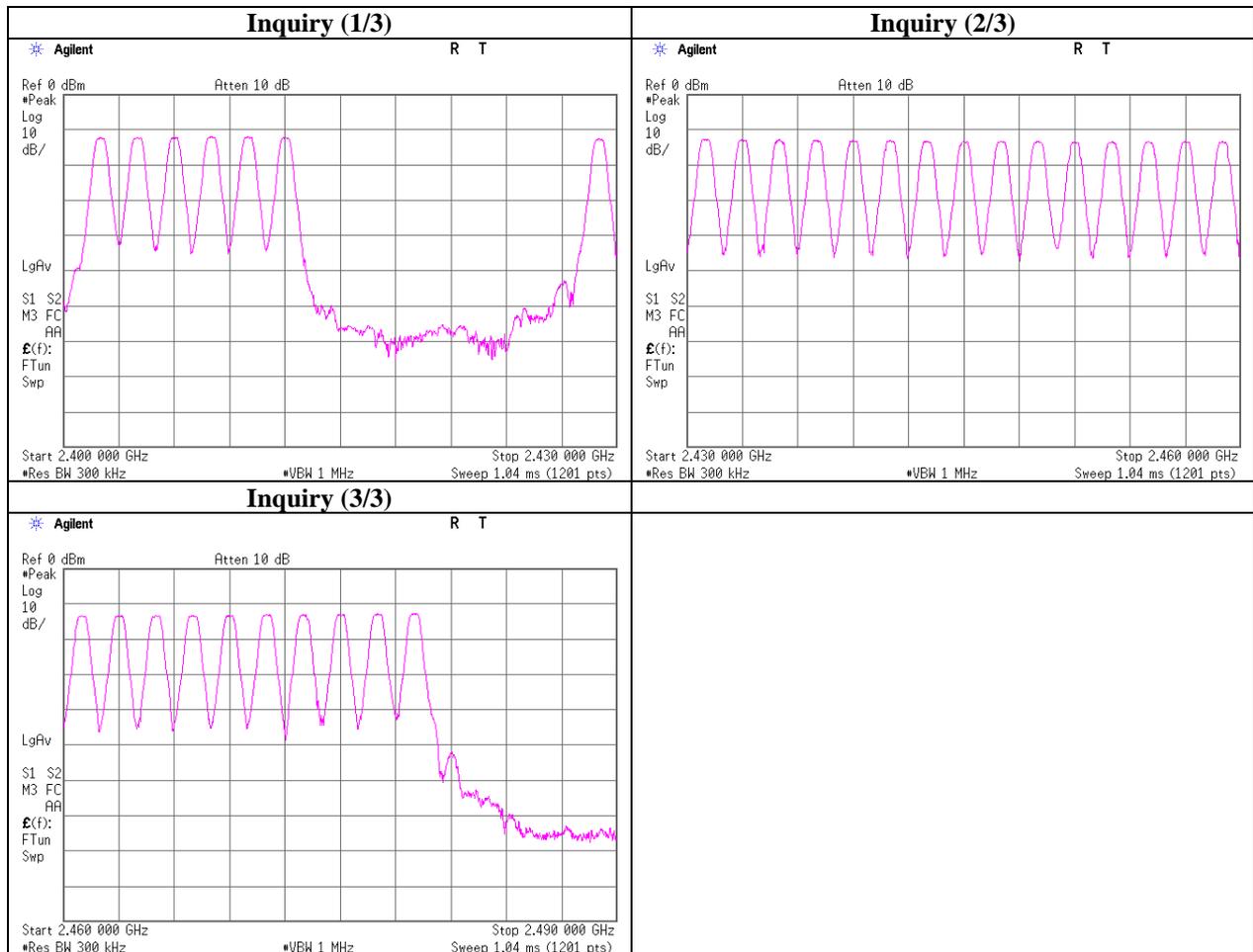
20dB Bandwidth and Carrier Frequency Separation



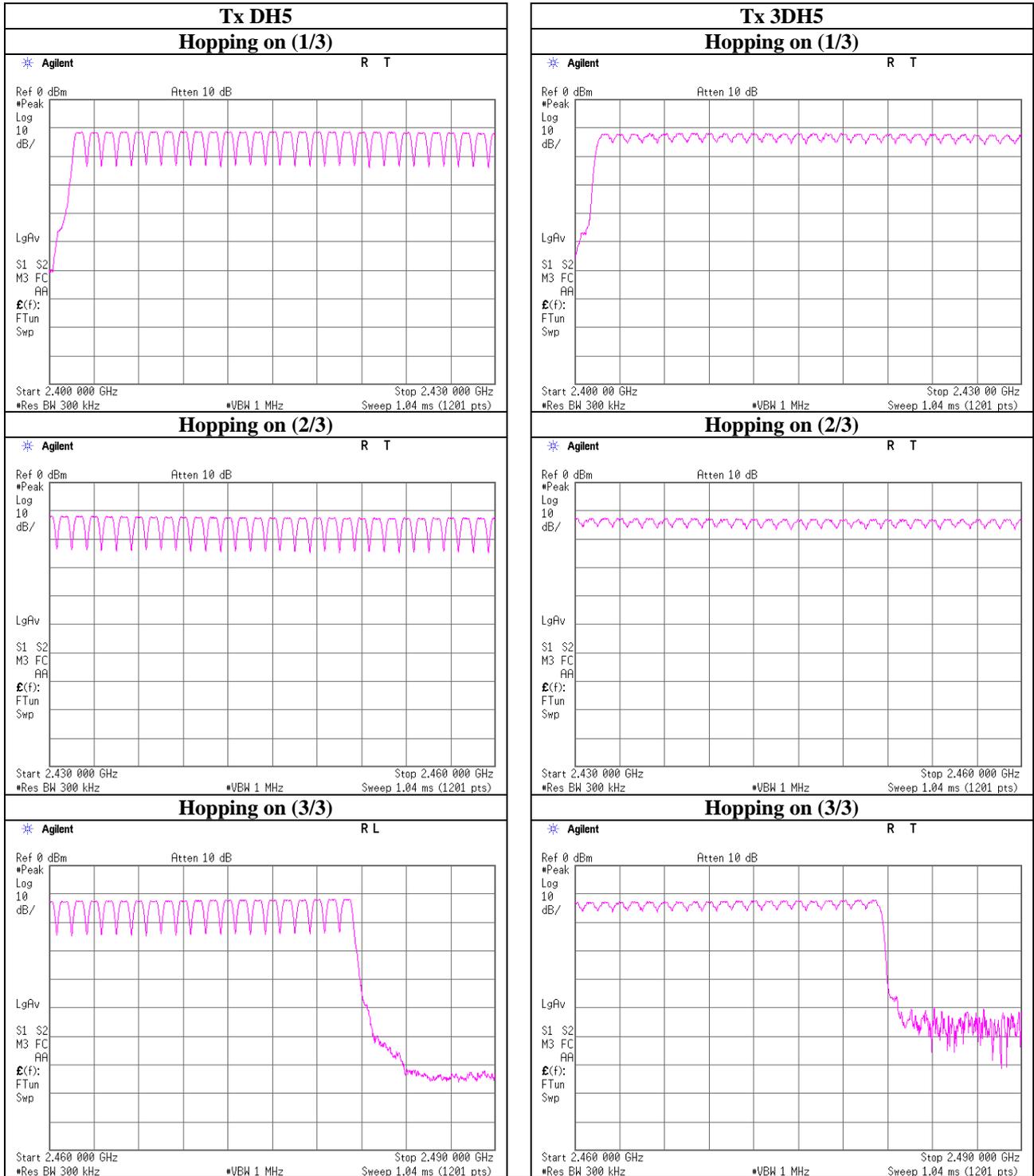
Number of Hopping Frequency

Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	31HE0013-HO-01
Date	02/16/2011
Temperature/ Humidity	21 deg.C/ 31% RH
Engineer	Keisuke Kawamura
Mode	Tx (Hopping on) DH5/3DH5/Inquiry

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



Number of Hopping Frequency



Dwell time

Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	31HE0013-HO-01
Date	02/16/2011
Temperature/ Humidity	21 deg.C/ 31% RH
Engineer	Keisuke Kawamura
Mode	Tx (Hopping on) DH5/3DH5/Inquiry

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	51.2 times / 5 sec. x 31.6 sec. = 324 times	0.519	168	400
DH3	26.2 times / 5 sec. x 31.6 sec. = 166 times	1.778	295	400
DH5	17.4 times / 5 sec. x 31.6 sec. = 110 times	3.028	333	400
3DH1	50.8 times / 5 sec. x 31.6 sec. = 322 times	0.537	173	400
3DH3	25.2 times / 5 sec. x 31.6 sec. = 160 times	1.799	288	400
3DH5	17.2 times / 5 sec. x 31.6 sec. = 109 times	3.045	332	400
Inquiry	100.0 times / 1 sec. x 12.8 sec. = 1280 times	0.220	282	400

Sample Calculation

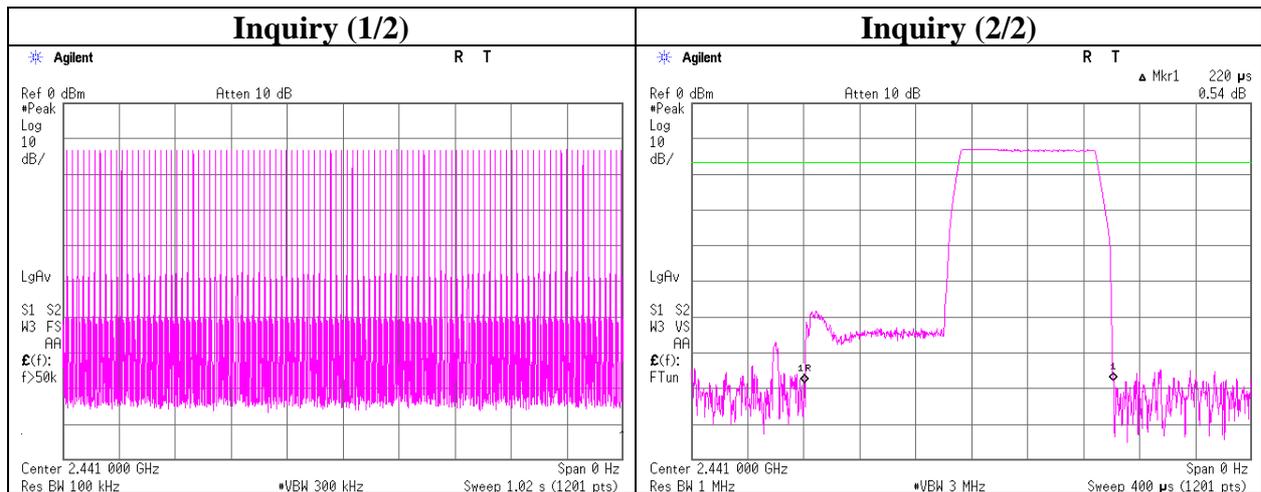
Result = Number of transmission x Length of transmission time

*Average data of 5 tests.(except Inquiry)

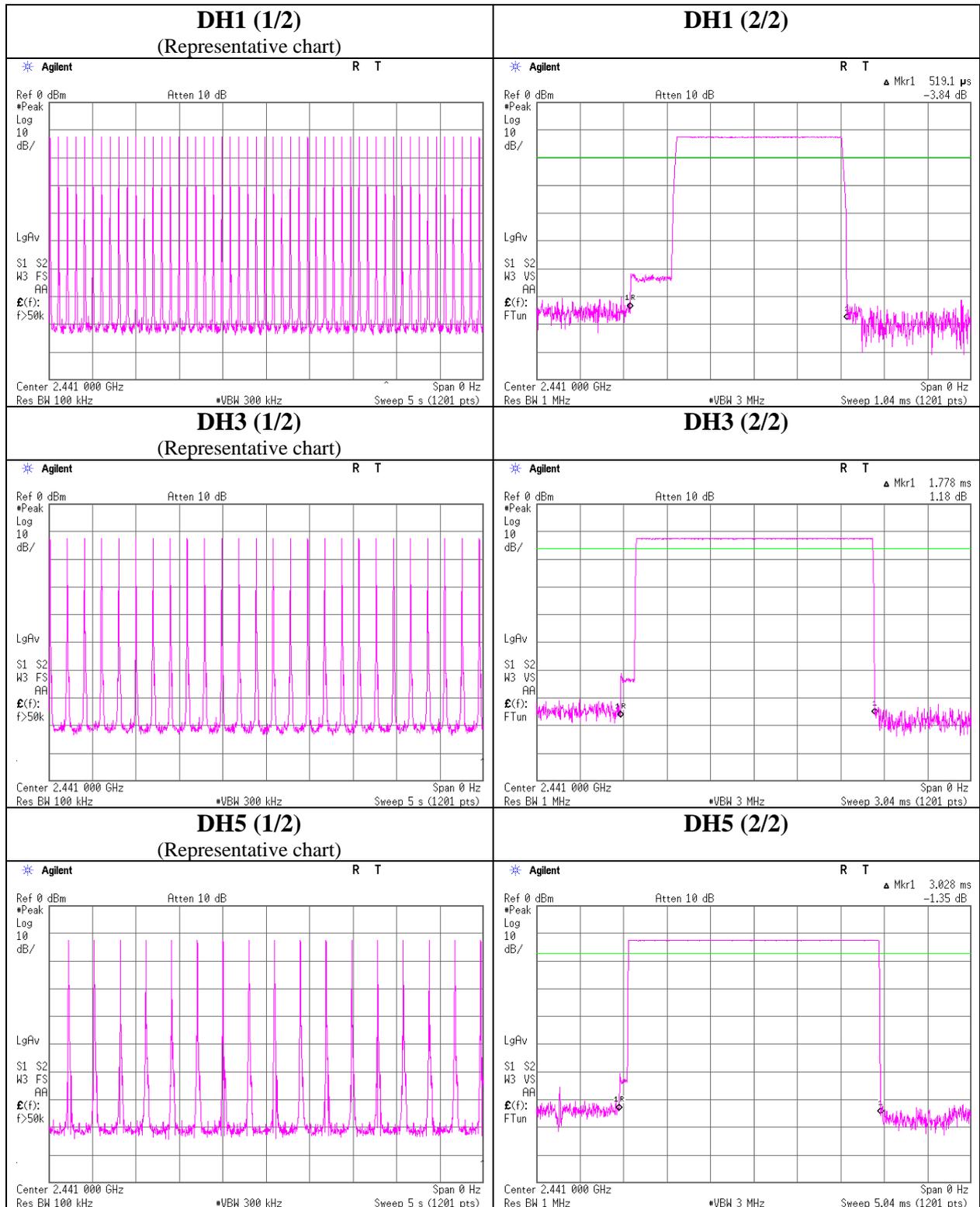
Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	51	51	51	52	51	51.2
DH3	26	26	27	26	26	26.2
DH5	17	17	18	18	17	17.4
3DH1	50	51	51	51	51	50.8
3DH3	25	25	25	26	25	25.2
3DH5	17	17	17	18	17	17.2

Sample Calculation

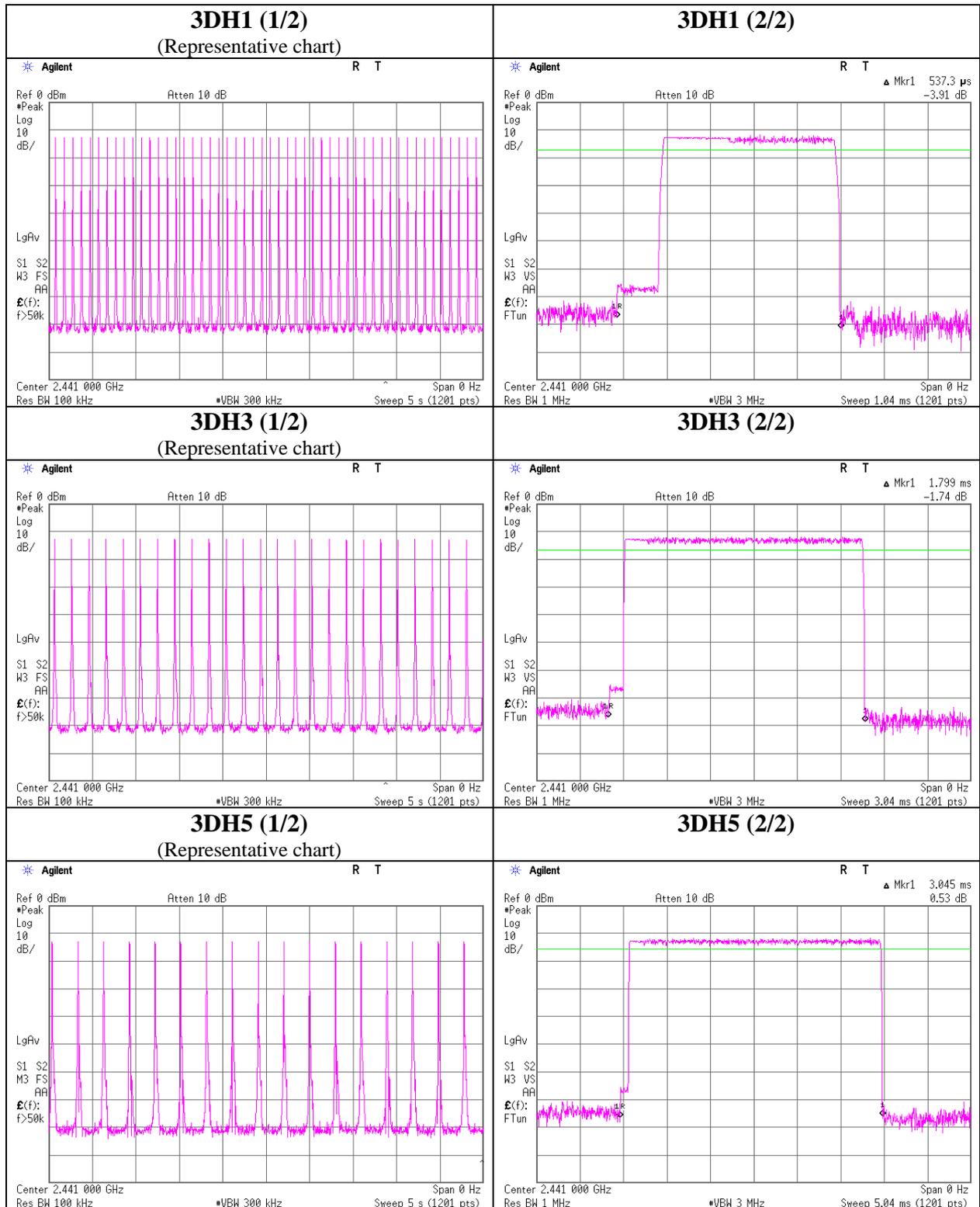
Average= Summation(Sampling 1 to 5) / 5



Dwell time



Dwell time



Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31HE0013-HO-01
Date 04/07/2011 04/07/2011 04/18/2011 05/05/2011
Temperature/ Humidity 20 deg.C/ 35% RH 20 deg.C/ 35% RH 20 deg.C/ 47% RH 22 deg.C/ 40% RH
Engineer Takeshi Choda Tomohisa Nakagawa Takayuki Shimada Katsunori Okai
Mode Tx, DH5 2402MHz (1-10GHz) (10-26.5GHz) (30-1000MHz) (1-10GHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.590	QP	53.0	6.7	7.6	32.2	35.1	40.0	4.9	
Hori	143.993	QP	42.4	14.8	8.5	32.1	33.6	43.5	9.9	
Hori	196.604	QP	41.9	16.6	8.9	32.0	35.4	43.5	8.1	
Hori	357.948	QP	37.7	16.8	10.1	32.1	32.5	46.0	13.5	
Hori	479.975	QP	44.2	18.9	10.9	32.1	41.9	46.0	4.1	
Hori	527.973	QP	40.1	19.4	11.2	32.1	38.6	46.0	7.4	
Hori	719.991	QP	31.9	22.3	12.3	32.2	34.3	46.0	11.7	
Hori	2390.000	PK	42.1	27.7	2.3	32.6	39.5	73.9	34.4	
Hori	2399.967	PK	59.5	27.7	2.4	32.6	57.0	73.9	16.9	
Hori	2400.000	PK	60.1	27.7	2.4	32.6	57.6	73.9	16.3	
Hori	4804.000	PK	42.4	31.6	4.9	31.9	47.0	73.9	26.9	
Hori	7206.000	PK	43.0	36.2	6.0	32.4	52.8	73.9	21.1	NS
Hori	9608.000	PK	44.0	38.0	6.7	32.9	55.8	73.9	18.1	NS
Hori	24020.000	PK	45.6	37.8	-1.4	31.6	50.4	73.9	23.5	NS
Hori	2390.000	AV	31.6	27.7	2.3	32.6	29.0	53.9	24.9	
Hori	2399.967	AV	48.2	27.7	2.4	32.6	45.7	53.9	8.2	
Hori	2400.000	AV	49.0	27.7	2.4	32.6	46.5	53.9	7.4	
Hori	4804.000	AV	29.2	31.6	4.9	31.9	33.8	53.9	20.1	
Hori	7206.000	AV	29.2	36.2	6.0	32.4	39.0	53.9	14.9	NS
Hori	9608.000	AV	30.3	38.0	6.7	32.9	42.1	53.9	11.8	NS
Hori	24020.000	AV	34.1	37.8	-1.4	31.6	38.9	53.9	15.0	NS
Vert	71.590	QP	49.9	6.7	7.6	32.2	32.0	40.0	8.0	
Vert	143.993	QP	36.3	14.8	8.5	32.1	27.5	43.5	16.0	
Vert	196.604	QP	37.6	16.6	8.9	32.0	31.1	43.5	12.4	
Vert	357.948	QP	33.1	16.8	10.1	32.1	27.9	46.0	18.1	
Vert	479.975	QP	37.9	18.9	10.9	32.1	35.6	46.0	10.4	
Vert	527.973	QP	39.3	19.4	11.2	32.1	37.8	46.0	8.2	
Vert	719.991	QP	28.6	22.3	12.3	32.2	31.0	46.0	15.0	
Vert	2390.000	PK	42.2	27.7	2.3	32.6	39.6	73.9	34.3	
Vert	2399.967	PK	56.2	27.7	2.4	32.6	53.7	73.9	20.2	
Vert	2400.000	PK	56.8	27.7	2.4	32.6	54.3	73.9	19.6	
Vert	4804.000	PK	43.5	31.6	4.9	31.9	48.1	73.9	25.8	
Vert	7206.000	PK	42.9	36.2	6.0	32.4	52.7	73.9	21.2	NS
Vert	9608.000	PK	44.3	38.0	6.7	32.9	56.1	73.9	17.8	NS
Vert	24020.000	PK	45.7	37.8	-1.4	31.6	50.5	73.9	23.4	NS
Vert	2390.000	AV	30.6	27.7	2.3	32.6	28.0	53.9	25.9	
Vert	2399.967	AV	44.9	27.7	2.4	32.6	42.4	53.9	11.5	
Vert	2400.000	AV	45.4	27.7	2.4	32.6	42.9	53.9	11.0	
Vert	4804.000	AV	29.7	31.6	4.9	31.9	34.3	53.9	19.6	
Vert	7206.000	AV	29.3	36.2	6.0	32.4	39.1	53.9	14.8	NS
Vert	9608.000	AV	30.3	38.0	6.7	32.9	42.1	53.9	11.8	NS
Vert	24020.000	AV	33.9	37.8	-1.4	31.6	38.7	53.9	15.2	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

NS:No Signal Detect

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31HE0013-HO-01
Date 04/07/2011 04/07/2011 04/18/2011
Temperature/ Humidity 20 deg.C/ 35% RH 20 deg.C/ 35% RH 20 deg.C/ 47% RH
Engineer Takeshi Choda Tomohisa Nakagawa Takayuki Shimada
(1-10GHz) (10-26.5GHz) (30-1000MHz)
Mode Tx, DH5 2441MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.590	QP	52.7	6.7	7.6	32.2	34.8	40.0	5.2	
Hori	143.993	QP	42.2	14.8	8.5	32.1	33.4	43.5	10.1	
Hori	196.604	QP	42.2	16.6	8.9	32.0	35.7	43.5	7.8	
Hori	357.948	QP	37.2	16.8	10.1	32.1	32.0	46.0	14.0	
Hori	479.975	QP	43.2	18.9	10.9	32.1	40.9	46.0	5.1	
Hori	527.973	QP	35.1	19.4	11.2	32.1	33.6	46.0	12.4	
Hori	719.991	QP	33.8	22.3	12.3	32.2	36.2	46.0	9.8	
Hori	4882.000	PK	41.4	31.9	5.0	31.9	46.4	73.9	27.5	NS
Hori	7323.000	PK	41.7	36.2	6.1	32.4	51.6	73.9	22.3	NS
Hori	9764.000	PK	41.2	38.1	6.7	32.9	53.1	73.9	20.8	NS
Hori	24410.000	PK	45.3	37.9	-1.3	31.4	50.5	73.9	23.4	NS
Hori	4882.000	AV	29.9	31.9	5.0	31.9	34.9	53.9	19.0	NS
Hori	7323.000	AV	30.0	36.2	6.1	32.4	39.9	53.9	14.0	NS
Hori	9764.000	AV	30.0	38.1	6.7	32.9	41.9	53.9	12.0	NS
Hori	24410.000	AV	33.7	37.9	-1.3	31.4	38.9	53.9	15.0	NS
Vert	71.590	QP	49.0	6.7	7.6	32.2	31.1	40.0	8.9	
Vert	143.993	QP	36.0	14.8	8.5	32.1	27.2	43.5	16.3	
Vert	196.604	QP	37.6	16.6	8.9	32.0	31.1	43.5	12.4	
Vert	357.948	QP	32.7	16.8	10.1	32.1	27.5	46.0	18.5	
Vert	479.975	QP	38.2	18.9	10.9	32.1	35.9	46.0	10.1	
Vert	527.973	QP	36.3	19.4	11.2	32.1	34.8	46.0	11.2	
Vert	719.991	QP	28.5	22.3	12.3	32.2	30.9	46.0	15.1	
Vert	4882.000	PK	40.2	31.9	5.0	31.9	45.2	73.9	28.7	NS
Vert	7323.000	PK	41.3	36.2	6.1	32.4	51.2	73.9	22.7	NS
Vert	9764.000	PK	41.3	38.1	6.7	32.9	53.2	73.9	20.7	NS
Vert	24410.000	PK	45.0	37.9	-1.3	31.4	50.2	73.9	23.7	NS
Vert	4882.000	AV	30.1	31.9	5.0	31.9	35.1	53.9	18.8	NS
Vert	7323.000	AV	29.9	36.2	6.1	32.4	39.8	53.9	14.1	NS
Vert	9764.000	AV	30.0	38.1	6.7	32.9	41.9	53.9	12.0	NS
Vert	24410.000	AV	33.6	37.9	-1.3	31.4	38.8	53.9	15.1	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

NS:No Signal Detect

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. : 31HE0013-HO-01
Date : 04/07/2011 04/07/2011 04/18/2011 05/05/2011
Temperature/ Humidity : 20 deg.C/ 35% RH 20 deg.C/ 35% RH 20 deg.C/ 47% RH 22 deg.C/ 40% RH
Engineer : Takeshi Choda Tomohisa Nakagawa Takayuki Shimada Katsunori Okai
Mode : (1-10GHz) (10-26.5GHz) (30-1000MHz) (1-10GHz)
Tx, DH5 2480MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.590	QP	52.5	6.7	7.6	32.2	34.6	40.0	5.4	
Hori	143.993	QP	42.4	14.8	8.5	32.1	33.6	43.5	9.9	
Hori	196.604	QP	42.2	16.6	8.9	32.0	35.7	43.5	7.8	
Hori	357.948	QP	37.5	16.8	10.1	32.1	32.3	46.0	13.8	
Hori	479.975	QP	43.4	18.9	10.9	32.1	41.1	46.0	4.9	
Hori	527.973	QP	37.9	19.4	11.2	32.1	36.4	46.0	9.6	
Hori	719.991	QP	34.6	22.3	12.3	32.2	37.0	46.0	9.0	
Hori	2483.500	PK	46.9	27.6	2.4	32.6	44.3	73.9	29.6	
Hori	2484.267	PK	48.3	27.6	2.4	32.6	45.7	73.9	28.2	
Hori	4960.000	PK	40.7	32.1	4.9	31.9	45.8	73.9	28.1	NS
Hori	7440.000	PK	43.0	36.2	6.1	32.4	52.9	73.9	21.0	NS
Hori	9920.000	PK	44.2	38.2	6.8	32.9	56.3	73.9	17.6	NS
Hori	24800.000	PK	47.2	38.0	-1.1	31.2	52.9	73.9	21.0	NS
Hori	2483.500	AV	35.2	27.6	2.4	32.6	32.6	53.9	21.3	
Hori	2484.267	AV	36.2	27.6	2.4	32.6	33.6	53.9	20.3	
Hori	4960.000	AV	29.1	32.1	4.9	31.9	34.2	53.9	19.7	NS
Hori	7440.000	AV	29.6	36.2	6.1	32.4	39.5	53.9	14.4	NS
Hori	9920.000	AV	30.5	38.2	6.8	32.9	42.6	53.9	11.3	NS
Hori	24800.000	AV	35.8	38.0	-1.1	31.2	41.5	53.9	12.4	NS
Vert	71.590	QP	50.6	6.7	7.6	32.2	32.7	40.0	7.3	
Vert	143.993	QP	36.1	14.8	8.5	32.1	27.3	43.5	16.2	
Vert	196.604	QP	38.1	16.6	8.9	32.0	31.6	43.5	11.9	
Vert	357.948	QP	33.3	16.8	10.1	32.1	28.1	46.0	17.9	
Vert	479.975	QP	42.8	18.9	10.9	32.1	40.5	46.0	5.5	
Vert	527.973	QP	36.5	19.4	11.2	32.1	35.0	46.0	11.0	
Vert	719.991	QP	29.5	22.3	12.3	32.2	31.9	46.0	14.1	
Vert	2483.500	PK	45.0	27.6	2.4	32.6	42.4	73.9	31.5	
Vert	2484.267	PK	46.2	27.6	2.4	32.6	43.6	73.9	30.3	
Vert	4960.000	PK	41.1	32.1	4.9	31.9	46.2	73.9	27.7	NS
Vert	7440.000	PK	44.3	36.2	6.1	32.4	54.2	73.9	19.7	NS
Vert	9920.000	PK	44.3	38.2	6.8	32.9	56.4	73.9	17.5	NS
Vert	24800.000	PK	47.2	38.0	-1.1	31.2	52.9	73.9	21.0	NS
Vert	2483.500	AV	33.6	27.6	2.4	32.6	31.0	53.9	22.9	
Vert	2484.267	AV	35.3	27.6	2.4	32.6	32.7	53.9	21.2	
Vert	4960.000	AV	29.2	32.1	4.9	31.9	34.3	53.9	19.6	NS
Vert	7440.000	AV	29.8	36.2	6.1	32.4	39.7	53.9	14.2	NS
Vert	9920.000	AV	30.6	38.2	6.8	32.9	42.7	53.9	11.2	NS
Vert	24800.000	AV	35.9	38.0	-1.1	31.2	41.6	53.9	12.3	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

NS:No Signal Detect

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31HE0013-HO-01
Date 04/07/2011 04/07/2011 04/18/2011 05/05/2011
Temperature/ Humidity 20 deg.C/ 35% RH 20 deg.C/ 35% RH 20 deg.C/ 47% RH 22 deg.C/ 40% RH
Engineer Takeshi Choda Tomohisa Nakagawa Takayuki Shimada Katsunori Okai
(1-10GHz) (10-26.5GHz) (30-1000MHz) (1-10GHz)
Mode Tx, 3DH5 2402MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.590	QP	52.5	6.7	7.6	32.2	34.6	40.0	5.4	
Hori	143.993	QP	42.4	14.8	8.5	32.1	33.6	43.5	9.9	
Hori	196.604	QP	42.4	16.6	8.9	32.0	35.9	43.5	7.6	
Hori	357.948	QP	38.0	16.8	10.1	32.1	32.8	46.0	13.2	
Hori	479.975	QP	43.2	18.9	10.9	32.1	40.9	46.0	5.1	
Hori	527.973	QP	37.9	19.4	11.2	32.1	36.4	46.0	9.6	
Hori	719.991	QP	34.6	22.3	12.3	32.2	37.0	46.0	9.0	
Hori	2390.000	PK	42.9	27.7	2.3	32.6	40.3	73.9	33.6	
Hori	2399.950	PK	68.2	27.7	2.4	32.6	65.7	-	-	- See 20dBc Data Sheet
Hori	2400.000	PK	69.2	27.7	2.4	32.6	66.7	-	-	- See 20dBc Data Sheet
Hori	4804.000	PK	42.4	31.6	4.9	31.9	47.0	73.9	26.9	NS
Hori	7206.000	PK	43.2	36.2	6.0	32.4	53.0	73.9	20.9	NS
Hori	9608.000	PK	44.2	38.0	6.7	32.9	56.0	73.9	17.9	NS
Hori	24020.000	PK	45.7	37.8	-1.4	31.6	50.5	73.9	23.4	NS
Hori	2390.000	AV	31.6	27.7	2.3	32.6	29.0	53.9	24.9	
Hori	2399.950	AV	54.5	27.7	2.4	32.6	52.0	-	-	- See 20dBc Data Sheet
Hori	2400.000	AV	55.6	27.7	2.4	32.6	53.1	-	-	- See 20dBc Data Sheet
Hori	4804.000	AV	29.1	31.6	4.9	31.9	33.7	53.9	20.2	NS
Hori	7206.000	AV	29.4	36.2	6.0	32.4	39.2	53.9	14.7	NS
Hori	9608.000	AV	30.3	38.0	6.7	32.9	42.1	53.9	11.8	NS
Hori	24020.000	AV	34.6	37.8	-1.4	31.6	39.4	53.9	14.5	NS
Vert	71.590	QP	50.7	6.7	7.6	32.2	32.8	40.0	7.2	
Vert	143.993	QP	36.2	14.8	8.5	32.1	27.4	43.5	16.1	
Vert	196.604	QP	38.1	16.6	8.9	32.0	31.6	43.5	11.9	
Vert	357.948	QP	33.4	16.8	10.1	32.1	28.2	46.0	17.8	
Vert	479.975	QP	43.0	18.9	10.9	32.1	40.7	46.0	5.3	
Vert	527.973	QP	37.5	19.4	11.2	32.1	36.0	46.0	10.0	
Vert	719.991	QP	29.5	22.3	12.3	32.2	31.9	46.0	14.1	
Vert	2390.000	PK	42.4	27.7	2.3	32.6	39.8	73.9	34.1	
Vert	2399.950	PK	64.1	27.7	2.4	32.6	61.6	-	-	- See 20dBc Data Sheet
Vert	2400.000	PK	65.7	27.7	2.4	32.6	63.2	-	-	- See 20dBc Data Sheet
Vert	4804.000	PK	42.5	31.6	4.9	31.9	47.1	73.9	26.8	NS
Vert	7206.000	PK	43.1	36.2	6.0	32.4	52.9	73.9	21.0	NS
Vert	9608.000	PK	44.7	38.0	6.7	32.9	56.5	73.9	17.4	NS
Vert	24020.000	PK	45.8	37.8	-1.4	31.6	50.6	73.9	23.3	NS
Vert	2390.000	AV	30.7	27.7	2.3	32.6	28.1	53.9	25.8	
Vert	2399.950	AV	50.9	27.7	2.4	32.6	48.4	-	-	- See 20dBc Data Sheet
Vert	2400.000	AV	52.2	27.7	2.4	32.6	49.7	-	-	- See 20dBc Data Sheet
Vert	4804.000	AV	29.0	31.6	4.9	31.9	33.6	53.9	20.3	NS
Vert	7206.000	AV	29.4	36.2	6.0	32.4	39.2	53.9	14.7	NS
Vert	9608.000	AV	30.2	38.0	6.7	32.9	42.0	53.9	11.9	NS
Vert	24020.000	AV	34.5	37.8	-1.4	31.6	39.3	53.9	14.6	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

NS:No Signal Detect

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31HE0013-HO-01
Date 04/07/2011 04/07/2011 04/18/2011
Temperature/ Humidity 20 deg.C/ 35% RH 20 deg.C/ 35% RH 20 deg.C/ 47% RH
Engineer Tomohisa Nakagawa Tomohisa Nakagawa Takayuki Shimada
(1-10GHz) (10-26.5GHz) (30-1000MHz)
Mode Tx, 3DH5 2441MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.590	QP	52.4	6.7	7.6	32.2	34.5	40.0	5.5	
Hori	143.993	QP	41.8	14.8	8.5	32.1	33.0	43.5	10.5	
Hori	196.604	QP	42.0	16.6	8.9	32.0	35.5	43.5	8.0	
Hori	357.947	QP	35.6	16.8	10.1	32.1	30.4	46.0	15.6	
Hori	479.975	QP	41.0	18.9	10.9	32.1	38.7	46.0	7.3	
Hori	527.973	QP	36.4	19.4	11.2	32.1	34.9	46.0	11.1	
Hori	719.991	QP	33.0	22.3	12.3	32.2	35.4	46.0	10.6	
Hori	4882.000	PK	41.1	31.9	5.0	31.9	46.1	73.9	27.8	NS
Hori	7323.000	PK	42.2	36.2	6.1	32.4	52.1	73.9	21.8	NS
Hori	9764.000	PK	42.0	38.1	6.7	32.9	53.9	73.9	20.0	NS
Hori	24410.000	PK	44.9	37.9	-1.3	31.4	50.1	73.9	23.8	NS
Hori	4882.000	AV	29.5	31.9	5.0	31.9	34.5	53.9	19.4	NS
Hori	7323.000	AV	31.4	36.2	6.1	32.4	41.3	53.9	12.6	NS
Hori	9764.000	AV	29.9	38.1	6.7	32.9	41.8	53.9	12.1	NS
Hori	24410.000	AV	33.7	37.9	-1.3	31.4	38.9	53.9	15.0	NS
Vert	71.590	QP	50.6	6.7	7.6	32.2	32.7	40.0	7.3	
Vert	143.993	QP	36.0	14.8	8.5	32.1	27.2	43.5	16.3	
Vert	196.604	QP	38.1	16.6	8.9	32.0	31.6	43.5	11.9	
Vert	357.947	QP	32.1	16.8	10.1	32.1	26.9	46.0	19.1	
Vert	479.975	QP	39.0	18.9	10.9	32.1	36.7	46.0	9.3	
Vert	527.973	QP	37.6	19.4	11.2	32.1	36.1	46.0	9.9	
Vert	719.991	QP	30.1	22.3	12.3	32.2	32.5	46.0	13.5	
Vert	4882.000	PK	40.9	31.9	5.0	31.9	45.9	73.9	28.0	NS
Vert	7323.000	PK	41.3	36.2	6.1	32.4	51.2	73.9	22.7	NS
Vert	9764.000	PK	42.1	38.1	6.7	32.9	54.0	73.9	19.9	NS
Vert	24410.000	PK	45.5	37.9	-1.3	31.4	50.7	73.9	23.2	NS
Vert	4882.000	AV	29.2	31.9	5.0	31.9	34.2	53.9	19.7	NS
Vert	7323.000	AV	30.0	36.2	6.1	32.4	39.9	53.9	14.0	NS
Vert	9764.000	AV	30.0	38.1	6.7	32.9	41.9	53.9	12.0	NS
Vert	24410.000	AV	33.8	37.9	-1.3	31.4	39.0	53.9	14.9	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

NS:No Signal Detect

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31HE0013-HO-01
Date 04/07/2011 04/07/2011 04/18/2011
Temperature/ Humidity 20 deg.C/ 35% RH 20 deg.C/ 35% RH 20 deg.C/ 47% RH
Engineer Tomohisa Nakagawa Tomohisa Nakagawa Takayuki Shimada
(1-10GHz) (10-26.5GHz) (30-1000MHz)
Mode Tx, 3DH5 2480MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	71.590	QP	52.5	6.7	7.6	32.2	34.6	40.0	5.4	
Hori	143.993	QP	42.4	14.8	8.5	32.1	33.6	43.5	9.9	
Hori	196.604	QP	42.3	16.6	8.9	32.0	35.8	43.5	7.7	
Hori	357.947	QP	37.0	16.8	10.1	32.1	31.8	46.0	14.2	
Hori	479.975	QP	41.0	18.9	10.9	32.1	38.7	46.0	7.3	
Hori	527.973	QP	36.1	19.4	11.2	32.1	34.6	46.0	11.4	
Hori	719.991	QP	34.0	22.3	12.3	32.2	36.4	46.0	9.6	
Hori	2483.500	PK	47.2	27.6	2.4	32.6	44.6	73.9	29.3	
Hori	2484.150	PK	44.6	27.6	2.4	32.6	42.0	73.9	31.9	
Hori	4960.000	PK	41.0	32.1	4.9	31.9	46.1	73.9	27.8	NS
Hori	7440.000	PK	42.9	36.2	4.5	32.4	51.2	73.9	22.7	NS
Hori	9920.000	PK	42.4	38.2	6.8	32.9	54.5	73.9	19.4	NS
Hori	24800.000	PK	47.2	38.0	-1.1	31.2	52.9	73.9	21.0	NS
Hori	2483.500	AV	35.2	27.6	2.4	32.6	32.6	53.9	21.3	
Hori	2484.150	AV	30.8	27.6	2.4	32.6	28.2	53.9	25.8	
Hori	4960.000	AV	29.3	32.1	4.9	31.9	34.4	53.9	19.5	NS
Hori	7440.000	AV	30.4	36.2	4.5	32.4	38.7	53.9	15.2	NS
Hori	9920.000	AV	30.9	38.2	6.8	32.9	43.0	53.9	10.9	NS
Hori	24800.000	AV	35.9	38.0	-1.1	31.2	41.6	53.9	12.3	NS
Vert	71.590	QP	50.6	6.7	7.6	32.2	32.7	40.0	7.3	
Vert	143.993	QP	36.0	14.8	8.5	32.1	27.2	43.5	16.3	
Vert	196.604	QP	38.0	16.6	8.9	32.0	31.5	43.5	12.0	
Vert	357.947	QP	33.0	16.8	10.1	32.1	27.8	46.0	18.2	
Vert	479.975	QP	38.9	18.9	10.9	32.1	36.6	46.0	9.4	
Vert	527.973	QP	37.5	19.4	11.2	32.1	36.0	46.0	10.0	
Vert	719.991	QP	29.5	22.3	12.3	32.2	31.9	46.0	14.1	
Vert	2483.500	PK	45.6	27.6	2.4	32.6	43.0	73.9	30.9	
Vert	2484.150	PK	36.5	27.6	2.4	32.6	33.9	73.9	40.0	
Vert	4960.000	PK	42.3	32.1	4.9	31.9	47.4	73.9	26.5	NS
Vert	7440.000	PK	41.9	36.2	6.1	32.4	51.8	73.9	22.1	NS
Vert	9920.000	PK	44.5	38.2	6.8	32.9	56.6	73.9	17.3	NS
Vert	24800.000	PK	47.3	38.0	-1.1	31.2	53.0	73.9	20.9	NS
Vert	2483.500	AV	35.1	27.6	2.4	32.6	32.5	53.9	21.4	
Vert	2484.150	AV	32.8	27.6	2.4	32.6	30.2	53.9	23.7	
Vert	4960.000	AV	30.5	32.1	4.9	31.9	35.6	53.9	18.4	NS
Vert	7440.000	AV	30.7	36.2	6.1	32.4	40.6	53.9	13.3	NS
Vert	9920.000	AV	30.7	38.2	6.8	32.9	42.8	53.9	11.1	NS
Vert	24800.000	AV	35.9	38.0	-1.1	31.2	41.6	53.9	12.3	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

NS:No Signal Detect

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
 Report No. : 31HE0013-HO-01
 Date : 04/26/2011
 Temperature/ Humidity : 23 deg.C/ 37% RH
 Engineer : Takumi Shimada

 Mode : Tx, DH5 2402MHz + PCS1900 1909.8MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2390.000	PK	42.8	27.7	2.3	32.6	40.2	73.9	33.7	
Hori	2399.967	PK	56.7	27.7	2.4	32.6	54.2	73.9	19.8	
Hori	2400.000	PK	57.2	27.7	2.4	32.6	54.7	73.9	19.2	
Hori	2390.000	AV	31.2	27.7	2.3	32.6	28.6	53.9	25.3	
Hori	2399.967	AV	46.3	27.7	2.4	32.6	43.8	53.9	10.1	
Hori	2400.000	AV	47.0	27.7	2.4	32.6	44.5	53.9	9.4	
Vert	2390.000	PK	43.1	27.7	2.3	32.6	40.5	73.9	33.4	
Vert	2399.967	PK	54.6	27.7	2.4	32.6	52.1	73.9	21.8	
Vert	2400.000	PK	55.0	27.7	2.4	32.6	52.5	73.9	21.4	
Vert	2390.000	AV	30.9	27.7	2.3	32.6	28.3	53.9	25.6	
Vert	2399.967	AV	43.9	27.7	2.4	32.6	41.4	53.9	12.5	
Vert	2400.000	AV	44.5	27.7	2.4	32.6	42.0	53.9	11.9	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31HE0013-HO-01
Date 04/26/2011 05/03/2011
Temperature/ Humidity 23 deg.C/ 37% RH 20 deg.C/ 39% RH
Engineer Takumi Shimada Katsunori Okai
Mode Tx, DH5 2441MHz + PCS1900 1909.8MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	45.002	QP	23.8	14.6	7.4	32.2	13.6	40.0	26.4	
Hori	100.224	QP	43.8	10.1	8.1	32.1	29.9	43.5	13.6	
Hori	158.921	QP	40.5	15.5	8.7	32.0	32.7	43.5	10.8	
Hori	191.997	QP	43.9	16.2	9.0	32.0	37.1	43.5	6.4	
Hori	474.803	QP	34.7	18.0	11.0	32.0	31.7	46.0	14.3	
Hori	527.978	QP	32.8	18.5	11.4	32.0	30.7	46.0	15.3	
Hori	720.001	QP	31.8	20.7	12.4	31.8	33.1	46.0	12.9	
Hori	4882.000	PK	41.3	31.9	5.0	31.9	46.3	73.9	27.6	NS
Hori	7323.000	PK	41.6	36.2	6.1	32.4	51.5	73.9	22.4	NS
Hori	9764.000	PK	41.3	38.1	6.7	32.9	53.2	73.9	20.7	NS
Hori	24410.000	PK	45.2	37.9	-1.3	31.4	50.4	73.9	23.5	NS
Hori	4882.000	AV	28.9	31.9	5.0	31.9	33.9	53.9	20.0	NS
Hori	7323.000	AV	29.7	36.2	6.1	32.4	39.6	53.9	14.3	NS
Hori	9764.000	AV	29.9	38.1	6.7	32.9	41.8	53.9	12.1	NS
Hori	24410.000	AV	33.7	37.9	-1.3	31.4	38.9	53.9	15.0	NS
Vert	41.668	QP	39.4	15.0	7.3	32.2	29.5	40.0	10.5	
Vert	100.225	QP	45.9	10.1	8.1	32.1	32.0	43.5	11.5	
Vert	165.928	QP	39.6	15.6	8.8	32.0	32.0	43.5	11.5	
Vert	191.999	QP	43.1	16.2	9.0	32.0	36.3	43.5	7.2	
Vert	458.818	QP	31.1	17.8	10.9	32.0	27.8	46.0	18.2	
Vert	527.991	QP	32.9	18.5	11.4	32.0	30.8	46.0	15.2	
Vert	719.992	QP	31.5	20.7	12.4	31.8	32.8	46.0	13.2	
Vert	4882.000	PK	40.6	31.9	5.0	31.9	45.6	73.9	28.3	NS
Vert	7323.000	PK	41.7	36.2	6.1	32.4	51.6	73.9	22.3	NS
Vert	9764.000	PK	41.4	38.1	6.7	32.9	53.3	73.9	20.6	NS
Vert	24410.000	PK	45.1	37.9	-1.3	31.4	50.3	73.9	23.6	NS
Vert	4882.000	AV	29.3	31.9	5.0	31.9	34.3	53.9	19.6	NS
Vert	7323.000	AV	29.7	36.2	6.1	32.4	39.6	53.9	14.3	NS
Vert	9764.000	AV	30.0	38.1	6.7	32.9	41.9	53.9	12.0	NS
Vert	24410.000	AV	33.6	37.9	-1.3	31.4	38.8	53.9	15.1	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

NS:No Signal Detect

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
 Report No. : 31HE0013-HO-01
 Date : 04/26/2011 05/05/2011
 Temperature/ Humidity : 23 deg.C/ 37% RH 22 deg.C/ 40% RH
 Engineer : Takumi Shimada Katsunori Okai

 Mode : Tx, DH5 2480MHz + PCS1900 1909.8MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2483.500	PK	49.6	27.6	2.4	32.6	47.0	73.9	26.9	
Hori	2484.267	PK	47.8	27.6	2.4	32.6	45.2	73.9	28.7	
Hori	2483.500	AV	37.4	27.6	2.4	32.6	34.8	53.9	19.1	
Hori	2484.267	AV	35.5	27.6	2.4	32.6	32.9	53.9	21.0	
Vert	2483.500	PK	47.9	27.6	2.4	32.6	45.3	73.9	28.6	
Vert	2484.267	PK	46.8	27.6	2.4	32.6	44.2	73.9	29.7	
Vert	2483.500	AV	35.0	27.6	2.4	32.6	32.4	53.9	21.5	
Vert	2484.267	AV	32.7	27.6	2.4	32.6	30.1	53.9	23.8	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31HE0013-HO-01
Date 04/26/2011
Temperature/ Humidity 23 deg.C/ 37% RH
Engineer Takumi Shimada

Mode Tx, 3DH5 2402MHz +WCDMA Band V 846.6MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2390.000	PK	43.4	27.7	2.3	32.6	40.8	73.9	33.1	
Hori	2399.950	PK	66.9	27.7	2.4	32.6	64.4	-	-	- See 20dBc Data Sheet
Hori	2400.000	PK	67.7	27.7	2.4	32.6	65.2	-	-	- See 20dBc Data Sheet
Hori	2390.000	AV	30.7	27.7	2.3	32.6	28.1	53.9	25.8	
Hori	2399.950	AV	56.1	27.7	2.4	32.6	53.6	-	-	- See 20dBc Data Sheet
Hori	2400.000	AV	56.4	27.7	2.4	32.6	53.9	-	-	- See 20dBc Data Sheet
Vert	2390.000	PK	43.3	27.7	2.3	32.6	40.7	73.9	33.2	
Vert	2399.950	PK	66.3	27.7	2.4	32.6	63.8	-	-	- See 20dBc Data Sheet
Vert	2400.000	PK	67.5	27.7	2.4	32.6	65.0	-	-	- See 20dBc Data Sheet
Vert	2390.000	AV	31.0	27.7	2.3	32.6	28.4	53.9	25.5	
Vert	2399.950	AV	55.4	27.7	2.4	32.6	52.9	-	-	- See 20dBc Data Sheet
Vert	2400.000	AV	55.9	27.7	2.4	32.6	53.4	-	-	- See 20dBc Data Sheet

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

20dBc Data Sheet

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	98.6	27.7	2.4	32.6	96.1	-	-	Carrier
Hori	2400.000	PK	56.9	27.7	2.4	32.6	54.4	76.1	21.7	
Hori	2399.950	PK	57.9	27.7	2.4	32.6	55.4	76.1	20.7	
Vert	2402.000	PK	96.5	27.7	2.4	32.6	94.0	-	-	Carrier
Vert	2400.000	PK	57.1	27.7	2.4	32.6	54.6	74.0	19.4	
Vert	2399.950	PK	56.7	27.7	2.4	32.6	54.2	74.0	19.8	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31HE0013-HO-01
Date 04/26/2011 05/03/2011
Temperature/ Humidity 23 deg.C/ 37% RH 20 deg.C/ 39% RH
Engineer Takumi Shimada Katsunori Okai
Mode Tx, 3DH5 2441MHz +WCDMA Band V 846.6MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	45.034	QP	23.6	14.5	7.4	32.2	13.3	40.0	26.7	
Hori	100.227	QP	43.4	10.1	8.1	32.1	29.5	43.5	14.0	
Hori	160.366	QP	38.9	15.5	8.8	32.0	31.2	43.5	12.3	
Hori	196.604	QP	35.0	16.4	9.1	32.0	28.5	43.5	15.0	
Hori	479.871	QP	33.6	18.0	11.1	32.0	30.7	46.0	15.3	
Hori	719.987	QP	33.0	20.7	12.4	31.8	34.3	46.0	11.7	
Hori	4882.000	PK	41.2	31.9	5.0	31.9	46.2	73.9	27.7	NS
Hori	7323.000	PK	41.5	36.2	6.1	32.4	51.4	73.9	22.5	NS
Hori	9764.000	PK	42.2	38.1	6.7	32.9	54.1	73.9	19.8	NS
Hori	24410.000	PK	45.3	37.9	-1.3	31.4	50.5	73.9	23.4	NS
Hori	4882.000	AV	29.3	31.9	5.0	31.9	34.3	53.9	19.6	NS
Hori	7323.000	AV	30.2	36.2	6.1	32.4	40.1	53.9	13.8	NS
Hori	9764.000	AV	30.1	38.1	6.7	32.9	42.0	53.9	11.9	NS
Hori	24410.000	AV	33.6	37.9	-1.3	31.4	38.8	53.9	15.1	NS
Vert	41.532	QP	38.3	15.0	7.3	32.2	28.4	40.0	11.6	
Vert	100.227	QP	45.7	10.1	8.1	32.1	31.8	43.5	11.7	
Vert	164.304	QP	38.5	15.6	8.8	32.0	30.9	43.5	12.6	
Vert	203.291	QP	35.5	16.6	9.1	32.0	29.2	43.5	14.3	
Vert	480.012	QP	29.8	18.0	11.1	32.0	26.9	46.0	19.1	
Vert	719.989	QP	27.8	20.7	12.4	31.8	29.1	46.0	16.9	
Vert	4882.000	PK	41.1	31.9	5.0	31.9	46.1	73.9	27.8	NS
Vert	7323.000	PK	41.5	36.2	6.1	32.4	51.4	73.9	22.5	NS
Vert	9764.000	PK	42.2	38.1	6.7	32.9	54.1	73.9	19.8	NS
Vert	24410.000	PK	45.2	37.9	-1.3	31.4	50.4	73.9	23.5	NS
Vert	4882.000	AV	29.4	31.9	5.0	31.9	34.4	53.9	19.5	NS
Vert	7323.000	AV	30.1	36.2	6.1	32.4	40.0	53.9	13.9	NS
Vert	9764.000	AV	30.0	38.1	6.7	32.9	41.9	53.9	12.0	NS
Vert	24410.000	AV	33.6	37.9	-1.3	31.4	38.8	53.9	15.1	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

NS:No Signal Detect

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31HE0013-HO-01
Date 05/05/2011
Temperature/ Humidity 22 deg.C/ 40% RH
Engineer Katsunori Okai
Mode Tx, 3DH5 2480MHz +WCDMA Band V 846.6MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2483.500	PK	49.0	27.6	2.6	32.6	46.6	73.9	27.3	
Hori	2484.150	PK	48.1	27.6	2.6	32.6	45.7	73.9	28.2	
Hori	2483.500	AV	35.0	27.6	2.6	32.6	32.6	53.9	21.3	
Hori	2484.150	AV	35.0	27.6	2.6	32.6	32.6	53.9	21.3	
Vert	2483.500	PK	45.4	27.6	2.6	32.6	43.0	73.9	30.9	
Vert	2484.150	PK	45.1	27.6	2.6	32.6	42.7	73.9	31.2	
Vert	2483.500	AV	33.7	27.6	2.6	32.6	31.3	53.9	22.6	
Vert	2484.150	AV	33.6	27.6	2.6	32.6	31.2	53.9	22.7	

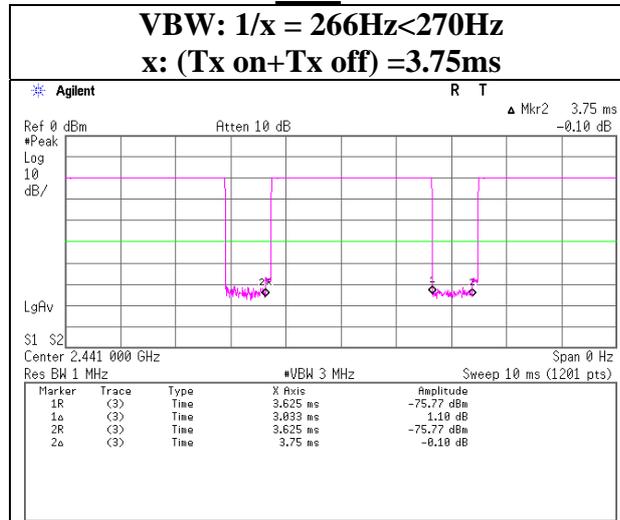
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

*For the band edge of the carrier and the harmonics that emission was found, the test was performed with VBW of the average detector set at 270Hz. For other average detectors, VBW was set at 10Hz.

VBW (AV) Calculation

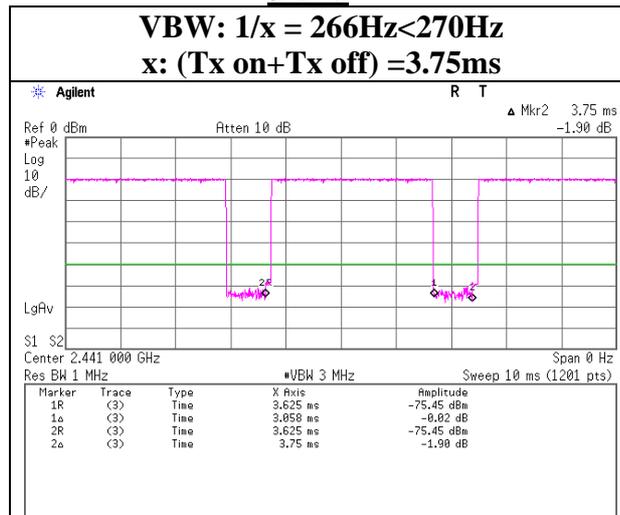
DH5

VBW: $1/x = 266\text{Hz} < 270\text{Hz}$
 $x: (\text{Tx on} + \text{Tx off}) = 3.75\text{ms}$



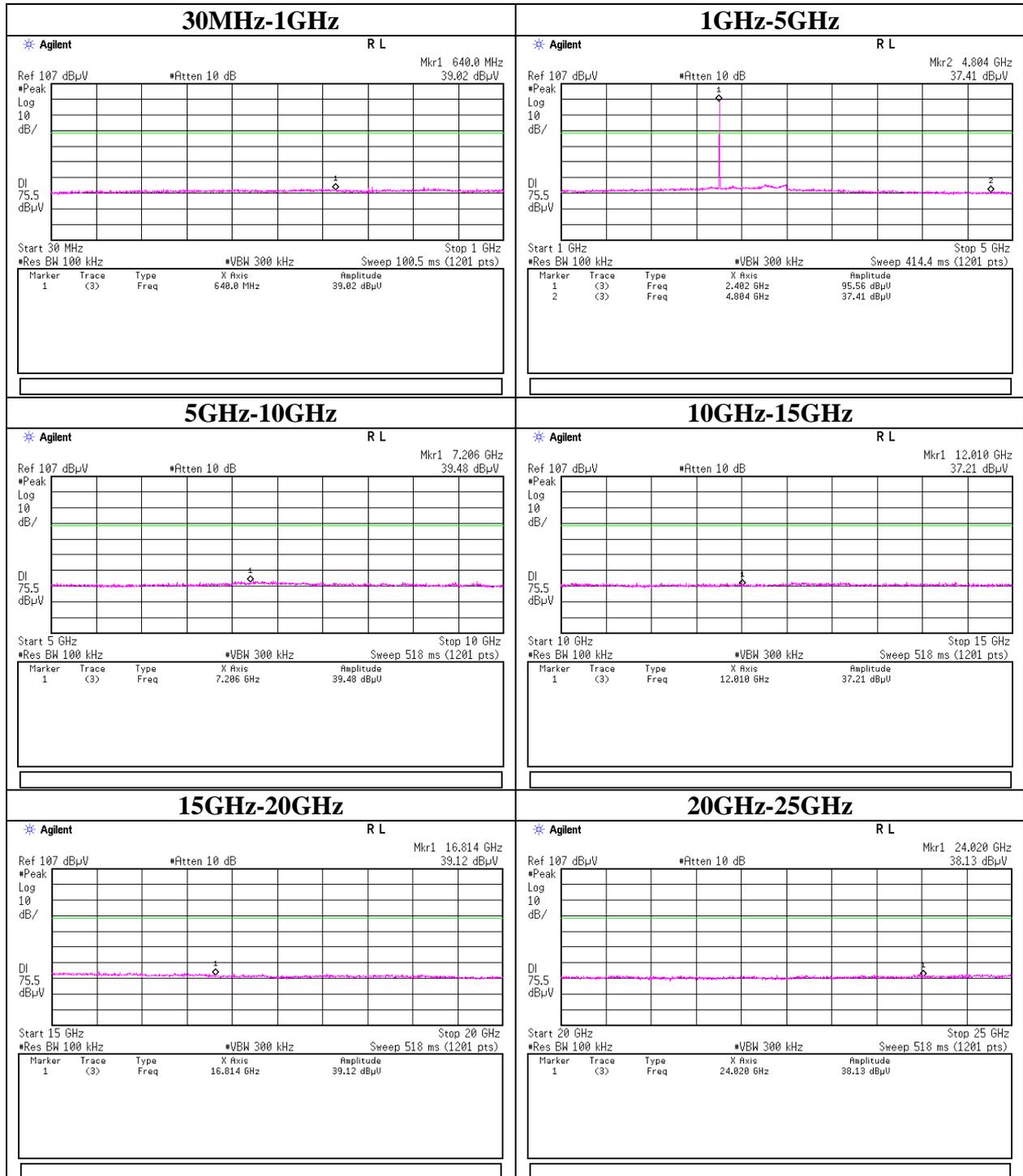
3DH5

VBW: $1/x = 266\text{Hz} < 270\text{Hz}$
 $x: (\text{Tx on} + \text{Tx off}) = 3.75\text{ms}$



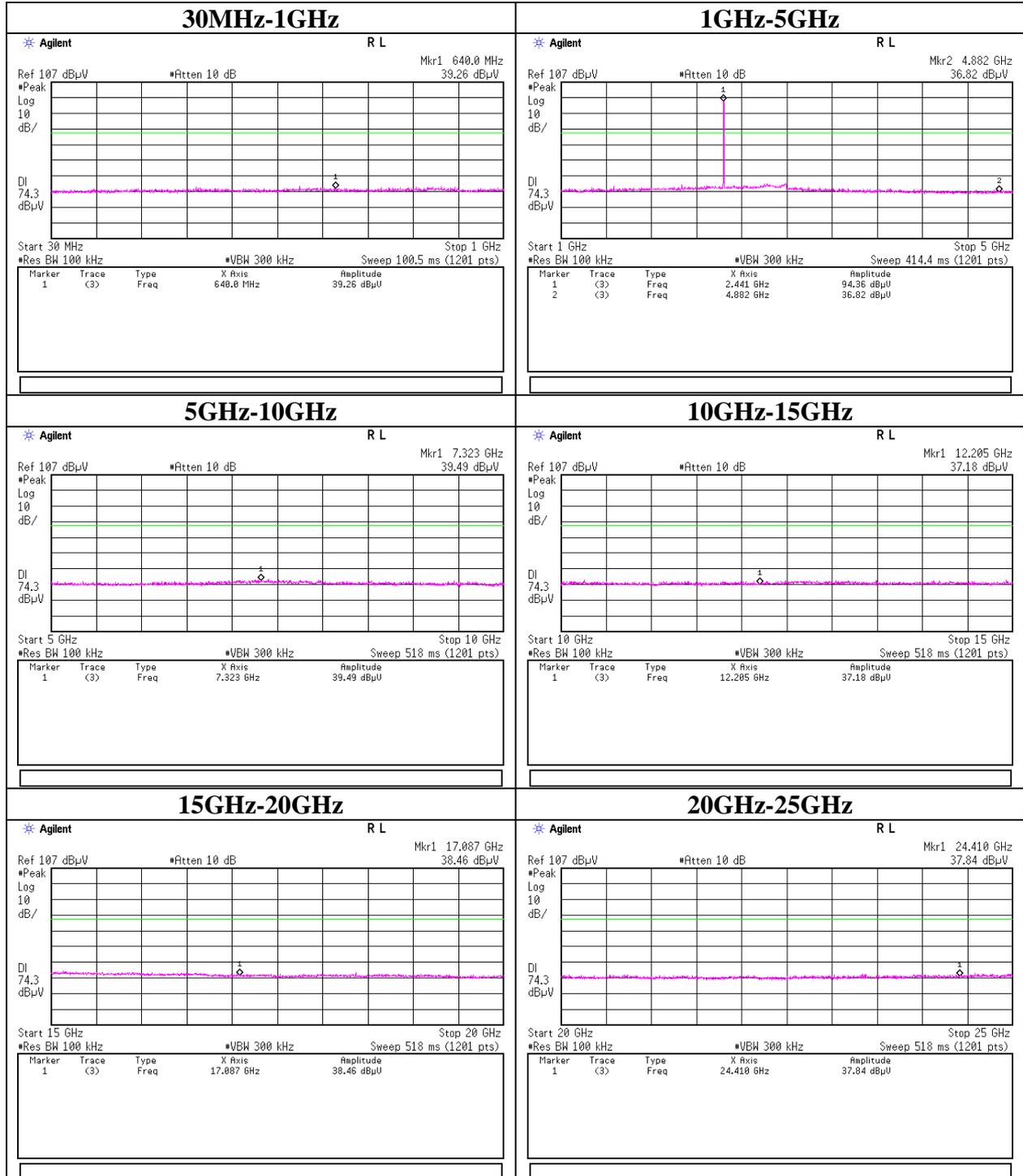
Conducted Spurious Emission

Tx DH5 2402MHz



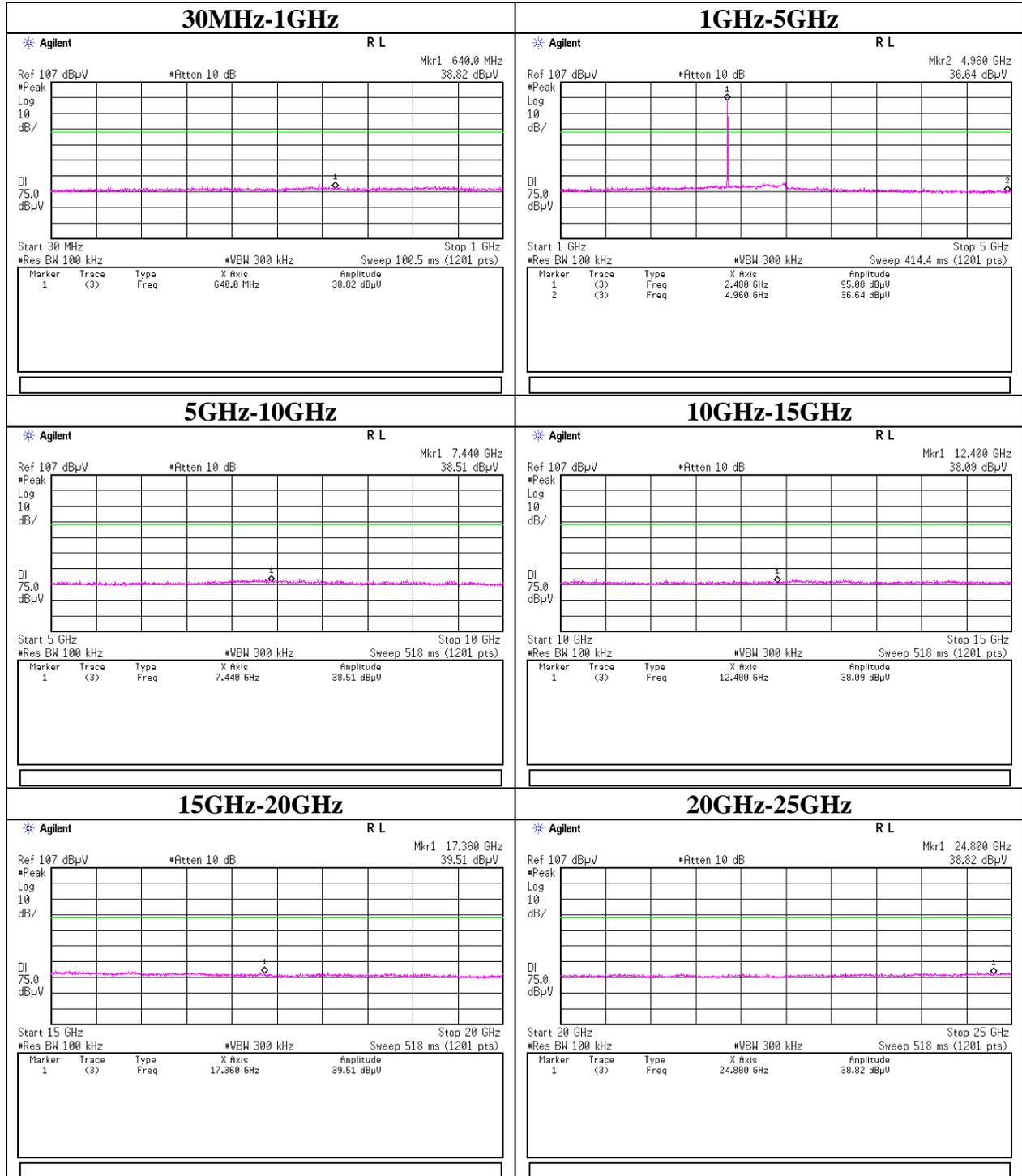
Conducted Spurious Emission

Tx DH5 2441MHz



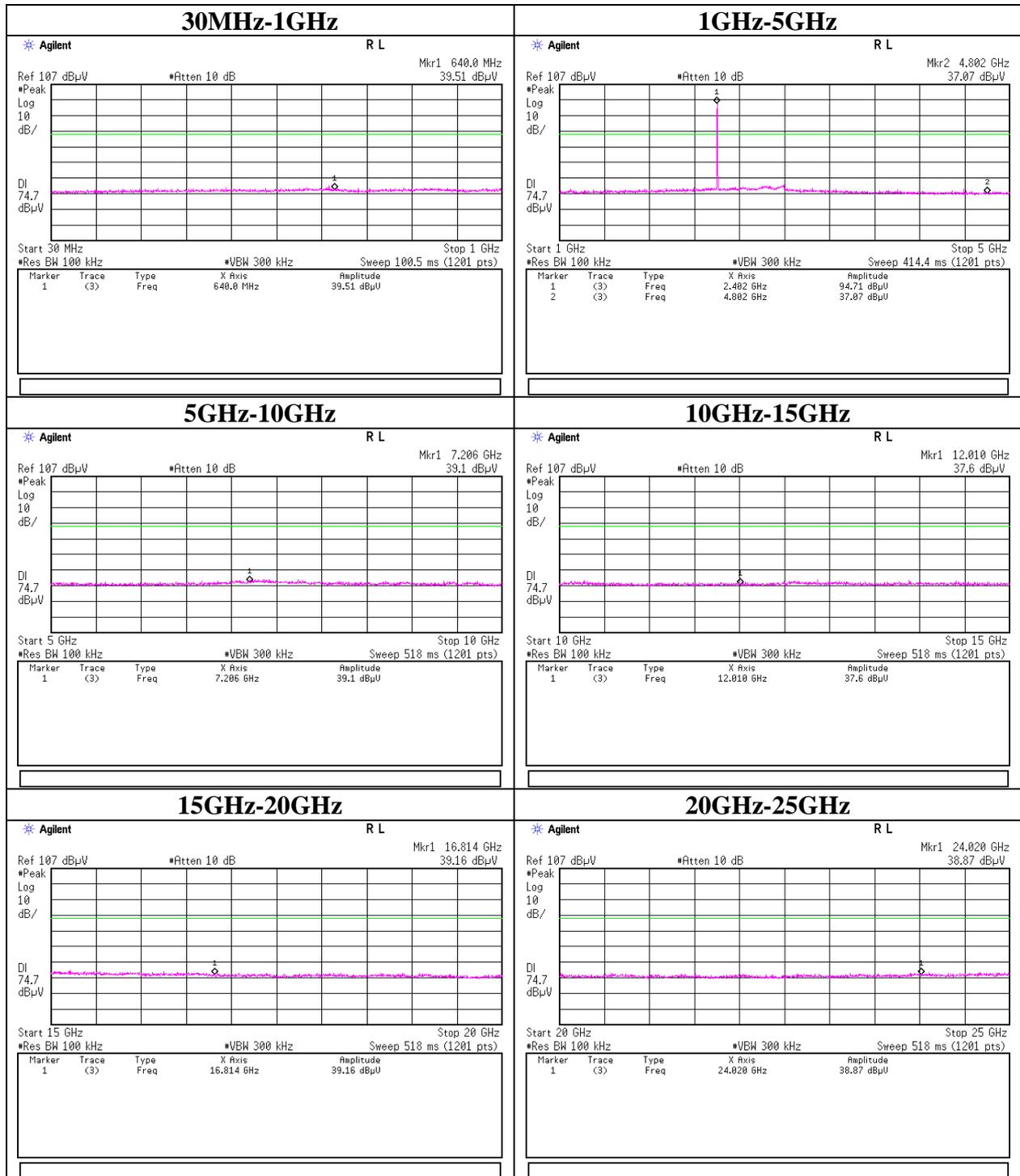
Conducted Spurious Emission

Tx DH5 2480MHz



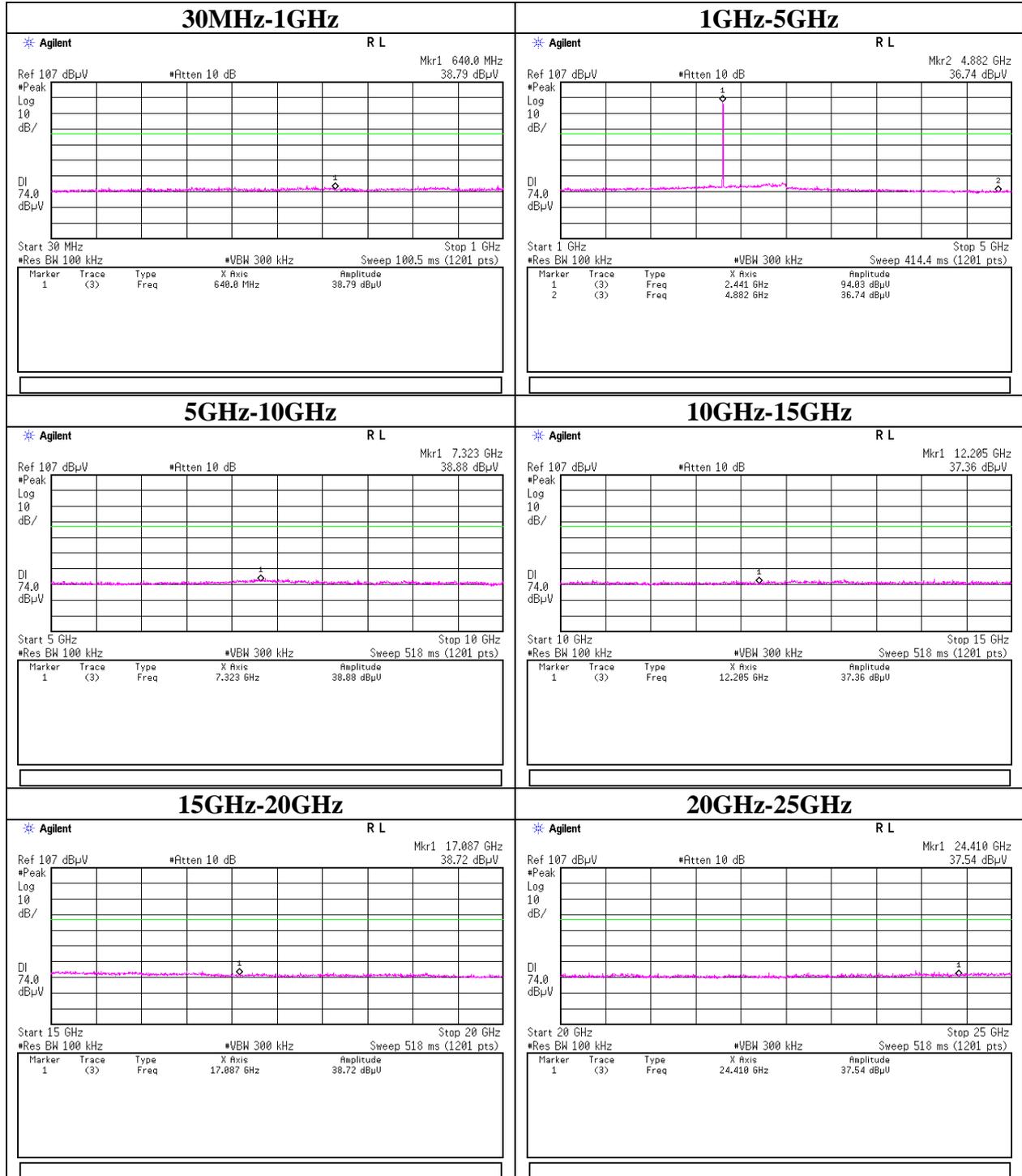
Conducted Spurious Emission

Tx 3DH5 2402MHz



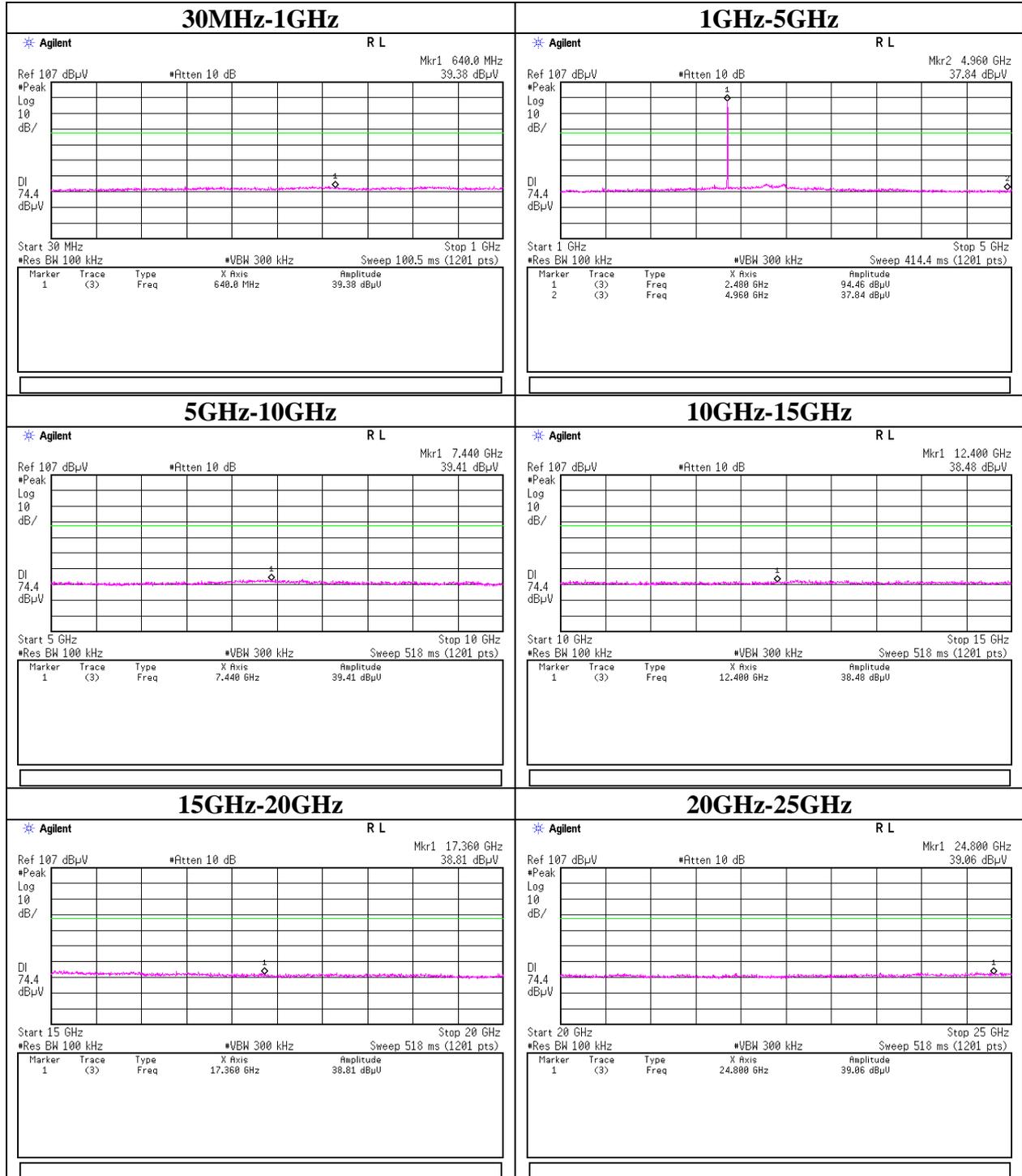
Conducted Spurious Emission

Tx 3DH5 2441MHz



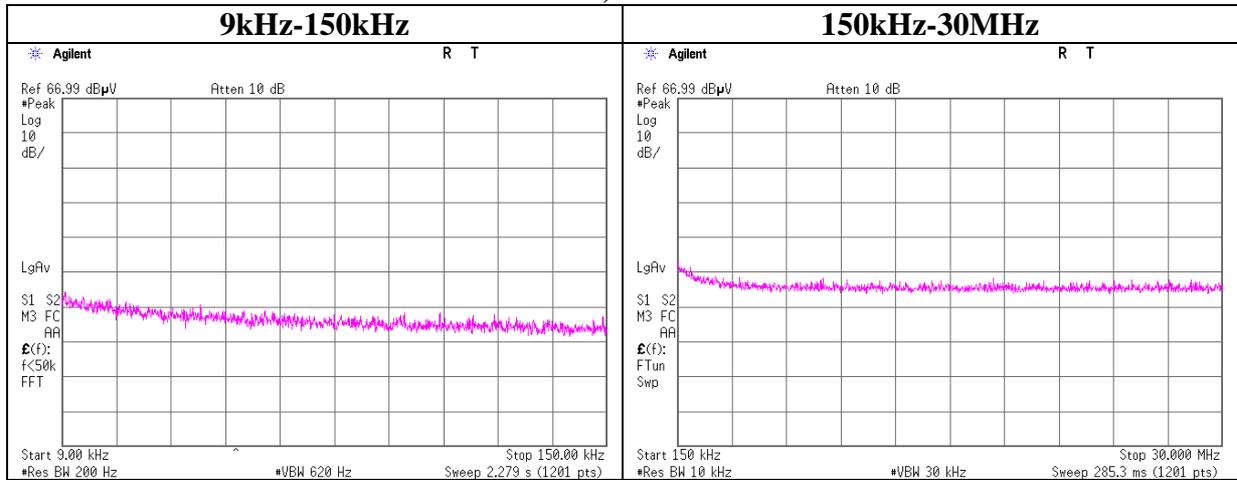
Conducted Spurious Emission

Tx 3DH5 2480MHz

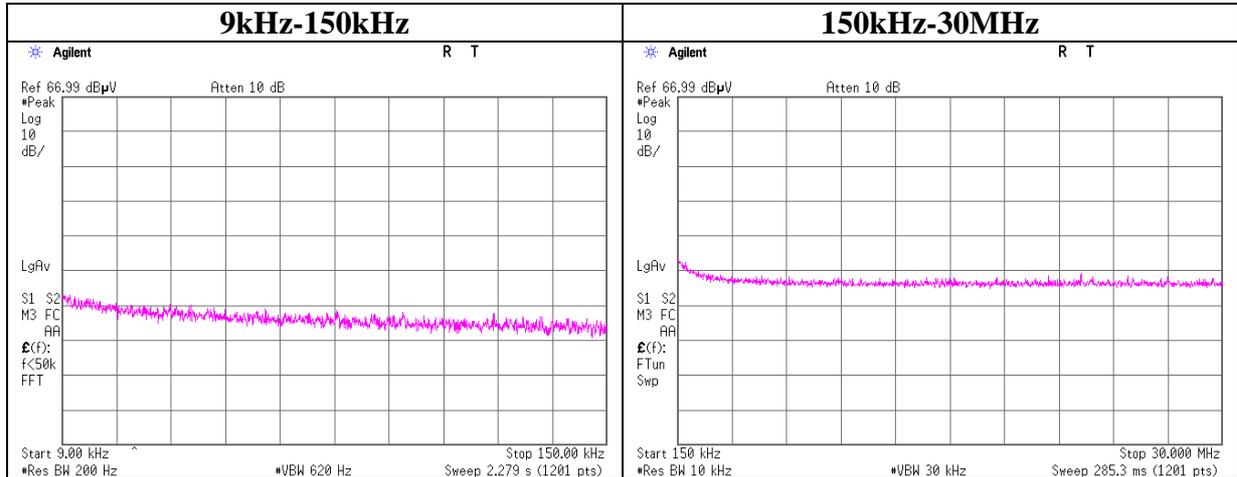


Conducted Spurious Emission(below 30MHz)

Tx DH5, 2441MHz

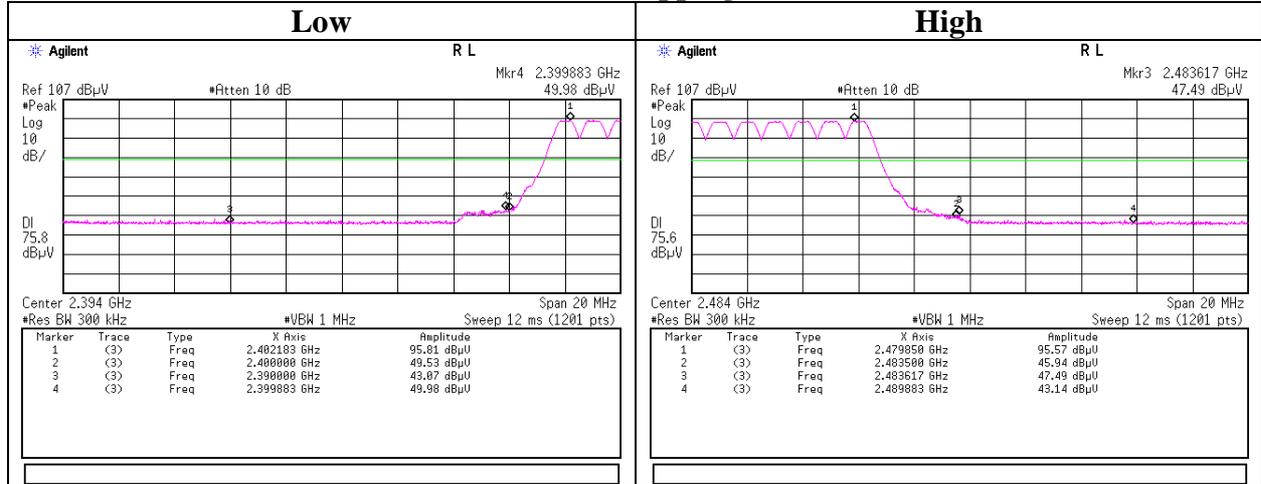


Tx 3DH5 2441MHz

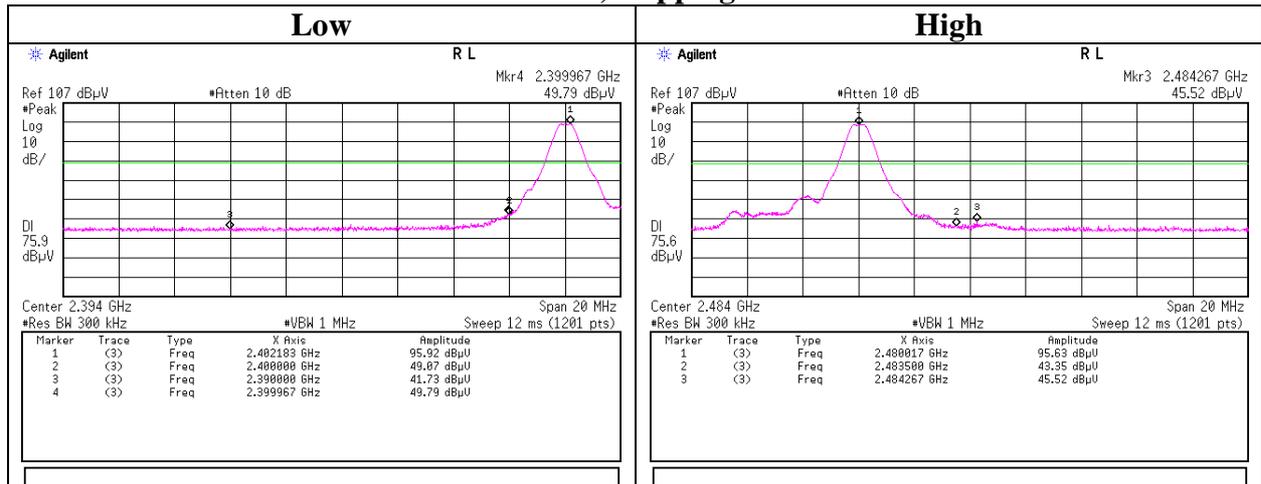


Conducted Emission Band Edge compliance

Tx DH5, Hopping on

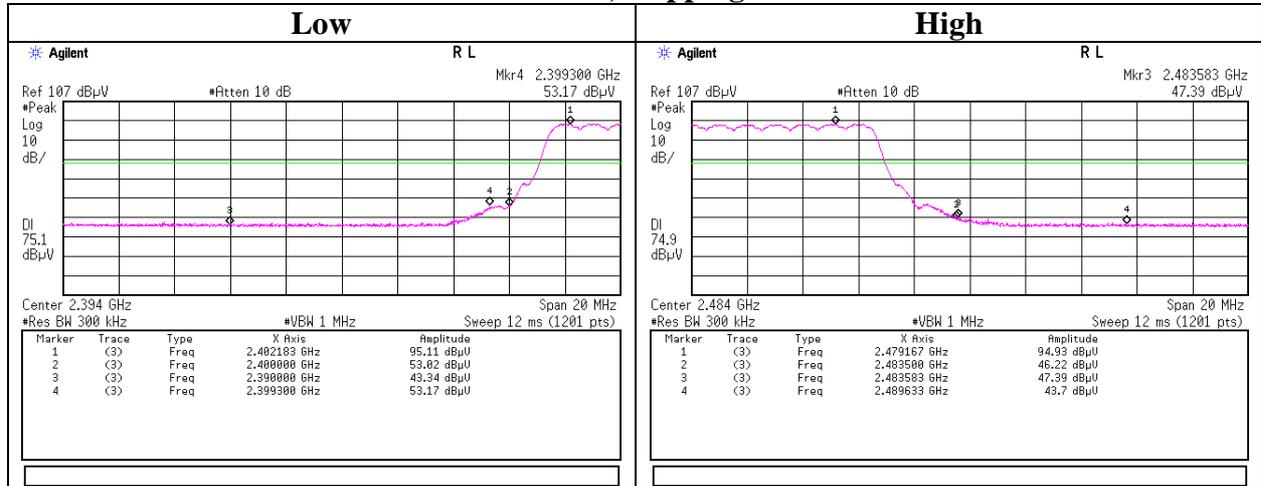


Tx DH5, Hopping off

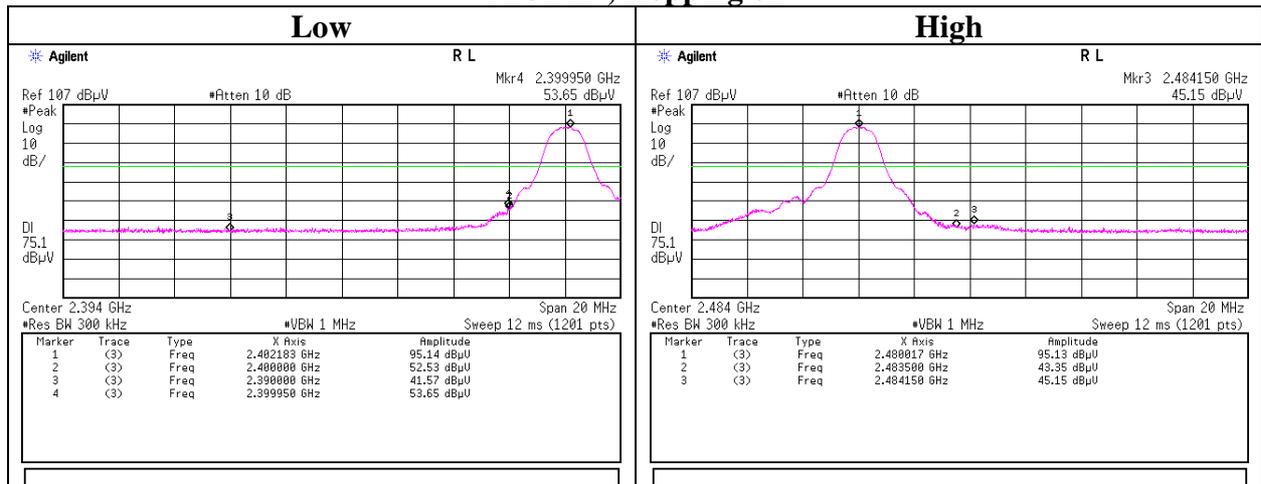


Conducted Emission Band Edge compliance

Tx 3DH5, Hopping on



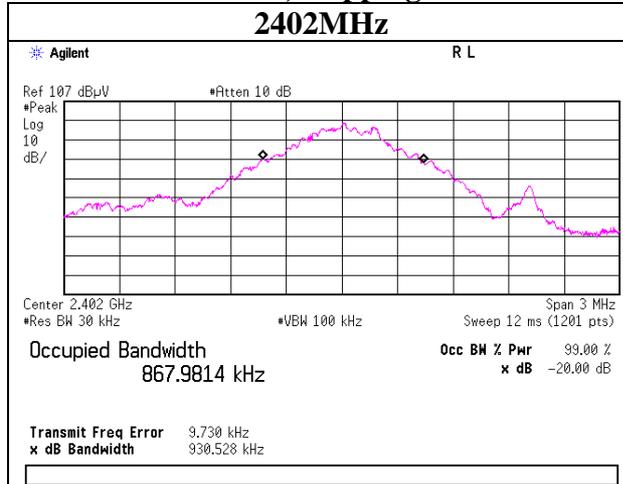
Tx 3DH5, Hopping off



99%Occupied Bandwidth

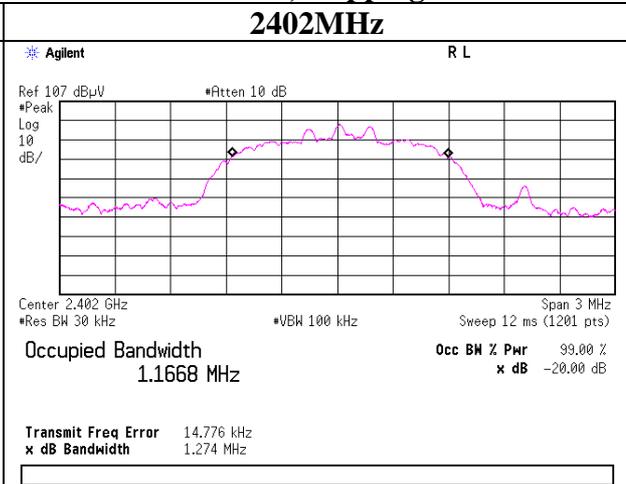
Tx DH5, Hopping off

2402MHz

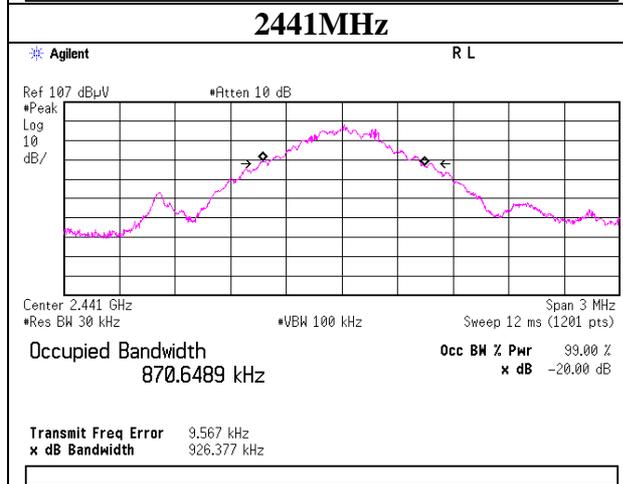


Tx 3DH5, Hopping off

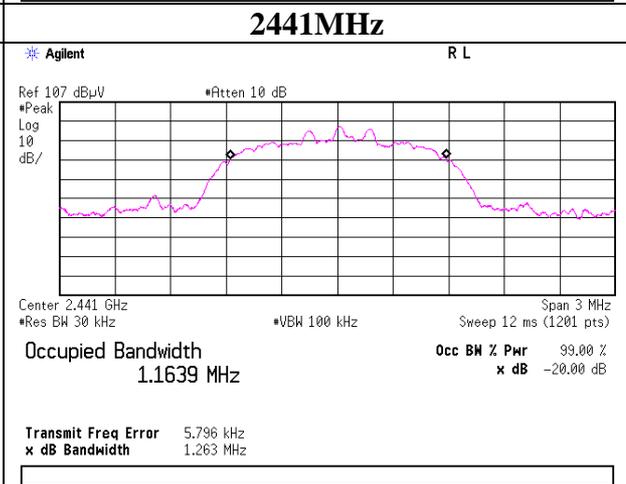
2402MHz



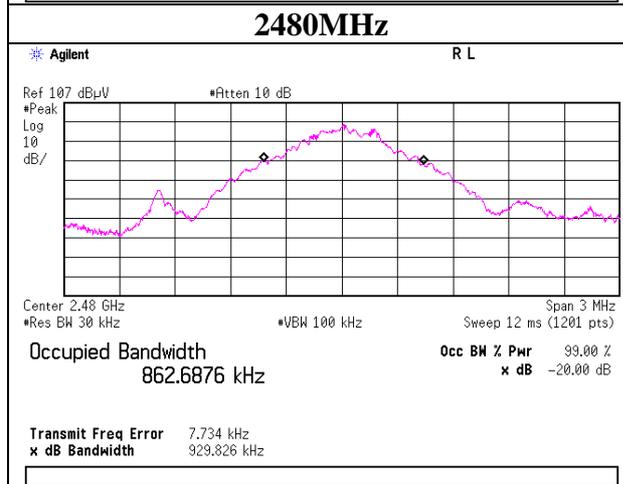
2441MHz



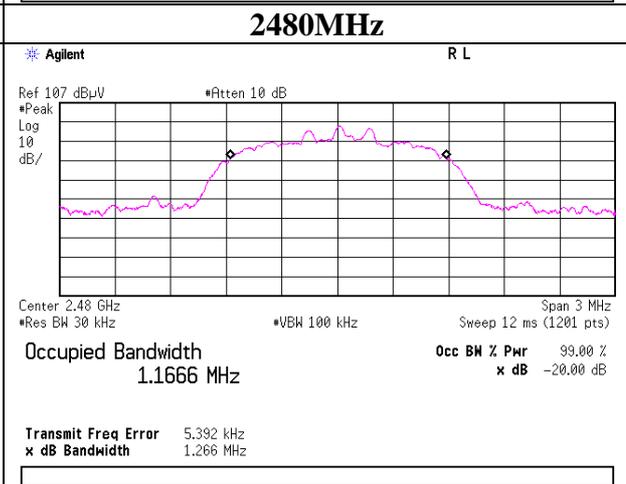
2441MHz



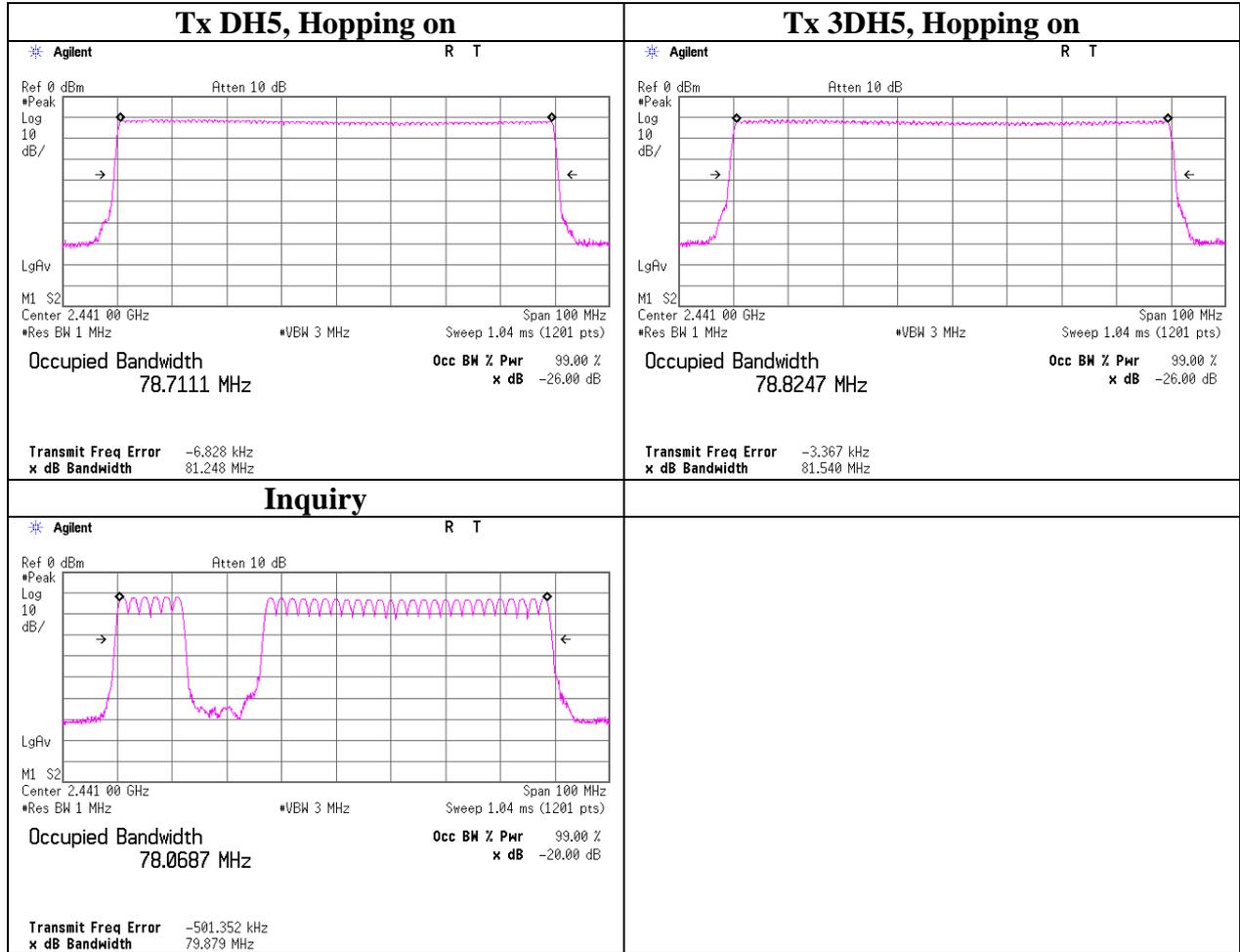
2480MHz



2480MHz



99% Occupied Bandwidth



APPENDIX 3: Test instruments

EMI test equipment (1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	CE/RE	2011/02/22 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	CE/RE	2011/02/23 * 12
MJM-06	Measure	PROMART	SEN1955	-	CE/RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	CE/RE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	CE	2010/11/30 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	CE	2010/08/23 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(AE)	2011/02/20 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	8127364	CE(EUT)	2011/02/22 * 12
MTA-31	Terminator	TME	CT-01	-	CE	2011/01/05 * 12
MCC-112	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/SFM141(3m)/sucoform141-PE(1m)/421-010(1.5m)/RFM-E321(Switcher)	-/00640	CE	2010/07/23 * 12
MAT-66	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2011/02/22 * 12
MSA-09	Spectrum Analyzer	Advantest	R3273	95090115	RE	2010/11/18 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2010/05/07 * 12
MCC-58	Microwave Cable	Suhner	SUCOFLEX104	246770(1m) / 250655(5m)	RE	2011/03/02 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2011/03/10 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2010/05/07 * 12
MCC-76	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278967/4	RE	2010/12/03 * 12
MHF-19	High Pass Filter 3.5-18.0GHz	TOKIMEC	TF323DCA	602	RE	2010/09/21 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2011/03/01 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE	2011/02/23 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE	-
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	RE	2010/11/18 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE	2010/10/27 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2010/10/11 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2010/10/11 * 12
MCC-50	Coaxial Cable	UL Japan	-	-	RE	2011/03/25 * 12
MAT-51	Attenuator(6dB)	Weinschel	2	AS3557	RE	2011/01/14 * 12

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EMI test equipment (2/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2011/03/04 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2010/10/11 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2010/10/11 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2010/07/06 * 12
MAT-09	Attenuator(6dB)	Weinschel Corp	2	BK7973	RE	2010/11/05 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2011/03/04 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE/AT	2011/02/15 * 12
MHF-03	High pass Filter 1.4- 5.0GHz	Mini-Circuit	VHF-1320	10411	RE	2010/08/17 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2010/09/10 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2010/09/10 * 12
MAT-24	Attenuator(10dB)(abo ve1GHz)	Agilent	8493C	71389	AT	2010/06/14 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	-	AT	2010/05/19 * 12
MCC-114	Microwave Cable 1G- 26.5GHz	Suhner	SUCOFLEX104	290212/4	AT	2010/08/05 * 12
MAT-21	Attenuator(20dB)(abo ve1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-120	901247	AT	2011/01/06 * 12
MURC-02	Wireless Communication Test Set	Agilent	E5515C	GB47050683	RE	2009/10/20 * 36

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

**Test Item: CE: Conducted Emission
RE: Radiated Emission
AT: Antenna Terminal Conducted test**