APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

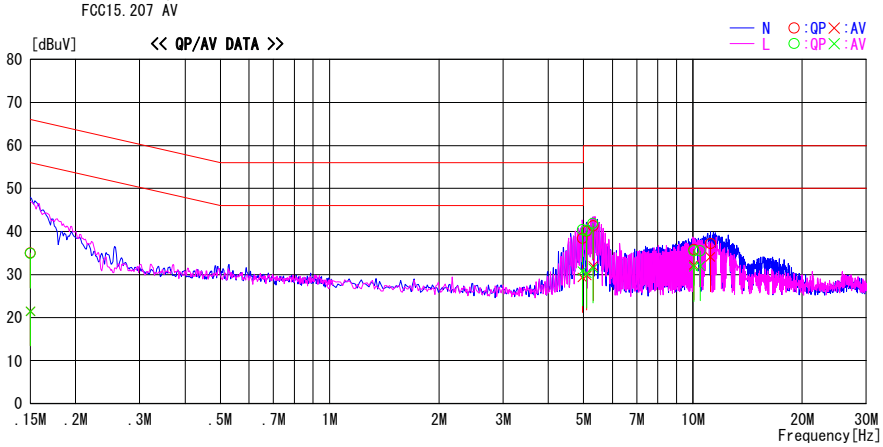
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2011/07/21

Report No. : 31KE0354-HO-01

Temp./Humi. : 24deg. C / 62% RH
Engineer : Takayuki Shimada

Mode / Remarks : Tx BT 3DH5, 2480MHz, Power Suppuly:3.6V

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	21.8	8.3	13.2	35.0	21.5	66.0	56.0	31.0	34.5	N	
4.96033	24.5	15.4	13.9	38.4	29.3	56.0	46.0	17.6	16.7	N	
5.10098	26.1	15.9	13.9	40.0	29.8	60.0	50.0	20.0	20.2	N	
5.31253	27.4	18.1	13.9	41.3	32.0	60.0	50.0	18.7	18.0	N	
10.06020	21.6	18.0	14.2	35.8	32.2	60.0	50.0	24.2	17.8	N	
11.17754	22.8	19.7	14.4	37.2	34.1	60.0	50.0	22.8	15.9	N	
0.15000	21.7	8.3	13.2	34.9	21.5	66.0	56.0	31.1	34.5	L	
4.96029	26.5	16.9	13.9	40.4	30.8	56.0	46.0	15.6	15.2	L	
5.09982	26.3	16.4	13.9	40.2	30.3	60.0	50.0	19.8	19.7	L	
5.30969	28.0	17.6	13.9	41.9	31.5	60.0	50.0	18.1	18.5	L	
10.05970	21.3	17.6	14.2	35.5	31.8	60.0	50.0	24.5	18.2	L	
10.47940	21.2	17.7	14.3	35.5	32.0	60.0	50.0	24.5	18.0	L	

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

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

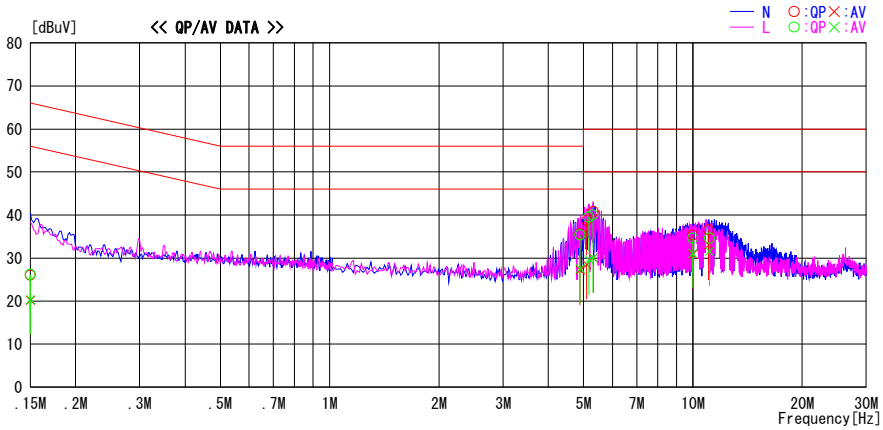
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2011/07/21

Report No. : 31KE0354-HO-01

Temp./Humi. : 24deg. C / 62% RH
Engineer : Takayuki Shimada

Mode / Remarks : Tx BT 3DH5, 2480MHz, Power Suppuly:1.8V

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	12.8	7.0	13.2	26.0	20.2	66.0	56.0	40.0	35.8	N	
4.89254	21.7	13.3	13.9	35.6	27.2	56.0	46.0	20.4	18.8	N	
5.10152	24.8	14.6	13.9	38.7	28.5	60.0	50.0	21.3	21.5	N	
5.31117	26.9	16.1	13.9	40.8	30.0	60.0	50.0	19.2	20.0	N	
9.99331	21.1	16.6	14.2	35.3	30.8	60.0	50.0	24.7	19.2	N	
11.04008	22.1	18.6	14.4	36.5	33.0	60.0	50.0	23.5	17.0	N	
0.15000	13.0	7.1	13.2	26.2	20.3	66.0	56.0	39.8	35.7	L	
4.89182	21.5	13.6	13.9	35.4	27.5	56.0	46.0	20.6	18.5	L	
5.17120	25.6	15.7	13.9	39.5	29.6	60.0	50.0	20.5	20.4	L	
5.31033	26.1	16.1	13.9	40.0	30.0	60.0	50.0	20.0	20.0	L	
9.99167	20.4	16.9	14.2	34.6	31.1	60.0	50.0	25.4	18.9	L	
11.11027	20.2	17.2	14.4	34.6	31.6	60.0	50.0	25.4	18.4	L	

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

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20dB Bandwidth and Carrier Frequency Separation

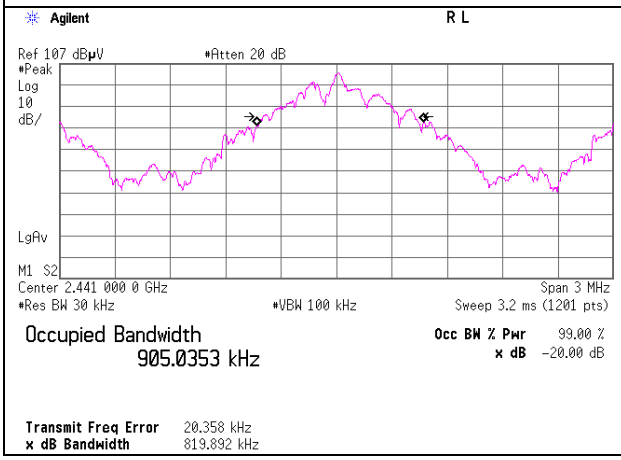
Test place	Head Office EMC Lab. No.6 Measurement Room	
Report No.	31KE0354-HO-01	
Date	07/12/2011	07/13/2011
Temperature/ Humidity	22 deg. C / 58% RH	24 deg. C / 58% RH
Engineer	Hiroshi Kukita	Hisayoshi Sato
Mode	Tx (Hopping on) DH5/3DH5/Inquiry	

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency separation [MHz]
DH5	2402.0	0.953	1.000	>= 0.635
DH5	2441.0	0.950	1.000	>= 0.633
DH5	2480.0	0.952	1.000	>= 0.635
3DH5	2402.0	1.330	1.000	>= 0.887
3DH5	2441.0	1.340	1.000	>= 0.893
3DH5	2480.0	1.320	1.000	>= 0.880
Inquiry	2441.0	0.820	2.000	>= 0.547

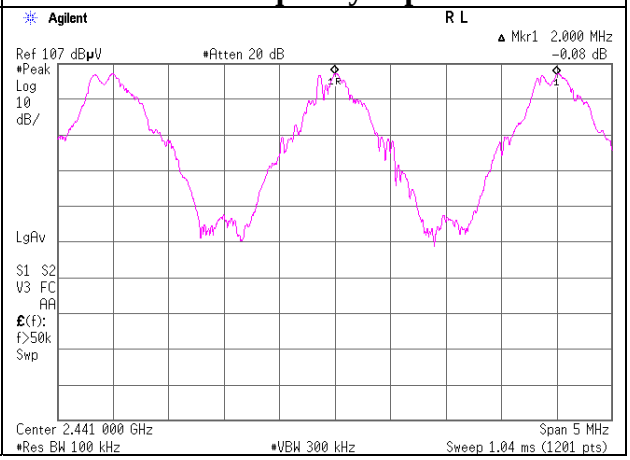
Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).
No limit applies to 20dB Bandwidth.

Inquiry

20dB Bandwidth



Carrier Frequency Separation

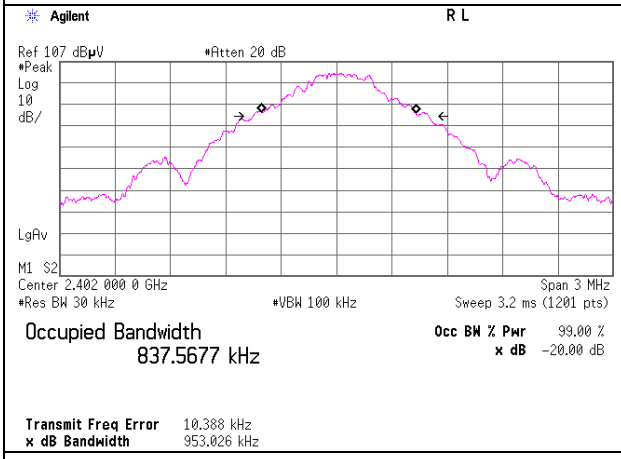


20dB Bandwidth and Carrier Frequency Separation

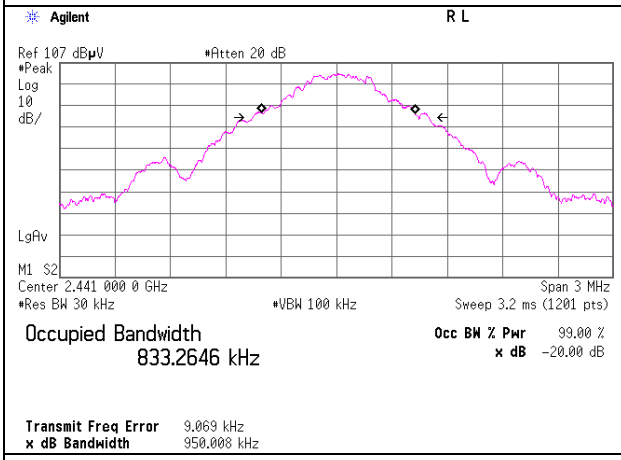
Tx DH5

20dB Bandwidth

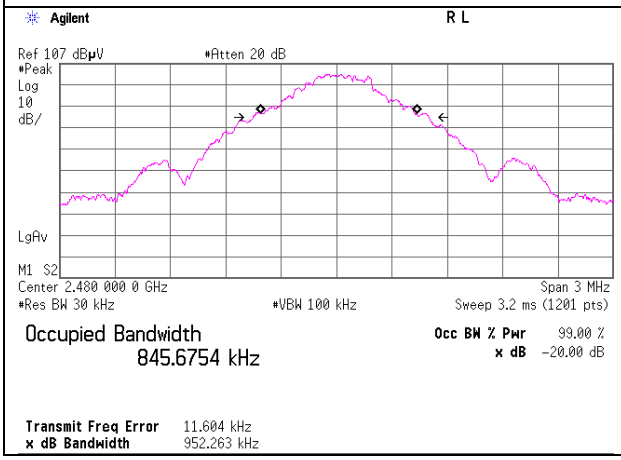
2402MHz



2441MHz

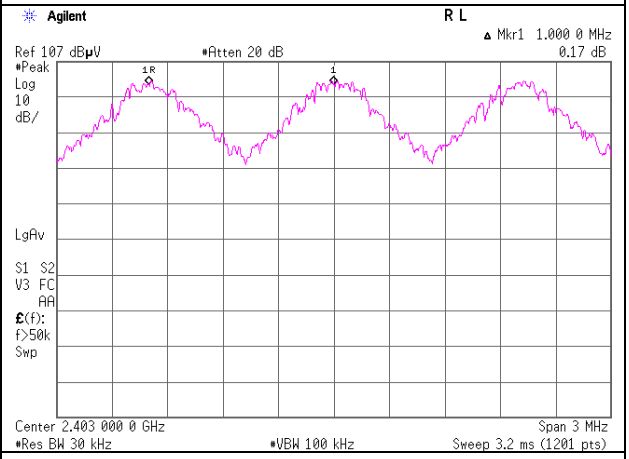


2480MHz

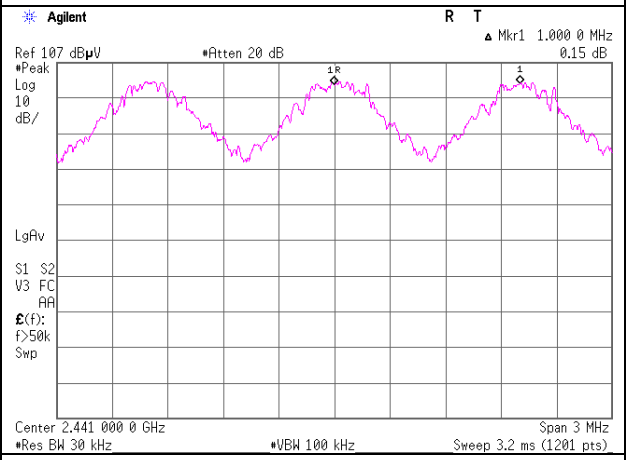


Carrier Frequency Separation

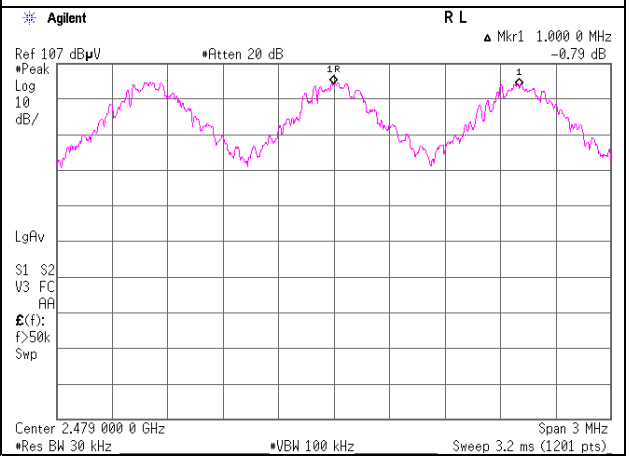
2402MHz



2441MHz



2480MHz

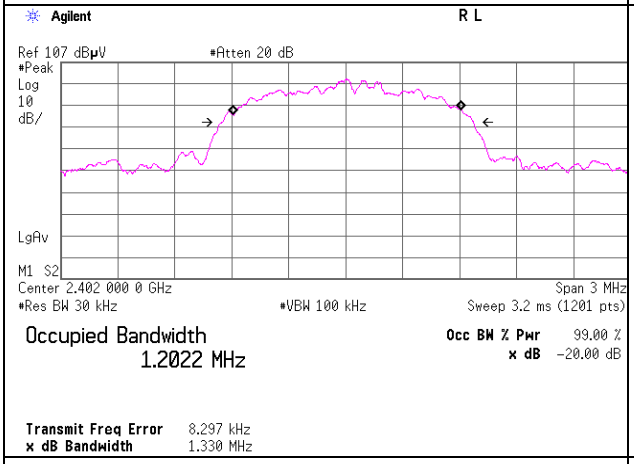


20dB Bandwidth and Carrier Frequency Separation

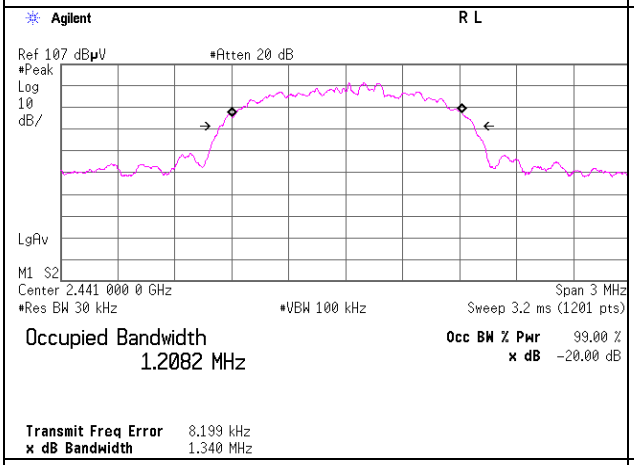
Tx 3DH5

20dB Bandwidth

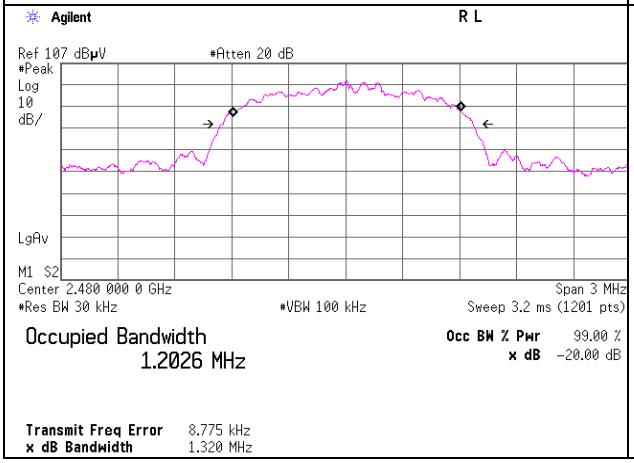
2402MHz



2441MHz

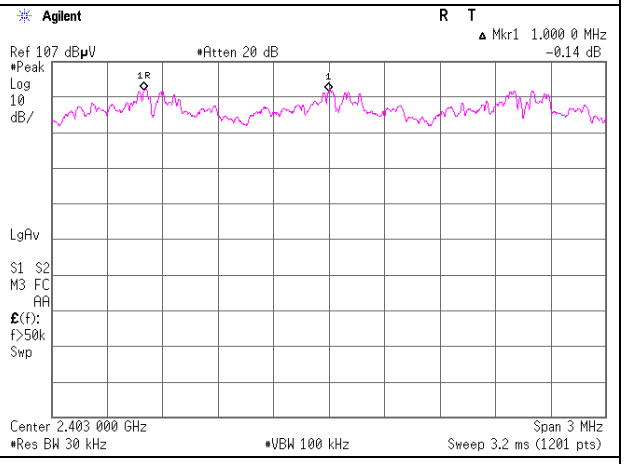


2480MHz

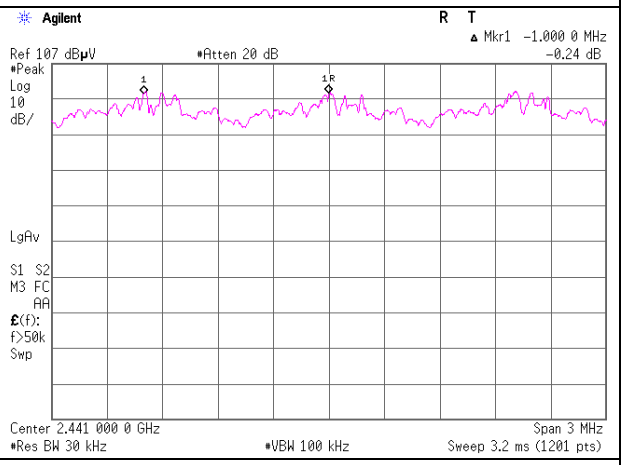


Carrier Frequency Separation

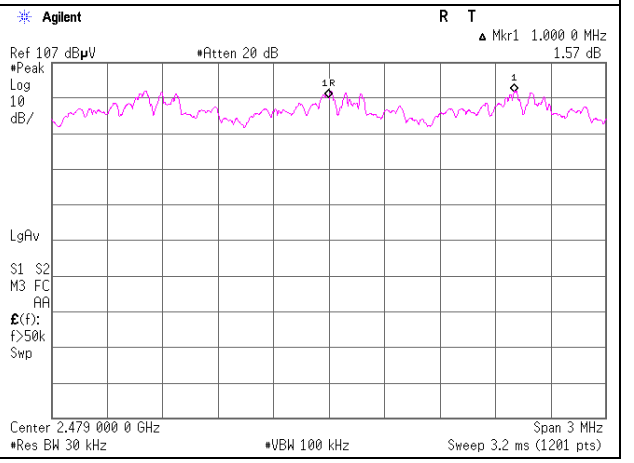
2402MHz



2441MHz



2480MHz

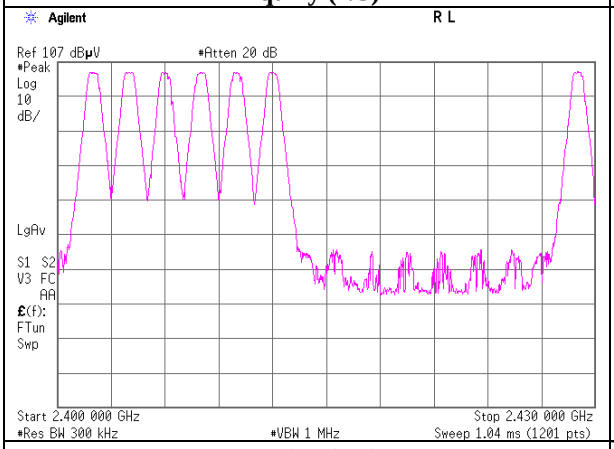


Number of Hopping Frequency

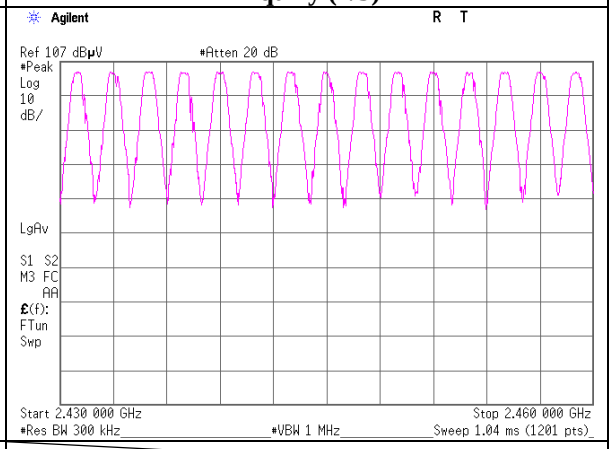
Test place	Head Office EMC Lab. No.6 Measurement Room	
Report No.	31KE0354-HO-01	
Date	07/12/2011	07/13/2011
Temperature/ Humidity	22 deg. C / 58% RH	24 deg.C / 58% RH
Engineer	Hiroshi Kukita	Hisayoshi Sato
Mode	Tx (Hopping on) DH5/3DH5/Inquiry	

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

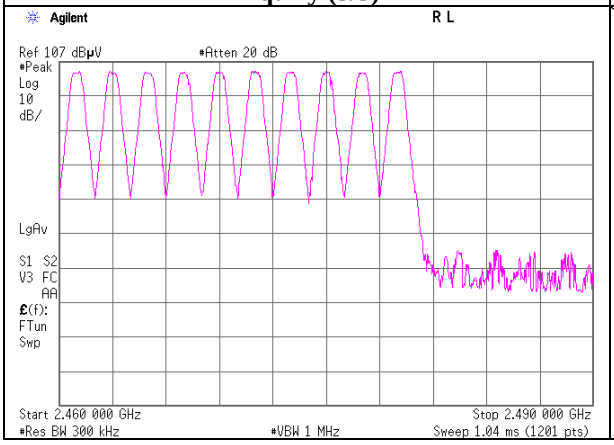
Inquiry (1/3)



Inquiry (2/3)



Inquiry (3/3)



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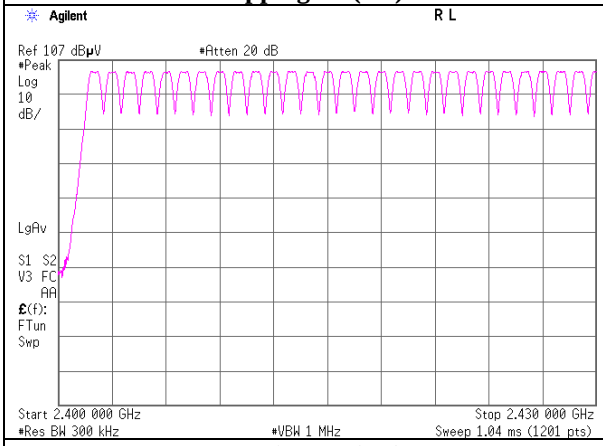
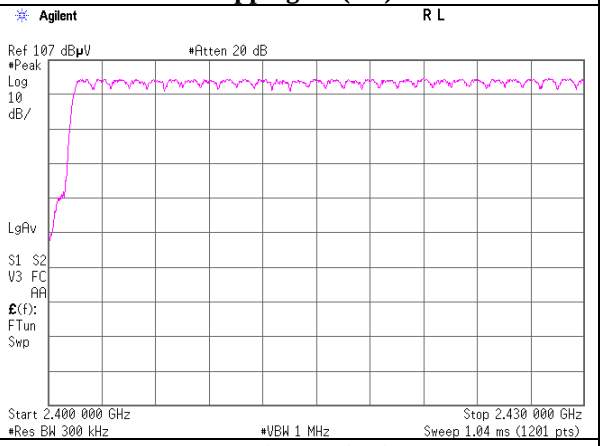
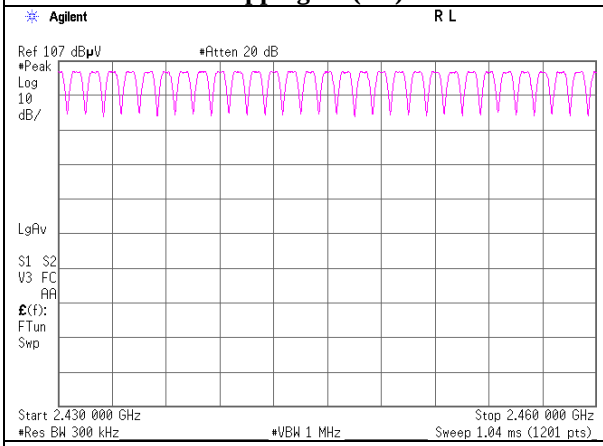
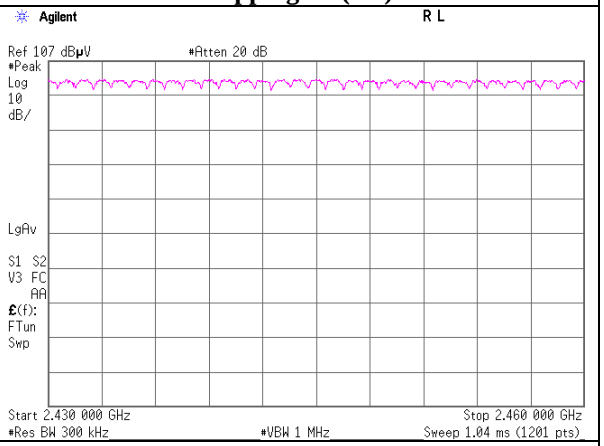
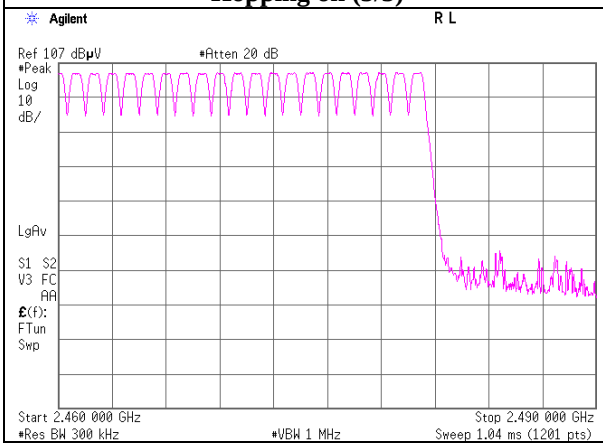
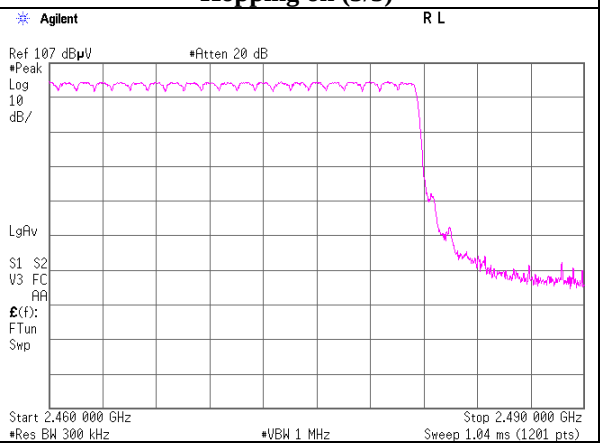
Number of Hopping Frequency

Tx DH5	Tx 3DH5
Hopping on (1/3)	**Hopping on (1/3)**
	
Hopping on (2/3)	**Hopping on (2/3)**
	
Hopping on (3/3)	**Hopping on (3/3)**
	

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Dwell time

Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	31KE0354-HO-01
Date	07/13/2011
Temperature/ Humidity	24 deg.C / 58% RH
Engineer	Hisayoshi Sato
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	49.2 times	/	5 sec.	x	31.6 sec. = 311 times	0.433	135	400
DH3	28.2 times	/	5 sec.	x	31.6 sec. = 179 times	1.692	303	400
DH5	21.0 times	/	5 sec.	x	31.6 sec. = 133 times	2.957	393	400
3DH1	48.6 times	/	5 sec.	x	31.6 sec. = 308 times	0.439	135	400
3DH3	26.2 times	/	5 sec.	x	31.6 sec. = 166 times	1.692	281	400
3DH5	20.8 times	/	5 sec.	x	31.6 sec. = 132 times	2.953	390	400
Inquiry	100.0 times	/	1 sec.	x	12.8 sec. = 1280 times	0.131	167	400

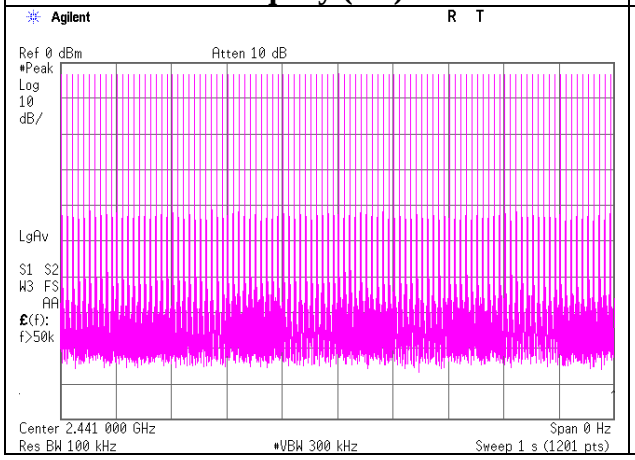
Sample Calculation
Result = Number of transmission x Length of transmition time

*Average data of 5 tests.(except Inquiry)

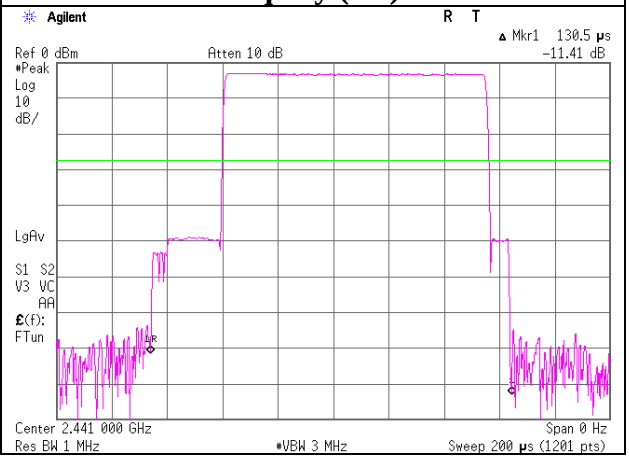
Mode	Sampling [times]					Average [times]
	1	2	3	4	5	
DH1	49	50	48	49	50	49.2
DH3	28	29	28	27	29	28.2
DH5	21	20	20	21	23	21
3DH1	49	48	50	47	49	48.6
3DH3	26	27	25	26	27	26.2
3DH5	21	20	21	20	22	20.8

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

Inquiry (1/2)

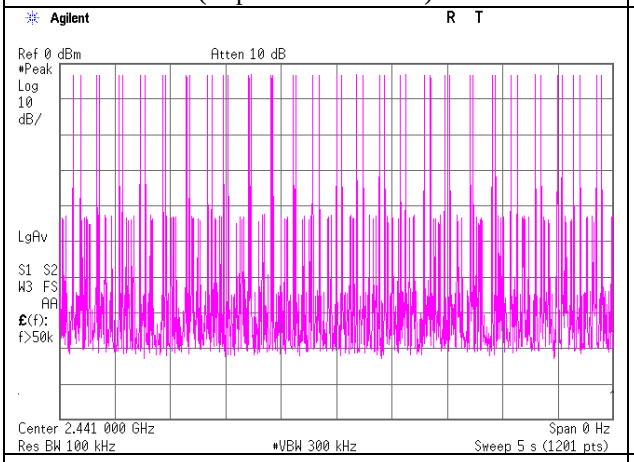


Inquiry (2/2)

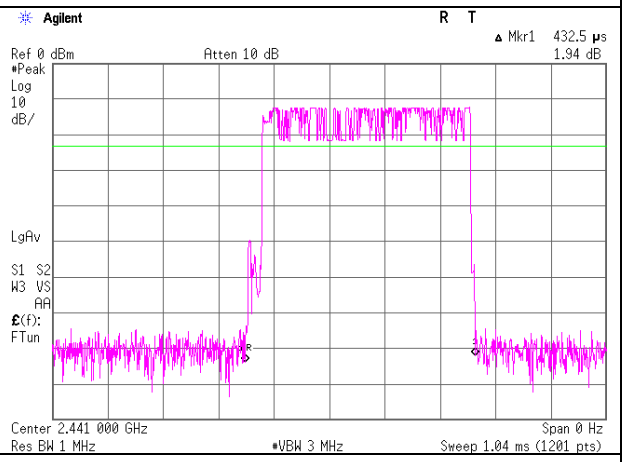


Dwell time

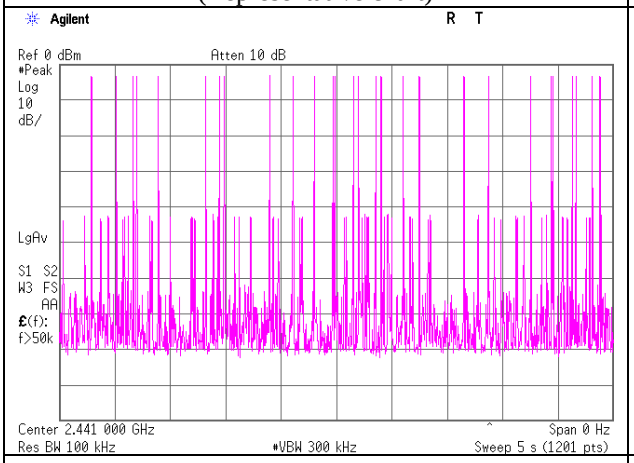
DH1 (1/2)
(Representative chart)



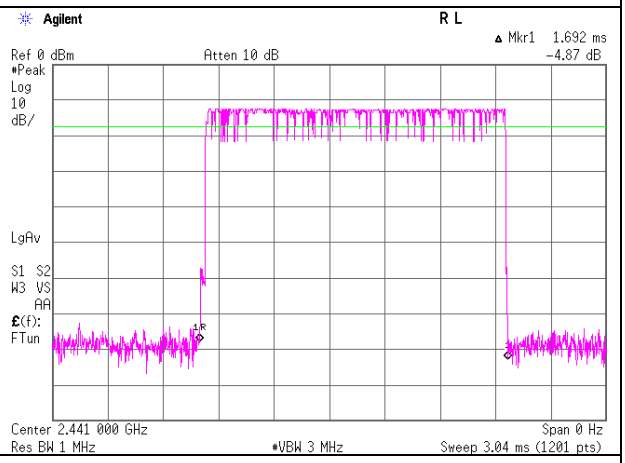
DH1 (2/2)



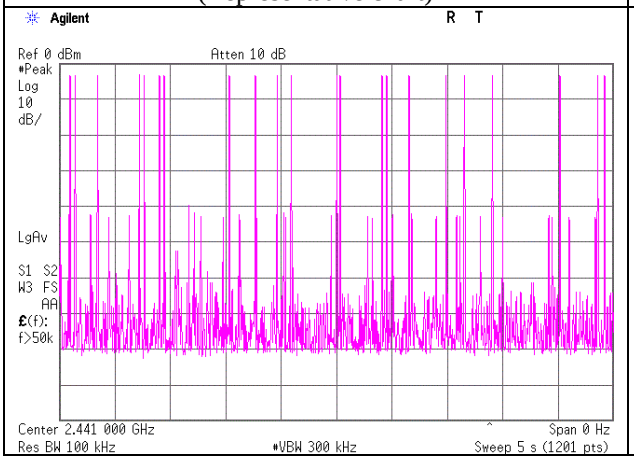
DH3 (1/2)
(Representative chart)



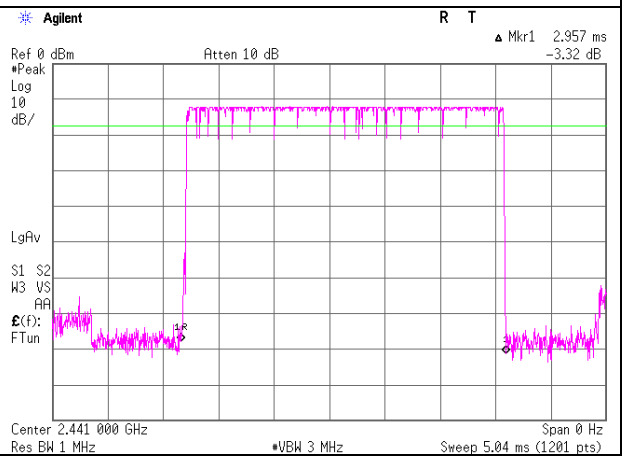
DH3 (2/2)



DH5 (1/2)
(Representative chart)



DH5 (2/2)



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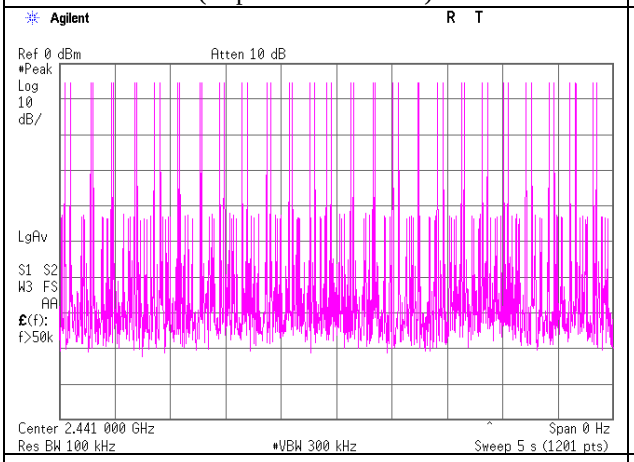
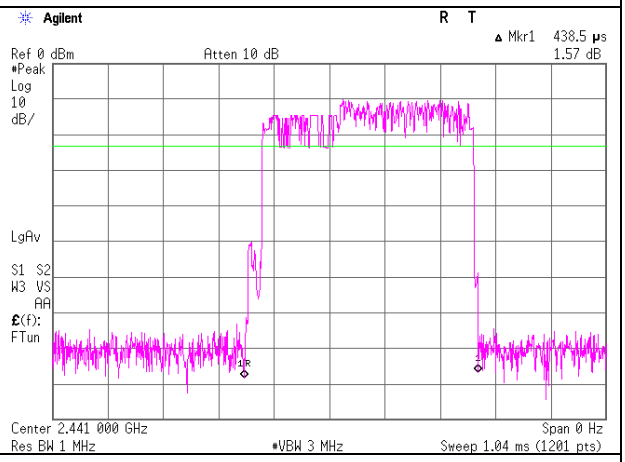
Dwell time

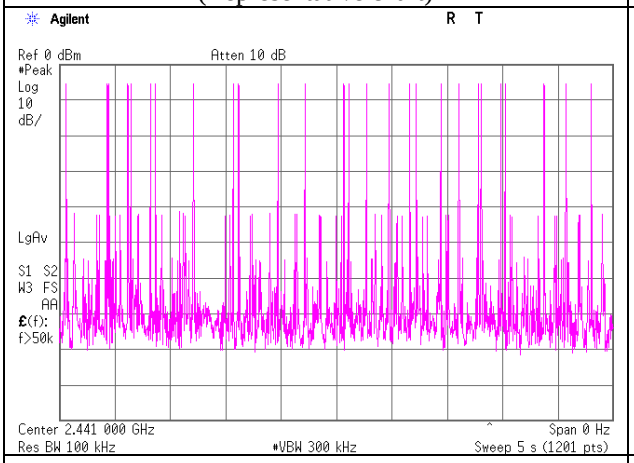
3DH1 (1/2)
(Representative chart)



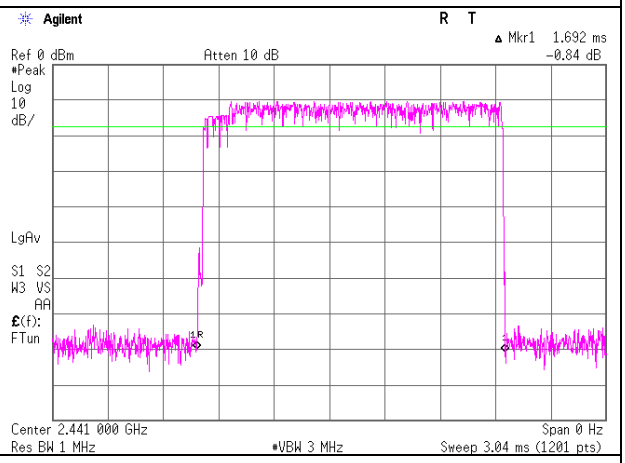
3DH1 (2/2)



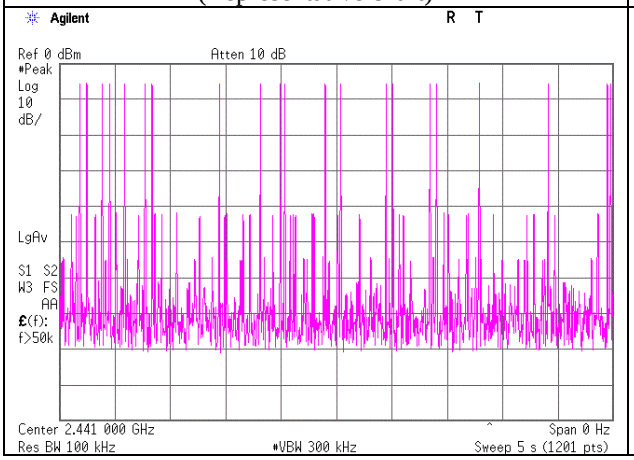
3DH3 (1/2)
(Representative chart)



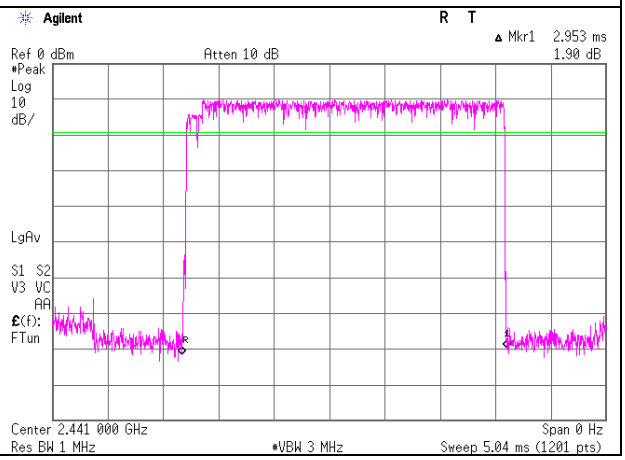
3DH3 (2/2)



3DH5 (1/2)
(Representative chart)



3DH5 (2/2)



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Maximum Peak Output Power

Test place	Head Office EMC Lab. No.2 Measurement Room
Report No.	31KE0354-HO-01
Date	07/11/2011
Temperature/ Humidity	20 deg.C / 68% RH
Engineer	Katsunori Okai
Mode	Tx (Hopping off) DH5/3DH5/Inquiry

Mode	Freq.	Reading	Cable Loss	Atten.	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
DH5	2402.0	-2.42	0.50	10.07	8.15	6.53	20.97	125	12.82
DH5	2441.0	-2.21	0.50	10.07	8.36	6.85	20.97	125	12.61
DH5	2480.0	-2.17	0.50	10.07	8.40	6.92	20.97	125	12.57
3DH5	2402.0	-1.63	0.50	10.07	8.94	7.83	20.97	125	12.03
3DH5	2441.0	-1.46	0.50	10.07	9.11	8.15	20.97	125	11.86
3DH5	2480.0	-1.33	0.50	10.07	9.24	8.39	20.97	125	11.73
Inquiry	2441.0	-2.12	0.50	10.07	8.45	7.00	20.97	125	12.52

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

Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not influence on the output power and bandwidth of the EUT.
As this device had AFH mode and frequency separation could not meet the requirement of over 20dB BW without 2/3 relaxation, 125mW power limit was applied to it.

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.1 and 4 Semi Anechoic Chamber	
Report No.	31KE0354-HO-01	
Date	07/12/2011	07/12/2011
Temperature/ Humidity	23 deg.C / 68% RH	25 deg.C / 56% RH
Engineer	Tomotaka Sasagawa	Takeshi Choda
	(Above 1GHz)	(below 1GHz)
Mode	Tx, DH5 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	72.362	QP	36.6	6.7	7.6	32.2	18.7	40.0	21.3	
Hori	96.480	QP	37.9	9.7	7.9	32.2	23.3	43.5	20.2	
Hori	169.258	QP	33.1	15.8	8.7	32.1	25.5	43.5	18.0	
Hori	324.445	QP	34.4	16.2	9.9	32.1	28.4	46.0	17.6	
Hori	336.924	QP	37.5	16.5	10.0	32.1	31.9	46.0	14.1	
Hori	436.752	QP	33.8	18.2	10.6	32.1	30.5	46.0	15.5	
Hori	800.300	QP	22.1	21.8	11.0	28.3	26.6	46.0	19.4	
Hori	1600.000	PK	45.3	25.8	2.1	33.0	40.2	73.9	33.7	
Hori	2384.742	PK	61.9	27.4	2.6	32.4	59.5	73.9	14.4	
Hori	2385.700	PK	53.0	27.4	2.6	32.4	50.6	73.9	23.3	
Hori	2390.000	PK	48.3	27.4	2.6	32.4	45.9	73.9	28.0	
Hori	2400.000	PK	67.1	27.4	2.6	32.4	64.7	-	-	See 20dBc Data Sheet
Hori	4804.000	PK	42.1	31.3	4.5	31.4	46.5	73.9	27.4	NS
Hori	7206.000	PK	41.9	35.5	5.3	31.6	51.1	73.9	22.8	NS
Hori	9608.000	PK	44.1	38.4	6.2	31.9	56.8	73.9	17.1	NS
Hori	24020.000	PK	47.1	40.5	-0.9	29.6	57.1	73.9	16.8	NS
Hori	1600.000	AV	31.6	25.8	2.1	33.0	26.5	53.9	27.4	
Hori	2384.742	AV	34.9	27.4	2.6	32.4	32.5	53.9	21.4	
Hori	2385.700	AV	35.3	27.4	2.6	32.4	32.9	53.9	21.0	
Hori	2390.000	AV	33.8	27.4	2.6	32.4	31.4	53.9	22.5	
Hori	2400.000	AV	56.7	27.4	2.6	32.4	54.3	-	-	See 20dBc Data Sheet
Hori	4804.000	AV	30.1	31.3	4.5	31.4	34.5	53.9	19.4	NS
Hori	7206.000	AV	31.2	35.5	5.3	31.6	40.4	53.9	13.5	NS
Hori	9608.000	AV	33.4	38.4	6.2	31.9	46.1	53.9	7.8	NS
Hori	24020.000	AV	35.4	40.5	-0.9	29.6	45.4	53.9	8.5	NS
Vert	72.362	QP	53.5	6.7	7.6	32.2	35.6	40.0	4.4	
Vert	96.480	QP	51.9	9.7	7.9	32.2	37.3	43.5	6.2	
Vert	169.258	QP	36.7	15.8	8.7	32.1	29.1	43.5	14.4	
Vert	324.445	QP	40.7	16.2	9.9	32.1	34.7	46.0	11.3	
Vert	336.924	QP	42.0	16.5	10.0	32.1	36.4	46.0	9.6	
Vert	436.752	QP	34.4	18.2	10.6	32.1	31.1	46.0	14.9	
Vert	800.300	QP	22.0	21.8	11.0	28.3	26.5	46.0	19.5	
Vert	1600.000	PK	47.3	25.8	2.1	33.0	42.2	73.9	31.7	
Vert	2385.610	PK	58.2	27.4	2.6	32.4	55.8	73.9	18.1	
Vert	2385.700	PK	52.3	27.4	2.6	32.4	49.9	73.9	24.0	
Vert	2390.000	PK	46.5	27.4	2.6	32.4	44.1	73.9	29.8	
Vert	2400.000	PK	60.7	27.4	2.6	32.4	58.3	-	-	See 20dBc Data Sheet
Vert	4804.000	PK	42.1	31.3	4.5	31.4	46.5	73.9	27.4	NS
Vert	7206.000	PK	42.9	35.5	5.3	31.6	52.1	73.9	21.8	NS
Vert	9608.000	PK	44.3	38.4	6.2	31.9	57.0	73.9	16.9	NS
Vert	24020.000	PK	47.4	40.5	-0.9	29.6	57.4	73.9	16.5	NS
Vert	1600.000	AV	33.7	25.8	2.1	33.0	28.6	53.9	25.3	
Vert	2385.610	AV	31.1	27.4	2.6	32.4	28.7	53.9	25.2	
Vert	2385.700	AV	35.0	27.4	2.6	32.4	32.6	53.9	21.3	
Vert	2390.000	AV	33.1	27.4	2.6	32.4	30.7	53.9	23.2	
Vert	2400.000	AV	50.5	27.4	2.6	32.4	48.1	-	-	See 20dBc Data Sheet
Vert	4804.000	AV	30.4	31.3	4.5	31.4	34.8	53.9	19.1	NS
Vert	7206.000	AV	30.1	35.5	5.3	31.6	39.3	53.9	14.6	NS
Vert	9608.000	AV	32.4	38.4	6.2	31.9	45.1	53.9	8.8	NS
Vert	24020.000	AV	35.6	40.5	-0.9	29.6	45.6	53.9	8.3	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

*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
20dBc Data Sheet

Test place	Head Office EMC Lab. No.1 Semi Anechoic Chamber
Report No.	31KE0354-HO-01
Date	07/12/2011
Temperature/ Humidity	23 deg.C / 68% RH
Engineer	Tomotaka Sasagawa (Above 1GHz)
Mode	Tx, DH5 2402MHz

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	107.9	27.4	2.6	32.4	105.5	-	-	Carrier
Hori	2400.000	PK	55.9	27.4	2.6	32.4	53.5	85.5	32.0	
Vert	2402.000	PK	104.0	27.4	2.6	32.4	101.6	-	-	Carrier
Vert	2400.000	PK	45.8	27.4	2.6	32.4	43.4	81.6	38.2	

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.1 and 4 Semi Anechoic Chamber	
Report No.	31KE0354-HO-01	
Date	07/12/2011	07/12/2011
Temperature/ Humidity	23 deg.C/ 68% RH	25 deg.C/ 56% RH
Engineer	Tomotaka Sasagawa	Takeshi Choda
	(Above 1GHz)	(below 1GHz)
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	72.362	QP	35.8	6.7	7.6	32.2	17.9	40.0	22.1	
Hori	96.480	QP	37.0	9.7	7.9	32.2	22.4	43.5	21.1	
Hori	169.258	QP	32.7	15.8	8.7	32.1	25.1	43.5	18.4	
Hori	324.445	QP	34.5	16.2	9.9	32.1	28.5	46.0	17.5	
Hori	336.924	QP	37.5	16.5	10.0	32.1	31.9	46.0	14.1	
Hori	436.752	QP	33.7	18.2	10.6	32.1	30.4	46.0	15.6	
Hori	814.100	QP	21.7	21.8	11.0	28.2	26.3	46.0	19.7	
Hori	1627.000	PK	43.7	25.8	2.2	32.9	38.8	73.9	35.1	
Hori	2385.731	PK	61.2	27.4	2.6	32.4	58.8	73.9	15.1	
Hori	4882.000	PK	42.5	31.5	4.4	31.3	47.1	73.9	26.8	NS
Hori	7323.000	PK	42.8	35.7	5.3	31.6	52.2	73.9	21.7	NS
Hori	9764.000	PK	44.5	38.5	6.2	31.8	57.4	73.9	16.5	NS
Hori	24410.000	PK	47.7	40.4	-1.0	29.5	57.6	73.9	16.3	NS
Hori	1627.000	AV	32.2	25.8	2.2	32.9	27.3	53.9	26.6	
Hori	2385.731	AV	35.4	27.4	2.6	32.4	33.0	53.9	20.9	
Hori	4882.000	AV	31.1	31.5	4.4	31.3	35.7	53.9	18.2	NS
Hori	7323.000	AV	30.9	35.7	5.3	31.6	40.3	53.9	13.6	NS
Hori	9764.000	AV	33.1	38.5	6.2	31.8	46.0	53.9	7.9	NS
Hori	24410.000	AV	36.4	40.4	-1.0	29.5	46.3	53.9	7.6	NS
Vert	72.362	QP	52.9	6.7	7.6	32.2	35.0	40.0	5.0	
Vert	96.480	QP	52.2	9.7	7.9	32.2	37.6	43.5	5.9	
Vert	169.258	QP	36.7	15.8	8.7	32.1	29.1	43.5	14.4	
Vert	324.445	QP	40.2	16.2	9.9	32.1	34.2	46.0	11.8	
Vert	336.924	QP	41.6	16.5	10.0	32.1	36.0	46.0	10.0	
Vert	436.752	QP	34.2	18.2	10.6	32.1	30.9	46.0	15.1	
Vert	814.100	QP	21.6	21.8	11.0	28.2	26.2	46.0	19.8	
Vert	1627.000	PK	44.9	25.8	2.2	32.9	40.0	73.9	33.9	
Vert	2385.310	PK	61.9	27.4	2.6	32.4	59.5	73.9	14.4	
Vert	4882.000	PK	42.1	31.5	4.4	31.3	46.7	73.9	27.2	NS
Vert	7323.000	PK	41.2	35.7	5.3	31.6	50.6	73.9	23.3	NS
Vert	9764.000	PK	44.3	38.5	6.2	31.8	57.2	73.9	16.7	NS
Vert	24410.000	PK	47.5	40.4	-1.0	29.5	57.4	73.9	16.5	NS
Vert	1627.000	AV	33.2	25.8	2.2	32.9	28.3	53.9	25.6	
Vert	2385.310	AV	35.4	27.4	2.6	32.4	33.0	53.9	20.9	
Vert	4882.000	AV	31.4	31.5	4.4	31.3	36.0	53.9	17.9	NS
Vert	7323.000	AV	30.9	35.7	5.3	31.6	40.3	53.9	13.6	NS
Vert	9764.000	AV	33.2	38.5	6.2	31.8	46.1	53.9	7.8	NS
Vert	24410.000	AV	36.2	40.4	-1.0	29.5	46.1	53.9	7.8	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

*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.1 and 4 Semi Anechoic Chamber	
Report No.	31KE0354-HO	
Date	07/12/2011	07/12/2011
Temperature/ Humidity	23 deg.C / 68% RH	25 deg.C / 56% RH
Engineer	Tomotaka Sasagawa (Above 1GHz)	Takeshi Choda (below 1GHz)
Mode	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	72.362	QP	36.3	6.7	7.6	32.2	18.4	40.0	21.6	
Hori	96.480	QP	37.6	9.7	7.9	32.2	23.0	43.5	20.5	
Hori	169.258	QP	32.8	15.8	8.7	32.1	25.2	43.5	18.3	
Hori	324.445	QP	34.4	16.2	9.9	32.1	28.4	46.0	17.6	
Hori	336.924	QP	37.5	16.5	10.0	32.1	31.9	46.0	14.1	
Hori	436.752	QP	33.7	18.2	10.6	32.1	30.4	46.0	15.6	
Hori	827.000	QP	21.5	21.9	11.0	28.2	26.2	46.0	19.8	
Hori	1653.000	PK	44.0	25.9	2.2	32.9	39.2	73.9	34.7	
Hori	2384.515	PK	61.8	27.4	2.6	32.4	59.4	73.9	14.5	
Hori	2483.500	PK	55.3	27.6	2.7	32.4	53.2	73.9	20.7	
Hori	2486.900	PK	51.2	27.6	2.7	32.4	49.1	73.9	24.8	
Hori	2494.003	PK	51.0	27.6	2.7	32.4	48.9	73.9	25.0	
Hori	4960.000	PK	42.8	31.7	3.9	31.3	47.1	73.9	26.8	NS
Hori	7440.000	PK	42.9	35.8	4.8	31.7	51.8	73.9	22.1	NS
Hori	9920.000	PK	44.3	38.7	5.5	31.8	56.7	73.9	17.2	NS
Hori	24800.000	PK	48.3	40.3	-1.0	29.4	58.2	73.9	15.7	NS
Hori	1653.000	AV	33.2	25.9	2.2	32.9	28.4	53.9	25.5	
Hori	2384.515	AV	36.0	27.4	2.6	32.4	33.6	53.9	20.3	
Hori	2483.500	AV	38.2	27.6	2.7	32.4	36.1	53.9	17.8	
Hori	2486.900	AV	36.8	27.6	2.7	32.4	34.7	53.9	19.2	
Hori	2494.003	AV	33.1	27.6	2.7	32.4	31.0	53.9	22.9	
Hori	4960.000	AV	31.2	31.7	3.9	31.3	35.5	53.9	18.4	NS
Hori	7440.000	AV	30.8	35.8	4.8	31.7	39.7	53.9	14.2	NS
Hori	9920.000	AV	32.1	38.7	5.5	31.8	44.5	53.9	9.4	NS
Hori	24800.000	AV	37.6	40.3	-1.0	29.4	47.5	53.9	6.4	NS
Vert	72.362	QP	53.2	6.7	7.6	32.2	35.3	40.0	4.7	
Vert	96.480	QP	52.0	9.7	7.9	32.2	37.4	43.5	6.1	
Vert	169.258	QP	36.5	15.8	8.7	32.1	28.9	43.5	14.6	
Vert	324.445	QP	40.5	16.2	9.9	32.1	34.5	46.0	11.5	
Vert	336.924	QP	41.8	16.5	10.0	32.1	36.2	46.0	9.8	
Vert	436.752	QP	34.3	18.2	10.6	32.1	31.0	46.0	15.0	
Vert	827.000	QP	21.7	21.9	11.0	28.2	26.4	46.0	19.6	
Vert	1653.000	PK	43.9	25.9	2.2	32.9	39.1	73.9	34.8	
Vert	2384.542	PK	62.0	27.4	2.6	32.4	59.6	73.9	14.3	
Vert	2483.500	PK	58.7	27.6	2.7	32.4	56.6	73.9	17.3	
Vert	2486.900	PK	49.4	27.6	2.7	32.4	47.3	73.9	26.6	
Vert	2494.521	PK	51.2	27.6	2.7	32.4	49.1	73.9	24.8	
Vert	4960.000	PK	42.6	31.7	3.9	31.3	46.9	73.9	27.0	NS
Vert	7440.000	PK	41.8	35.8	4.8	31.7	50.7	73.9	23.2	NS
Vert	9920.000	PK	43.9	38.7	5.5	31.8	56.3	73.9	17.6	NS
Vert	24800.000	PK	48.2	40.3	-1.0	29.4	58.1	73.9	15.8	NS
Vert	1653.000	AV	33.2	25.9	2.2	32.9	28.4	53.9	25.5	
Vert	2384.542	AV	35.7	27.4	2.6	32.4	33.3	53.9	20.6	
Vert	2483.500	AV	44.2	27.6	2.7	32.4	42.1	53.9	11.8	
Vert	2486.900	AV	36.0	27.6	2.7	32.4	33.9	53.9	20.0	
Vert	2494.521	AV	32.9	27.6	2.7	32.4	30.8	53.9	23.1	
Vert	4960.000	AV	30.2	31.7	3.9	31.3	34.5	53.9	19.4	NS
Vert	7440.000	AV	30.2	35.8	4.8	31.7	39.1	53.9	14.8	NS
Vert	9920.000	AV	33.8	38.7	5.5	31.8	46.2	53.9	7.7	NS
Vert	24800.000	AV	37.3	40.3	-1.0	29.4	47.2	53.9	6.7	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

*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.1 and 4 Semi Anechoic Chamber	
Report No.	31KE0354-HO	
Date	07/12/2011	07/12/2011
Temperature/ Humidity	23 deg.C / 68% RH	25 deg.C / 56% RH
Engineer	Tomotaka Sasagawa	Takeshi Choda
	(Above 1GHz)	(below 1GHz)
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	72.362	QP	36.0	6.7	7.6	32.2	18.1	40.0	21.9	
Hori	96.480	QP	37.4	9.7	7.9	32.2	22.8	43.5	20.7	
Hori	169.258	QP	33.2	15.8	8.7	32.1	25.6	43.5	17.9	
Hori	324.445	QP	34.1	16.2	9.9	32.1	28.1	46.0	17.9	
Hori	336.924	QP	37.7	16.5	10.0	32.1	32.1	46.0	13.9	
Hori	436.752	QP	33.9	18.2	10.6	32.1	30.6	46.0	15.4	
Hori	800.300	QP	21.7	21.8	11.0	28.3	26.2	46.0	19.8	
Hori	1600.000	PK	45.8	25.8	2.1	33.0	40.7	73.9	33.2	
Hori	2384.932	PK	62.1	27.4	2.6	32.4	59.7	73.9	14.2	
Hori	2390.000	PK	60.5	27.4	2.6	32.4	58.1	73.9	15.8	
Hori	2399.650	PK	57.3	27.4	2.6	32.4	54.9	73.9	19.0	
Hori	2400.000	PK	77.5	27.4	2.6	32.4	75.1	-	-	See 20dBc Data Sheet
Hori	4804.000	PK	41.9	31.3	4.5	31.4	46.3	73.9	27.6	
Hori	7206.000	PK	42.1	35.5	5.3	31.6	51.3	73.9	22.6	
Hori	9608.000	PK	44.2	38.4	6.2	31.9	56.9	73.9	17.0	
Hori	24020.000	PK	47.5	40.5	-0.9	29.6	57.5	73.9	16.4	
Hori	1600.000	AV	32.6	25.8	2.1	33.0	27.5	53.9	26.4	
Hori	2384.932	AV	35.2	27.4	2.6	32.4	32.8	53.9	21.1	
Hori	2390.000	AV	40.5	27.4	2.6	32.4	38.1	53.9	15.8	
Hori	2399.650	AV	39.2	27.4	2.6	32.4	36.8	53.9	17.1	
Hori	2400.000	AV	62.9	27.4	2.6	32.4	60.5	-	-	See 20dBc Data Sheet
Hori	4804.000	AV	30.9	31.3	4.5	31.4	35.3	53.9	18.6	
Hori	7206.000	AV	31.2	35.5	5.3	31.6	40.4	53.9	13.5	
Hori	9608.000	AV	33.8	38.4	6.2	31.9	46.5	53.9	7.4	
Hori	24020.000	AV	35.9	40.5	-0.9	29.6	45.9	53.9	8.0	
Vert	72.362	QP	53.1	6.7	7.6	32.2	35.2	40.0	4.8	
Vert	96.480	QP	52.6	9.7	7.9	32.2	38.0	43.5	5.5	
Vert	169.258	QP	36.9	15.8	8.7	32.1	29.3	43.5	14.2	
Vert	324.445	QP	40.1	16.2	9.9	32.1	34.1	46.0	11.9	
Vert	336.924	QP	41.1	16.5	10.0	32.1	35.5	46.0	10.5	
Vert	436.752	QP	34.5	18.2	10.6	32.1	31.2	46.0	14.8	
Vert	800.300	QP	21.8	21.8	11.0	28.3	26.3	46.0	19.7	
Vert	1600.000	PK	47.0	25.8	2.1	33.0	41.9	73.9	32.0	
Vert	2384.752	PK	61.2	27.4	2.6	32.4	58.8	73.9	15.1	
Vert	2390.000	PK	55.9	27.4	2.6	32.4	53.5	73.9	20.4	
Vert	2399.650	PK	56.3	27.4	2.6	32.4	53.9	73.9	20.0	
Vert	2400.000	PK	72.1	27.4	2.6	32.4	69.7	-	-	See 20dBc Data Sheet
Vert	4804.000	PK	42.8	31.3	4.5	31.4	47.2	73.9	26.7	
Vert	7206.000	PK	42.6	35.5	5.3	31.6	51.8	73.9	22.1	
Vert	9608.000	PK	43.9	38.4	6.2	31.9	56.6	73.9	17.3	
Vert	24020.000	PK	47.2	40.5	-0.9	29.6	57.2	73.9	16.7	
Vert	1600.000	AV	33.7	25.8	2.1	33.0	28.6	53.9	25.3	
Vert	2384.752	AV	35.9	27.4	2.6	32.4	33.5	53.9	20.4	
Vert	2390.000	AV	38.2	27.4	2.6	32.4	35.8	53.9	18.1	
Vert	2399.650	AV	39.3	27.4	2.6	32.4	36.9	53.9	17.0	
Vert	2400.000	AV	60.4	27.4	2.6	32.4	58.0	-	-	See 20dBc Data Sheet
Vert	4804.000	AV	31.1	31.3	4.5	31.4	35.5	53.9	18.4	
Vert	7206.000	AV	30.4	35.5	5.3	31.6	39.6	53.9	14.3	
Vert	9608.000	AV	34.2	38.4	6.2	31.9	46.9	53.9	7.0	
Vert	24020.000	AV	36.1	40.5	-0.9	29.6	46.1	53.9	7.8	

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

*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
20dBc Data Sheet

Test place	Head Office EMC Lab. No.1 Semi Anechoic Chamber
Report No.	31KE0354-HO
Date	07/12/2011
Temperature/ Humidity	23 deg.C / 68% RH
Engineer	Tomotaka Sasagawa (Above 1GHz)
Mode	Tx, 3DH5 2402MHz

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	106.7	27.4	2.6	32.4	104.3	-	-	Carrier
Hori	2400.000	PK	57.2	27.4	2.6	32.4	54.8	84.3	29.5	
Vert	2402.000	PK	102.6	27.4	2.6	32.4	100.2	-	-	Carrier
Vert	2400.000	PK	53.2	27.4	2.6	32.4	50.8	80.2	29.4	

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.1 and 4 Semi Anechoic Chamber	
Report No.	31KE0354-HO	
Date	07/12/2011	07/12/2011
Temperature/ Humidity	23 deg.C / 68% RH	25 deg.C / 56% RH
Engineer	Tomotaka Sasagawa (Above 1GHz)	Takeshi Choda (below 1GHz)
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	72.362	QP	35.9	6.7	7.6	32.2	18.0	40.0	22.0	
Hori	96.480	QP	37.5	9.7	7.9	32.2	22.9	43.5	20.6	
Hori	169.258	QP	32.9	15.8	8.7	32.1	25.3	43.5	18.2	
Hori	324.445	QP	34.5	16.2	9.9	32.1	28.5	46.0	17.5	
Hori	336.924	QP	37.8	16.5	10.0	32.1	32.2	46.0	13.8	
Hori	436.752	QP	33.6	18.2	10.6	32.1	30.3	46.0	15.7	
Hori	813.300	QP	21.7	21.8	11.0	28.2	26.3	46.0	19.7	
Hori	1627.000	PK	44.0	25.8	2.2	32.9	39.1	73.9	34.8	
Hori	2385.738	PK	62.1	27.4	2.6	32.4	59.7	73.9	14.2	
Hori	4882.000	PK	42.6	31.5	4.4	31.3	47.2	73.9	26.7	NS
Hori	7323.000	PK	42.5	35.7	5.3	31.6	51.9	73.9	22.0	NS
Hori	9764.000	PK	43.9	38.5	6.2	31.8	56.8	73.9	17.1	NS
Hori	24410.000	PK	47.9	40.4	-1.0	29.5	57.8	73.9	16.1	NS
Hori	1627.000	AV	33.1	25.8	2.2	32.9	28.2	53.9	25.7	
Hori	2385.738	AV	35.1	27.4	2.6	32.4	32.7	53.9	21.2	
Hori	4882.000	AV	31.4	31.5	4.4	31.3	36.0	53.9	17.9	NS
Hori	7323.000	AV	31.7	35.7	5.3	31.6	41.1	53.9	12.8	NS
Hori	9764.000	AV	32.4	38.5	6.2	31.8	45.3	53.9	8.6	NS
Hori	24410.000	AV	36.5	40.4	-1.0	29.5	46.4	53.9	7.5	NS
Vert	72.362	QP	52.9	6.7	7.6	32.2	35.0	40.0	5.0	
Vert	96.480	QP	52.3	9.7	7.9	32.2	37.7	43.5	5.8	
Vert	169.258	QP	36.7	15.8	8.7	32.1	29.1	43.5	14.4	
Vert	324.445	QP	40.4	16.2	9.9	32.1	34.4	46.0	11.6	
Vert	336.924	QP	42.1	16.5	10.0	32.1	36.5	46.0	9.5	
Vert	436.752	QP	34.6	18.2	10.6	32.1	31.3	46.0	14.7	
Vert	813.300	QP	21.6	21.8	11.0	28.2	26.2	46.0	19.8	
Vert	1627.000	PK	44.3	25.8	2.2	32.9	39.4	73.9	34.5	
Vert	2386.040	PK	60.9	27.4	2.6	32.4	58.5	73.9	15.4	
Vert	4882.000	PK	42.5	31.5	4.4	31.3	47.1	73.9	26.8	NS
Vert	7323.000	PK	42.7	35.7	5.3	31.6	52.1	73.9	21.8	NS
Vert	9764.000	PK	44.5	38.5	6.2	31.8	57.4	73.9	16.5	NS
Vert	24410.000	PK	47.8	40.4	-1.0	29.5	57.7	73.9	16.2	NS
Vert	1627.000	AV	33.2	25.8	2.2	32.9	28.3	53.9	25.6	
Vert	2386.040	AV	35.4	27.4	2.6	32.4	33.0	53.9	20.9	
Vert	4882.000	AV	32.4	31.5	4.4	31.3	37.0	53.9	16.9	NS
Vert	7323.000	AV	31.1	35.7	5.3	31.6	40.5	53.9	13.4	NS
Vert	9764.000	AV	34.3	38.5	6.2	31.8	47.2	53.9	6.7	NS
Vert	24410.000	AV	36.7	40.4	-1.0	29.5	46.6	53.9	7.3	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

*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.1 and 4 Semi Anechoic Chamber	
Report No.	31KE0354-HO	
Date	07/12/2011	07/12/2011
Temperature/ Humidity	23 deg.C / 68% RH	25 deg.C / 56% RH
Engineer	Tomotaka Sasagawa (Above 1GHz)	Takeshi Choda (below 1GHz)
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	72.362	QP	36.1	6.7	7.6	32.2	18.2	40.0	21.8	
Hori	96.480	QP	37.3	9.7	7.9	32.2	22.7	43.5	20.8	
Hori	169.258	QP	33.0	15.8	8.7	32.1	25.4	43.5	18.1	
Hori	324.445	QP	34.7	16.2	9.9	32.1	28.7	46.0	17.3	
Hori	336.924	QP	37.4	16.5	10.0	32.1	31.8	46.0	14.2	
Hori	436.752	QP	33.3	18.2	10.6	32.1	30.0	46.0	16.0	
Hori	827.000	QP	21.5	21.9	11.0	28.2	26.2	46.0	19.8	
Hori	1653.000	PK	44.0	25.9	2.2	32.9	39.2	73.9	34.7	
Hori	2385.032	PK	62.7	27.4	2.6	32.4	60.3	73.9	13.6	
Hori	2483.500	PK	61.2	27.6	2.7	32.4	59.1	73.9	14.8	
Hori	2484.330	PK	56.9	27.6	2.7	32.4	54.8	73.9	19.1	
Hori	2494.003	PK	51.2	27.6	2.7	32.4	49.1	73.9	24.8	
Hori	4960.000	PK	42.1	31.7	4.5	31.3	47.0	73.9	26.9	NS
Hori	7440.000	PK	42.0	35.8	5.3	31.7	51.4	73.9	22.5	NS
Hori	9920.000	PK	44.5	38.7	6.2	31.8	57.6	73.9	16.3	NS
Hori	24800.000	PK	48.5	40.3	-1.0	29.4	58.4	73.9	15.5	NS
Hori	1653.000	AV	33.0	25.9	2.2	32.9	28.2	53.9	25.7	
Hori	2385.032	AV	34.9	27.4	2.6	32.4	32.5	53.9	21.4	
Hori	2483.500	AV	45.8	27.6	2.7	32.4	43.7	53.9	10.2	
Hori	2484.330	AV	41.2	27.6	2.7	32.4	39.1	53.9	14.8	
Hori	2494.003	AV	34.2	27.6	2.7	32.4	32.1	53.9	21.8	
Hori	4960.000	AV	30.2	31.7	4.5	31.3	35.1	53.9	18.8	NS
Hori	7440.000	AV	30.4	35.8	5.3	31.7	39.8	53.9	14.1	NS
Hori	9920.000	AV	32.1	38.7	6.2	31.8	45.2	53.9	8.7	NS
Hori	24800.000	AV	37.5	40.3	-1.0	29.4	47.4	53.9	6.5	NS
Vert	72.362	QP	53.0	6.7	7.6	32.2	35.1	40.0	4.9	
Vert	96.480	QP	52.1	9.7	7.9	32.2	37.5	43.5	6.0	
Vert	169.258	QP	36.9	15.8	8.7	32.1	29.3	43.5	14.2	
Vert	324.445	QP	40.3	16.2	9.9	32.1	34.3	46.0	11.7	
Vert	336.924	QP	41.7	16.5	10.0	32.1	36.1	46.0	9.9	
Vert	436.752	QP	34.2	18.2	10.6	32.1	30.9	46.0	15.1	
Vert	827.000	QP	21.7	21.9	11.0	28.2	26.4	46.0	19.6	
Vert	1653.000	PK	43.5	25.9	2.2	32.9	38.7	73.9	35.2	
Vert	2384.874	PK	61.9	27.4	2.6	32.4	59.5	73.9	14.4	
Vert	2483.500	PK	57.6	27.6	2.7	32.4	55.5	73.9	18.4	
Vert	2484.330	PK	55.0	27.6	2.7	32.4	52.9	73.9	21.0	
Vert	2494.521	PK	51.2	27.6	2.7	32.4	49.1	73.9	24.8	
Vert	4960.000	PK	42.3	31.7	4.5	31.3	47.2	73.9	26.7	NS
Vert	7440.000	PK	42.1	35.8	5.3	31.7	51.5	73.9	22.4	NS
Vert	9920.000	PK	44.9	38.7	6.2	31.8	58.0	73.9	15.9	NS
Vert	24800.000	PK	48.3	40.3	-1.0	29.4	58.2	73.9	15.7	NS
Vert	1653.000	AV	32.8	25.9	2.2	32.9	28.0	53.9	25.9	
Vert	2384.874	AV	35.1	27.4	2.6	32.4	32.7	53.9	21.2	
Vert	2483.500	AV	41.9	27.6	2.7	32.4	39.8	53.9	14.1	
Vert	2484.330	AV	41.0	27.6	2.7	32.4	38.9	53.9	15.0	
Vert	2494.521	AV	32.8	27.6	2.7	32.4	30.7	53.9	23.2	
Vert	4960.000	AV	31.4	31.7	4.5	31.3	36.3	53.9	17.6	NS
Vert	7440.000	AV	31.0	35.8	5.3	31.7	40.4	53.9	13.5	NS
Vert	9920.000	AV	35.2	38.7	6.2	31.8	48.3	53.9	5.6	NS
Vert	24800.000	AV	37.4	40.3	-1.0	29.4	47.3	53.9	6.6	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.

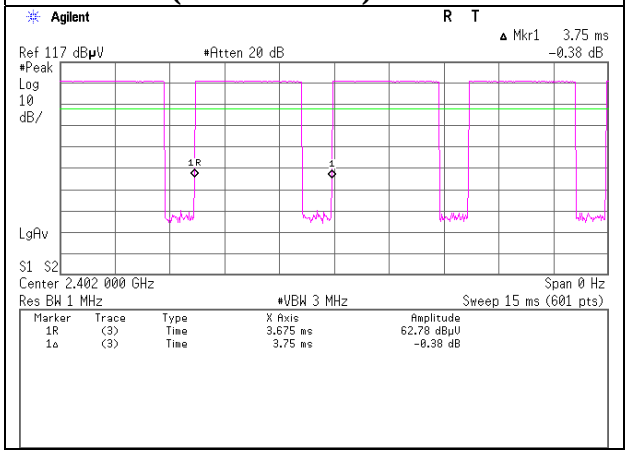
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

*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

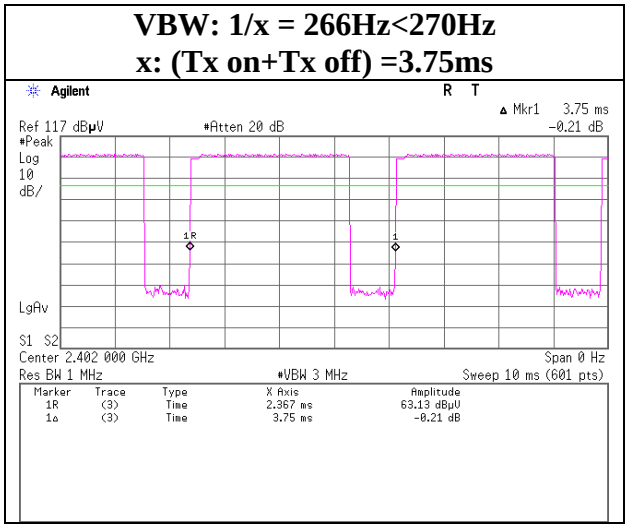
DH5

VBW: 1/x = 266Hz<270Hz
x: (Tx on+Tx off) =3.75ms



3DH5

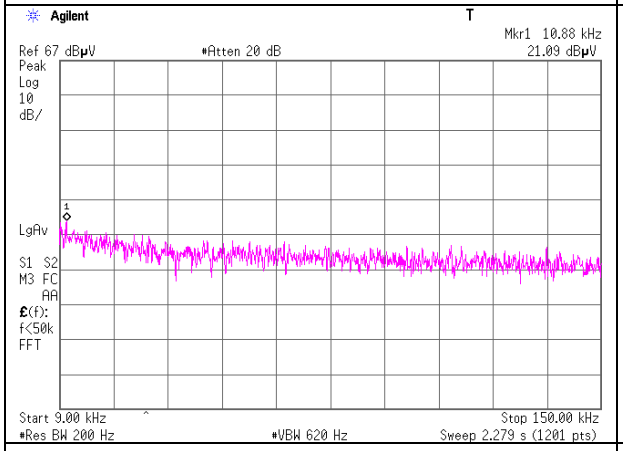
VBW: 1/x = 266Hz<270Hz
x: (Tx on+Tx off) =3.75ms



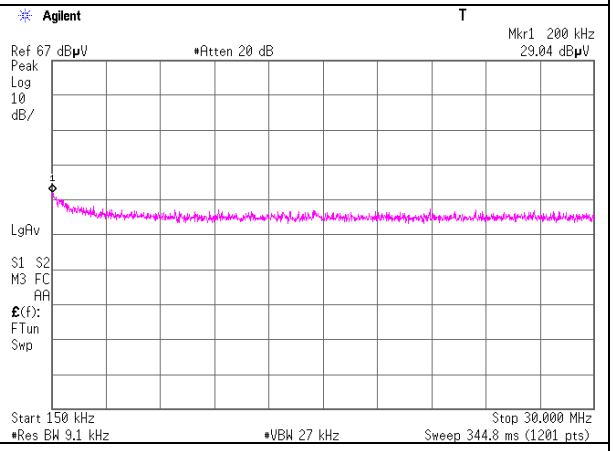
Conducted Spurious Emission

Tx DH5 2402MHz

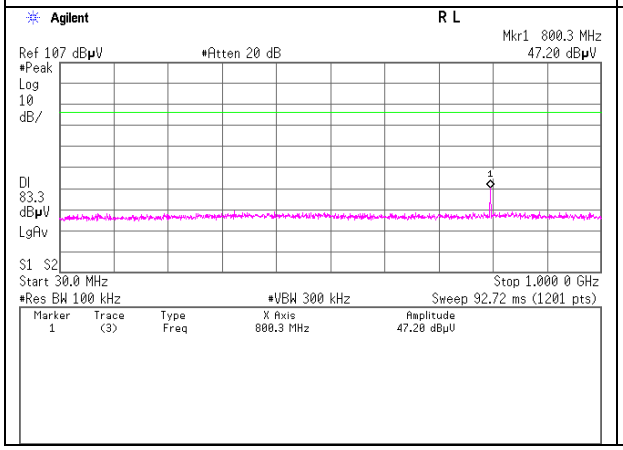
9kHz-150kHz



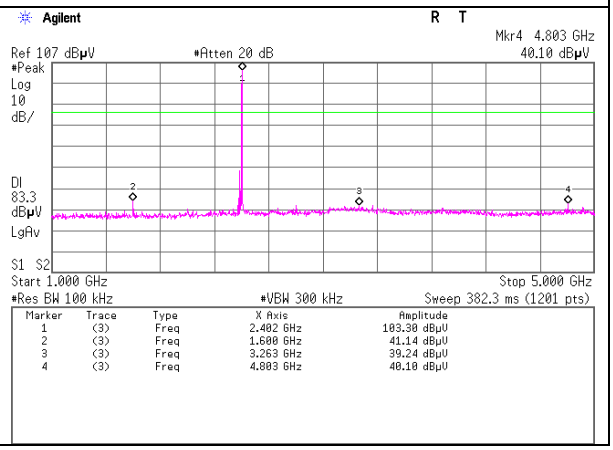
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz



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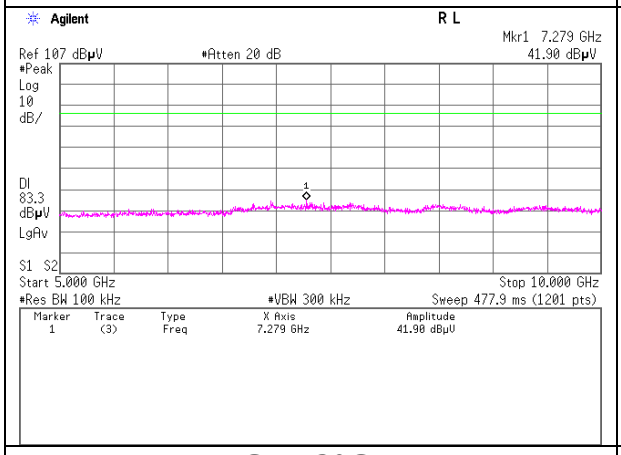
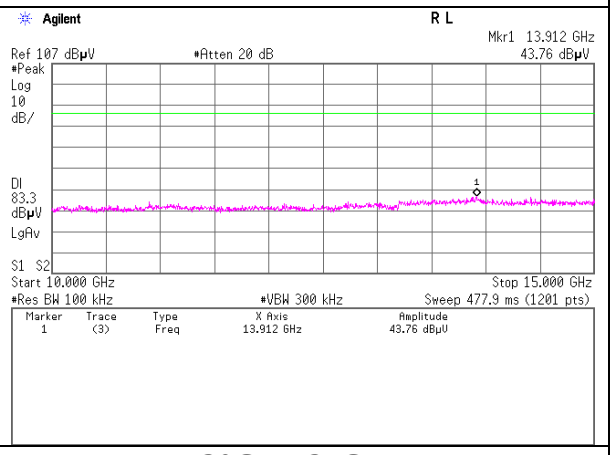
Conducted Spurious Emission

Tx DH5 2402MHz

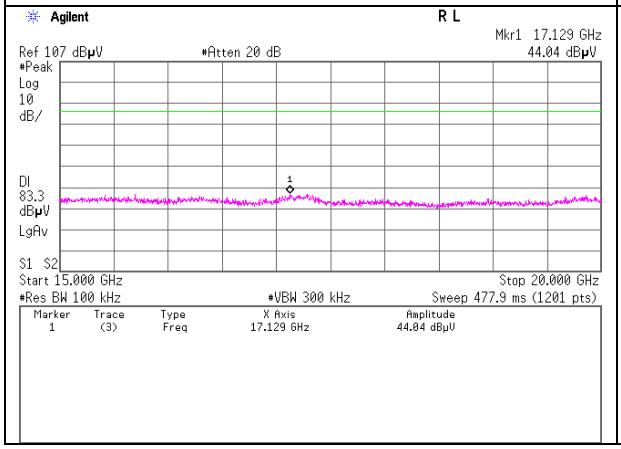
5GHz-10GHz



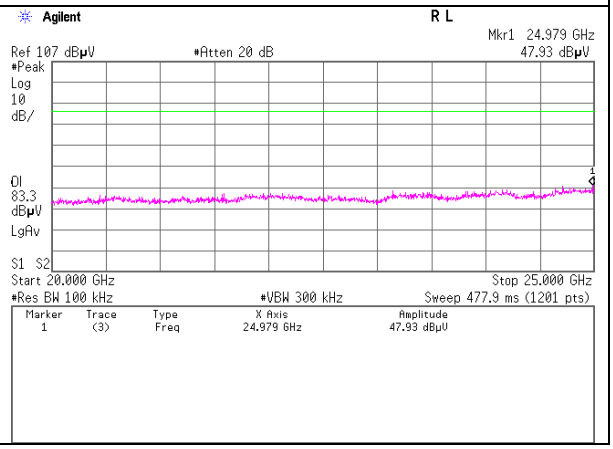
10GHz-15GHz



15GHz-20GHz



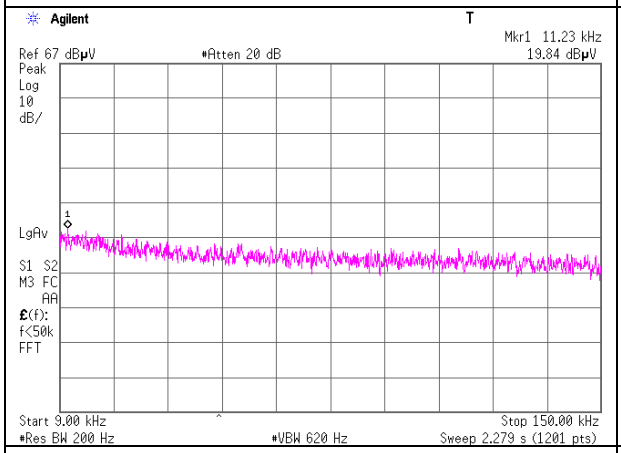
20GHz-25GHz



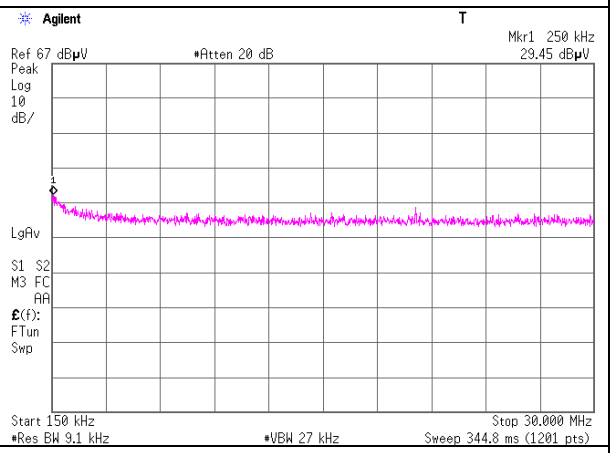
Conducted Spurious Emission

Tx DH5 2441MHz

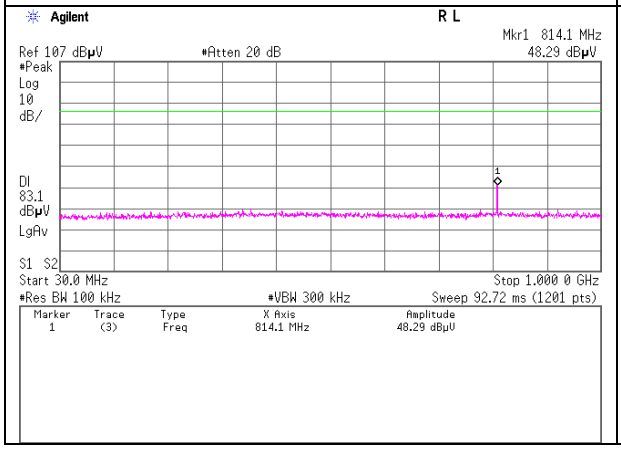
9kHz-150kHz



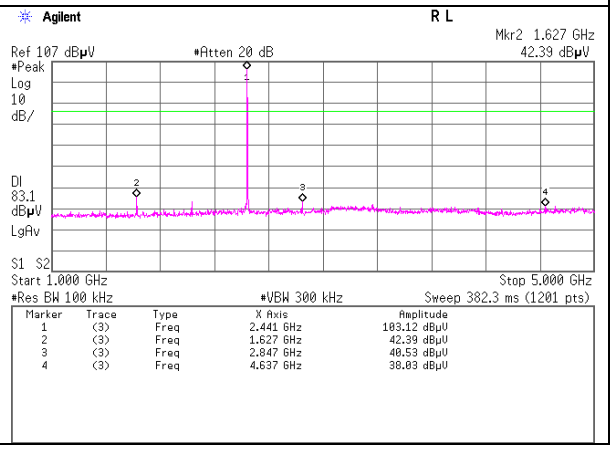
150kHz-30MHz



30MHz-1GHz



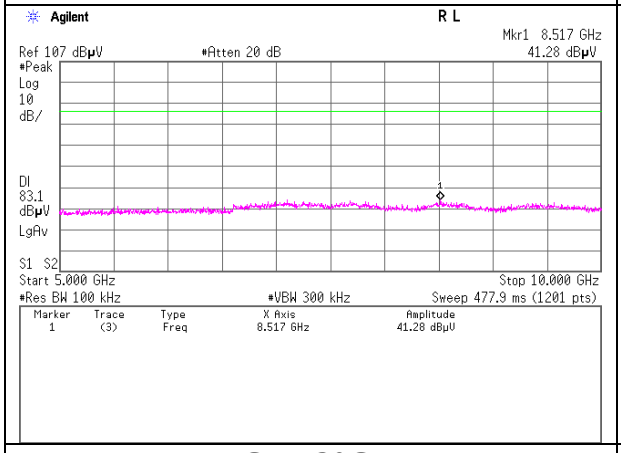
1GHz-5GHz



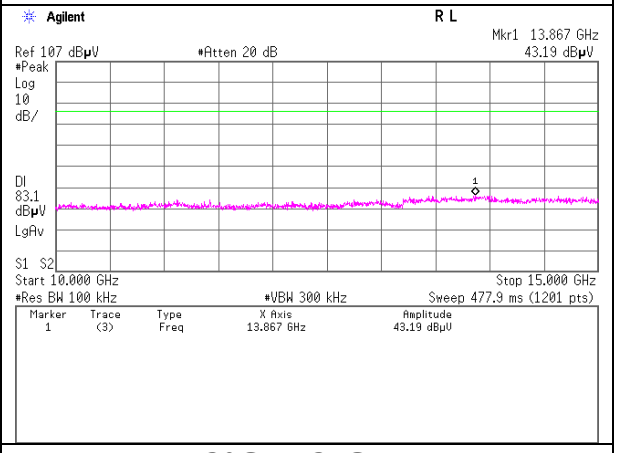
Conducted Spurious Emission

Tx DH5 2441MHz

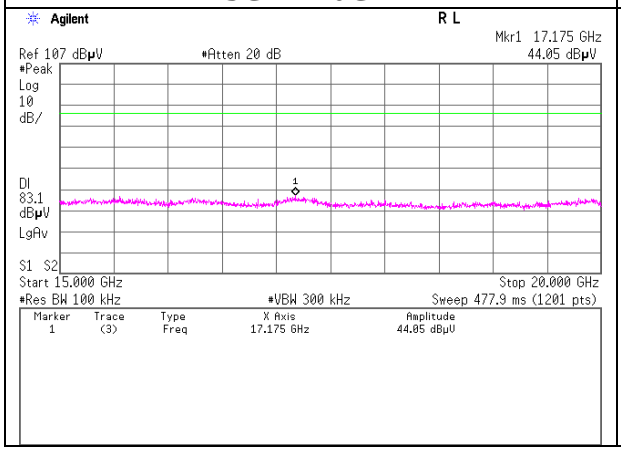
5GHz-10GHz



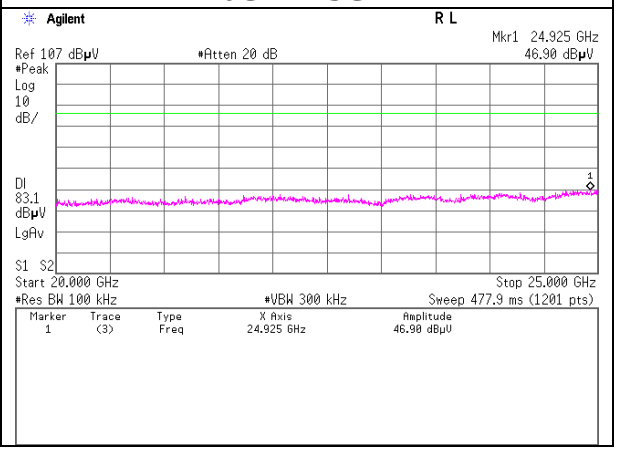
10GHz-15GHz



15GHz-20GHz



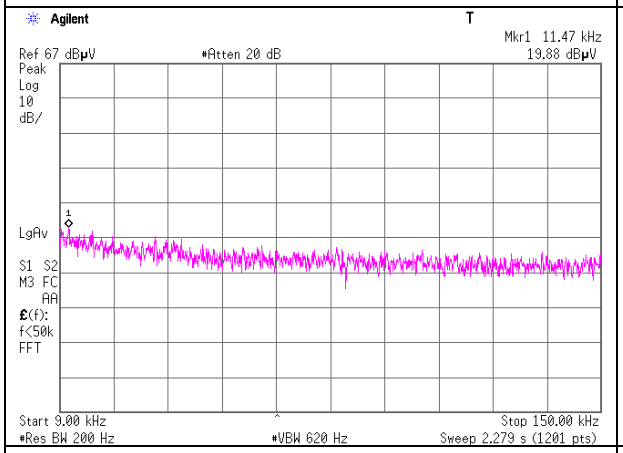
20GHz-25GHz



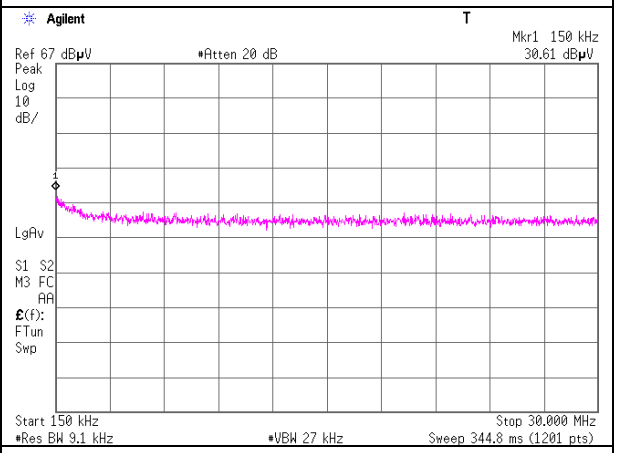
Conducted Spurious Emission

Tx DH5 2480MHz

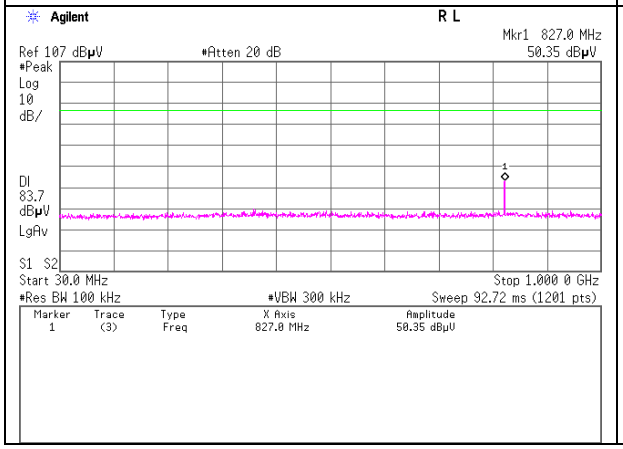
9kHz-150kHz



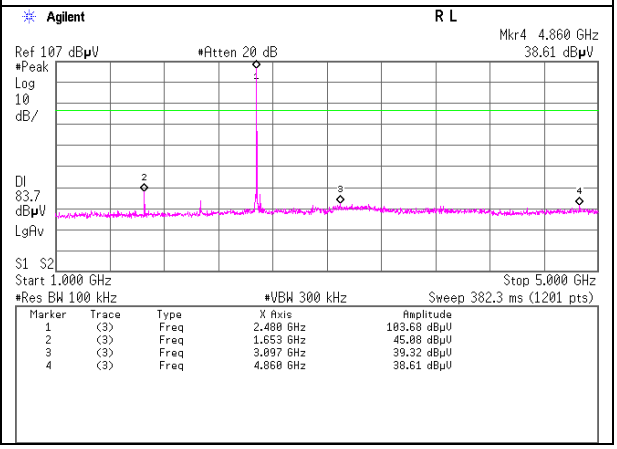
150kHz-30MHz



30MHz-1GHz



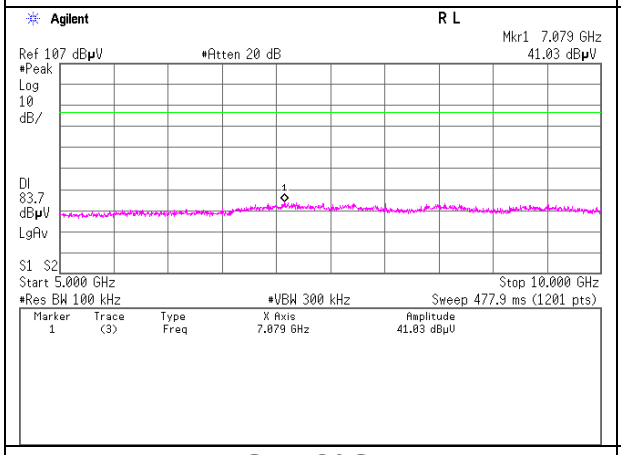
1GHz-5GHz



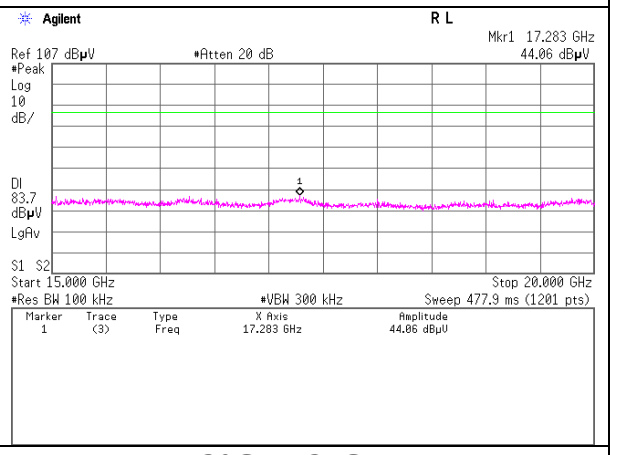
Conducted Spurious Emission

Tx DH5 2480MHz

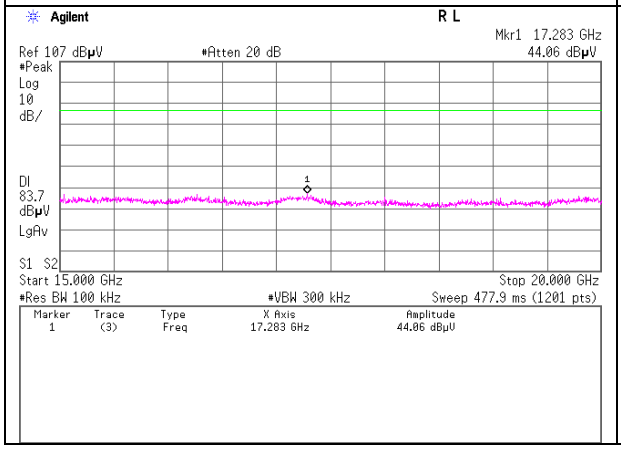
5GHz-10GHz



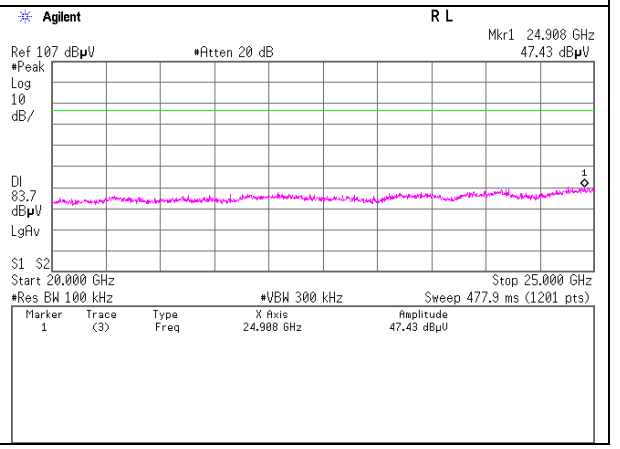
10GHz-15GHz



15GHz-20GHz



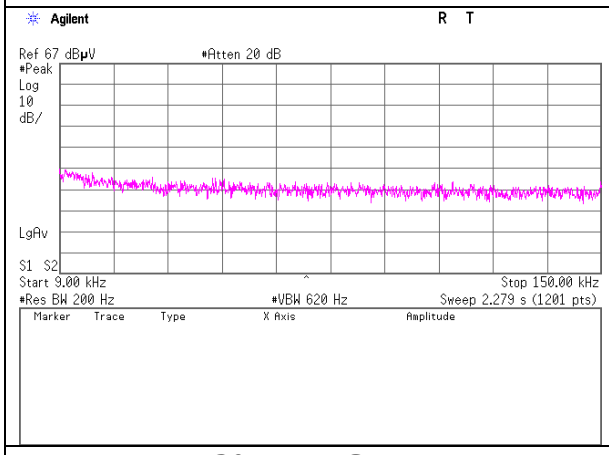
20GHz-25GHz



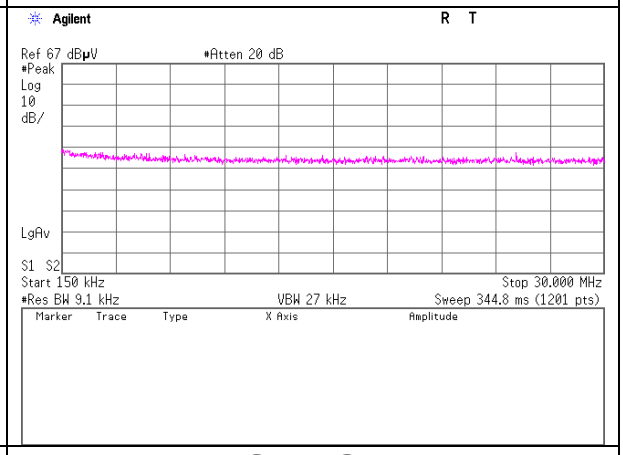
Conducted Spurious Emission

Tx 3DH5 2402MHz

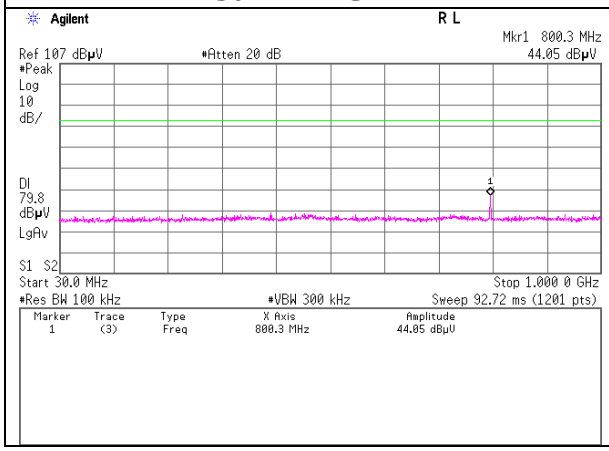
9kHz-150kHz



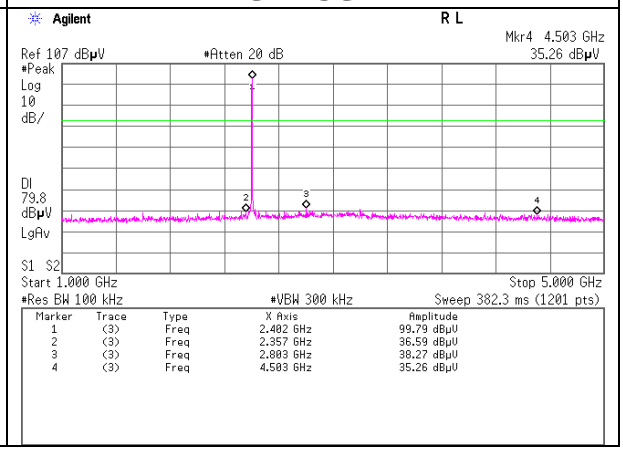
150kHz-30MHz



30MHz-1GHz



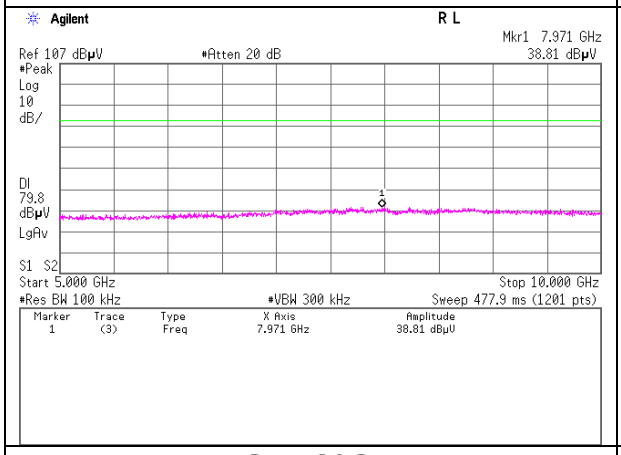
1GHz-5GHz



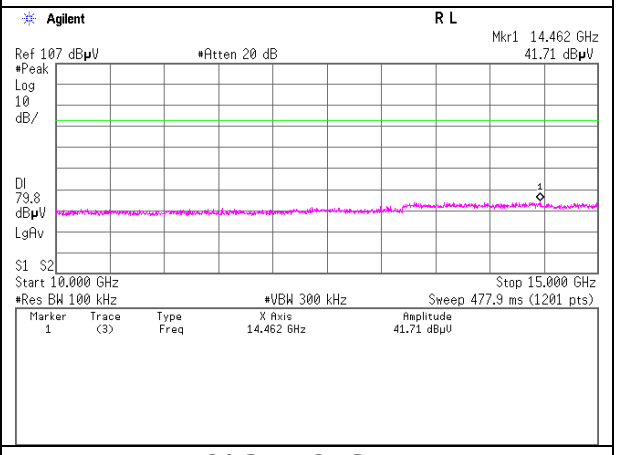
Conducted Spurious Emission

Tx 3DH5 2402MHz

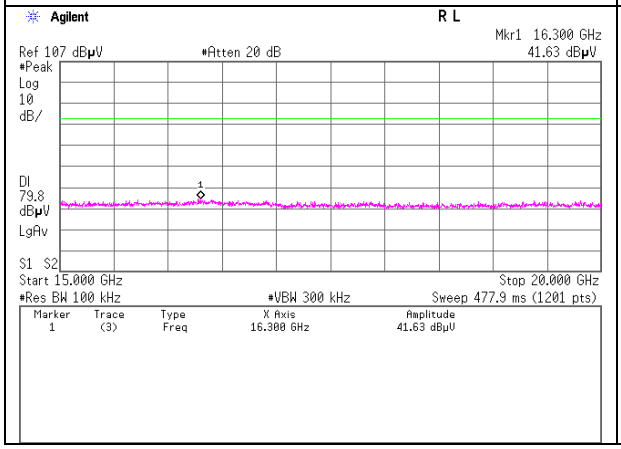
5GHz-10GHz



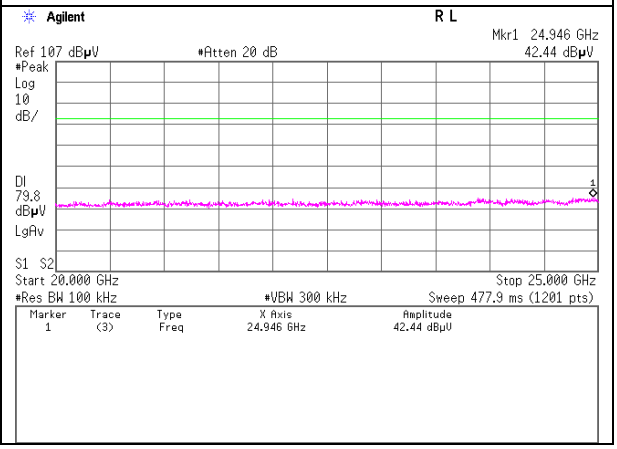
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



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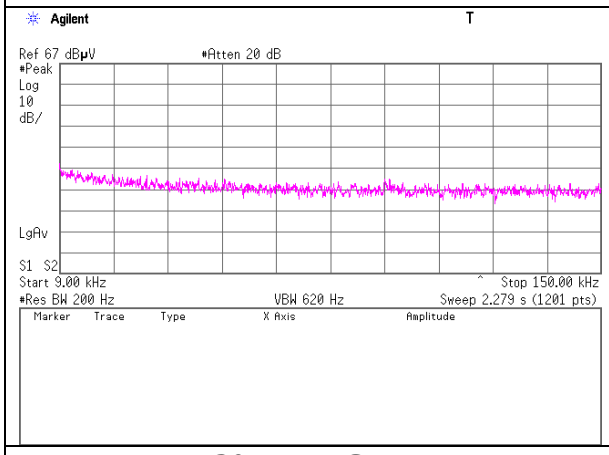
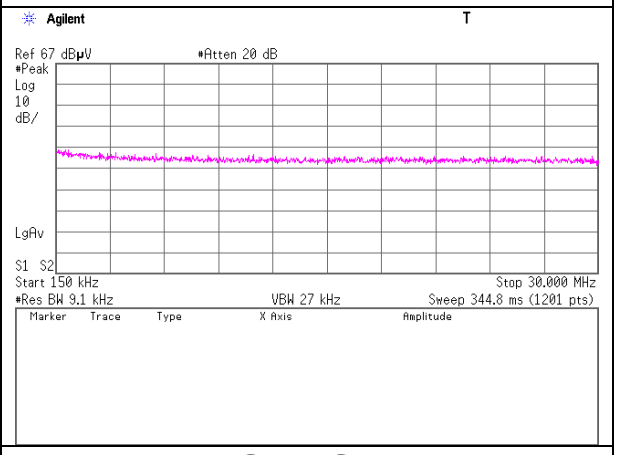
Conducted Spurious Emission

Tx 3DH5 2441MHz

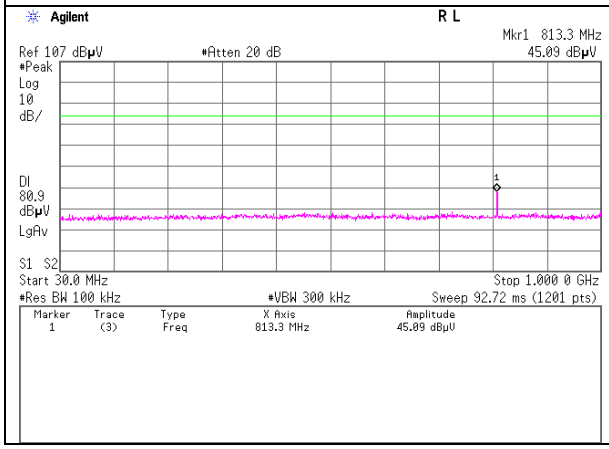
9kHz-150kHz



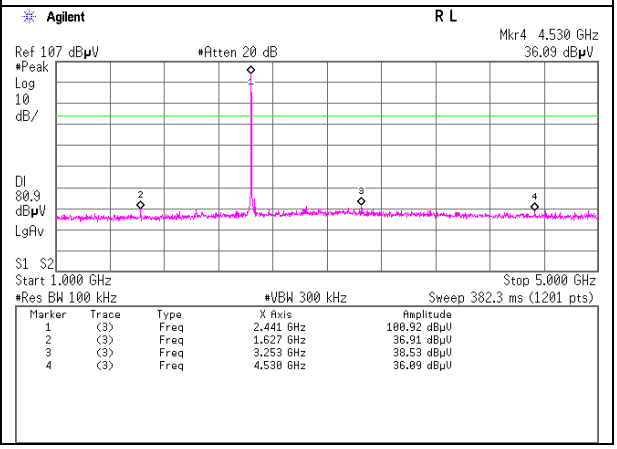
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz



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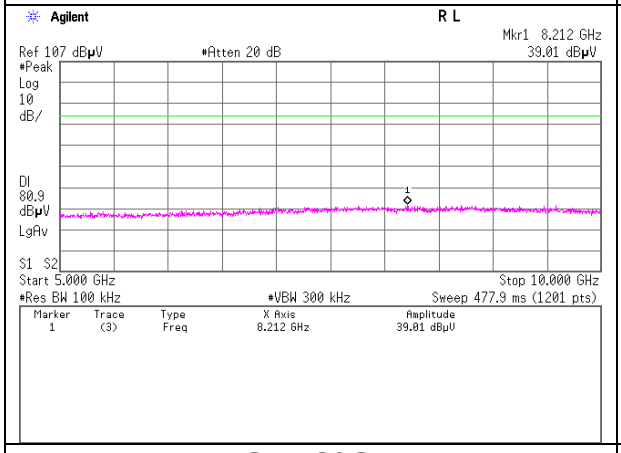
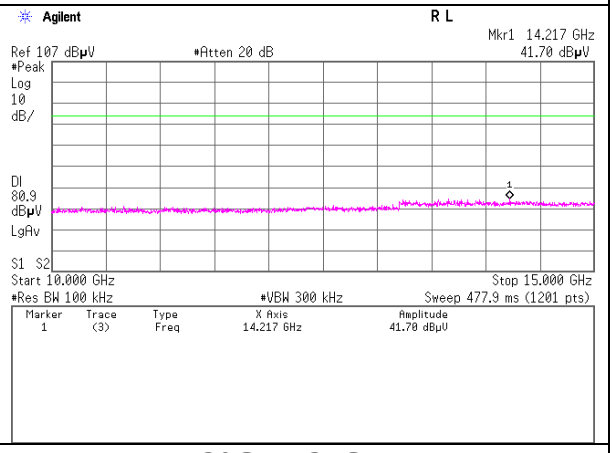
Conducted Spurious Emission

Tx 3DH5 2441MHz

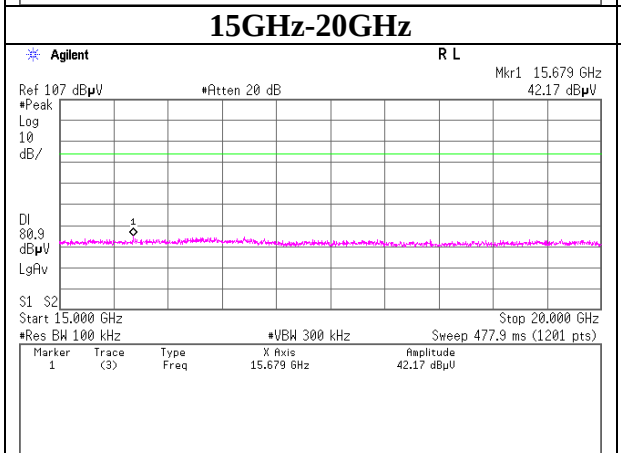
5GHz-10GHz



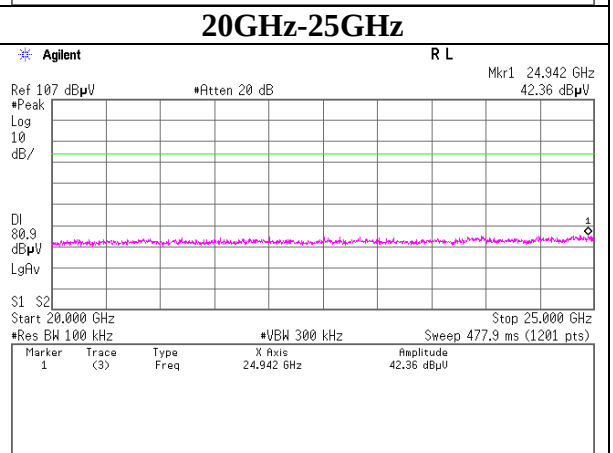
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



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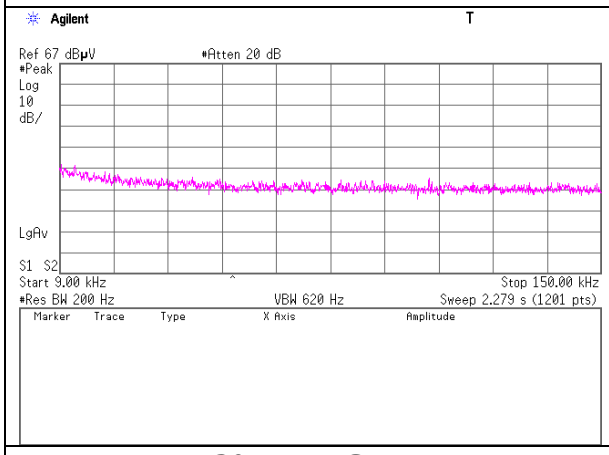
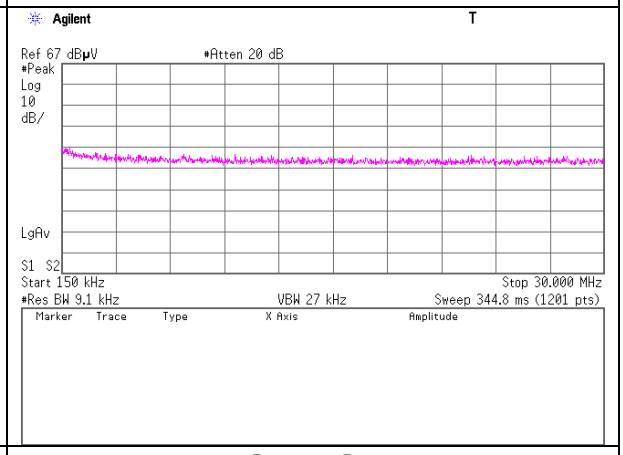
Conducted Spurious Emission

Tx 3DH5 2480MHz

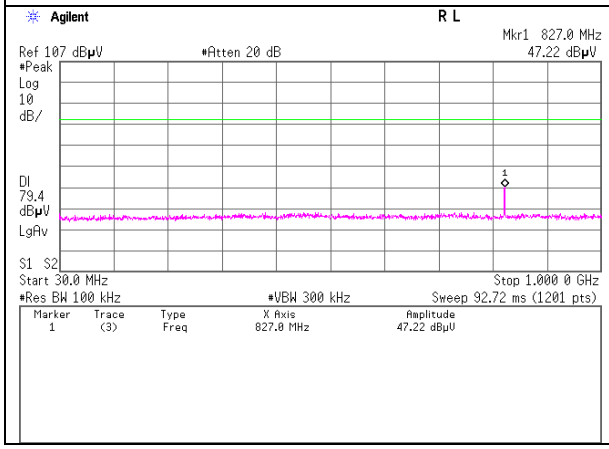
9kHz-150kHz



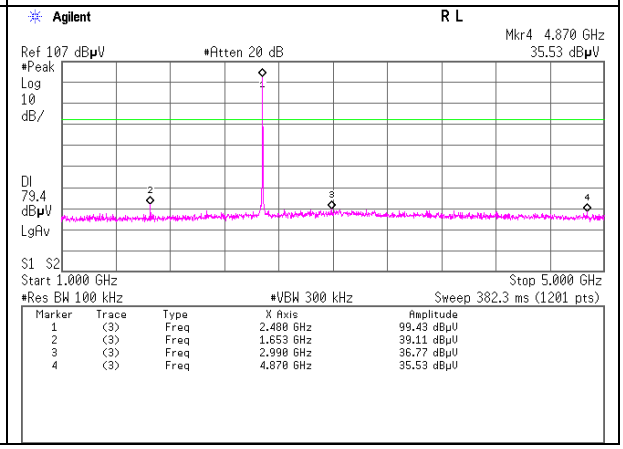
150kHz-30MHz



30MHz-1GHz



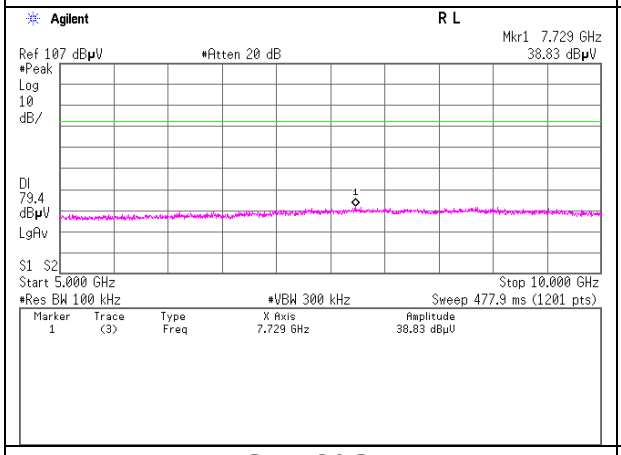
1GHz-5GHz



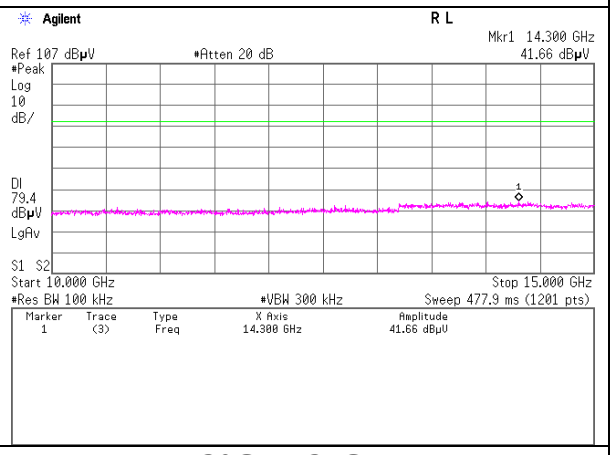
Conducted Spurious Emission

Tx 3DH5 2480MHz

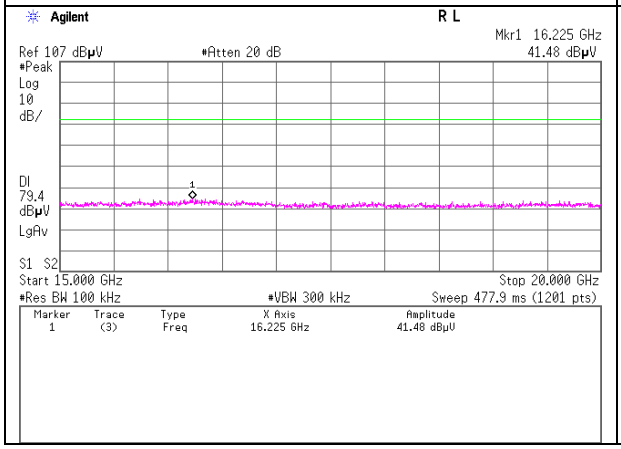
5GHz-10GHz



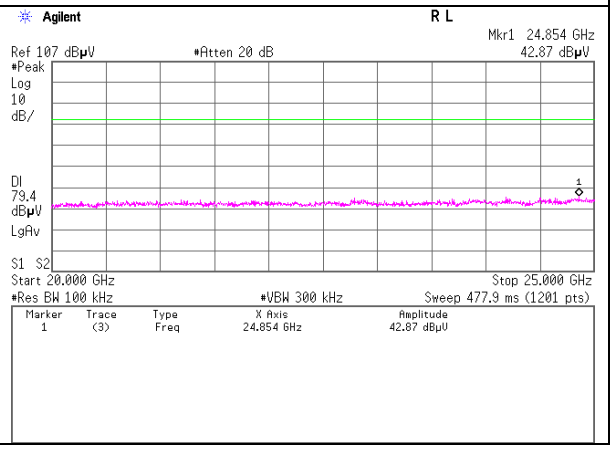
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



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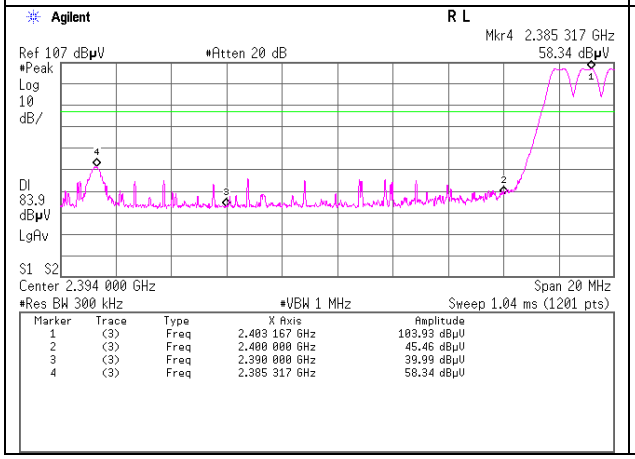
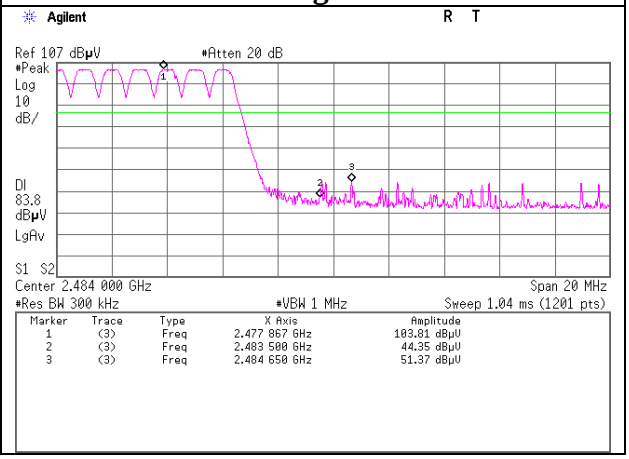
Conducted Emission Band Edge compliance

Tx DH5, Hopping on

Low

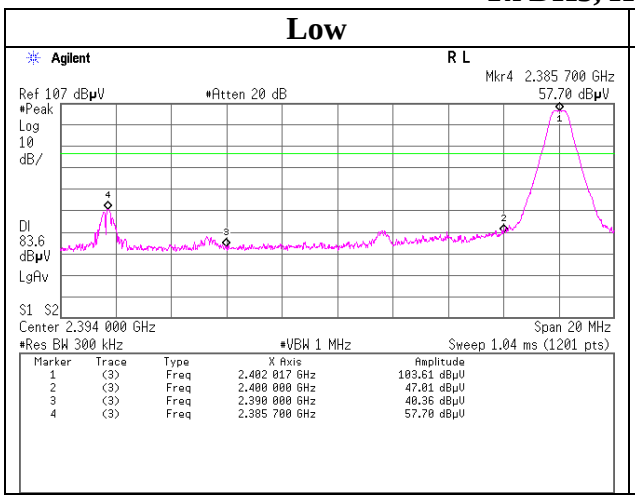


High

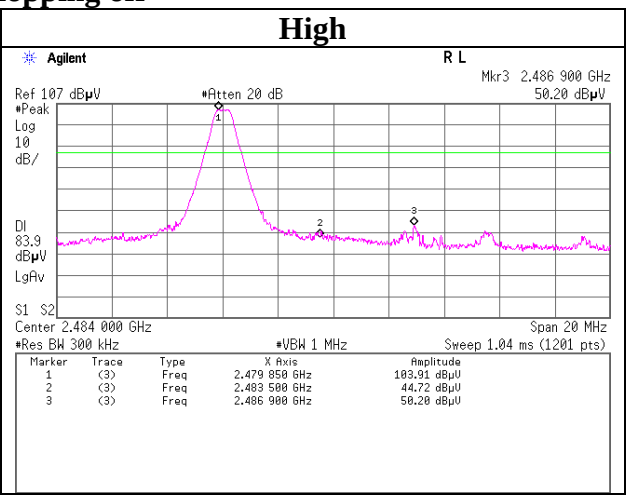


Tx DH5, Hopping off

Low



High



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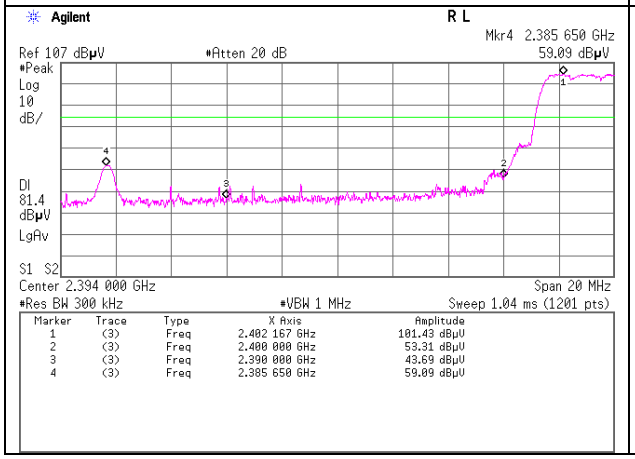
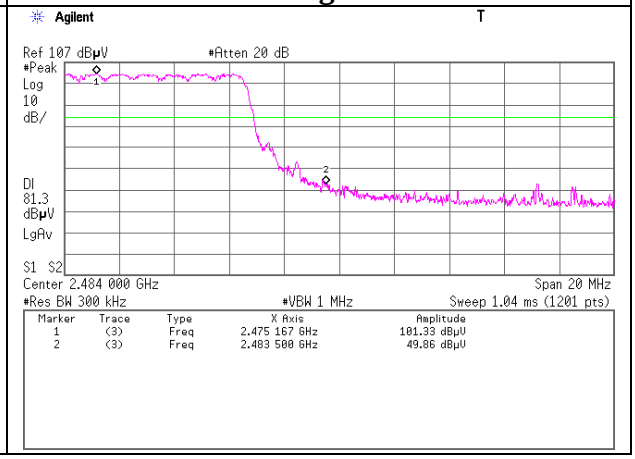
Conducted Emission Band Edge compliance

Tx 3DH5, Hopping on

Low

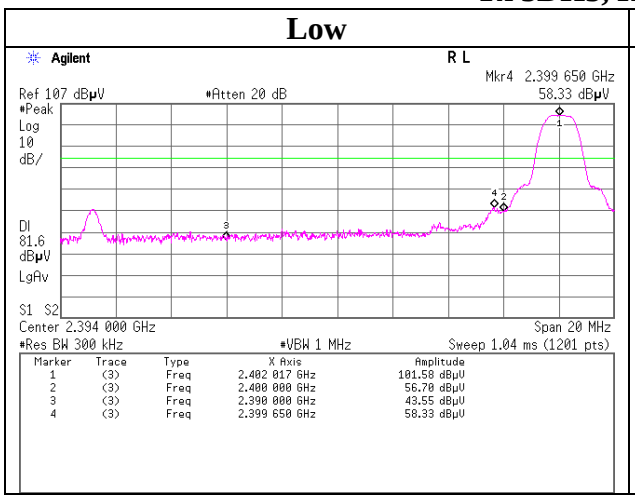


High



Tx 3DH5, Hopping off

Low



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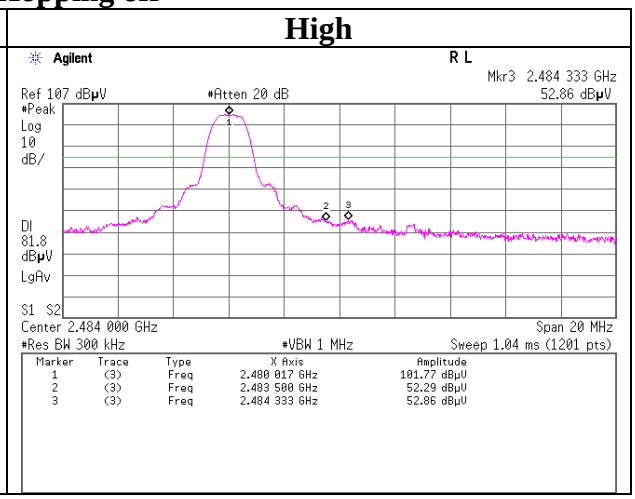

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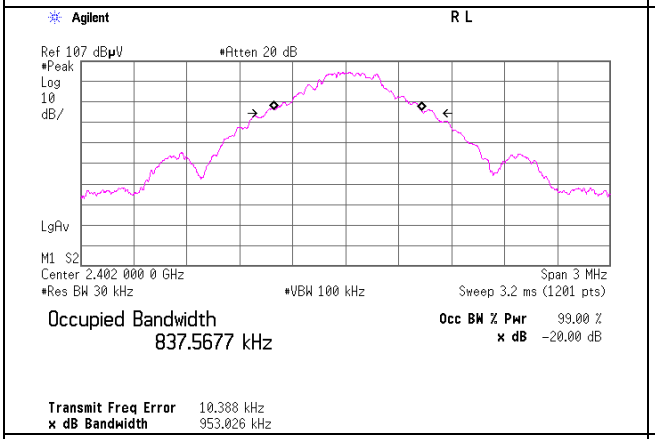
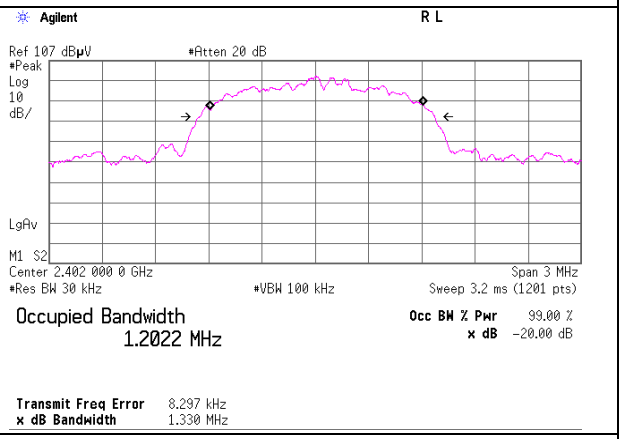
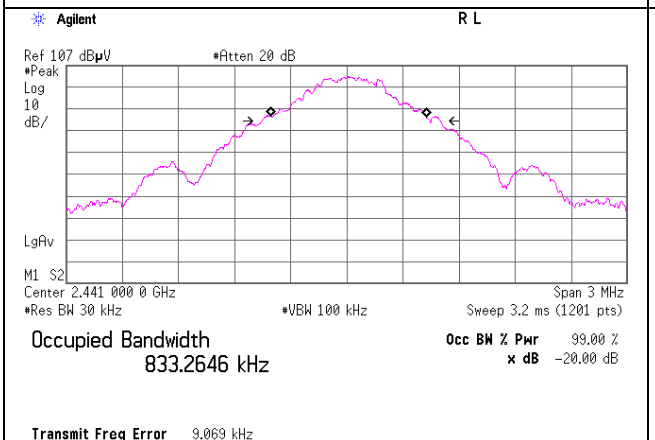
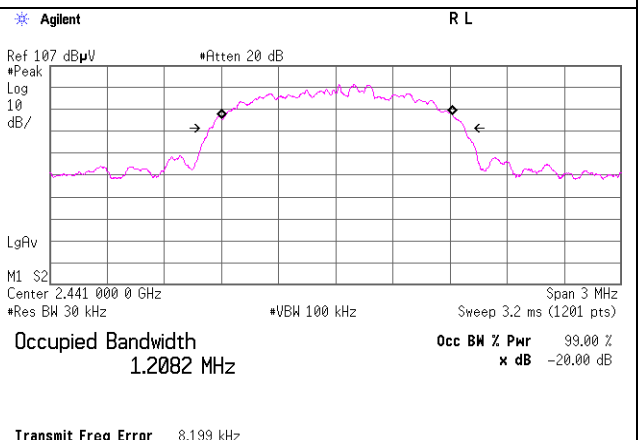
99%Occupied Bandwidth

Tx DH5, Hopping off	Tx 3DH5, Hopping off
2402MHz	**2402MHz**
	
2441MHz	**2441MHz**
	
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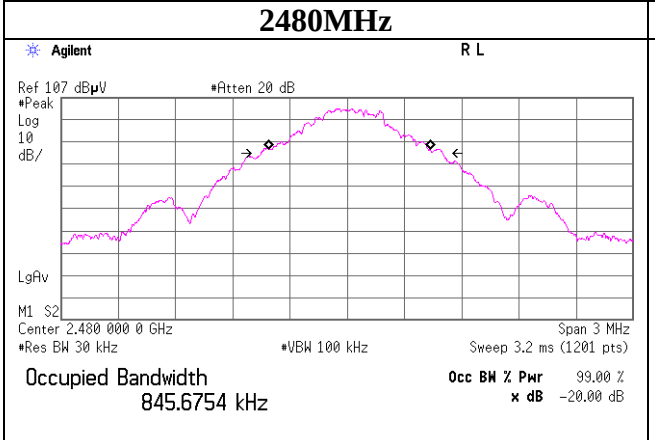	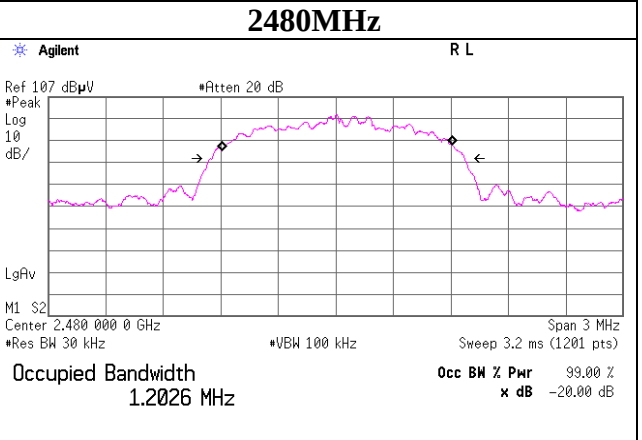

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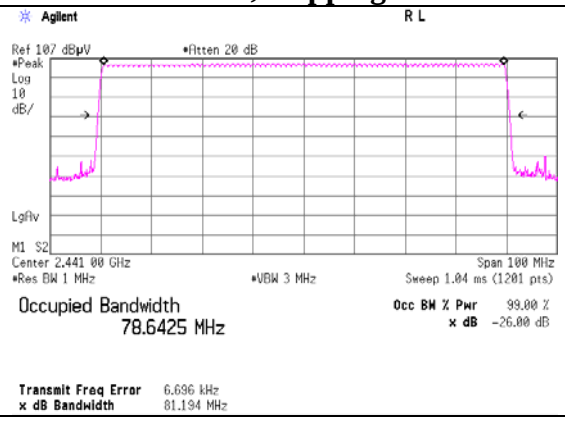
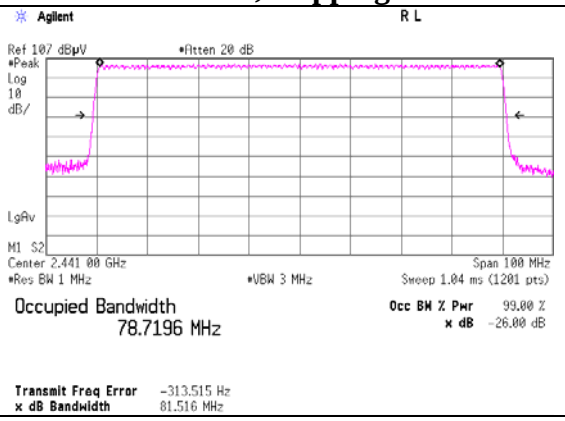
99% Occupied Bandwidth

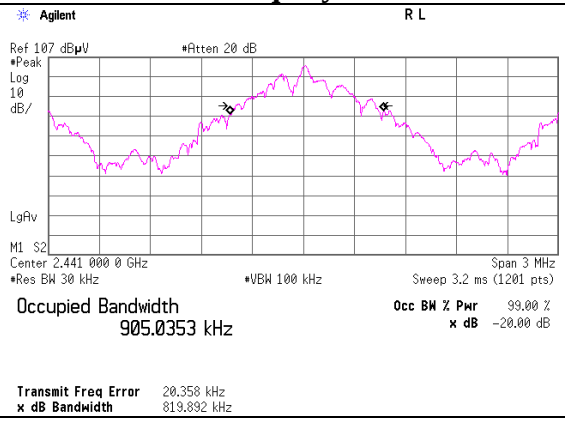
Tx DH5, Hopping on



Tx 3DH5, Hopping on



Inquiry



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APPENDIX 3: Test instruments

EMI test equipment (1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(EUT)	2011/02/20 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	8127364	CE(AE)	2011/02/22 * 12
MTA-31	Terminator	TME	CT-01	-	CE	2011/01/05 * 12
MCC-13	Coaxial Cable	Fujikura	3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m)	-	CE	2011/02/18 * 12
MAT-65	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2011/02/21 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE/CE	2010/09/01 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE/AT/CE	2011/02/23 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE/CE	2011/04/08 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2011/01/16 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2010/09/30 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	148048-143(1m) / 292410(5m)	RE	2010/09/30 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2011/05/16 * 12
MAT-23	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	AT	2011/03/14 * 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
MHA-02	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	RE	2011/01/16 * 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

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
MRENT-95	Spectrum Analyzer	Agilent	E4440A	MY45305081	AT	2011/06/30 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	MOS04	AT	2011/02/23 * 12
MCC-115	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	290211/4	AT	2010/08/05 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE/CE	2011/04/15 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2010/10/11 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2011/02/18 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2010/11/05 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2010/09/09 * 12

The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with valid calibrations. Each measurement data 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