APPENDIX 2: Data of EMI test

Conducted Emission

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DATA OF CONDUCTED EMISSION TEST

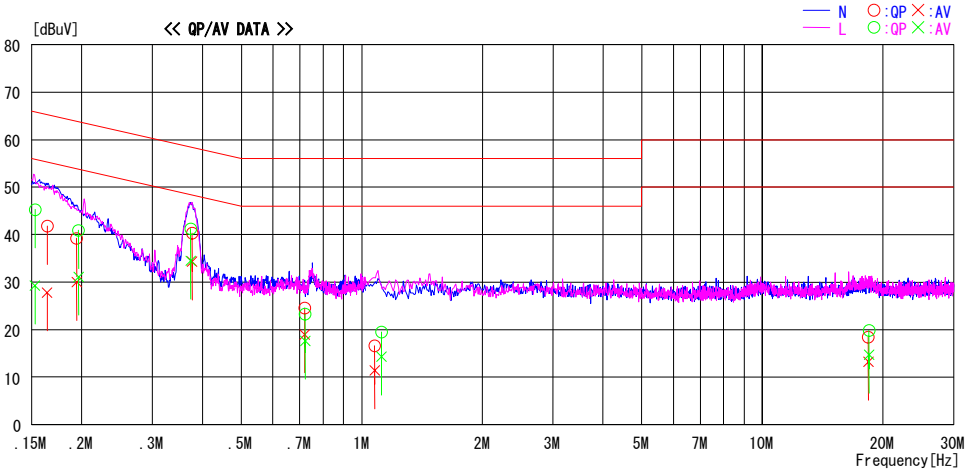
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/07/17

Report No. : 30KE0083-HO-01

Temp./Humi. : 23deg.C. / 59%
Engineer : Hiroshi Kukita

Mode / Remarks : Transimitting 2405.376MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



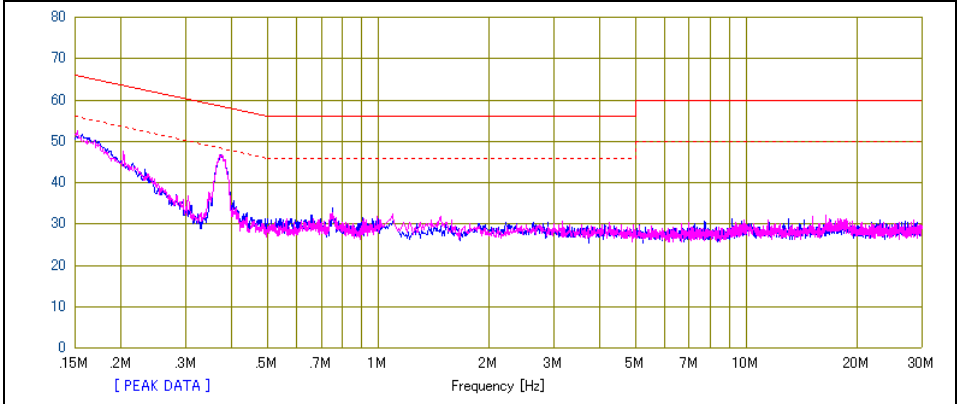
Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.16404	28.5	14.5	13.3	41.8	27.8	65.3	55.3	23.5	27.5	N	
0.19432	25.9	16.7	13.3	39.2	30.0	63.8	53.8	24.6	23.8	N	
0.37698	27.0	21.0	13.3	40.3	34.3	58.3	48.3	18.0	14.0	N	
0.72076	11.3	5.7	13.3	24.6	19.0	56.0	46.0	31.4	27.0	N	
1.07680	3.3	-1.9	13.3	16.6	11.4	56.0	46.0	39.4	34.6	N	
18.39560	3.8	-1.4	14.6	18.4	13.2	60.0	50.0	41.6	36.8	N	
0.15294	32.0	16.0	13.3	45.3	29.3	65.8	55.8	20.5	26.5	L	
0.19632	27.6	17.8	13.3	40.9	31.1	63.8	53.8	22.9	22.7	L	
0.37428	27.9	21.2	13.3	41.2	34.5	58.4	48.4	17.2	13.9	L	
0.72186	10.0	4.3	13.3	23.3	17.6	56.0	46.0	32.7	28.4	L	
1.12010	6.2	1.0	13.3	19.5	14.3	56.0	46.0	36.5	31.7	L	
18.47721	5.2	0.1	14.6	19.8	14.7	60.0	50.0	40.2	35.3	L	

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

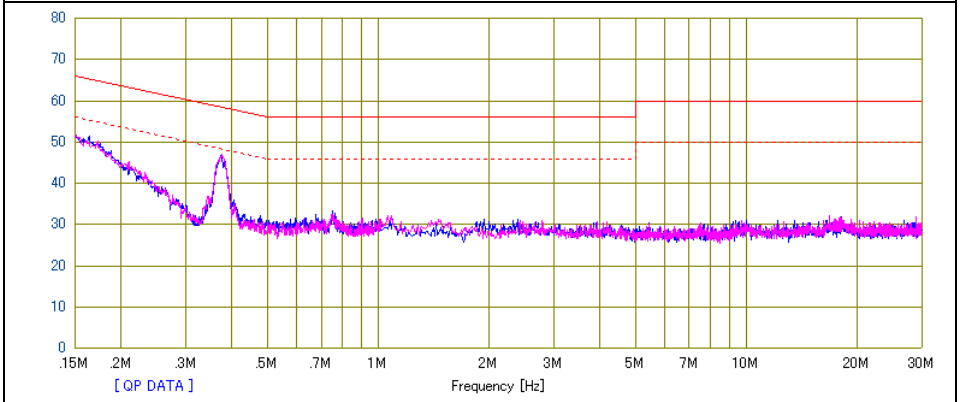
Conducted Emission

Test place	Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No.	30KE0083-HO-01
Date	07/17/2010
Temperature/ Humidity	23 deg.C./ 59%
Engineer	Hiroshi Kukita
Mode	Tx

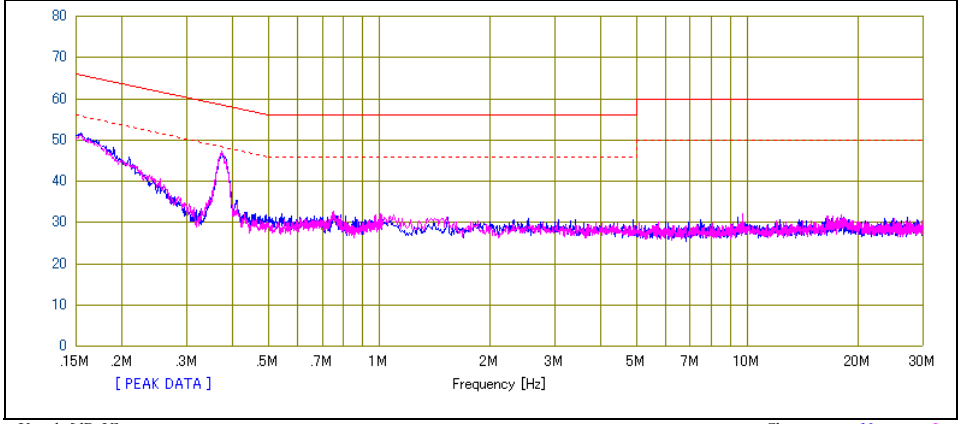
2405.376MHz



2436.096MHz



2473.984MHz



Y scale [dBuV] Chart — N — L

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Conducted Emission

DATA OF CONDUCTED EMISSION TEST

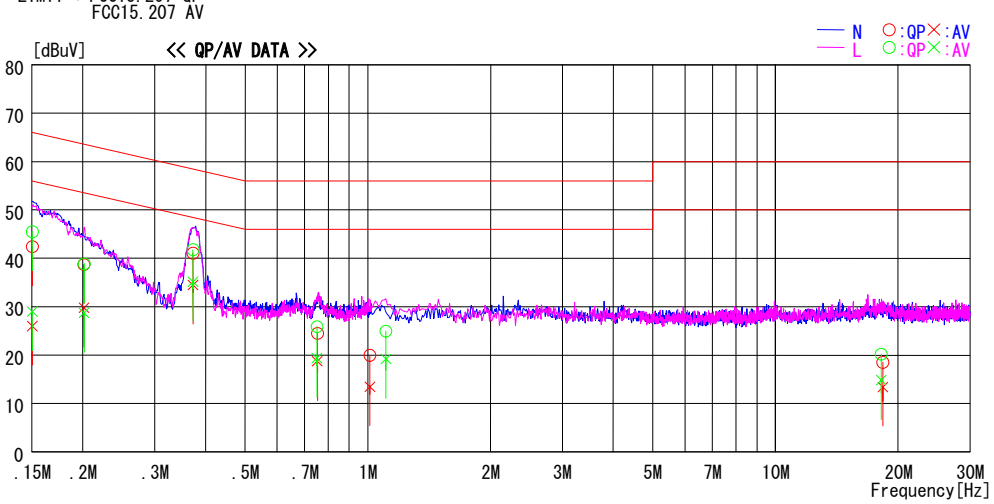
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/07/17

Report No. : 30KE0083-HO-01

Temp./Humi. : 23deg.C. / 59%
Engineer : Hiroshi Kukita

Mode / Remarks : Receiving 2436.096MHz

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]		
0.15042	29.1	12.7	13.3	42.4	26.0	66.0	56.0	23.6	30.0	N	
0.20122	25.4	16.5	13.3	38.7	29.8	63.6	53.6	24.9	23.8	N	
0.37260	27.8	21.2	13.3	41.1	34.5	58.4	48.4	17.3	13.9	N	
0.75224	11.2	5.4	13.3	24.5	18.7	56.0	46.0	31.5	27.3	N	
1.01227	6.7	0.2	13.3	20.0	13.5	56.0	46.0	36.0	32.5	N	
18.34160	3.9	-1.2	14.6	18.5	13.4	60.0	50.0	41.5	36.6	N	
0.15044	32.2	15.7	13.3	45.5	29.0	66.0	56.0	20.5	27.0	L	
0.20153	25.6	15.4	13.3	38.9	28.7	63.5	53.5	24.6	24.8	L	
0.37260	28.5	21.8	13.3	41.8	35.1	58.4	48.4	16.6	13.3	L	
0.75061	12.6	6.1	13.3	25.9	19.4	56.0	46.0	30.1	26.6	L	
1.10760	11.7	5.9	13.3	25.0	19.2	56.0	46.0	31.0	26.8	L	
18.17700	5.6	0.2	14.6	20.2	14.8	60.0	50.0	39.8	35.2	L	

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

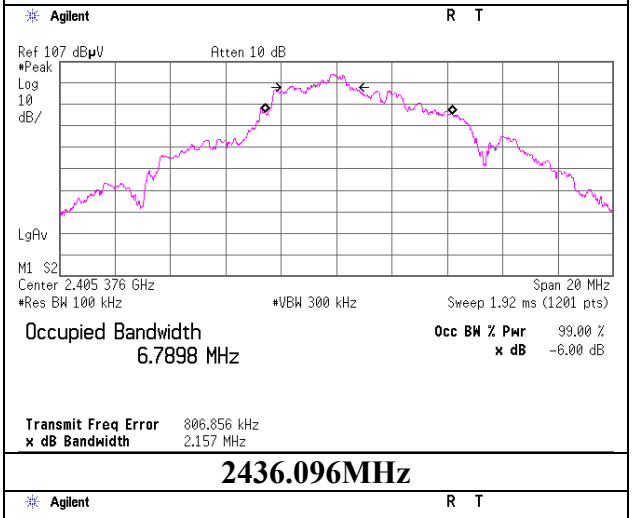
6dB Bandwidth

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	30KE0083-HO-01
Date	07/12/2010
Temperature/ Humidity	22 deg.C./ 54%
Engineer	Tomotaka Sasagawa
Mode	Tx

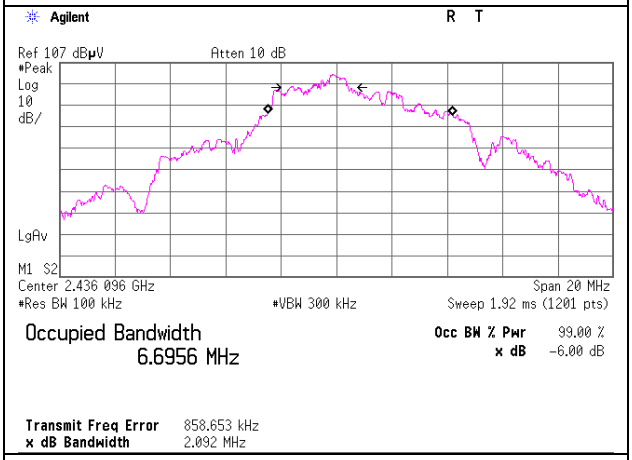
Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2405.376	2.157	>500
2436.096	2.092	>500
2473.984	1.799	>500

6dB Bandwidth

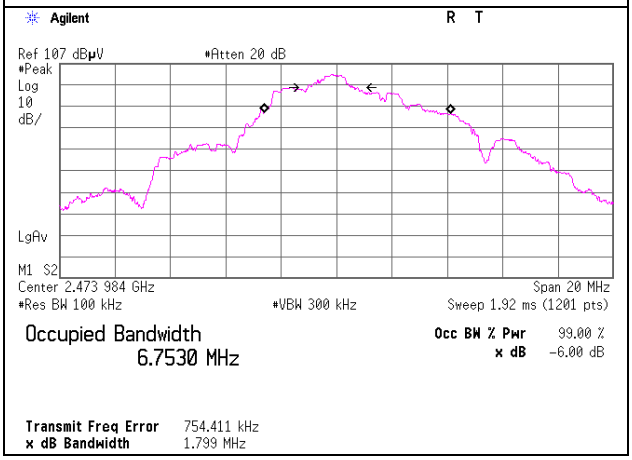
2405.376MHz



2436.096MHz



2473.984MHz



Maximum Peak Output Power

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	30KE0083-HO-01
Date	07/12/2010
Temperature/ Humidity	22 deg.C./ 54%
Engineer	Tomotaka Sasagawa
Mode	Tx

Freq.	Reading	Cable Loss	Atten.	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2405	-4.93	1.60	10.08	6.75	4.73	30.00	1000	23.25
2436	-4.64	1.61	10.08	7.05	5.07	30.00	1000	22.95
2474	-4.16	1.61	10.08	7.53	5.66	30.00	1000	22.47

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 , No.2 and No.3 Semi Anechoic Chamber		
Report No.	30KE0083-HO-01		
Date	07/14/2010	07/14/2010	08/24/2010
Temperature/ Humidity	25 deg.C./ 58%	20 deg.C./ 77%	24 deg.C./ 60%
Engineer	Tomotaka Sasagawa (Above 1GHz)	Keisuke Kawamura (Below 1GHz)	Satofumi Matsuyama (Above 1GHz)
Mode	Tx 2405.376MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remarks
Hori	589.798	QP	30.7	19.6	10.1	28.8	31.6	46.0	14.4	
Hori	602.091	QP	31.9	19.7	10.1	28.8	32.9	46.0	13.1	
Hori	638.948	QP	32.7	20.1	10.3	28.7	34.4	46.0	11.6	
Hori	663.522	QP	32.6	20.3	10.4	28.6	34.7	46.0	11.3	
Hori	700.385	QP	28.4	20.6	10.5	28.6	30.9	46.0	15.1	
Hori	835.548	QP	28.4	22.0	11.0	28.2	33.2	46.0	12.8	
Hori	2375.000	PK	43.5	27.8	2.6	32.5	41.4	73.9	32.5	
Hori	2390.000	PK	42.2	26.7	2.9	32.1	39.7	73.9	34.2	
Hori	2400.000	PK	70.5	26.7	2.9	32.1	68.0	-	-	See 20dBc Data Sheet
Hori	2983.000	PK	43.6	29.1	3.0	32.2	43.5	73.9	30.4	
Hori	4810.752	PK	45.2	30.8	5.3	31.4	49.9	73.9	24.0	
Hori	7216.128	PK	42.1	35.9	5.7	32.3	51.4	73.9	22.5	
Hori	9621.504	PK	41.6	38.0	6.8	33.0	53.4	73.9	20.6	
Hori	24053.760	PK	48.9	37.9	-1.2	31.7	53.9	73.9	20.0	
Hori	2375.000	AV	31.4	27.8	2.6	32.5	29.3	53.9	24.6	
Hori	2390.000	AV	33.2	26.7	2.9	32.1	30.7	53.9	23.2	
Hori	2400.000	AV	65.8	26.7	2.9	32.1	63.3	-	-	See 20dBc Data Sheet
Hori	2983.000	AV	31.1	29.1	3.0	32.2	31.0	53.9	22.9	
Hori	4810.752	AV	41.3	30.8	5.3	31.4	46.0	53.9	7.9	VBW=820Hz
Hori	7216.128	AV	29.2	35.9	5.7	32.3	38.5	53.9	15.4	VBW=820Hz
Hori	9621.504	AV	29.6	38.0	6.8	33.0	41.4	53.9	12.5	VBW=820Hz
Hori	24053.760	AV	35.6	37.9	-1.2	31.7	40.6	53.9	13.3	VBW=820Hz
Vert	589.825	QP	32.5	19.6	10.1	28.8	33.4	46.0	12.6	
Vert	602.091	QP	32.1	19.7	10.1	28.8	33.1	46.0	12.9	
Vert	638.952	QP	31.0	20.1	10.3	28.7	32.7	46.0	13.3	
Vert	663.522	QP	30.6	20.3	10.4	28.6	32.7	46.0	13.3	
Vert	700.385	QP	25.5	20.6	10.5	28.6	28.0	46.0	18.0	
Vert	835.548	QP	24.8	22.0	11.0	28.2	29.6	46.0	16.4	
Vert	2375.000	PK	43.6	27.8	2.6	32.5	41.5	73.9	32.4	
Vert	2390.000	PK	41.7	26.7	2.9	32.1	39.2	73.9	34.7	
Vert	2400.000	PK	66.6	26.7	2.9	32.1	64.1	-	-	See 20dBc Data Sheet
Vert	2983.000	PK	43.2	29.1	3.0	32.2	43.1	73.9	30.8	
Vert	4810.752	PK	44.8	30.8	5.3	31.4	49.5	73.9	24.4	
Vert	7216.128	PK	42.5	35.9	5.7	32.3	51.8	73.9	22.1	
Vert	9621.504	PK	41.7	38.0	6.8	33.0	53.5	73.9	20.4	
Vert	24053.760	PK	48.7	37.9	-1.2	31.7	53.7	73.9	20.2	
Vert	2375.000	AV	31.4	27.8	2.6	32.5	29.3	53.9	24.6	
Vert	2390.000	AV	32.8	26.7	2.9	32.1	30.3	53.9	23.6	
Vert	2400.000	AV	62.8	26.7	2.9	32.1	60.3	-	-	See 20dBc Data Sheet
Vert	2983.000	AV	31.1	29.1	3.0	32.2	31.0	53.9	22.9	
Vert	4810.752	AV	39.7	30.8	5.3	31.4	44.4	53.9	9.5	VBW=820Hz
Vert	7216.128	AV	29.8	35.9	5.7	32.3	39.1	53.9	14.8	VBW=820Hz
Vert	9621.504	AV	28.7	38.0	6.8	33.0	40.5	53.9	13.4	VBW=820Hz
Vert	24053.760	AV	35.4	37.9	-1.2	31.7	40.4	53.9	13.5	VBW=820Hz

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

Radiated Spurious Emission
20dBc Data Sheet

Test place	Head Office EMC Lab. No.4 and No.2 Semi Anechoic Chamber
Report No.	30KE0083-HO-01
Date	07/14/2010
Temperature/ Humidity	25 deg.C./ 58%
Engineer	Tomotaka Sasagawa
	(Above 1GHz)
Mode	Tx 2405.376MHz

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	2405.376	PK	101.3	26.7	2.9	32.1	98.8	-	-	Carrier
Hori	2400.000	PK	63.2	26.7	2.9	32.1	60.7	78.8	18.1	
Vert	2405.376	PK	98.5	26.7	2.9	32.1	96.0	-	-	Carrier
Vert	2400.000	PK	60.1	26.7	2.9	32.1	57.6	76.0	18.4	

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 , No.2 and No.3 Semi Anechoic Chamber		
Report No.	30KE0083-HO-01		
Date	07/14/2010	07/14/2010	08/24/2010
Temperature/ Humidity	25 deg.C./ 58%	20 deg.C./ 77%	24 deg.C./ 60%
Engineer	Tomotaka Sasagawa (Above 1GHz)	Keisuke Kawamura (Below 1GHz)	Satofumi Matsuyama (Above 1GHz)
Mode	Tx 2436.096MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	589.798	QP	31.2	19.6	10.1	28.8	32.1	46.0	13.9	
Hori	602.086	QP	32.2	19.7	10.1	28.8	33.2	46.0	12.8	
Hori	638.948	QP	32.0	20.1	10.3	28.7	33.7	46.0	12.3	
Hori	663.524	QP	32.5	20.3	10.4	28.6	34.6	46.0	11.4	
Hori	700.386	QP	28.0	20.6	10.5	28.6	30.5	46.0	15.5	
Hori	835.546	QP	28.6	22.0	11.0	28.2	33.4	46.0	12.6	
Hori	2333.000	PK	43.1	27.8	2.6	32.5	41.0	73.9	32.9	
Hori	2993.000	PK	43.1	29.1	3.0	32.2	43.0	73.9	30.9	
Hori	4872.192	PK	46.8	31.0	5.3	31.4	51.7	73.9	22.2	
Hori	7308.288	PK	42.3	36.1	5.7	32.4	51.7	73.9	22.2	
Hori	9744.384	PK	42.1	38.1	6.9	33.0	54.1	73.9	19.8	
Hori	24360.960	PK	48.5	37.9	-1.1	31.6	53.7	73.9	20.2	
Hori	2333.000	AV	31.3	27.8	2.6	32.5	29.2	53.9	24.7	
Hori	2993.000	AV	31.0	29.1	3.0	32.2	30.9	53.9	23.0	
Hori	4872.192	AV	42.1	31.0	5.3	31.4	47.0	53.9	6.9	VBW=820Hz
Hori	7308.288	AV	30.2	36.1	5.7	32.4	39.6	53.9	14.3	VBW=820Hz
Hori	9744.384	AV	29.8	38.1	6.9	33.0	41.8	53.9	12.1	VBW=820Hz
Hori	24360.960	AV	35.8	37.9	-1.1	31.6	41.0	53.9	12.9	VBW=820Hz
Vert	589.798	QP	32.5	19.6	10.1	28.8	33.4	46.0	12.6	
Vert	602.086	QP	31.5	19.7	10.1	28.8	32.5	46.0	13.5	
Vert	638.948	QP	30.2	20.1	10.3	28.7	31.9	46.0	14.1	
Vert	663.524	QP	30.3	20.3	10.4	28.6	32.4	46.0	13.6	
Vert	700.386	QP	25.2	20.6	10.5	28.6	27.7	46.0	18.3	
Vert	835.546	QP	24.8	22.0	11.0	28.2	29.6	46.0	16.4	
Vert	2333.000	PK	43.6	27.8	2.6	32.5	41.5	73.9	32.4	
Vert	2993.000	PK	43.5	29.1	3.0	32.2	43.4	73.9	30.5	
Vert	4872.192	PK	45.5	31.0	5.3	31.4	50.4	73.9	23.5	
Vert	7308.288	PK	42.3	36.1	5.7	32.4	51.7	73.9	22.2	
Vert	9744.384	PK	42.7	38.1	6.9	33.0	54.7	73.9	19.2	
Vert	24360.960	PK	48.9	37.9	-1.1	31.6	54.1	73.9	19.8	
Vert	2333.000	AV	31.3	27.8	2.6	32.5	29.2	53.9	24.7	
Vert	2993.000	AV	31.0	29.1	3.0	32.2	30.9	53.9	23.0	
Vert	4872.192	AV	40.6	31.0	5.3	31.4	45.5	53.9	8.4	VBW=820Hz
Vert	7308.288	AV	29.8	36.1	5.7	32.4	39.2	53.9	14.7	VBW=820Hz
Vert	9744.384	AV	30.4	38.1	6.9	33.0	42.4	53.9	11.5	VBW=820Hz
Vert	24360.960	AV	36.2	37.9	-1.1	31.6	41.4	53.9	12.5	VBW=820Hz

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

*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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 , No.2 and No.3 Semi Anechoic Chamber		
Report No.	30KE0083-HO-01		
Date	07/14/2010	07/14/2010	08/24/2010
Temperature/ Humidity	25 deg.C./ 58%	20 deg.C./ 77%	24 deg.C./ 60%
Engineer	Tomotaka Sasagawa (Above 1GHz)	Keisuke Kawamura (Below 1GHz)	Satofumi Matsuyama (Above 1GHz)
Mode	Tx 2473.984MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	589.798	QP	31.0	19.6	10.1	28.8	31.9	46.0	14.1	
Hori	602.086	QP	30.7	19.7	10.1	28.8	31.7	46.0	14.3	
Hori	638.948	QP	30.0	20.1	10.3	28.7	31.7	46.0	14.3	
Hori	651.232	QP	29.0	20.2	10.4	28.7	30.9	46.0	15.1	
Hori	663.524	QP	30.9	20.3	10.4	28.6	33.0	46.0	13.0	
Hori	835.546	QP	28.5	22.0	11.0	28.2	33.3	46.0	12.7	
Hori	2390.000	PK	43.5	27.7	2.6	32.5	41.3	73.9	32.6	
Hori	2483.500	PK	53.4	26.9	2.9	32.1	51.1	73.9	22.8	
Hori	2803.000	PK	43.7	28.6	2.9	32.2	43.0	73.9	30.9	
Hori	4947.968	PK	46.1	31.3	5.4	31.4	51.4	73.9	22.5	
Hori	7421.952	PK	42.3	36.3	5.7	32.4	51.9	73.9	22.0	
Hori	9895.936	PK	42.4	38.3	7.1	33.0	54.8	73.9	19.1	
Hori	24739.840	PK	48.6	37.9	-1.0	31.5	54.0	73.9	19.9	
Hori	2390.000	AV	31.2	27.7	2.6	32.5	29.0	53.9	24.9	
Hori	2483.500	AV	45.8	26.9	2.9	32.1	43.5	53.9	10.4	VBW=820Hz
Hori	2803.000	AV	31.2	28.6	2.9	32.2	30.5	53.9	23.4	
Hori	4947.968	AV	43.3	31.3	5.4	31.4	48.6	53.9	5.3	VBW=820Hz
Hori	7421.952	AV	29.8	36.3	5.7	32.4	39.4	53.9	14.5	VBW=820Hz
Hori	9895.936	AV	30.8	38.3	7.1	33.0	43.2	53.9	10.7	VBW=820Hz
Hori	24739.840	AV	35.9	37.9	-1.0	31.5	41.3	53.9	12.6	VBW=820Hz
Vert	589.798	QP	32.3	19.6	10.1	28.8	33.2	46.0	12.8	
Vert	602.086	QP	30.8	19.7	10.1	28.8	31.8	46.0	14.2	
Vert	638.948	QP	28.7	20.1	10.3	28.7	30.4	46.0	15.6	
Vert	651.232	QP	27.4	20.2	10.4	28.7	29.3	46.0	16.7	
Vert	663.524	QP	29.0	20.3	10.4	28.6	31.1	46.0	14.9	
Vert	835.546	QP	24.9	22.0	11.0	28.2	29.7	46.0	16.3	
Vert	2390.000	PK	43.9	27.7	2.6	32.5	41.7	73.9	32.2	
Vert	2483.500	PK	49.0	26.9	2.9	32.1	46.7	73.9	27.2	
Vert	2803.000	PK	43.6	28.6	2.9	32.2	42.9	73.9	31.0	
Vert	4947.968	PK	48.9	31.3	5.4	31.4	54.2	73.9	19.7	
Vert	7421.952	PK	42.3	36.3	5.7	32.4	51.9	73.9	22.0	
Vert	9895.936	PK	42.2	38.3	7.1	33.0	54.6	73.9	19.3	
Vert	24739.840	PK	48.5	37.9	-1.0	31.5	53.9	73.9	20.0	
Vert	2390.000	AV	31.2	27.7	2.6	32.5	29.0	53.9	24.9	
Vert	2483.500	AV	41.6	26.9	2.9	32.1	39.3	53.9	14.6	VBW=820Hz
Vert	2803.000	AV	31.2	28.6	2.9	32.2	30.5	53.9	23.4	
Vert	4947.968	AV	46.7	31.3	5.4	31.4	52.0	53.9	1.9	VBW=820Hz
Vert	7421.952	AV	29.7	36.3	5.7	32.4	39.3	53.9	14.6	VBW=820Hz
Vert	9895.936	AV	29.9	38.3	7.1	33.0	42.3	53.9	11.6	VBW=820Hz
Vert	24739.840	AV	35.6	37.9	-1.0	31.5	41.0	53.9	12.9	VBW=820Hz

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

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Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 and No.2 Semi Anechoic Chamber	
Report No.	30KE0083-HO-01	
Date	07/14/2010	07/14/2010
Temperature/ Humidity	25 deg.C./ 58%	20 deg.C./ 77%
Engineer	Tomotaka Sasagawa (Above 1GHz)	Keisuke Kawamura (Below 1GHz)
Mode	Rx 2436.096MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	540.651	QP	29.7	19.0	9.9	28.8	29.8	46.0	16.2	
Hori	565.226	QP	26.5	19.3	10.0	28.8	27.0	46.0	19.0	
Hori	589.798	QP	30.8	19.6	10.1	28.8	31.7	46.0	14.3	
Hori	638.951	QP	31.7	20.1	10.3	28.7	33.4	46.0	12.6	
Hori	786.399	QP	27.8	21.8	10.8	28.3	32.1	46.0	13.9	
Hori	835.546	QP	27.6	22.0	11.0	28.2	32.4	46.0	13.6	
Hori	2436.096	PK	43.8	26.8	2.9	32.1	41.4	73.9	32.5	
Hori	7308.288	PK	43.7	36.1	4.3	32.4	51.7	73.9	22.2	
Hori	2436.096	AV	30.5	26.8	2.9	32.1	28.1	53.9	25.8	
Hori	7308.288	AV	30.8	36.1	4.3	32.4	38.8	53.9	15.1	
Vert	540.651	QP	28.7	19.0	9.9	28.8	28.8	46.0	17.2	
Vert	565.226	QP	27.0	19.3	10.0	28.8	27.5	46.0	18.5	
Vert	589.798	QP	32.4	19.6	10.1	28.8	33.3	46.0	12.7	
Vert	638.951	QP	30.5	20.1	10.3	28.7	32.2	46.0	13.8	
Vert	786.399	QP	23.2	21.8	10.8	28.3	27.5	46.0	18.5	
Vert	835.546	QP	24.1	22.0	11.0	28.2	28.9	46.0	17.1	
Vert	2436.096	PK	44.4	26.8	2.9	32.1	42.0	73.9	31.9	
Vert	7308.288	PK	43.6	36.1	4.3	32.4	51.6	73.9	22.3	
Vert	2436.096	AV	30.9	26.8	2.9	32.1	28.5	53.9	25.4	
Vert	7308.288	AV	30.7	36.1	4.3	32.4	38.7	53.9	15.2	

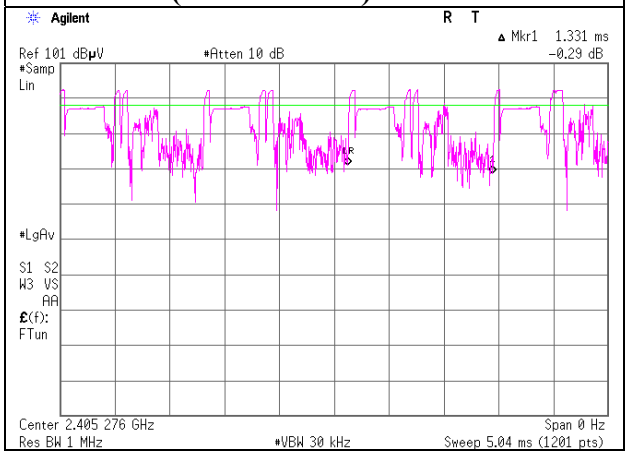
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

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

Noises detected at Conducted Spurious Emission test were also checked at Radiated Spurious Emission test. Only noises that could be detected at Radiated Spurious Emission test are listed above.

VBW (AV) Calculation

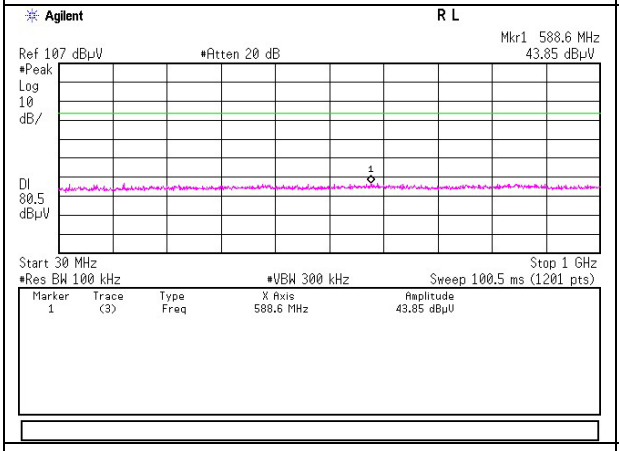
VBW: 1/x = 752Hz<820Hz
x: (Tx on+Tx off) =1.33ms



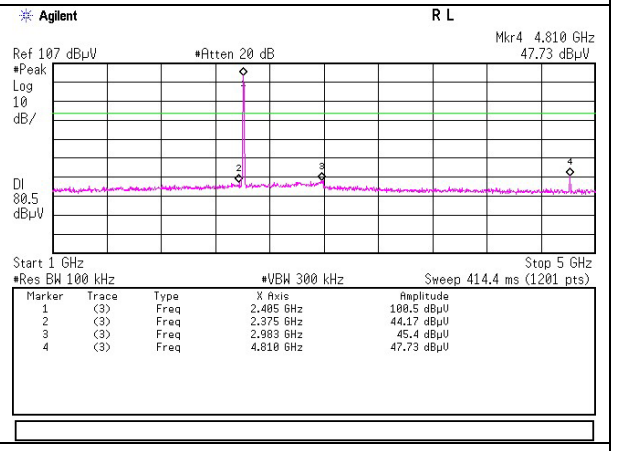
Conducted Spurious Emission

Tx 2405.376MHz

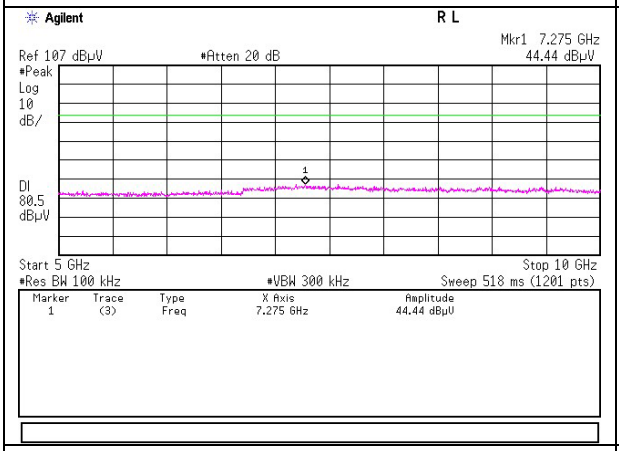
30MHz-1GHz



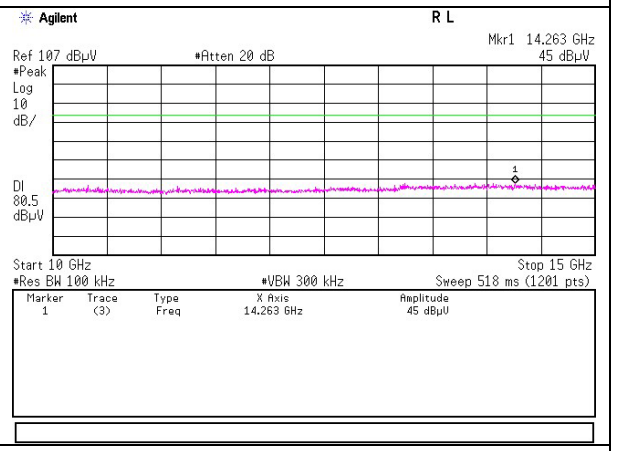
1GHz-5GHz



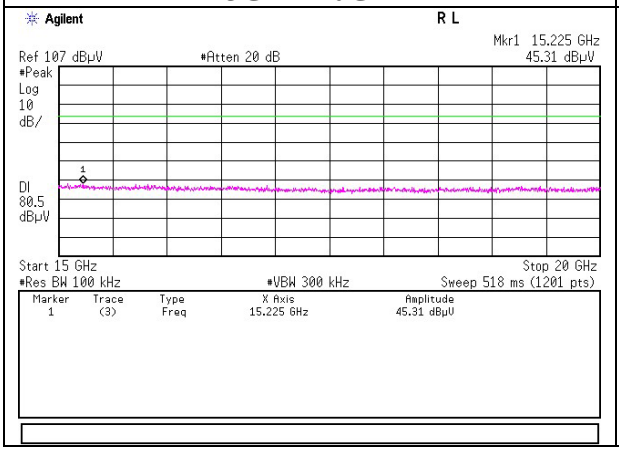
5GHz-10GHz



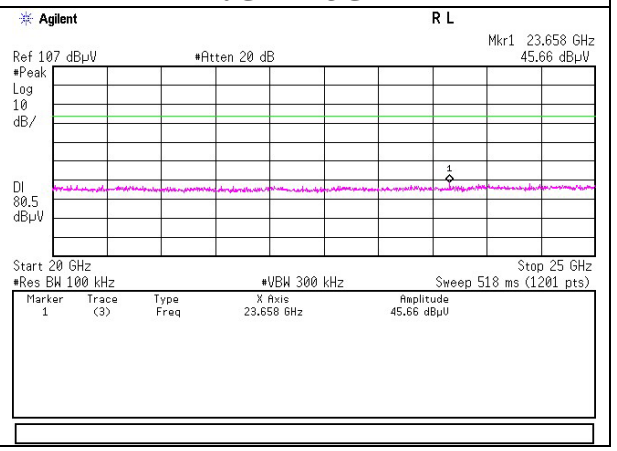
10GHz-15GHz



15GHz-20GHz



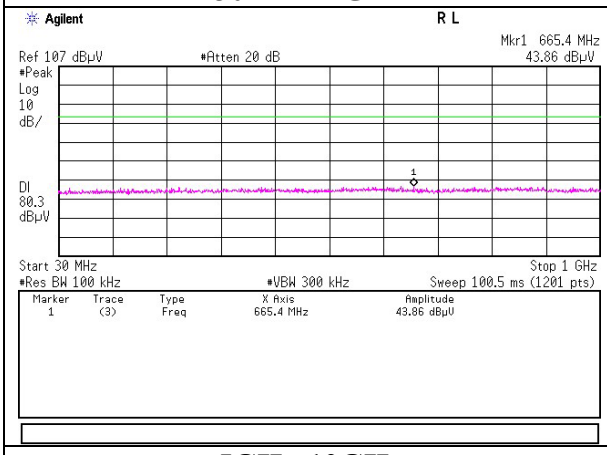
20GHz-25GHz



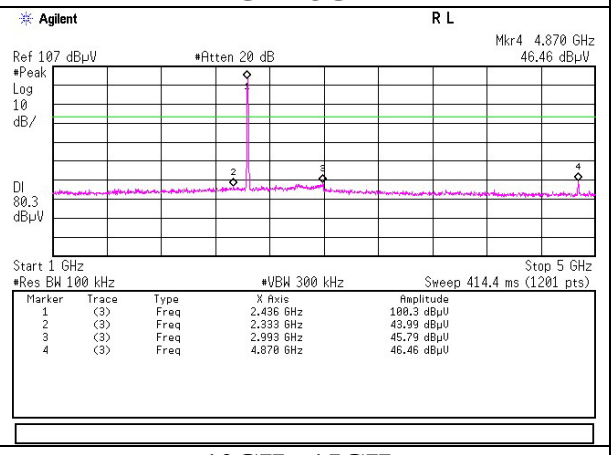
Conducted Spurious Emission

Tx 2436.096MHz

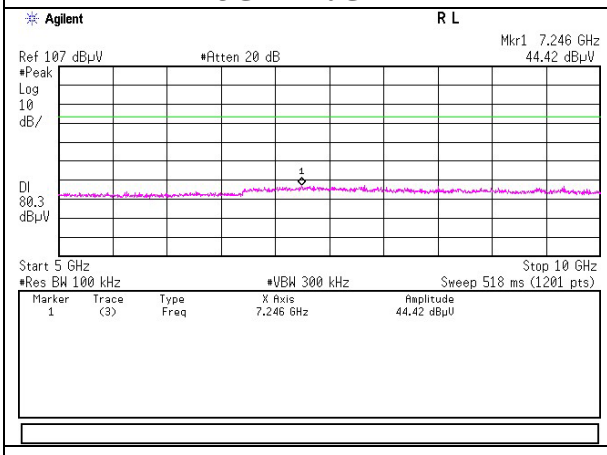
30MHz-1GHz



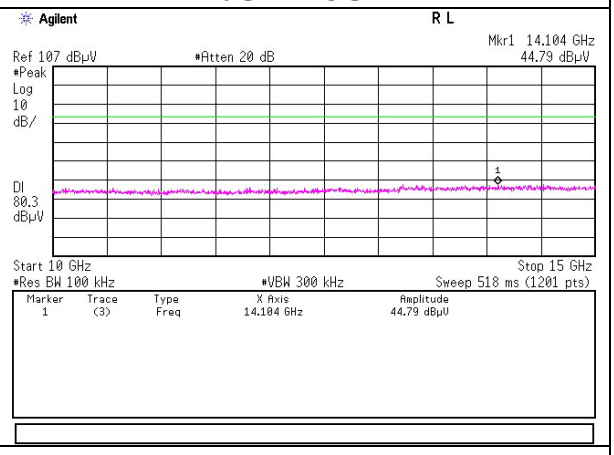
1GHz-5GHz



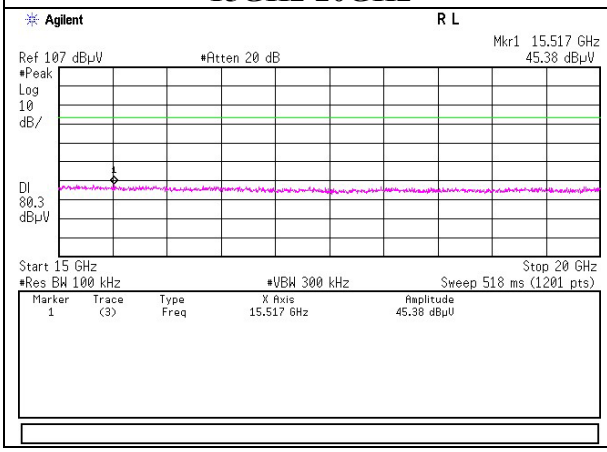
5GHz-10GHz



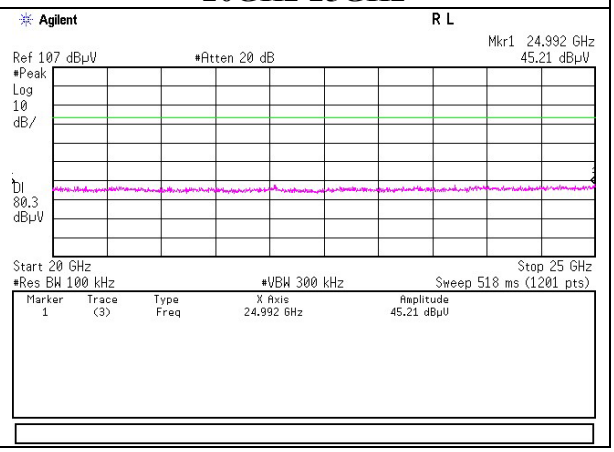
10GHz-15GHz



15GHz-20GHz



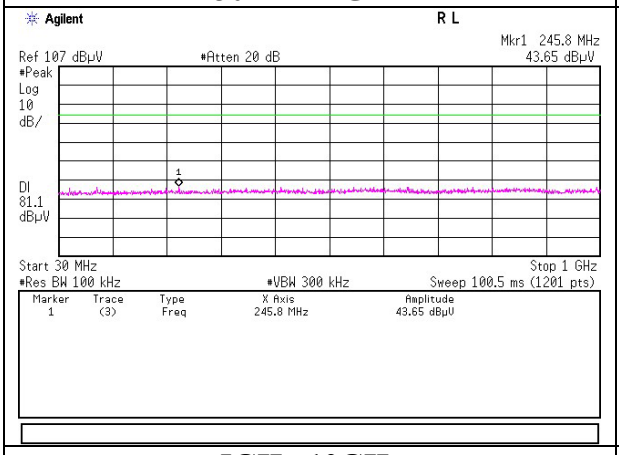
20GHz-25GHz



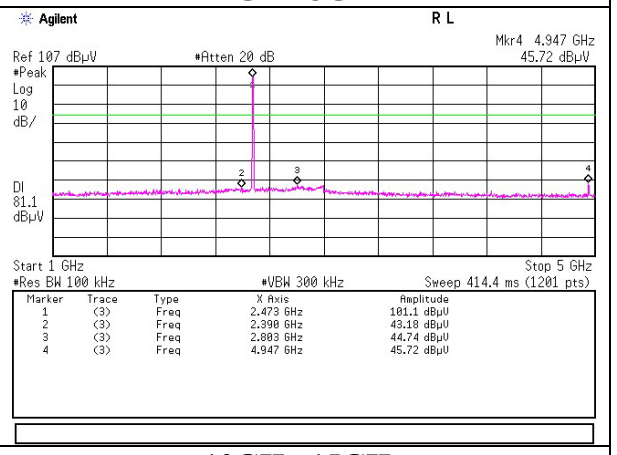
Conducted Spurious Emission

Tx 2473.984MHz

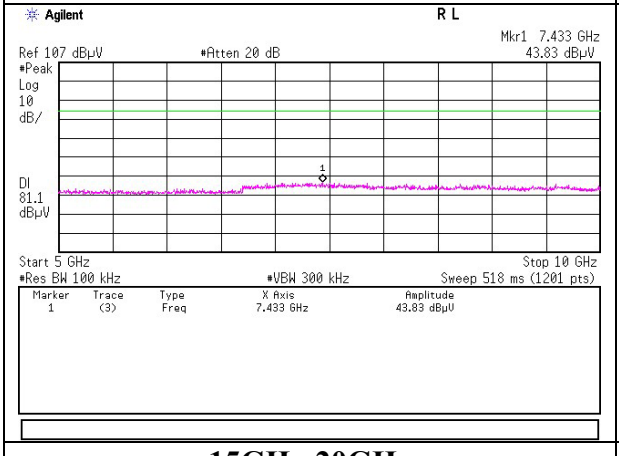
30MHz-1GHz



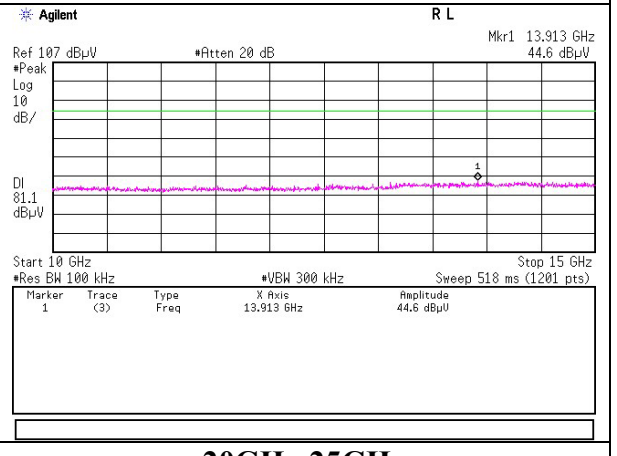
1GHz-5GHz



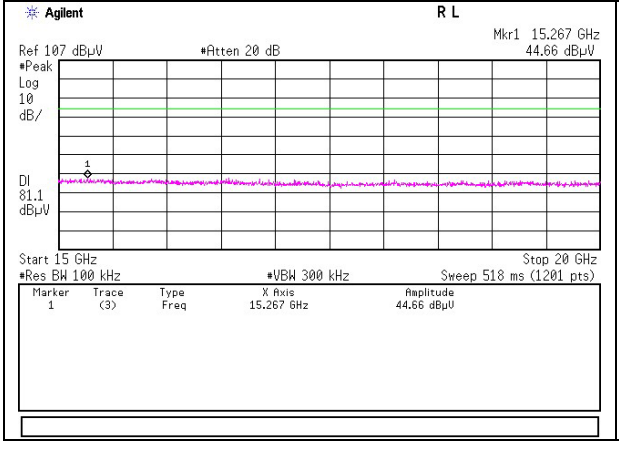
5GHz-10GHz



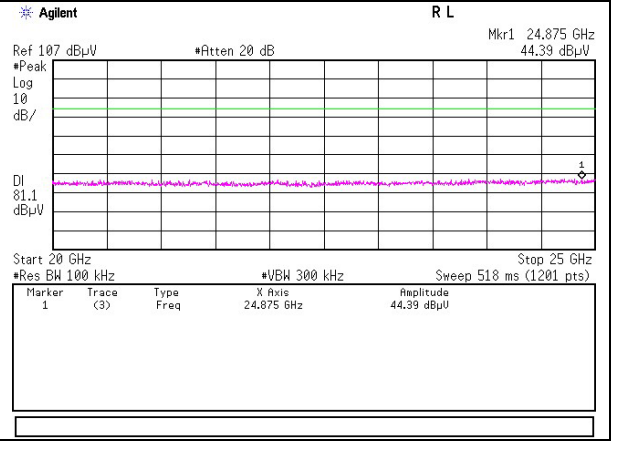
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



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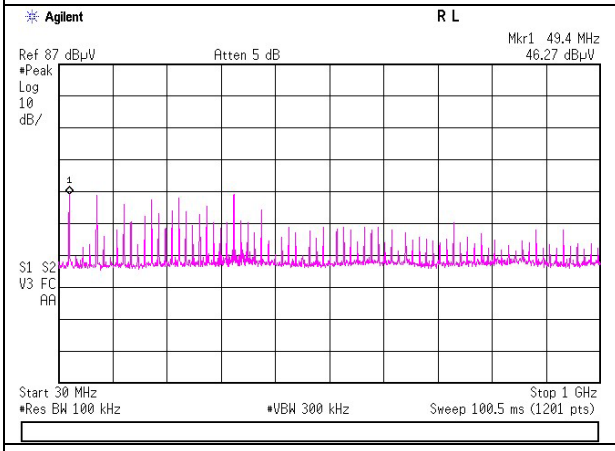
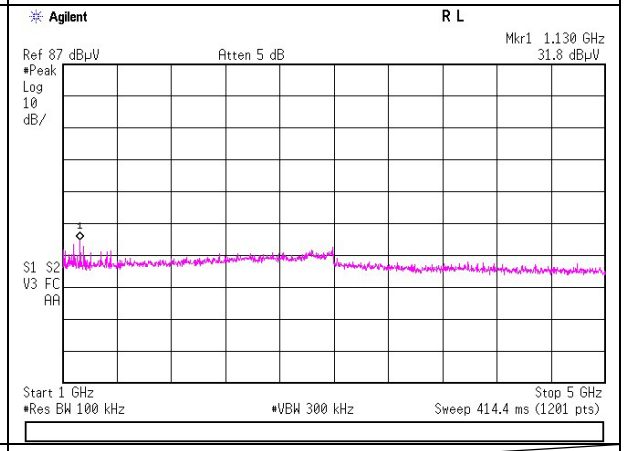
Conducted Spurious Emission

Rx 2436.096MHz

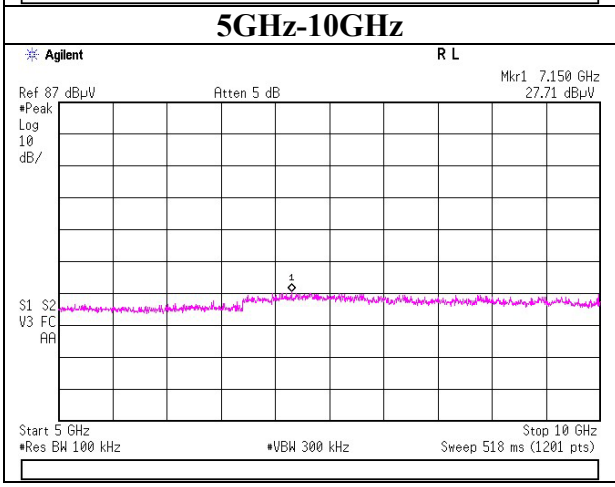
30MHz-1GHz

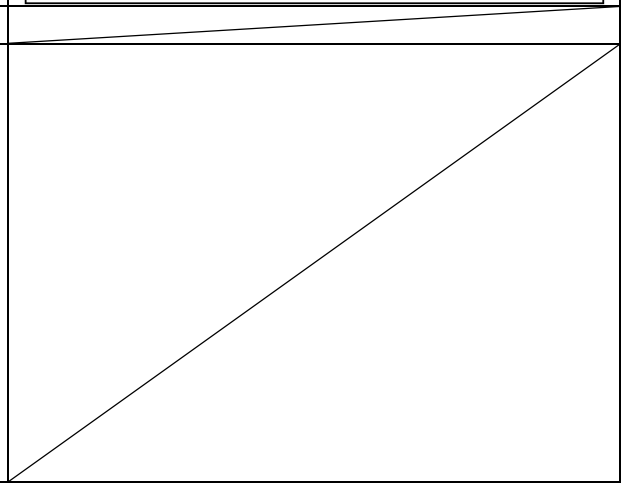


1GHz-5GHz



5GHz-10GHz





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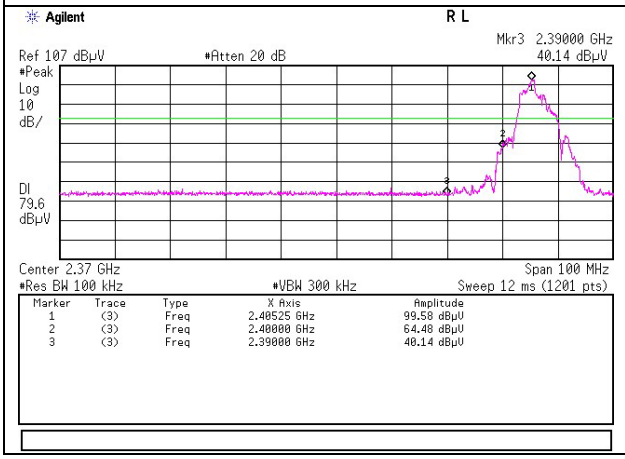
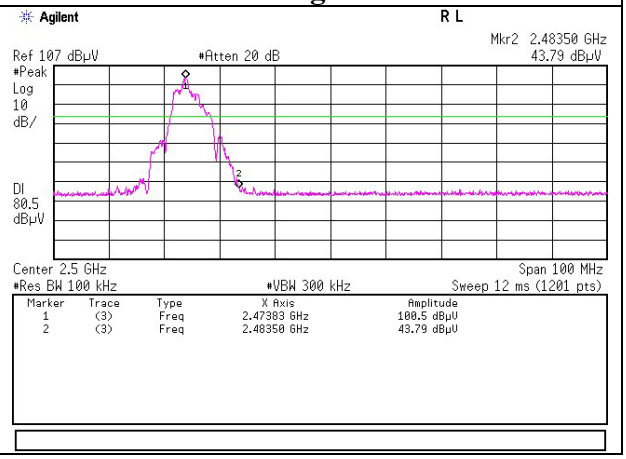
Conducted Emission Band Edge compliance

Tx

Low



High



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Power Density

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	30KE0083-HO
Date	07/12/2010
Temperature/ Humidity	22 deg.C./ 54%
Engineer	Tomotaka Sasagawa
Mode	Tx

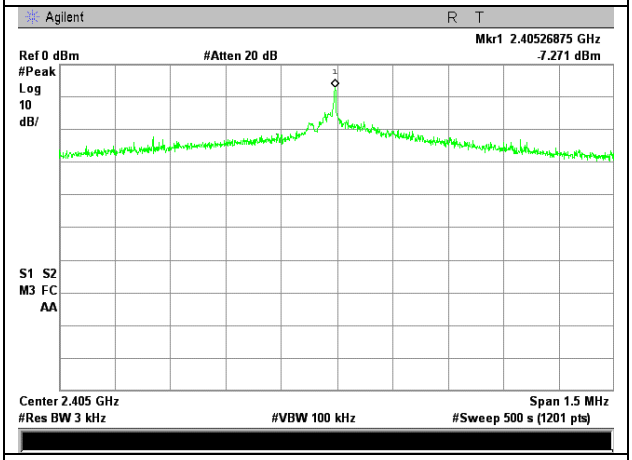
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2405.27	-7.27	1.60	10.08	4.41	8.00	3.59
2435.99	-6.87	1.61	10.08	4.82	8.00	3.18
2473.87	-6.68	1.61	10.08	5.01	8.00	2.99

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

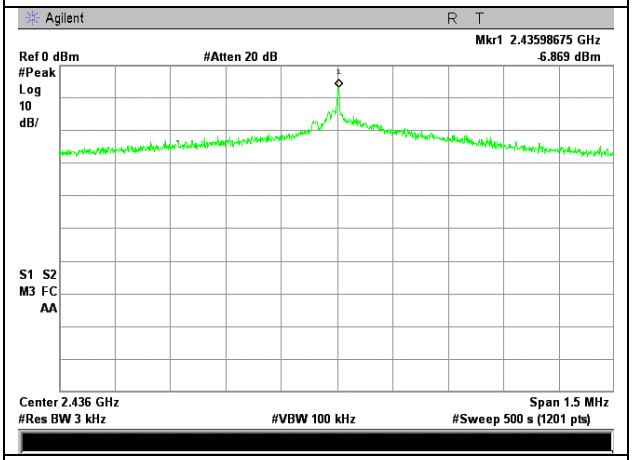
Power Density

Tx

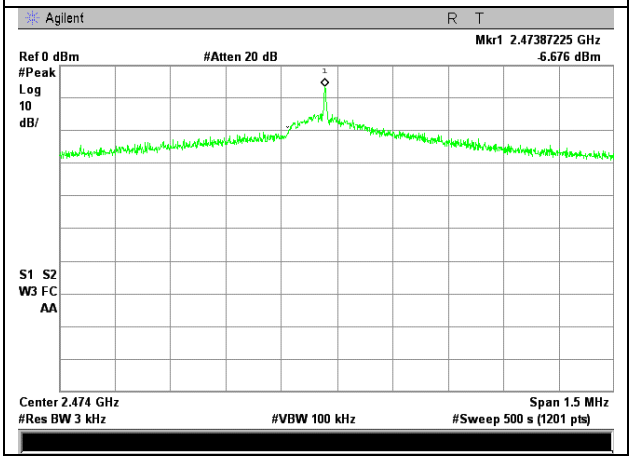
2405.376MHz



2436.096MHz

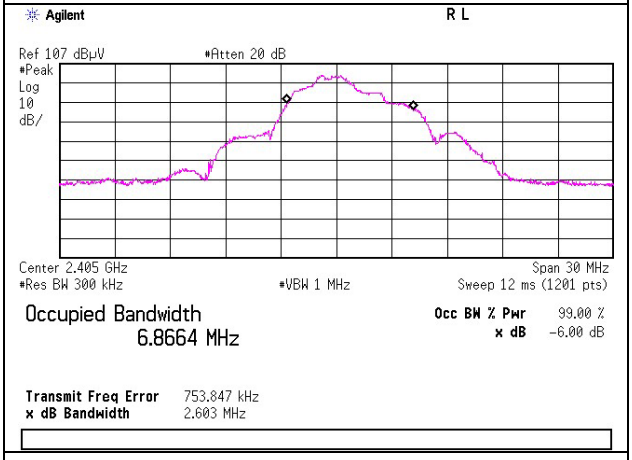


2473.984MHz

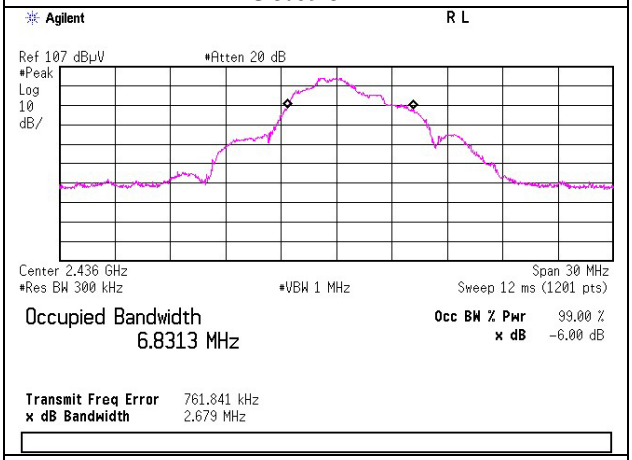


99%Occupied Bandwidth

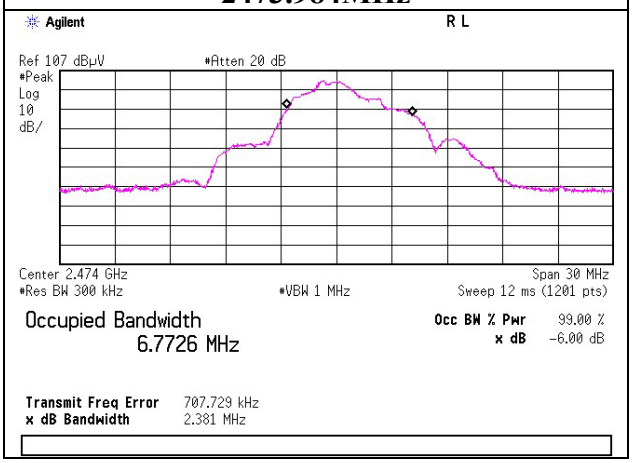
2405.376MHz



2436.096MHz



2473.984MHz



APPENDIX 3: Test instruments

EMI test equipment (1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MPM-12	Power Meter	Anritsu	ML2495A	0825002	AT	2009/08/26 * 12
MPSE-17	Power sensor	Anritsu	MA2411B	0738285	AT	2009/08/26 * 12
MAT-23	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	AT	2010/03/01 * 12
MCC-115	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	290211/4	AT	2009/08/27 * 12
MSA-06	Spectrum Analyzer	Agilent	E4407B	MY45107638	AT	2010/04/07 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	MOS04	AT	2010/02/09 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2010/02/02 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE	2010/02/09 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	RE	2009/12/15 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2009/08/10 * 12
MCC-57	Microwave Cable	Suhner	SUCOFLEX104	246769(1m) / 292411(5m)	RE	2009/11/17 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2010/03/16 * 12
MCC-79	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278923/4	RE	2009/12/19 * 12
MHF-20	High Pass Filter 3.5-18.0GHz	TOKIMEC	TF323DCC	607	RE	2009/12/19 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2009/08/17 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2010/02/09 * 12
MJM-05	Measure	PROMART	SEN1955	-	RE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2009/11/20 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2010/04/19 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2009/10/05 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2010/06/12 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2010/02/22 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2009/11/12 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2009/09/02 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2009/08/25 * 12
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	CE	2010/02/01 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	CE	2010/02/09 * 12
MJM-06	Measure	PROMART	SEN1955	-	CE	-
MSA-09	Spectrum Analyzer	Advantest	R3273	95090115	CE	2009/12/11 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	CE	2009/06/30 * 24
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	8127364	CE(EUT)	2010/02/05 * 12
MTA-31	Terminator	TME	CT-01	-	CE	2010/01/20 * 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	2009/07/02 * 12
MAT-66	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2010/02/04 * 12

EMI test equipment (2/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2010/02/03 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2010/05/07 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	174410(1m) / 284655(5m)	RE	2010/01/25 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2010/03/03 * 12

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