APPENDIX 2: Data of EMI test

Conducted Emission
[when Docked]

DATA OF CONDUCTED EMISSION TEST

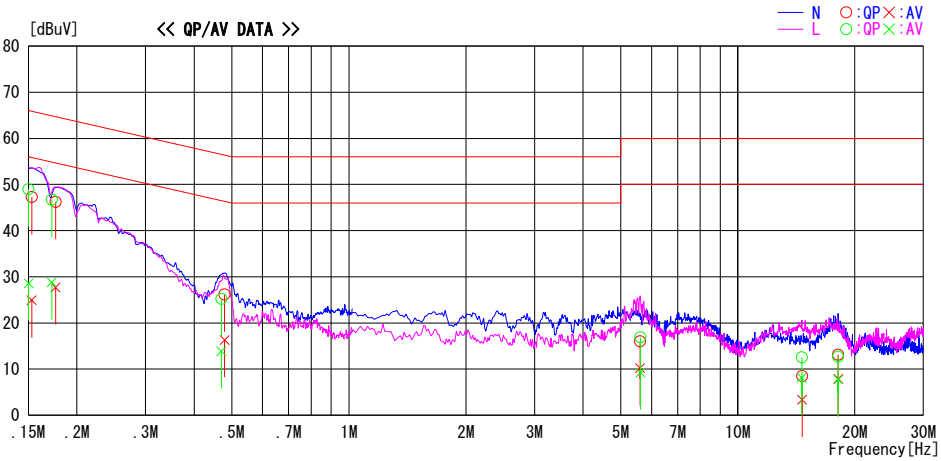
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/03/16

Report No. : 30GE0186-HO-01

Temp./Humi. : 20deg.C / 58%
Engineer : Takeshi Choda

Mode / Remarks : Tx 2405.376MHz, when Docked

LIMIT : FCC15.207 QP
FCC15.207 AV



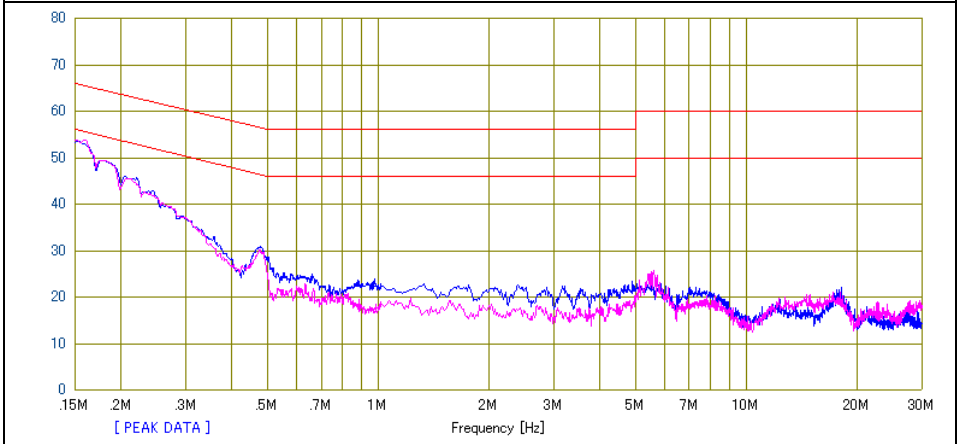
Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15290	47.0	24.6	0.3	47.3	24.9	65.8	55.8	18.5	30.9	N	
0.17610	45.9	27.4	0.3	46.2	27.7	64.7	54.7	18.5	27.0	N	
0.47875	25.9	16.0	0.3	26.2	16.3	56.4	46.4	30.2	30.1	N	
5.60571	15.2	9.4	0.8	16.0	10.2	60.0	50.0	44.0	39.8	N	
14.62834	7.1	2.0	1.4	8.5	3.4	60.0	50.0	51.5	46.6	N	
18.10369	11.5	6.3	1.6	13.1	7.9	60.0	50.0	46.9	42.1	N	
0.15000	48.7	28.3	0.3	49.0	28.6	66.0	56.0	17.0	27.4	L	
0.17228	46.4	28.5	0.3	46.7	28.8	64.8	54.8	18.1	26.0	L	
0.46995	24.9	13.6	0.3	25.2	13.9	56.5	46.5	31.3	32.6	L	
5.62082	16.1	8.5	0.8	16.9	9.3	60.0	50.0	43.1	40.7	L	
14.59493	11.1	6.7	1.4	12.5	8.1	60.0	50.0	47.5	41.9	L	
18.10369	11.1	6.1	1.6	12.7	7.7	60.0	50.0	47.3	42.3	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.

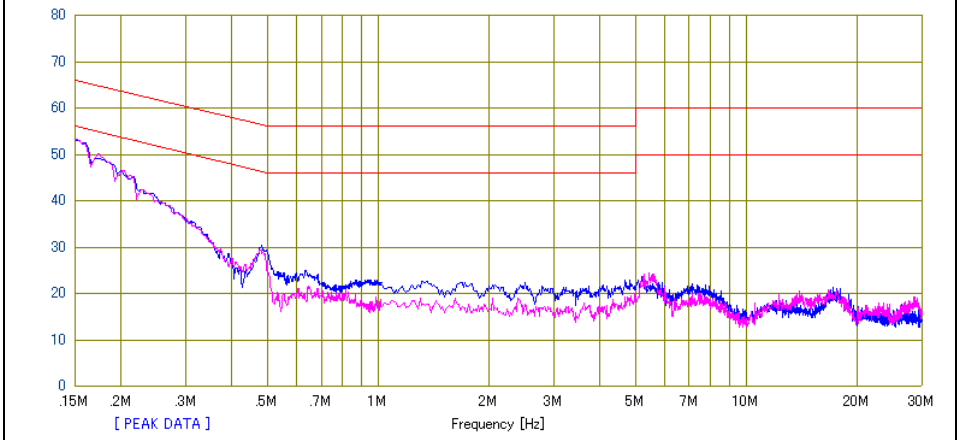
Conducted Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	30GE0186-HO-01
Date	03/16/2010
Temperature/ Humidity	20 deg.C./ 58%
Engineer	Takeshi Choda
Mode	Tx

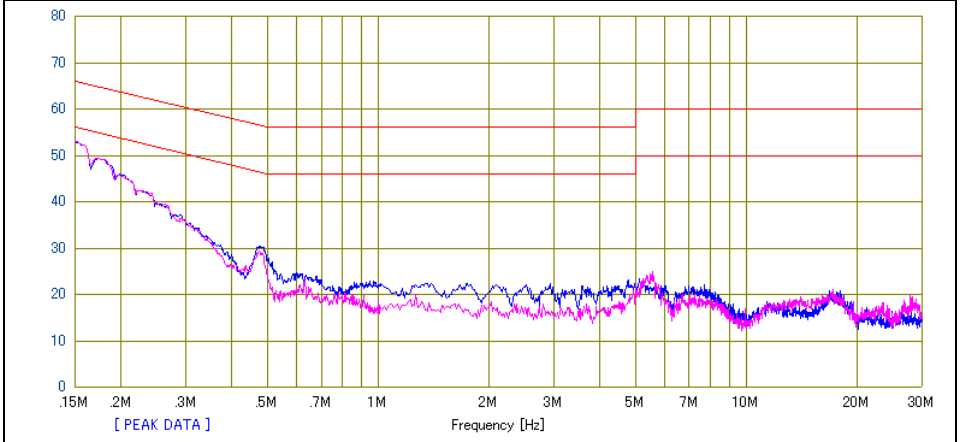
Tx 2405.376MHz



Tx 2436.096MHz



Tx 2473.984MHz



Y scale [dBuV] Chart — N — L

Conducted Emission
[when Docked]

DATA OF CONDUCTED EMISSION TEST

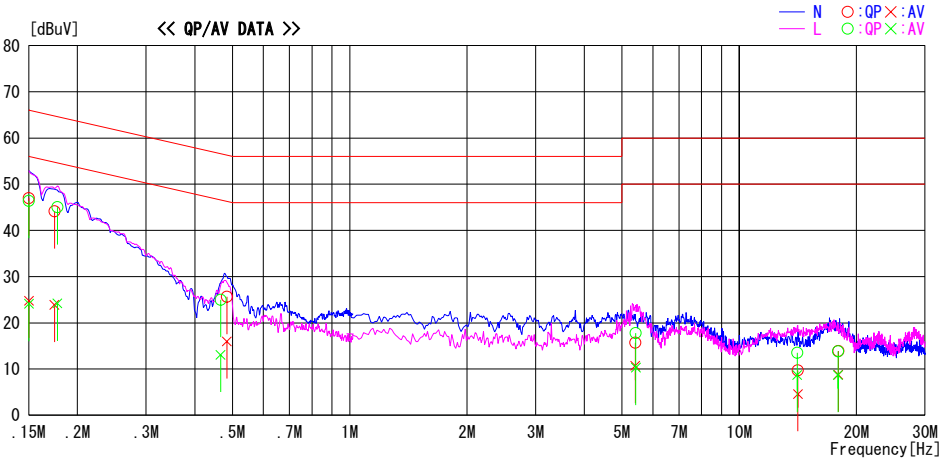
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/03/16

Report No. : 30GE0186-HO-01

Temp./Humi. : 20deg.C / 58%
Engineer : Takeshi Choda

Mode / Remarks : Rx 2436.096MHz, when Docked

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	46.7	24.5	0.3	47.0	24.8	66.0	56.0	19.0	31.2	N	
0.17462	43.8	23.6	0.3	44.1	23.9	64.7	54.7	20.6	30.8	N	
0.48363	25.3	15.7	0.3	25.6	16.0	56.3	46.3	30.7	30.3	N	
5.40919	14.9	9.9	0.8	15.7	10.7	60.0	50.0	44.3	39.3	N	
14.14280	8.3	3.2	1.4	9.7	4.6	60.0	50.0	50.3	45.4	N	
17.96618	12.3	7.2	1.6	13.9	8.8	60.0	50.0	46.1	41.2	N	
0.15000	46.1	23.8	0.3	46.4	24.1	66.0	56.0	19.6	31.9	L	
0.17772	44.7	23.9	0.3	45.0	24.2	64.6	54.6	19.6	30.4	L	
0.46587	24.7	12.8	0.3	25.0	13.1	56.6	46.6	31.6	33.5	L	
5.42431	17.0	9.5	0.8	17.8	10.3	60.0	50.0	42.2	39.7	L	
14.09836	12.1	7.3	1.4	13.5	8.7	60.0	50.0	46.5	41.3	L	
17.92218	12.2	7.1	1.6	13.8	8.7	60.0	50.0	46.2	41.3	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.

UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

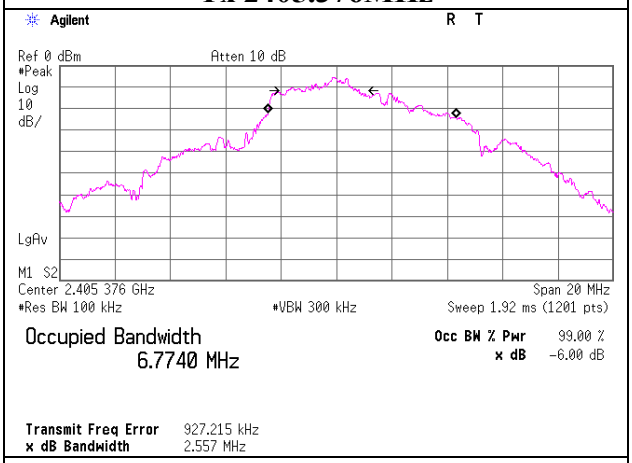
6dB Bandwidth

Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	30GE0186-HO-01
Date	03/15/2010
Temperature/ Humidity	25 deg.C./ 36%
Engineer	Takeshi Choda
Mode	Tx

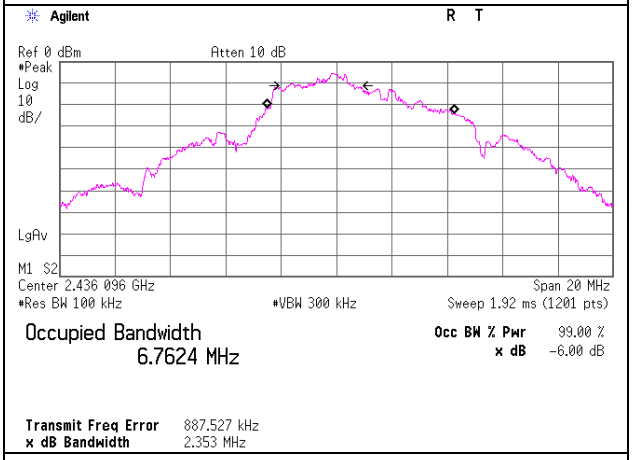
Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2405.376	2.557	>500
2436.096	2.353	>500
2473.984	2.874	>500

6dB Bandwidth

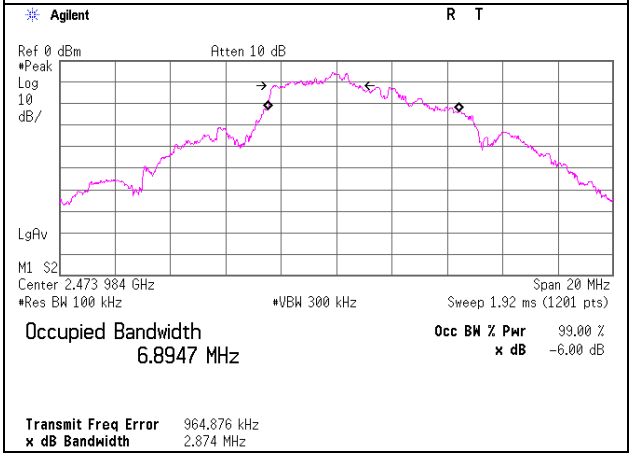
Tx 2405.376MHz



Tx 2436.096MHz



Tx 2473.984MHz



Maximum Peak Output Power

Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	30GE0186-HO-01
Date	03/09/2010
Temperature/ Humidity	21 deg.C./ 38%
Engineer	Hiroyuki Furutaka
Mode	Tx

Freq.	Reading	Cable Loss	Atten.	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2405.376	-4.50	1.67	10.08	7.25	5.31	30.00	1000	22.75
2436.096	-4.25	1.67	10.08	7.50	5.62	30.00	1000	22.50
2473.984	-4.05	1.69	10.08	7.72	5.92	30.00	1000	22.28

Radiated Spurious Emission

[when used apart]

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 30GE0186-HO-01
Date 03/10/2010
Temperature/ Humidity 23 deg.C./ 38%
Engineer Takeshi Choda
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]	Remark
Hori	36.864	QP	22.6	15.2	7.1	32.1	12.8	40.0	27.2	NS
Hori	122.880	QP	22.3	13.2	8.2	32.1	11.6	43.5	31.9	NS
Hori	258.048	QP	22.0	17.9	9.4	31.9	17.4	46.0	28.6	NS
Hori	307.200	QP	21.7	16.1	9.8	31.9	15.7	46.0	30.3	NS
Hori	614.400	QP	22.4	20.3	11.6	32.1	22.2	46.0	23.8	NS
Hori	921.600	QP	21.9	24.4	13.1	31.1	28.3	46.0	17.7	NS
Hori	2390.000	PK	43.0	26.7	2.9	32.7	39.9	73.9	34.0	
Hori	2400.000	PK	71.1	26.7	2.9	32.7	68.0	-	-	See 20dBc Data Sheet
Hori	4810.752	PK	46.9	30.8	5.3	31.9	51.1	73.9	22.8	
Hori	24053.760	PK	46.3	38.1	-1.2	32.5	50.7	73.9	23.2	NS
Hori	2390.000	AV	31.5	26.7	2.9	32.7	28.4	53.9	25.5	
Hori	2400.000	AV	60.7	26.7	2.9	32.7	57.6	-	-	See 20dBc Data Sheet
Hori	4810.752	AV	39.7	30.8	5.3	31.9	43.9	53.9	10.0	
Hori	24053.760	AV	35.4	38.1	-1.2	32.5	39.8	53.9	14.1	NS
Vert	36.864	QP	22.4	15.2	7.1	32.1	12.6	40.0	27.4	NS
Vert	122.880	QP	22.4	13.2	8.2	32.1	11.7	43.5	31.8	NS
Vert	258.048	QP	21.9	17.9	9.4	31.9	17.3	46.0	28.7	NS
Vert	307.200	QP	21.9	16.1	9.8	31.9	15.9	46.0	30.1	NS
Vert	614.400	QP	22.2	20.3	11.6	32.1	22.0	46.0	24.0	NS
Vert	921.600	QP	22.1	24.4	13.1	31.1	28.5	46.0	17.5	NS
Vert	2390.000	PK	41.8	26.7	2.9	32.7	38.7	73.9	35.2	
Vert	2400.000	PK	68.4	26.7	2.9	32.7	65.3	-	-	See 20dBc Data Sheet
Vert	4810.752	PK	47.2	30.8	5.3	31.9	51.4	73.9	22.5	
Vert	24053.760	PK	46.5	38.1	-1.2	32.5	50.9	73.9	23.0	NS
Vert	2390.000	AV	30.8	26.7	2.9	32.7	27.7	53.9	26.2	
Vert	2400.000	AV	58.4	26.7	2.9	32.7	55.3	-	-	See 20dBc Data Sheet
Vert	4810.752	AV	40.1	30.8	5.3	31.9	44.3	53.9	9.6	
Vert	24053.760	AV	35.3	38.1	-1.2	32.5	39.7	53.9	14.2	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

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	99.3	26.7	2.9	32.7	96.2	-	-	Carrier
Hori	2400.000	PK	64.3	26.7	2.9	32.7	61.2	76.2	15.0	
Vert	2405.376	PK	97.2	26.7	2.9	32.7	94.1	-	-	Carrier
Vert	2400.000	PK	61.8	26.7	2.9	32.7	58.7	74.1	15.4	

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

Radiated Spurious Emission

[when used apart]

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber	
Report No.	30GE0186-HO-01	
Date	03/09/2010	03/10/2010
Temperature/ Humidity	21 deg.C./ 38%	23 deg.C./ 38%
Engineer	Hiroyuki Furutaka (1-10GHz)	Takeshi Choda
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	36.864	QP	22.6	15.2	7.1	32.1	12.8	40.0	27.2	NS
Hori	122.880	QP	22.3	13.2	8.2	32.1	11.6	43.5	31.9	NS
Hori	258.048	QP	22.1	17.9	9.4	31.9	17.5	46.0	28.5	NS
Hori	307.200	QP	22.0	16.1	9.8	31.9	16.0	46.0	30.0	NS
Hori	614.400	QP	22.2	20.3	11.6	32.1	22.0	46.0	24.0	NS
Hori	921.600	QP	21.9	24.4	13.1	31.1	28.3	46.0	17.7	NS
Hori	4872.192	PK	51.1	31.0	5.3	31.9	55.5	73.9	18.4	
Hori	24360.960	PK	46.6	38.3	-1.1	32.3	51.5	73.9	22.4	
Hori	4872.192	AV	45.4	31.0	5.3	31.9	49.8	53.9	4.1	
Hori	24360.960	AV	35.2	38.3	-1.1	32.3	40.1	53.9	13.8	
Vert	36.864	QP	22.6	15.2	7.1	32.1	12.8	40.0	27.2	NS
Vert	122.880	QP	22.2	13.2	8.2	32.1	11.5	43.5	32.0	NS
Vert	258.048	QP	22.1	17.9	9.4	31.9	17.5	46.0	28.5	NS
Vert	307.200	QP	22.0	16.1	9.8	31.9	16.0	46.0	30.0	NS
Vert	614.400	QP	22.2	20.3	11.6	32.1	22.0	46.0	24.0	NS
Vert	921.600	QP	21.9	24.4	13.1	31.1	28.3	46.0	17.7	NS
Vert	4872.192	PK	51.4	31.0	5.3	31.9	55.8	73.9	18.1	
Vert	24360.960	PK	46.4	38.3	-1.1	32.3	51.3	73.9	22.6	
Vert	4872.192	AV	46.3	31.0	5.3	31.9	50.7	53.9	3.2	
Vert	24360.960	AV	35.1	38.3	-1.1	32.3	40.0	53.9	13.9	

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

[when used apart]

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 30GE0186-HO-01
Date 03/10/2010
Temperature/ Humidity 23 deg.C./ 38%
Engineer Takeshi Choda
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	36.864	QP	22.7	15.2	7.1	32.1	12.9	40.0	27.1	NS
Hori	122.880	QP	22.1	13.2	8.2	32.1	11.4	43.5	32.1	NS
Hori	258.048	QP	22.2	17.9	9.4	31.9	17.6	46.0	28.4	NS
Hori	307.200	QP	22.0	16.1	9.8	31.9	16.0	46.0	30.0	NS
Hori	614.400	QP	22.1	20.3	11.6	32.1	21.9	46.0	24.1	NS
Hori	921.600	QP	22.0	24.4	13.1	31.1	28.4	46.0	17.6	NS
Hori	2483.500	PK	48.3	26.9	2.9	32.7	45.4	73.9	28.5	
Hori	4947.968	PK	53.5	31.3	5.4	31.9	58.3	73.9	15.6	
Hori	24739.840	PK	45.5	38.4	-1.0	32.2	50.7	73.9	23.2	NS
Hori	2483.500	AV	39.7	26.9	2.9	32.7	36.8	53.9	17.1	
Hori	4947.968	AV	48.5	31.3	5.4	31.9	53.3	53.9	0.6	
Hori	24739.840	AV	34.9	38.4	-1.0	32.2	40.1	53.9	13.8	NS
Vert	36.864	QP	22.5	15.2	7.1	32.1	12.7	40.0	27.3	NS
Vert	122.880	QP	22.3	13.2	8.2	32.1	11.6	43.5	31.9	NS
Vert	258.048	QP	22.0	17.9	9.4	31.9	17.4	46.0	28.6	NS
Vert	307.200	QP	22.1	16.1	9.8	31.9	16.1	46.0	29.9	NS
Vert	614.400	QP	22.1	20.3	11.6	32.1	21.9	46.0	24.1	NS
Vert	921.600	QP	21.9	24.4	13.1	31.1	28.3	46.0	17.7	NS
Vert	2483.500	PK	47.3	26.9	2.9	32.7	44.4	73.9	29.5	
Vert	4947.968	PK	50.7	31.3	5.4	31.9	55.5	73.9	18.4	
Vert	24739.840	PK	45.7	38.4	-1.0	32.2	50.9	73.9	23.0	NS
Vert	2483.500	AV	38.4	26.9	2.9	32.7	35.5	53.9	18.4	
Vert	4947.968	AV	41.9	31.3	5.4	31.9	46.7	53.9	7.2	
Vert	24739.840	AV	35.3	38.4	-1.0	32.2	40.5	53.9	13.4	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

Radiated Spurious Emission

[when used apart]

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 30GE0186-HO-01
Date 03/10/2010
Temperature/ Humidity 23 deg.C./ 38%
Engineer Takeshi Choda
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	36.864	QP	22.5	15.2	7.1	32.1	12.7	40.0	27.3	NS
Hori	122.880	QP	22.3	13.2	8.2	32.1	11.6	43.5	31.9	NS
Hori	258.048	QP	22.2	17.9	9.4	31.9	17.6	46.0	28.4	NS
Hori	307.200	QP	22.1	16.1	9.8	31.9	16.1	46.0	29.9	NS
Hori	614.400	QP	22.3	20.3	11.6	32.1	22.1	46.0	23.9	NS
Hori	921.600	QP	22.1	24.4	13.1	31.1	28.5	46.0	17.5	NS
Hori	2436.096	PK	42.4	26.8	2.9	32.7	39.4	73.9	34.5	NS
Hori	4872.192	PK	42.3	31.0	3.9	31.9	45.3	73.9	28.6	NS
Hori	7308.288	PK	42.3	36.1	4.3	32.6	50.1	73.9	23.8	NS
Hori	2436.096	AV	30.8	26.8	2.9	32.7	27.8	53.9	26.1	NS
Hori	4872.192	AV	29.5	31.0	3.9	31.9	32.5	53.9	21.4	NS
Hori	7308.288	AV	31.2	36.1	4.3	32.6	39.0	53.9	14.9	NS
Vert	36.864	QP	22.6	15.2	7.1	32.1	12.8	40.0	27.2	NS
Vert	122.880	QP	22.3	13.2	8.2	32.1	11.6	43.5	31.9	NS
Vert	258.048	QP	22.0	17.9	9.4	31.9	17.4	46.0	28.6	NS
Vert	307.200	QP	21.9	16.1	9.8	31.9	15.9	46.0	30.1	NS
Vert	614.400	QP	22.1	20.3	11.6	32.1	21.9	46.0	24.1	NS
Vert	921.600	QP	21.8	24.4	13.1	31.1	28.2	46.0	17.8	NS
Vert	2436.096	PK	41.9	26.8	2.9	32.7	38.9	73.9	35.0	NS
Vert	4872.192	PK	41.5	31.0	3.9	31.9	44.5	73.9	29.4	NS
Vert	7308.288	PK	41.9	36.1	4.3	32.6	49.7	73.9	24.2	NS
Vert	2436.096	AV	30.9	26.8	2.9	32.7	27.9	53.9	26.0	NS
Vert	4872.192	AV	29.4	31.0	3.9	31.9	32.4	53.9	21.5	NS
Vert	7308.288	AV	30.5	36.1	4.3	32.6	38.3	53.9	15.6	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 3rd 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

[when Docked]

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 30GE0186-HO-01
Date 03/16/2010
Temperature/ Humidity 20 deg.C./ 58%
Engineer Takeshi Choda
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]	Remark
Hori	36.862	QP	23.2	15.2	7.1	32.1	13.4	40.0	26.6	
Hori	67.878	QP	32.2	6.8	7.6	32.0	14.6	40.0	25.4	
Hori	151.744	QP	26.2	14.9	8.5	32.0	17.6	43.5	25.9	
Hori	344.053	QP	28.2	16.7	10.0	32.0	22.9	46.0	23.1	
Hori	2390.000	PK	44.0	26.7	2.9	32.7	40.9	73.9	33.0	
Hori	2400.000	PK	60.6	26.7	2.9	32.7	57.5	-	-	See 20dBc Data Sheet
Hori	4810.752	PK	49.8	30.8	5.3	31.9	54.0	73.9	19.9	
Hori	24053.760	PK	46.7	38.1	-1.2	32.5	51.1	73.9	22.8	NS
Hori	2390.000	AV	29.9	26.7	2.9	32.7	26.8	53.9	27.1	
Hori	2400.000	AV	48.7	26.7	2.9	32.7	45.6	-	-	See 20dBc Data Sheet
Hori	4810.752	AV	43.6	30.8	5.3	31.9	47.8	53.9	6.1	
Hori	24053.760	AV	34.3	38.1	-1.2	32.5	38.7	53.9	15.2	NS
Vert	36.862	QP	28.3	15.2	7.1	32.1	18.5	40.0	21.5	
Vert	67.878	QP	39.7	6.8	7.6	32.0	22.1	40.0	17.9	
Vert	151.744	QP	33.2	14.9	8.5	32.0	24.6	43.5	18.9	
Vert	344.053	QP	23.2	16.7	10.0	32.0	17.9	46.0	28.1	
Vert	2390.000	PK	43.6	26.7	2.9	32.7	40.5	73.9	33.4	
Vert	2400.000	PK	67.9	26.7	2.9	32.7	64.8	-	-	See 20dBc Data Sheet
Vert	4810.752	PK	47.2	30.8	5.3	31.9	51.4	73.9	22.5	
Vert	24053.760	PK	46.2	38.1	-1.2	32.5	50.6	73.9	23.3	NS
Vert	2390.000	AV	30.2	26.7	2.9	32.7	27.1	53.9	26.8	
Vert	2400.000	AV	55.9	26.7	2.9	32.7	52.8	-	-	See 20dBc Data Sheet
Vert	4810.752	AV	40.3	30.8	5.3	31.9	44.5	53.9	9.4	
Vert	24053.760	AV	34.2	38.1	-1.2	32.5	38.6	53.9	15.3	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

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	89.2	26.7	2.9	32.7	86.1	-	-	Carrier
Hori	2400.000	PK	54.2	26.7	2.9	32.7	51.1	66.1	15.0	
Vert	2405.376	PK	96.2	26.7	2.9	32.7	93.1	-	-	Carrier
Vert	2400.000	PK	62.1	26.7	2.9	32.7	59.0	73.1	14.1	

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

Radiated Spurious Emission

[when Docked]

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 30GE0186-HO-01
Date 03/16/2010
Temperature/ Humidity 20 deg.C./ 58%
Engineer Takeshi Choda
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	36.862	QP	23.2	15.2	7.1	32.1	13.4	40.0	26.6	
Hori	67.878	QP	32.0	6.8	7.6	32.0	14.4	40.0	25.6	
Hori	151.744	QP	26.0	14.9	8.5	32.0	17.4	43.5	26.1	
Hori	344.053	QP	28.2	16.7	10.0	32.0	22.9	46.0	23.1	
Hori	4872.192	PK	51.2	31.0	5.3	31.9	55.6	73.9	18.3	
Hori	24360.960	PK	46.8	38.3	-1.1	32.3	51.7	73.9	22.2	NS
Hori	4872.192	AV	45.6	31.0	5.3	31.9	50.0	53.9	3.9	
Hori	24360.960	AV	33.4	38.3	-1.1	32.3	38.3	53.9	15.6	NS
Vert	36.862	QP	28.3	15.2	7.1	32.1	18.5	40.0	21.5	
Vert	67.878	QP	39.7	6.8	7.6	32.0	22.1	40.0	17.9	
Vert	151.744	QP	33.6	14.9	8.5	32.0	25.0	43.5	18.5	
Vert	344.053	QP	23.2	16.7	10.0	32.0	17.9	46.0	28.1	
Vert	4872.192	PK	48.7	31.0	5.3	31.9	53.1	73.9	20.8	
Vert	24360.960	PK	46.7	38.3	-1.1	32.3	51.6	73.9	22.3	NS
Vert	4872.192	AV	41.7	31.0	5.3	31.9	46.1	53.9	7.8	
Vert	24360.960	AV	33.4	38.3	-1.1	32.3	38.3	53.9	15.6	NS

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

[when Docked]

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 30GE0186-HO-01
Date 03/16/2010
Temperature/ Humidity 20 deg.C./ 58%
Engineer Takeshi Choda
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	36.862	QP	23.2	15.2	7.1	32.1	13.4	40.0	26.6	
Hori	67.878	QP	32.1	6.8	7.6	32.0	14.5	40.0	25.5	
Hori	151.744	QP	26.3	14.9	8.5	32.0	17.7	43.5	25.8	
Hori	344.053	QP	28.2	16.7	10.0	32.0	22.9	46.0	23.1	
Hori	2483.500	PK	45.9	26.9	2.9	32.7	43.0	73.9	30.9	
Hori	4947.968	PK	52.4	31.3	5.4	31.9	57.2	73.9	16.7	
Hori	24739.840	PK	46.2	38.4	-1.0	32.2	51.4	73.9	22.5	NS
Hori	2483.500	AV	32.1	26.9	2.9	32.7	29.2	53.9	24.7	
Hori	4947.968	AV	47.4	31.3	5.4	31.9	52.2	53.9	1.7	
Hori	24739.840	AV	33.2	38.4	-1.0	32.2	38.4	53.9	15.5	NS
Vert	36.862	QP	28.2	15.2	7.1	32.1	18.4	40.0	21.6	
Vert	67.878	QP	40.0	6.8	7.6	32.0	22.4	40.0	17.6	
Vert	151.744	QP	33.7	14.9	8.5	32.0	25.1	43.5	18.4	
Vert	344.053	QP	23.1	16.7	10.0	32.0	17.8	46.0	28.2	
Vert	2483.500	PK	47.6	26.9	2.9	32.7	44.7	73.9	29.2	
Vert	4947.968	PK	50.4	31.3	5.4	31.9	55.2	73.9	18.7	
Vert	24739.840	PK	46.5	38.4	-1.0	32.2	51.7	73.9	22.2	NS
Vert	2483.500	AV	37.5	26.9	2.9	32.7	34.6	53.9	19.3	
Vert	4947.968	AV	44.2	31.3	5.4	31.9	49.0	53.9	4.9	
Vert	24739.840	AV	33.7	38.4	-1.0	32.2	38.9	53.9	15.0	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

Radiated Spurious Emission

[when Docked]

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 30GE0186-HO-01
Date 03/16/2010
Temperature/ Humidity 20 deg.C./ 58%
Engineer Takeshi Choda
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	36.862	QP	23.1	15.2	7.1	32.1	13.3	40.0	26.7	
Hori	67.878	QP	31.7	6.8	7.6	32.0	14.1	40.0	25.9	
Hori	151.744	QP	25.8	14.9	8.5	32.0	17.2	43.5	26.3	
Hori	344.053	QP	28.3	16.7	10.0	32.0	23.0	46.0	23.0	
Hori	2436.096	PK	42.8	26.8	2.9	32.7	39.8	73.9	34.1	NS
Hori	4872.192	PK	42.4	31.0	3.9	31.9	45.4	73.9	28.5	NS
Hori	7308.288	PK	42.2	36.1	4.3	32.6	50.0	73.9	23.9	NS
Hori	2436.096	AV	29.7	26.8	2.9	32.7	26.7	53.9	27.2	NS
Hori	4872.192	AV	30.2	31.0	3.9	31.9	33.2	53.9	20.7	NS
Hori	7308.288	AV	30.4	36.1	4.3	32.6	38.2	53.9	15.7	NS
Vert	36.862	QP	27.9	15.2	7.1	32.1	18.1	40.0	21.9	
Vert	67.878	QP	39.3	6.8	7.6	32.0	21.7	40.0	18.3	
Vert	151.744	QP	32.4	14.9	8.5	32.0	23.8	43.5	19.7	
Vert	344.053	QP	23.3	16.7	10.0	32.0	18.0	46.0	28.0	
Vert	2436.096	PK	42.7	26.8	2.9	32.7	39.7	73.9	34.2	NS
Vert	4872.192	PK	41.9	31.0	3.9	31.9	44.9	73.9	29.0	NS
Vert	7308.288	PK	42.4	36.1	4.3	32.6	50.2	73.9	23.7	NS
Vert	2436.096	AV	29.7	26.8	2.9	32.7	26.7	53.9	27.2	NS
Vert	4872.192	AV	30.1	31.0	3.9	31.9	33.1	53.9	20.8	NS
Vert	7308.288	AV	30.3	36.1	4.3	32.6	38.1	53.9	15.8	NS

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

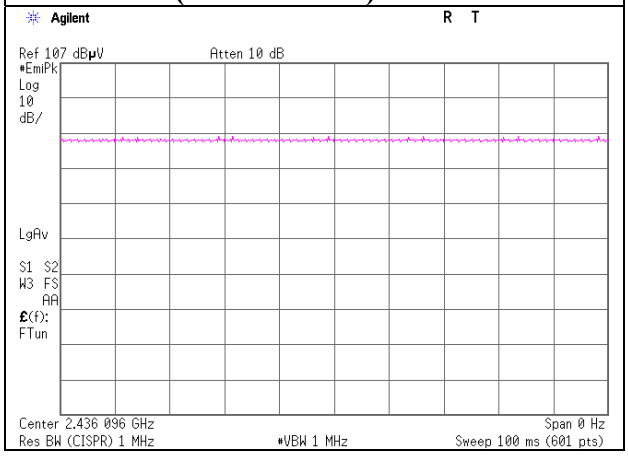
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

*The 3rd 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

VBW (AV) Calculation

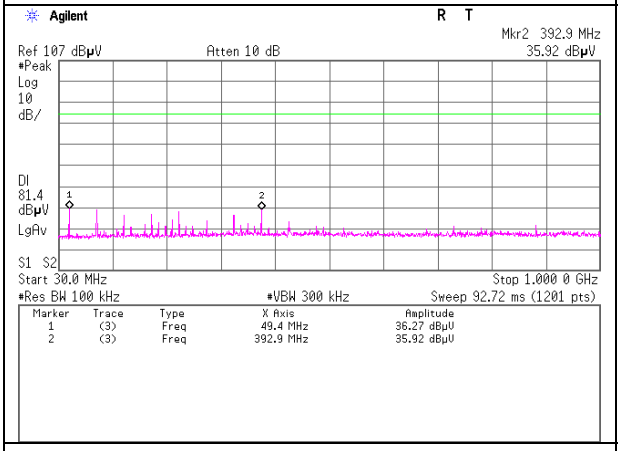
VBW: 1/x = 10Hz<10Hz
x: (Tx on+Tx off) =100ms



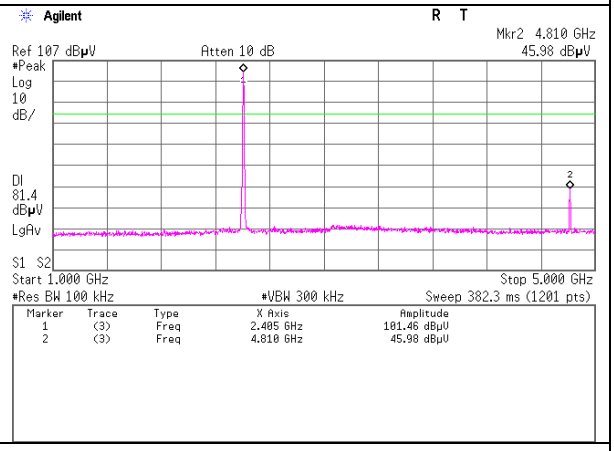
Conducted Spurious Emission

Tx 2405.376MHz

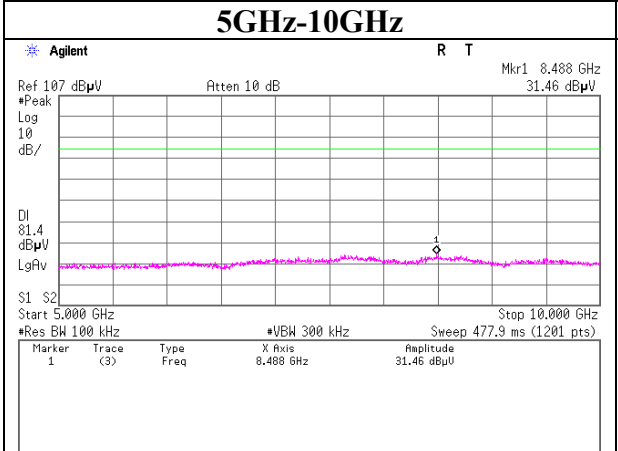
30MHz-1GHz



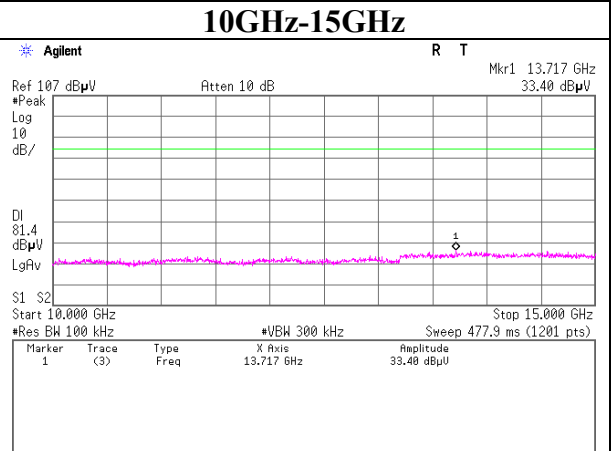
1GHz-5GHz



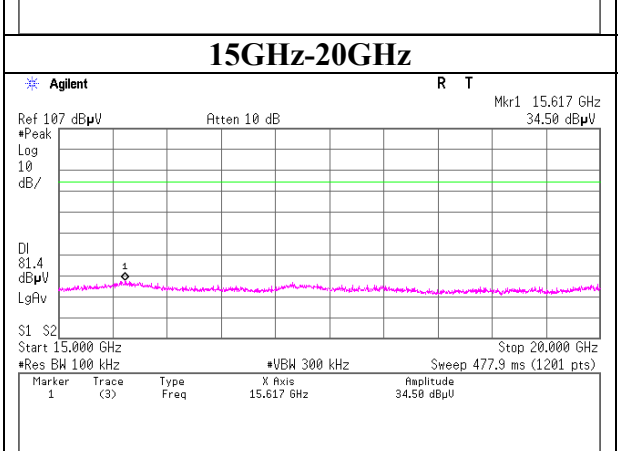
5GHz-10GHz



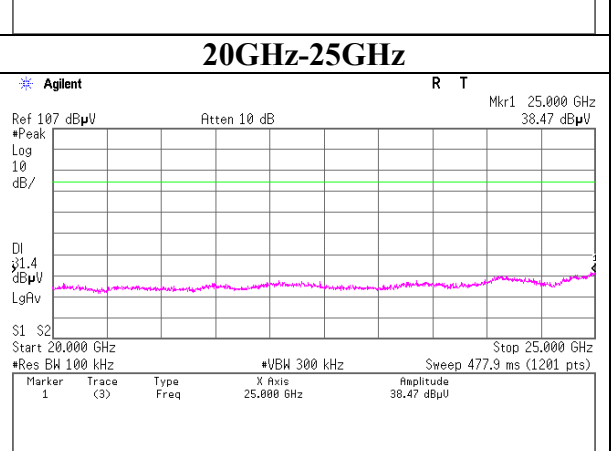
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

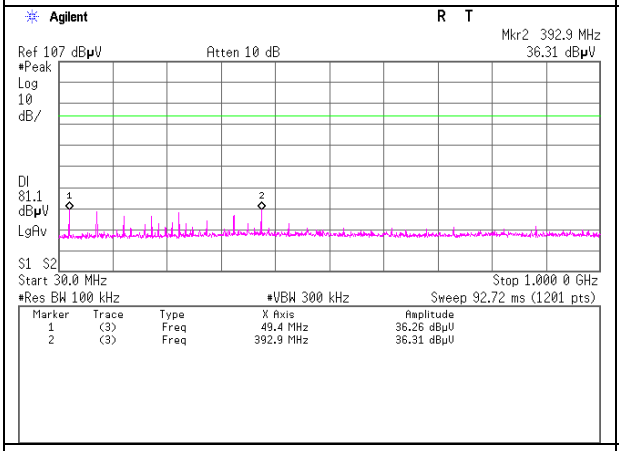


UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

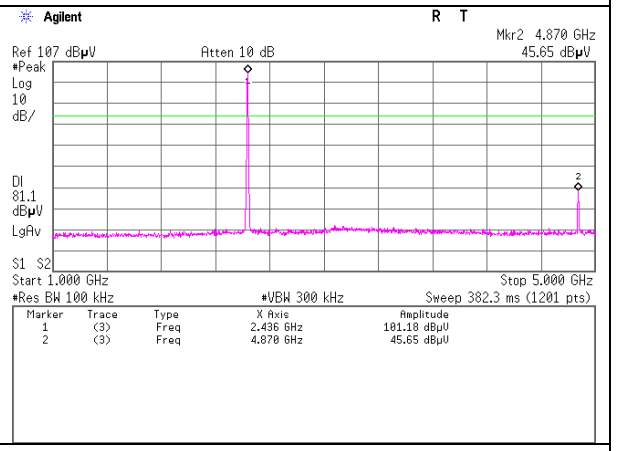
Conducted Spurious Emission

Tx 2436.096MHz

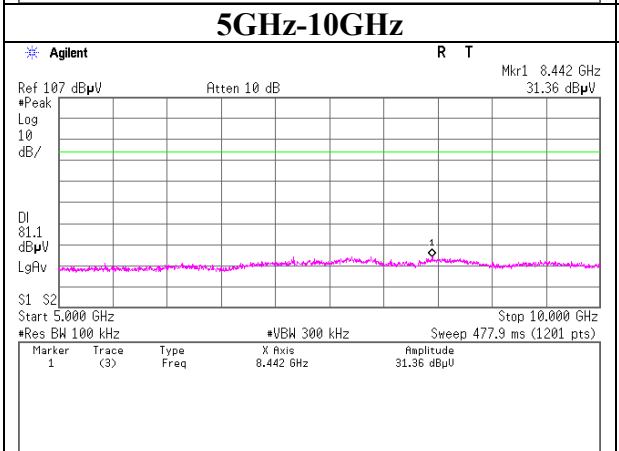
30MHz-1GHz



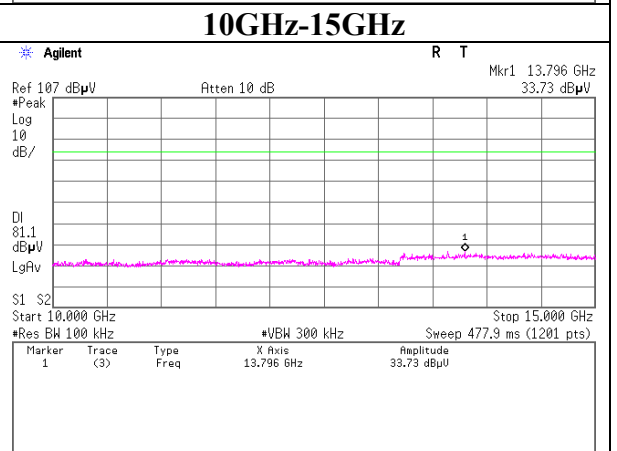
1GHz-5GHz



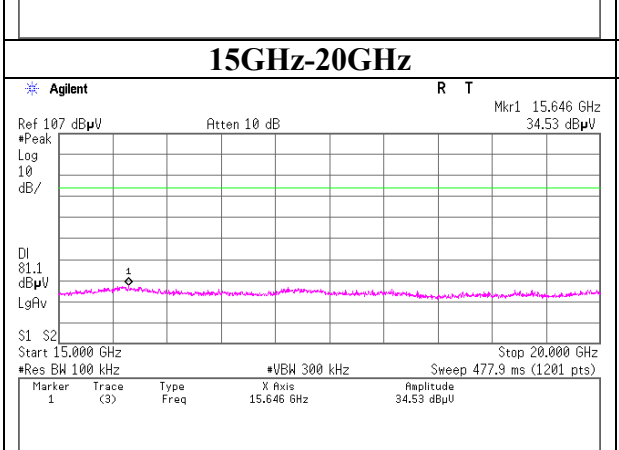
5GHz-10GHz



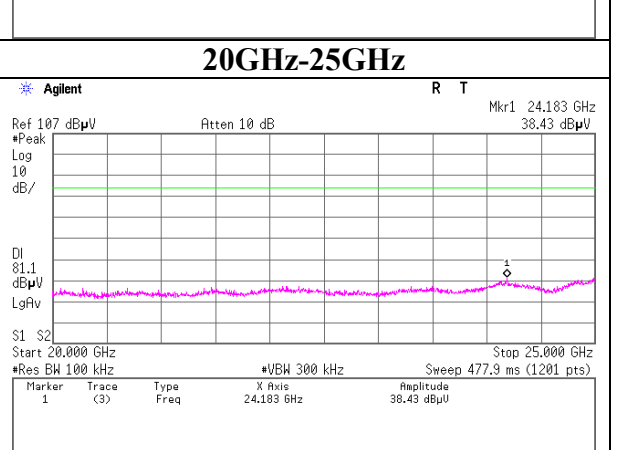
10GHz-15GHz



15GHz-20GHz



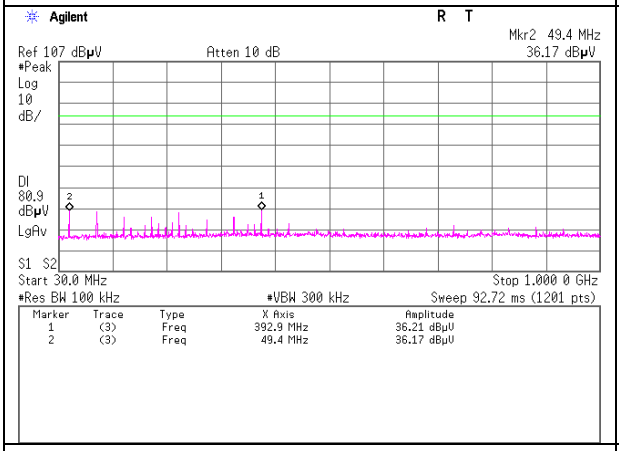
20GHz-25GHz



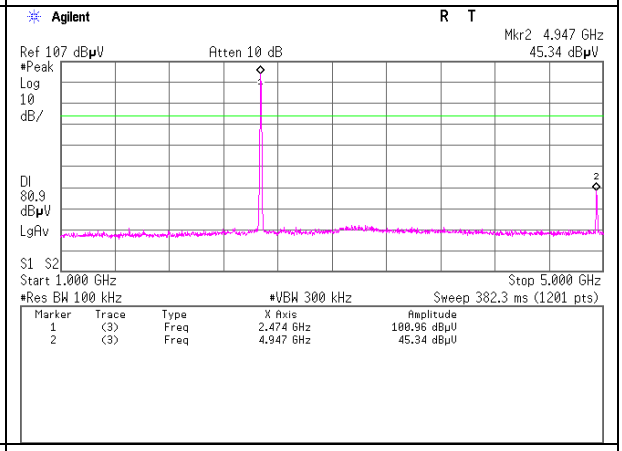
Conducted Spurious Emission

Tx 2473.984MHz

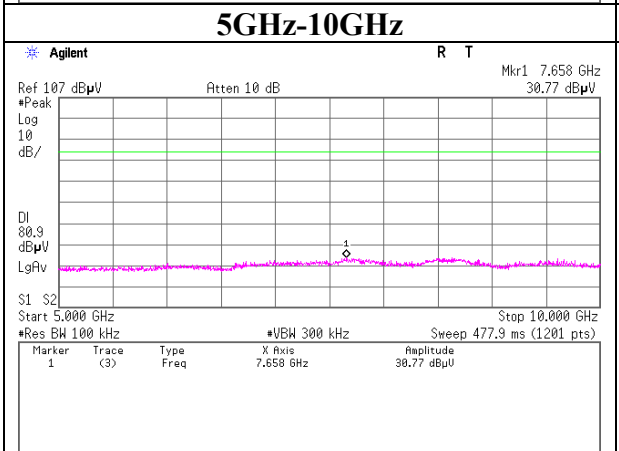
30MHz-1GHz



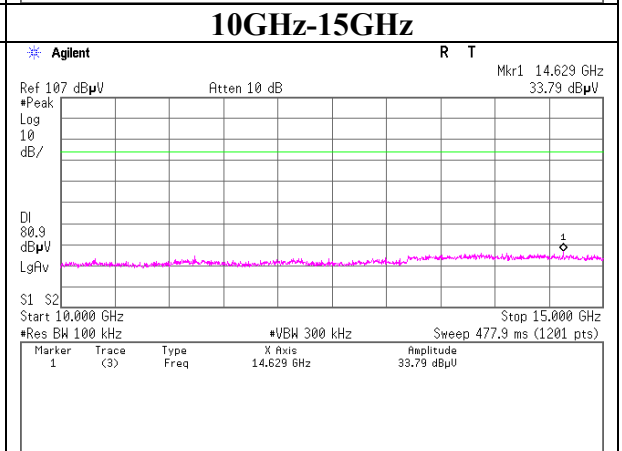
1GHz-5GHz



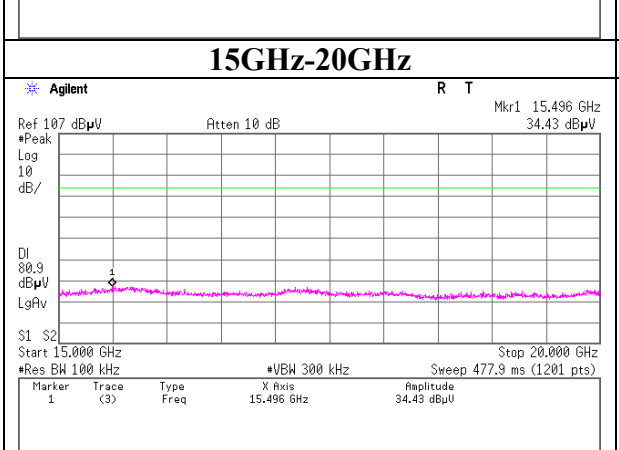
5GHz-10GHz



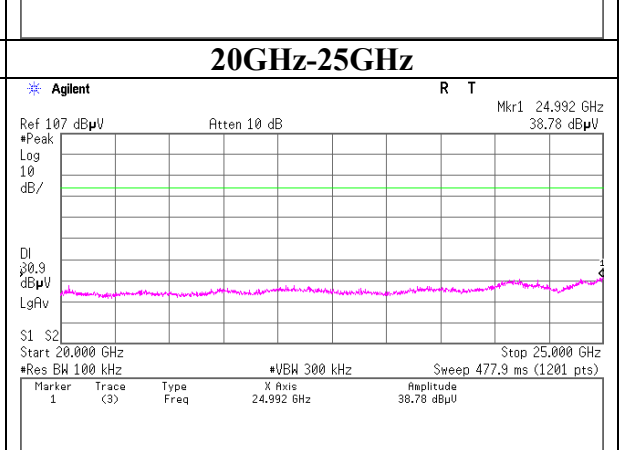
10GHz-15GHz



15GHz-20GHz



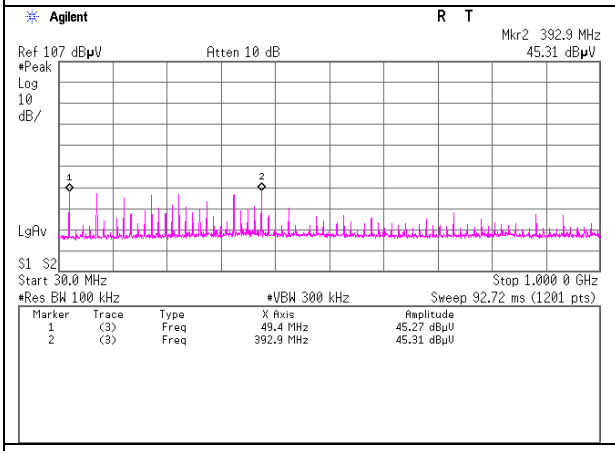
20GHz-25GHz



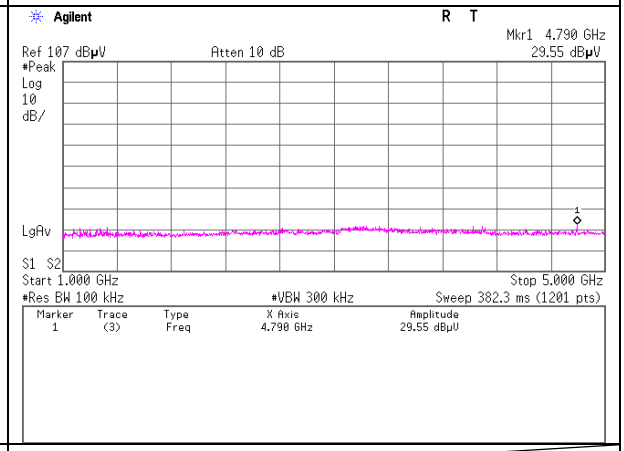
Conducted Spurious Emission

Rx 2436.096MHz

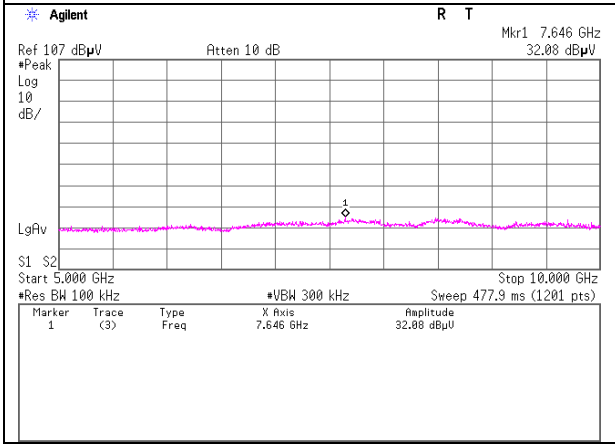
30MHz-1GHz



1GHz-5GHz



5GHz-10GHz

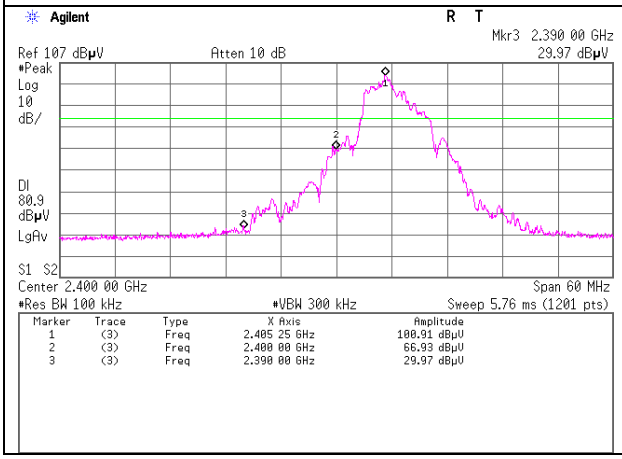


UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

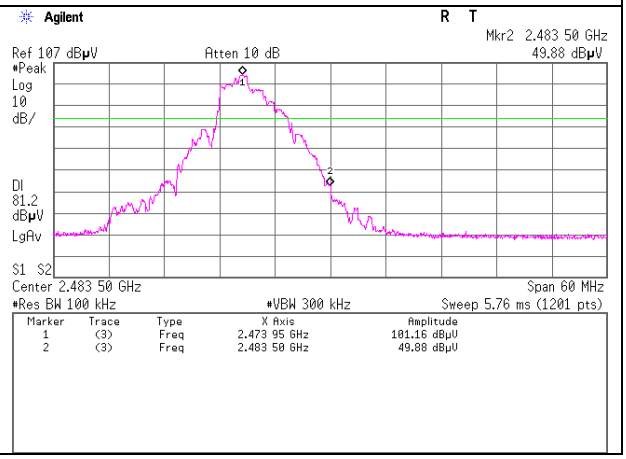
Conducted Emission Band Edge compliance

Antenna Port A Tx

Tx 2405.376MHz



Tx 2473.984MHz



UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

Power Density

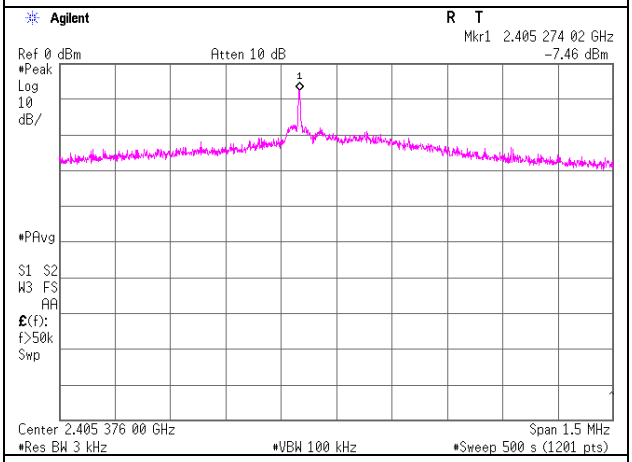
Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	30GE0186-HO-01
Date	03/15/2010
Temperature/ Humidity	25 deg.C./ 36%
Engineer	Takeshi Choda
Mode	Tx

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2405.274	-7.46	1.71	10.08	4.33	8.00	3.67
2435.992	-7.33	1.71	10.08	4.46	8.00	3.54
2473.878	-7.56	1.73	10.08	4.25	8.00	3.75

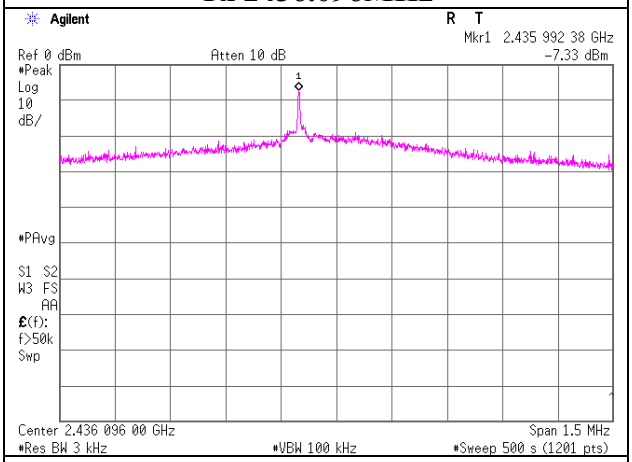
Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Power Density

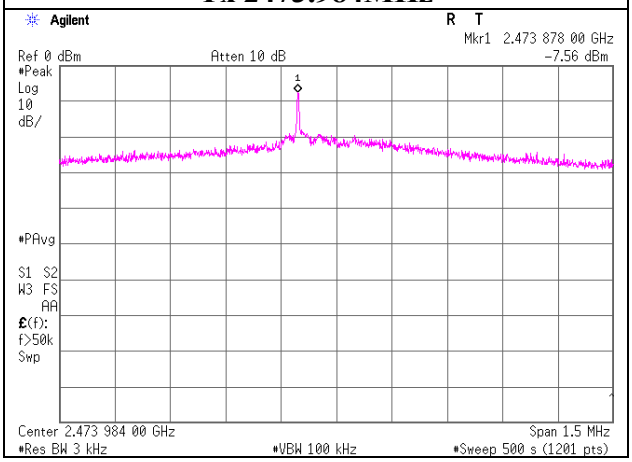
Tx 2405.376MHz



Tx 2436.096MHz

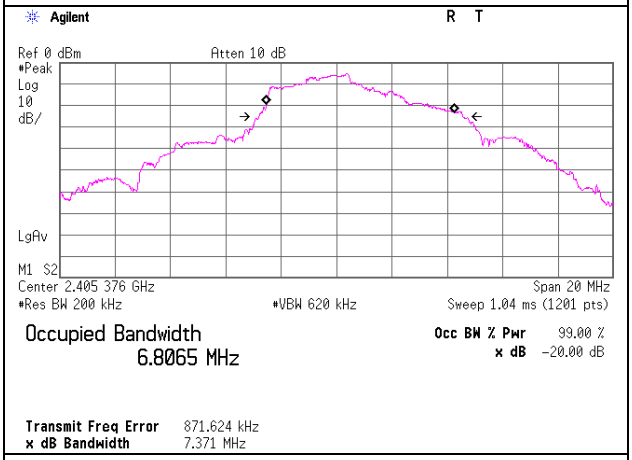


Tx 2473.984MHz

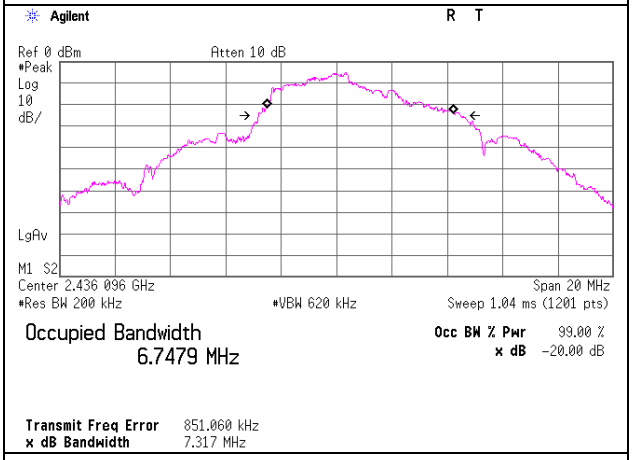


99%Occupied Bandwidth

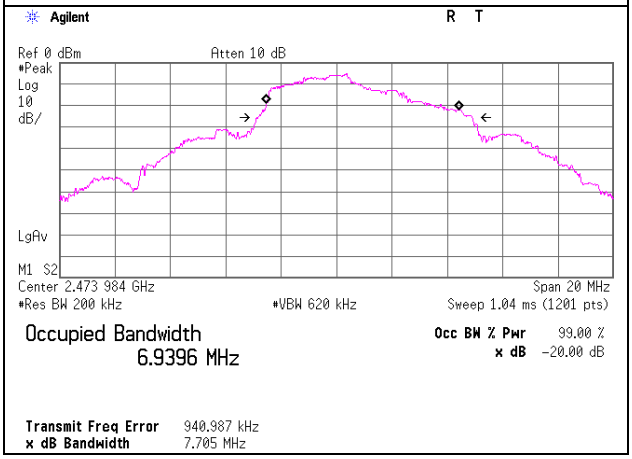
Tx 2405.376MHz



Tx 2436.096MHz



Tx 2473.984MHz



APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-14	Thermo-Hygrometer	Custom	CTH-180	-	AT	2010/02/09 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE/AT	2010/02/03 * 12
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-20	Attenuator(10dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	AT	2010/01/26 * 12
MCC-114	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	290212/4	AT	2009/08/27 * 12
MCC-37	Microwave Cable	Hirose Electric	U.FL-2LP-066-A-(200)	-	AT	2009/11/18 * 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	-
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
MHF-20	High Pass Filter 3.5-18.0GHz	TOKIMEC	TF323DCC	607	RE	2009/12/19 * 12
MCC-79	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278923/4	RE	2009/12/19 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2009/06/18 * 12
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	RE	2009/12/15 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE	2009/10/23 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2010/01/23 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2010/01/23 * 12
MCC-50	Coaxial cable	UL Japan	-	-	RE	2009/03/18 * 12
MAT-51	Attenuator(6dB)	Weinschel	2	AS3557	RE	2010/01/20 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2010/03/05 * 12
MCC-35	Microwave Cable	Hirose Electric	U.FL-2LP-066-A-(200)	-	AT	2009/11/17 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	AT	2009/08/25 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE (EUT)	2010/02/04 * 12
MCC-113	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/SFM141(5m)/421-010(1m)/sucoform141-PE(1m)/RFM-E121(Switcher)	-/04178	CE	2009/07/01 * 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

UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124