APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

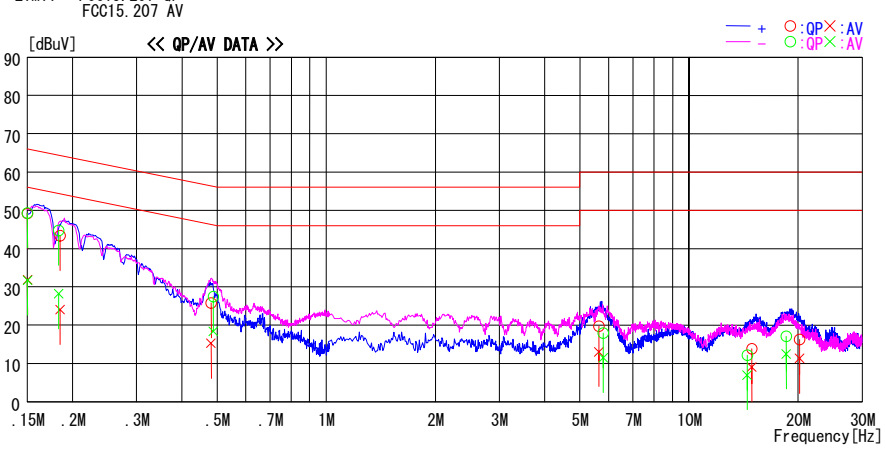
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2009/09/07

Company : YAMAHA CORPORATION
Kind of EUT : Wireless Transmitter for iPod
Model No. : YIT-W11TX
Serial No. : ES2-001

Report No. : 29KE0002-HO-02
Power : AC 120V / 60Hz
Temp./Humi. : 24deg.C. / 58%
Engineer : Hiroshi Kukita

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]		
0.15000	48.6	31.3	0.6	49.2	31.9	66.0	56.0	16.8	24.1	+	
0.18458	42.9	23.6	0.5	43.4	24.1	64.3	54.3	20.9	30.2	+	
0.48163	25.4	14.8	0.4	25.8	15.2	56.3	46.3	30.5	31.1	+	
5.63870	19.0	12.4	0.7	19.7	13.1	60.0	50.0	40.3	36.9	+	
14.88520	12.8	8.1	1.0	13.8	9.1	60.0	50.0	46.2	40.9	+	
20.16920	15.0	10.0	1.3	16.3	11.3	60.0	50.0	43.7	38.7	+	
0.15000	48.7	31.1	0.6	49.3	31.7	66.0	56.0	16.7	24.3	-	
0.18296	44.2	27.7	0.5	44.7	28.2	64.4	54.4	19.7	26.2	-	
0.48801	27.1	18.0	0.4	27.5	18.4	56.2	46.2	28.7	27.8	-	
5.79600	17.2	10.8	0.7	17.9	11.5	60.0	50.0	42.1	38.5	-	
14.47772	11.2	6.0	1.0	12.2	7.0	60.0	50.0	47.8	43.0	-	
18.52100	15.9	11.3	1.2	17.1	12.5	60.0	50.0	42.9	37.5	-	

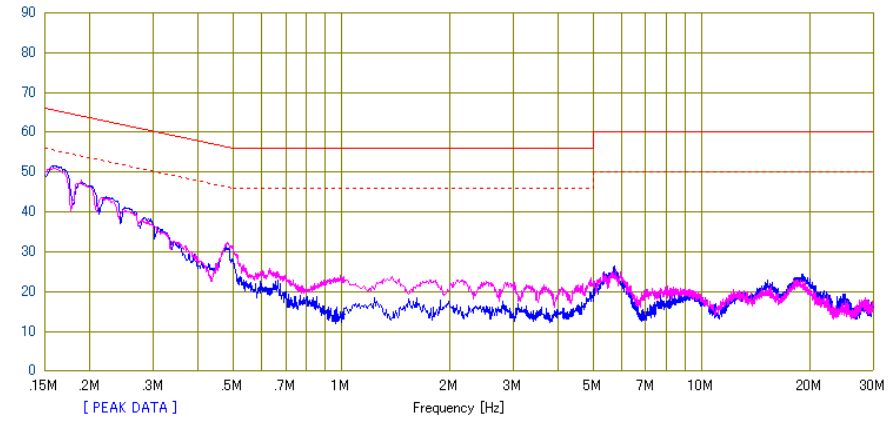
CHART:WITH FACTOR,Peak hold data. CALCURATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

* The test result is rounded off to one or two decimal places, so some differences might be observed.

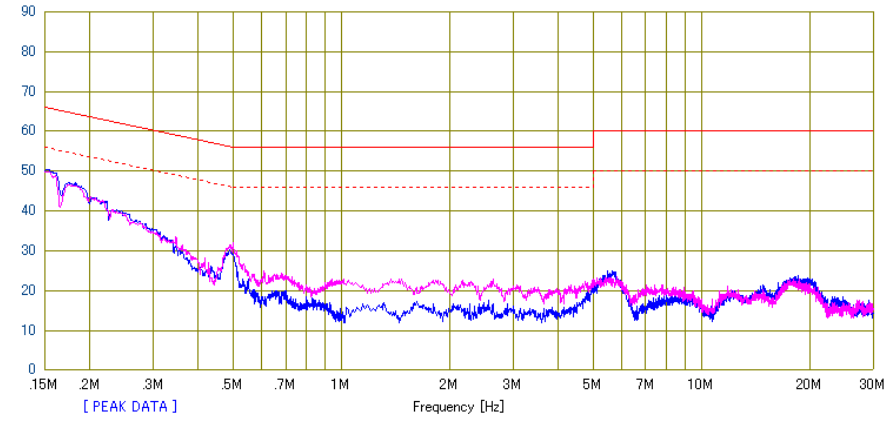
Conducted Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	29KE0002-HO-02
Date	09/07/2009
Temperature/ Humidity	24 deg.C./ 58%
Engineer	Hiroshi Kukita
Mode	Tx, when Docked

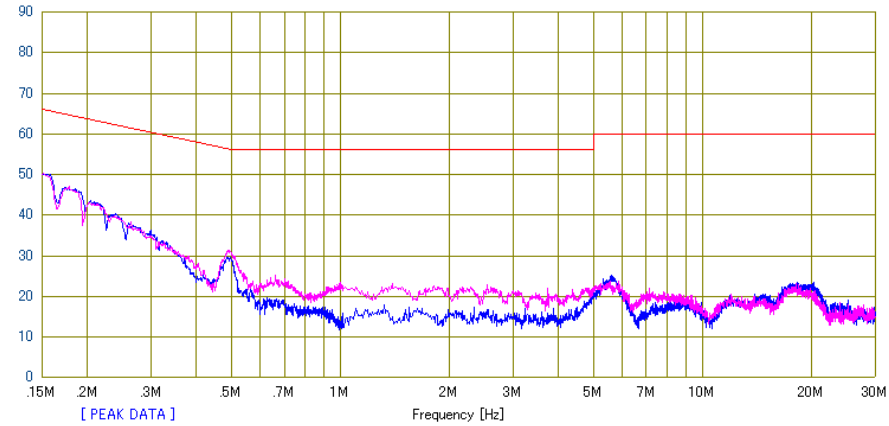
2405.376MHz



2436.096MHz



2473.984MHz



Y scale [dBuV] Chart — N — L

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

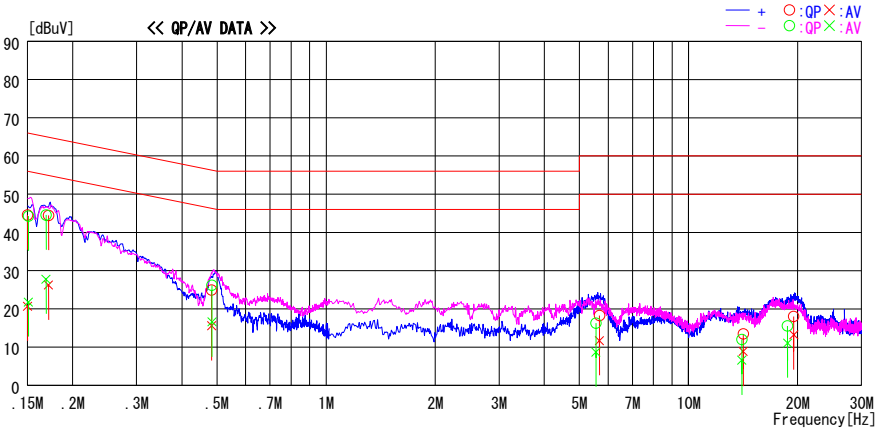
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2009/09/07

Company : YAMAHA CORPORATION
Kind of EUT : Wireless Transmitter for iPod
Model No. : YIT-W11TX
Serial No. : ES2-001

Report No. : 29KE0002-HO-02
Power : AC 120V / 60Hz
Temp./Humi. : 24deg.C. / 58%
Engineer : Hiroshi Kukita

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	44.0	20.1	0.6	44.6	20.7	66.0	56.0	21.4	35.3	+	
0.17142	43.9	25.6	0.6	44.5	26.2	64.9	54.9	20.4	28.7	+	
0.48332	24.5	15.2	0.4	24.9	15.6	56.3	46.3	31.4	30.7	+	
5.67760	17.6	11.0	0.7	18.3	11.7	60.0	50.0	41.7	38.3	+	
14.15900	12.5	7.9	1.0	13.5	8.9	60.0	50.0	46.5	41.1	+	
19.51600	16.7	11.9	1.3	18.0	13.2	60.0	50.0	42.0	36.8	+	
0.15087	43.7	21.2	0.6	44.3	21.8	66.0	56.0	21.7	34.2	-	
0.16883	44.0	27.2	0.6	44.6	27.8	65.0	55.0	20.4	27.2	-	
0.48454	25.8	16.2	0.4	26.2	16.6	56.3	46.3	30.1	29.7	-	
5.55168	15.6	8.0	0.7	16.3	8.7	60.0	50.0	43.7	41.3	-	
14.02806	11.0	5.6	1.0	12.0	6.6	60.0	50.0	48.0	43.4	-	
18.74610	14.4	9.9	1.2	15.6	11.1	60.0	50.0	44.4	38.9	-	

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

* The test result is rounded off to one or two decimal places, so some differences might be observed.

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.11 Measurement Room	
Report No.	29KE0002-HO-02	
Date	09/03/2009	09/04/2009
Temperature/ Humidity	27 deg.C./ 45%	26 deg.C./ 67%
Engineer	Takeshi Choda	Takeshi Choda
Mode	Tx	

Antenna Port A

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2405.376	2.479	>500
2436.096	2.283	>500
2473.984	2.250	>500

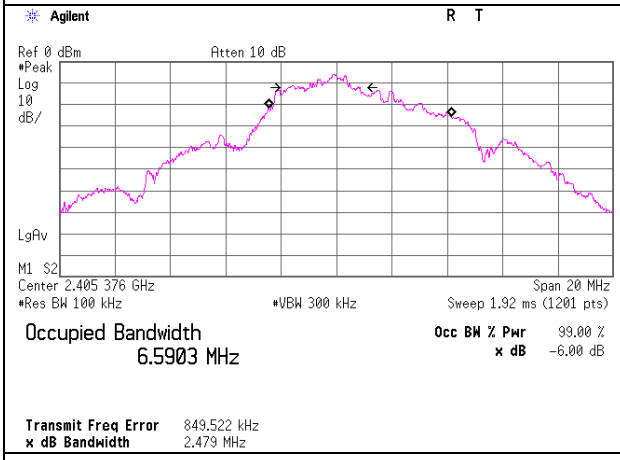
Antenna Port B

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2405.376	2.161	>500
2436.096	2.178	>500
2473.984	2.261	>500

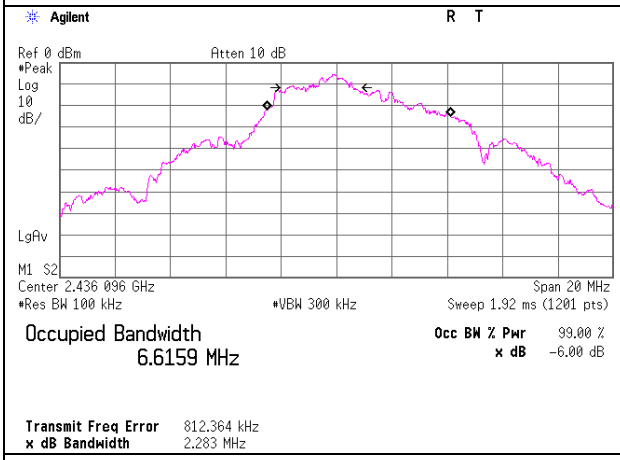
6dB Bandwidth

Antenna Port A

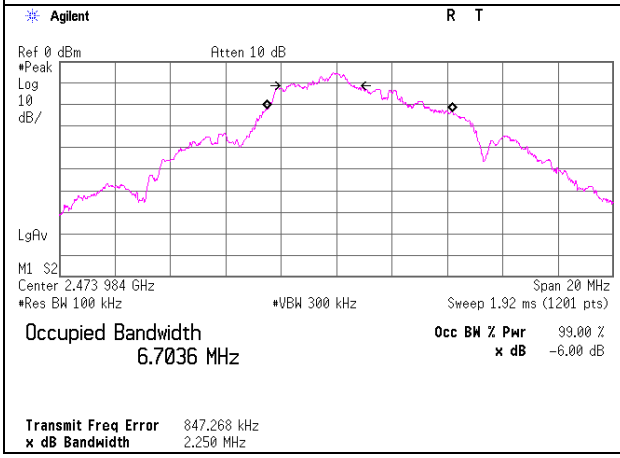
2405.376MHz



2436.096MHz

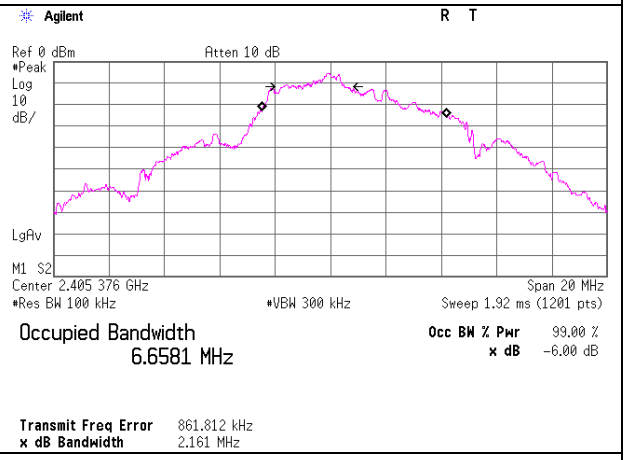


2473.984MHz

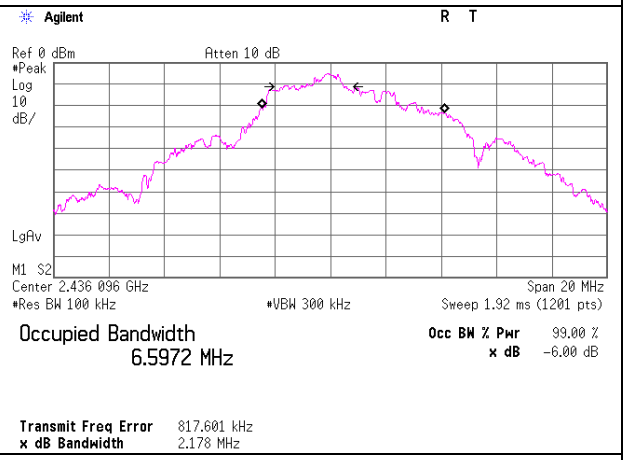


Antenna Port B

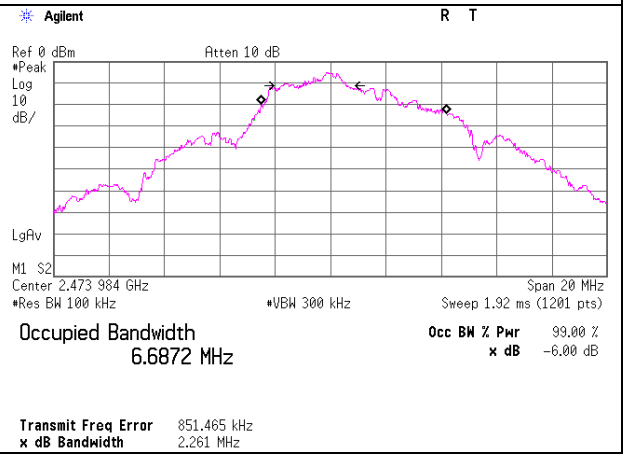
2405.376MHz



2436.096MHz



2473.984MHz



Maximum Peak Output Power

Test place	Head Office EMC Lab. No.11 Measurement Room	
Report No.	29KE0002-HO-02	
Date	09/03/2009	09/04/2009
Temperature/ Humidity	27 deg.C./ 45%	26 deg.C./ 67%
Engineer	Takeshi Choda	Takeshi Choda
Mode	Tx	

Antenna Port A

Freq.	Reading	Cable Loss	Atten.	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2405.376	-4.37	1.96	10.08	7.67	5.85	30.00	1000	22.33
2436.096	-4.05	1.96	10.08	7.99	6.30	30.00	1000	22.01
2473.984	-3.84	1.97	10.08	8.21	6.63	30.00	1000	21.79

Antenna Port B

Freq.	Reading	Cable Loss	Atten.	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2405.376	-3.84	1.97	10.08	8.21	6.61	30.00	1000	21.80
2436.096	-3.47	1.97	10.08	8.58	7.20	30.00	1000	21.43
2473.984	-3.29	1.98	10.08	8.77	7.52	30.00	1000	21.24

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber		
Report No.	29KE0002-HO-02		
Date	09/02/2009	09/02/2009	09/07/2009
Temperature/ Humidity	25 deg.C./ 75%	25 deg.C./ 74%	24 deg.C./ 58%
Engineer	Hironobu Ohnishi (1-10GHz)	Tomohisa Nakagawa (above 10GHz)	Hiroshi Kukita (below 1GHz)
Mode	when used apart, 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	35.130	QP	22.6	16.4	7.3	32.2	14.1	40.0	25.9	NS
Hori	122.880	QP	22.5	13.0	8.4	32.1	11.8	43.5	31.7	NS
Hori	260.581	QP	22.6	18.1	9.6	31.9	18.4	46.0	27.6	NS
Hori	326.601	QP	22.0	16.7	10.1	32.0	16.8	46.0	29.2	NS
Hori	591.205	QP	22.1	20.2	11.8	32.1	22.0	46.0	24.0	NS
Hori	852.310	QP	22.0	23.7	13.0	31.4	27.3	46.0	18.7	NS
Hori	2390.000	PK	44.6	26.7	2.8	32.7	41.4	73.9	32.5	
Hori	2400.000	PK	79.8	26.7	2.8	32.7	76.6	-	-	See 20dBc Data Sheet
Hori	4810.752	PK	50.5	30.8	5.3	31.9	54.7	73.9	19.2	
Hori	24053.760	PK	44.3	38.1	-1.1	32.5	48.8	73.9	25.1	NS
Hori	2390.000	AV	30.8	26.7	2.8	32.7	27.6	53.9	26.3	
Hori	2400.000	AV	65.5	26.7	2.8	32.7	62.3	-	-	See 20dBc Data Sheet
Hori	4810.752	AV	45.3	30.8	5.3	31.9	49.5	53.9	4.4	
Hori	24053.760	AV	31.4	38.1	-1.1	32.5	35.9	53.9	18.0	NS
Vert	33.240	QP	22.5	17.0	7.2	32.2	14.5	40.0	25.5	NS
Vert	127.199	QP	22.4	13.2	8.5	32.1	12.0	43.5	31.5	NS
Vert	286.770	QP	22.5	19.5	9.8	31.9	19.9	46.0	26.1	NS
Vert	363.701	QP	22.1	17.3	10.3	32.0	17.7	46.0	28.3	NS
Vert	624.106	QP	22.2	20.9	12.0	32.1	23.0	46.0	23.0	NS
Vert	919.511	QP	21.9	24.1	13.3	31.1	28.2	46.0	17.8	NS
Vert	2390.000	PK	47.5	26.7	2.8	32.7	44.3	73.9	29.6	
Vert	2400.000	PK	78.7	26.7	2.8	32.7	75.5	-	-	See 20dBc Data Sheet
Vert	4810.752	PK	49.1	30.8	5.3	31.9	53.3	73.9	20.6	
Vert	24053.760	PK	43.7	38.1	-1.1	32.5	48.2	73.9	25.7	NS
Vert	2390.000	AV	34.0	26.7	2.8	32.7	30.8	53.9	23.1	
Vert	2400.000	AV	64.2	26.7	2.8	32.7	61.0	-	-	See 20dBc Data Sheet
Vert	4810.752	AV	42.8	30.8	5.3	31.9	47.0	53.9	6.9	
Vert	24053.760	AV	31.4	38.1	-1.1	32.5	35.9	53.9	18.0	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

NS: No detect signal.

UL Japan, Inc.
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Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	29KE0002-HO-02
Date	09/02/2009
Temperature/ Humidity	25 deg.C./ 75%
Engineer	Hironobu Ohnishi
	(1-10GHz)
Mode	when used apart, 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	109.1	26.7	2.8	32.7	105.9	-	-	Carrier
Hori	2400.000	PK	73.5	26.7	2.8	32.7	70.3	85.9	15.6	
Vert	2405.376	PK	107.8	26.7	2.8	32.7	104.6	-	-	Carrier
Vert	2400.000	PK	72.5	26.7	2.8	32.7	69.3	84.6	15.3	

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).

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 Semi Anechoic Chamber		
Report No.	29KE0002-HO-02		
Date	09/02/2009	09/02/2009	09/07/2009
Temperature/ Humidity	25 deg.C./ 75%	25 deg.C./ 74%	24 deg.C./ 58%
Engineer	Hironobu Ohnishi (1-10GHz)	Tomohisa Nakagawa (above 10GHz)	Hiroshi Kukita (below 1GHz)
Mode	when used apart, 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	35.670	QP	22.7	16.2	7.3	32.1	14.1	40.0	25.9	NS
Hori	122.880	QP	22.8	13.0	8.4	32.1	12.1	43.5	31.4	NS
Hori	268.681	QP	22.4	18.6	9.7	31.9	18.8	46.0	27.2	NS
Hori	358.801	QP	22.1	17.2	10.3	32.0	17.6	46.0	28.4	NS
Hori	547.804	QP	22.2	19.8	11.5	32.1	21.4	46.0	24.6	NS
Hori	937.011	QP	21.6	24.4	13.4	31.0	28.4	46.0	17.6	NS
Hori	4872.192	PK	49.9	31.0	5.3	31.9	54.3	73.9	19.6	
Hori	24360.960	PK	44.0	38.3	-1.1	32.3	48.9	73.9	25.0	NS
Hori	4872.192	AV	44.3	31.0	5.3	31.9	48.7	53.9	5.2	
Hori	24360.960	AV	31.6	38.3	-1.1	32.3	36.5	53.9	17.4	NS
Vert	37.020	QP	22.6	15.6	7.3	32.1	13.4	40.0	26.6	NS
Vert	122.880	QP	22.5	13.0	8.4	32.1	11.8	43.5	31.7	NS
Vert	278.940	QP	22.4	19.1	9.8	31.9	19.4	46.0	26.6	NS
Vert	398.002	QP	22.0	17.7	10.7	32.0	18.4	46.0	27.6	NS
Vert	691.307	QP	22.1	22.2	12.3	32.2	24.4	46.0	21.6	NS
Vert	990.212	QP	21.8	25.0	13.6	30.8	29.6	53.9	24.3	NS
Vert	4872.192	PK	47.4	31.0	5.3	31.9	51.8	73.9	22.1	
Vert	24360.960	PK	43.2	38.3	-1.1	32.3	48.1	73.9	25.8	NS
Vert	4872.192	AV	41.9	31.0	5.3	31.9	46.3	53.9	7.6	
Vert	24360.960	AV	31.6	38.3	-1.1	32.3	36.5	53.9	17.4	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

NS: No detect signal.

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber		
Report No.	29KE0002-HO-02		
Date	09/02/2009	09/02/2009	09/07/2009
Temperature/ Humidity	25 deg.C./ 75%	25 deg.C./ 74%	24 deg.C./ 58%
Engineer	Hironobu Ohnishi (1-10GHz)	Tomohisa Nakagawa (above 10GHz)	Hiroshi Kukita (below 1GHz)
Mode	when used apart, 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	35.360	QP	22.5	16.3	7.3	32.2	13.9	40.0	26.1	NS
Hori	122.880	QP	22.5	13.0	8.4	32.1	11.8	43.5	31.7	NS
Hori	258.610	QP	22.2	18.0	9.6	31.9	17.9	46.0	28.1	NS
Hori	433.702	QP	22.1	18.3	10.9	32.0	19.3	46.0	26.7	NS
Hori	817.309	QP	22.2	23.6	12.9	31.6	27.1	46.0	18.9	NS
Hori	962.912	QP	21.5	24.7	13.5	30.9	28.8	53.9	25.1	NS
Hori	2483.500	PK	60.1	26.9	2.8	32.7	57.1	73.9	16.8	
Hori	4947.968	PK	48.0	31.3	5.3	31.9	52.7	73.9	21.2	
Hori	24739.840	PK	46.4	38.4	-1.0	32.2	51.6	73.9	22.3	NS
Hori	2483.500	AV	50.5	26.9	2.8	32.7	47.5	53.9	6.4	
Hori	4947.968	AV	42.5	31.3	5.3	31.9	47.2	53.9	6.7	
Hori	24739.840	AV	34.0	38.4	-1.0	32.2	39.2	53.9	14.7	NS
Vert	36.254	QP	22.3	15.9	7.3	32.1	13.4	40.0	26.6	NS
Vert	122.880	QP	22.5	13.0	8.4	32.1	11.8	43.5	31.7	NS
Vert	276.781	QP	21.9	19.0	9.7	31.9	18.7	46.0	27.3	NS
Vert	501.604	QP	22.1	19.2	11.3	32.1	20.5	46.0	25.5	NS
Vert	763.408	QP	22.0	23.1	12.6	31.8	25.9	46.0	20.1	NS
Vert	973.412	QP	21.7	24.8	13.5	30.9	29.1	53.9	24.8	NS
Vert	2483.500	PK	57.8	26.9	2.8	32.7	54.8	73.9	19.1	
Vert	4947.968	PK	48.0	31.3	5.3	31.9	52.7	73.9	21.2	
Vert	24739.840	PK	46.4	38.4	-1.0	32.2	51.6	73.9	22.3	NS
Vert	2483.500	AV	48.8	26.9	2.8	32.7	45.8	53.9	8.1	
Vert	4947.968	AV	42.3	31.3	5.3	31.9	47.0	53.9	6.9	
Vert	24739.840	AV	34.0	38.4	-1.0	32.2	39.2	53.9	14.7	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

NS: No detect signal.

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

Radiated Spurious Emission

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 29KE0002-HO-02
Date 09/02/2009
Temperature/ Humidity 25 deg.C./ 74%
Engineer Tomohisa Nakagawa

Mode when Docked, 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	36.863	QP	23.0	15.6	7.3	32.1	13.8	40.0	26.2	
Hori	104.590	QP	32.7	10.5	8.2	32.1	19.3	43.5	24.2	
Hori	158.313	QP	29.0	15.0	8.8	32.0	20.8	43.5	22.7	
Hori	344.051	QP	29.9	17.0	10.2	32.0	25.1	46.0	20.9	
Hori	2390.000	PK	46.9	26.7	2.8	32.7	43.7	73.9	30.2	
Hori	2400.000	PK	76.8	26.7	2.8	32.7	73.6	-	-	See 20dBc Data Sheet
Hori	4810.752	PK	54.0	30.8	5.3	31.9	58.2	73.9	15.7	
Hori	24053.760	PK	46.4	38.1	-1.1	32.5	50.9	73.9	23.0	NS
Hori	2390.000	AV	30.3	26.7	2.8	32.7	27.1	53.9	26.8	
Hori	2400.000	AV	62.9	26.7	2.8	32.7	59.7	-	-	See 20dBc Data Sheet
Hori	4810.752	AV	49.3	30.8	5.3	31.9	53.5	53.9	0.4	
Hori	24053.760	AV	33.9	38.1	-1.1	32.5	38.4	53.9	15.5	NS
Vert	36.863	QP	31.5	15.6	7.3	32.1	22.3	40.0	17.7	
Vert	75.450	QP	38.2	6.3	7.9	32.0	20.4	40.0	19.6	
Vert	155.549	QP	33.8	14.8	8.8	32.0	25.4	43.5	18.1	
Vert	344.053	QP	26.5	17.0	10.2	32.0	21.7	46.0	24.3	
Vert	2390.000	PK	47.5	26.7	2.8	32.7	44.3	73.9	29.6	
Vert	2400.000	PK	74.7	26.7	2.8	32.7	71.5	-	-	See 20dBc Data Sheet
Vert	4810.752	PK	45.8	30.8	5.3	31.9	50.0	73.9	23.9	
Vert	24053.760	PK	47.0	38.1	-1.1	32.5	51.5	73.9	22.4	NS
Vert	2390.000	AV	33.6	26.7	2.8	32.7	30.4	53.9	23.5	
Vert	2400.000	AV	61.2	26.7	2.8	32.7	58.0	-	-	See 20dBc Data Sheet
Vert	4810.752	AV	39.8	30.8	5.3	31.9	44.0	53.9	9.9	
Vert	24053.760	AV	33.9	38.1	-1.1	32.5	38.4	53.9	15.5	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
*The 10th harmonic was not seen so the result was its base noise level.
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB
NS: No detect signal.

Radiated Spurious Emission

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 29KE0002-HO-02
Date 09/02/2009
Temperature/ Humidity 25 deg.C./ 74%
Engineer Tomohisa Nakagawa

Mode when Docked, 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	106.1	26.7	2.8	32.7	102.9	-	-	Carrier
Hori	2400.000	PK	70.4	26.7	2.8	32.7	67.2	82.9	15.7	
Vert	2405.376	PK	104.9	26.7	2.8	32.7	101.7	-	-	Carrier
Vert	2400.000	PK	68.6	26.7	2.8	32.7	65.4	81.7	16.3	

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).
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 Semi Anechoic Chamber	
Report No.	29KE0002-HO-02	
Date	09/02/2009	09/02/2009
Temperature/ Humidity	25 deg.C./ 75%	25 deg.C./ 74%
Engineer	Hironobu Ohnishi	Tomohisa Nakagawa
	(1-10GHz)	(below 1GHz and above 10GHz)
Mode	when Docked, 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	36.863	QP	23.5	15.6	7.3	32.1	14.3	40.0	25.7	
Hori	98.202	QP	32.9	9.4	8.1	32.1	18.3	43.5	25.2	
Hori	153.818	QP	25.8	14.7	8.7	32.0	17.2	43.5	26.3	
Hori	344.016	QP	29.7	17.0	10.2	32.0	24.9	46.0	21.1	
Hori	4872.192	PK	53.0	31.0	5.3	31.9	57.4	73.9	16.5	
Hori	24360.960	PK	48.1	38.3	-1.1	32.3	53.0	73.9	20.9	NS
Hori	4872.192	AV	48.4	31.0	5.3	31.9	52.8	53.9	1.2	
Hori	24360.960	AV	35.4	38.3	-1.1	32.3	40.3	53.9	13.6	NS
Vert	36.826	QP	31.5	15.6	7.3	32.1	22.3	40.0	17.7	
Vert	80.560	QP	38.3	6.3	7.9	32.0	20.5	40.0	19.5	
Vert	151.014	QP	33.4	14.5	8.7	32.0	24.6	43.5	18.9	
Vert	344.052	QP	26.3	17.0	10.2	32.0	21.5	46.0	24.5	
Vert	4872.192	PK	45.6	31.0	5.3	31.9	50.0	73.9	23.9	
Vert	24360.960	PK	45.7	38.3	-1.1	32.3	50.6	73.9	23.3	NS
Vert	4872.192	AV	38.2	31.0	5.3	31.9	42.6	53.9	11.3	
Vert	24360.960	AV	34.4	38.3	-1.1	32.3	39.3	53.9	14.6	NS

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

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

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

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

26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

NS: No detect signal.

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber	
Report No.	29KE0002-HO-02	
Date	09/02/2009	09/02/2009
Temperature/ Humidity	25 deg.C./ 75%	25 deg.C./ 74%
Engineer	Hironobu Ohnishi	Tomohisa Nakagawa
	(1-10GHz)	(below 1GHz and above 10GHz)
Mode	when Docked, 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	36.863	QP	23.3	15.6	7.3	32.1	14.1	40.0	25.9	
Hori	98.202	QP	33.6	9.4	8.1	32.1	19.0	43.5	24.5	
Hori	155.549	QP	27.9	14.8	8.8	32.0	19.5	43.5	24.0	
Hori	344.057	QP	29.7	17.0	10.2	32.0	24.9	46.0	21.1	
Hori	2483.500	PK	60.2	26.9	2.8	32.7	57.2	73.9	16.7	
Hori	4947.968	PK	51.0	31.3	5.3	31.9	55.7	73.9	18.2	
Hori	24739.840	PK	46.5	38.4	-1.0	32.2	51.7	73.9	22.2	NS
Hori	2483.500	AV	51.2	26.9	2.8	32.7	48.2	53.9	5.7	
Hori	4947.968	AV	46.5	31.3	5.3	31.9	51.2	53.9	2.7	
Hori	24739.840	AV	34.4	38.4	-1.0	32.2	39.6	53.9	14.3	NS
Vert	36.862	QP	31.5	15.6	7.3	32.1	22.3	40.0	17.7	
Vert	84.112	QP	35.2	6.9	8.0	32.0	18.1	40.0	21.9	
Vert	152.148	QP	33.8	14.6	8.7	32.0	25.1	43.5	18.4	
Vert	344.054	QP	26.3	17.0	10.2	32.0	21.5	46.0	24.5	
Vert	2483.500	PK	57.3	26.9	2.8	32.7	54.3	73.9	19.6	
Vert	4947.968	PK	47.3	31.3	5.3	31.9	52.0	73.9	21.9	
Vert	24739.840	PK	45.7	38.4	-1.0	32.2	50.9	73.9	23.0	NS
Vert	2483.500	AV	48.1	26.9	2.8	32.7	45.1	53.9	8.8	
Vert	4947.968	AV	41.1	31.3	5.3	31.9	45.8	53.9	8.1	
Vert	24739.840	AV	34.3	38.4	-1.0	32.2	39.5	53.9	14.4	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

NS: No detect signal.

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber	
Report No.	29KE0002-HO-02	
Date	09/02/2009	09/07/2009
Temperature/ Humidity	25 deg.C./ 74%	24 deg.C./ 58%
Engineer	Tomohisa Nakagawa (above 1GHz)	Hiroshi Kukita (below 1GHz)
Mode	when used apart, 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	35.670	QP	22.6	16.2	7.3	32.1	14.0	40.0	26.0	NS
Hori	122.880	QP	22.5	13.0	8.4	32.1	11.8	43.5	31.7	NS
Hori	233.581	QP	22.6	17.2	9.4	31.9	17.3	46.0	28.7	NS
Hori	436.502	QP	22.1	18.3	10.9	32.0	19.3	46.0	26.7	NS
Hori	689.207	QP	22.2	22.2	12.3	32.2	24.5	46.0	21.5	NS
Hori	960.112	QP	21.7	24.7	13.5	31.0	28.9	53.9	25.0	NS
Hori	2436.096	PK	43.0	26.8	2.8	32.7	39.9	73.9	34.0	NS
Hori	4872.192	PK	39.9	31.0	3.9	31.9	42.9	73.9	31.0	NS
Hori	7308.288	PK	42.4	36.1	4.2	32.6	50.1	73.9	23.9	NS
Hori	2436.096	AV	28.9	26.8	2.8	32.7	25.8	53.9	28.1	NS
Hori	4872.192	AV	27.7	31.0	3.9	31.9	30.7	53.9	23.2	NS
Hori	7308.288	AV	29.3	36.1	4.2	32.6	37.0	53.9	16.9	NS
Vert	34.320	QP	22.5	16.6	7.2	32.2	14.1	40.0	25.9	NS
Vert	122.880	QP	22.6	13.0	8.4	32.1	11.9	43.5	31.6	NS
Vert	278.940	QP	22.5	19.1	9.8	31.9	19.5	46.0	26.5	NS
Vert	392.402	QP	22.0	17.7	10.6	32.0	18.3	46.0	27.7	NS
Vert	490.403	QP	22.1	19.0	11.2	32.1	20.2	46.0	25.8	NS
Vert	872.610	QP	22.1	23.8	13.1	31.3	27.7	46.0	18.3	NS
Vert	2436.096	PK	42.0	26.8	2.8	32.7	38.9	73.9	35.0	NS
Vert	4872.192	PK	40.4	31.0	3.9	31.9	43.4	73.9	30.5	NS
Vert	7308.288	PK	41.9	36.1	4.2	32.6	49.6	73.9	24.3	NS
Vert	2436.096	AV	28.7	26.8	2.8	32.7	25.6	53.9	28.3	NS
Vert	4872.192	AV	27.7	31.0	3.9	31.9	30.7	53.9	23.2	NS
Vert	7308.288	AV	29.3	36.1	4.2	32.6	37.0	53.9	16.9	NS

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

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

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

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

NS: No detect signal.

Radiated Spurious Emission

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 29KE0002-HO-02
Date 09/02/2009
Temperature/ Humidity 25 deg.C./ 74%
Engineer Tomohisa Nakagawa

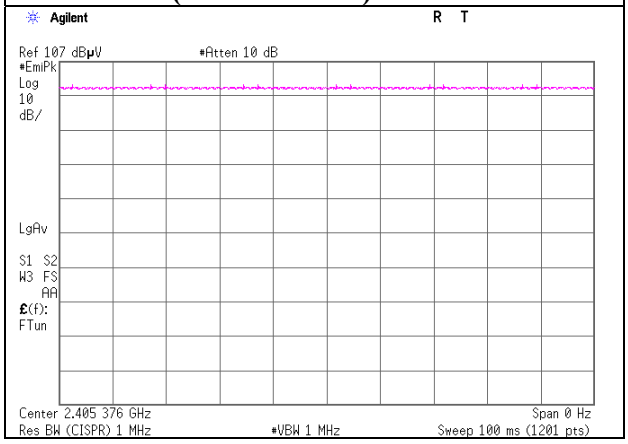
Mode when Docked, Rx 2436.096MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	36.842	QP	22.8	15.6	7.3	32.1	13.6	40.0	26.4	
Hori	98.202	QP	32.6	9.4	8.1	32.1	18.0	43.5	25.5	
Hori	152.023	QP	27.5	14.6	8.7	32.0	18.8	43.5	24.7	
Hori	344.056	QP	30.3	17.0	10.2	32.0	25.5	46.0	20.5	
Hori	2436.096	PK	42.9	26.8	2.8	32.7	39.8	73.9	34.2	NS
Hori	4872.192	PK	40.0	31.0	3.9	31.9	43.0	73.9	30.9	NS
Hori	7308.288	PK	41.5	36.1	4.2	32.6	49.2	73.9	24.7	NS
Hori	2436.096	AV	28.9	26.8	2.8	32.7	25.8	53.9	28.1	NS
Hori	4872.192	AV	27.7	31.0	3.9	31.9	30.7	53.9	23.2	NS
Hori	7308.288	AV	29.3	36.1	4.2	32.6	37.0	53.9	16.9	NS
Vert	36.862	QP	31.1	15.6	7.3	32.1	21.9	40.0	18.1	
Vert	86.730	QP	36.3	7.3	8.0	32.1	19.5	40.0	20.5	
Vert	153.254	QP	33.9	14.7	8.7	32.0	25.3	43.5	18.2	
Vert	344.052	QP	27.2	17.0	10.2	32.0	22.4	46.0	23.6	
Vert	2436.096	PK	41.4	26.8	2.8	32.7	38.3	73.9	35.6	NS
Vert	4872.192	PK	40.5	31.0	3.9	31.9	43.5	73.9	30.4	NS
Vert	7308.288	PK	42.4	36.1	4.2	32.6	50.1	73.9	23.9	NS
Vert	2436.096	AV	28.9	26.8	2.8	32.7	25.8	53.9	28.1	NS
Vert	4872.192	AV	27.7	31.0	3.9	31.9	30.7	53.9	23.2	NS
Vert	7308.288	AV	29.3	36.1	4.2	32.6	37.0	53.9	16.9	NS

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB
NS: No detect signal.

VBW (AV) Calculation

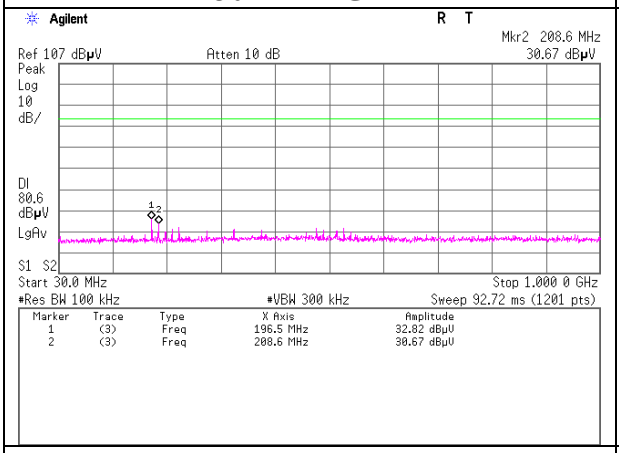
VBW: 1/x = 10Hz
x: (Tx on+Tx off) =100ms



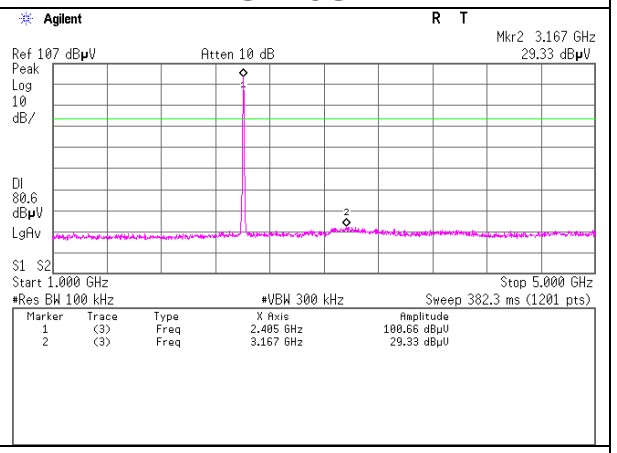
Conducted Spurious Emission

Antenna Port A
Tx 2405.376MHz

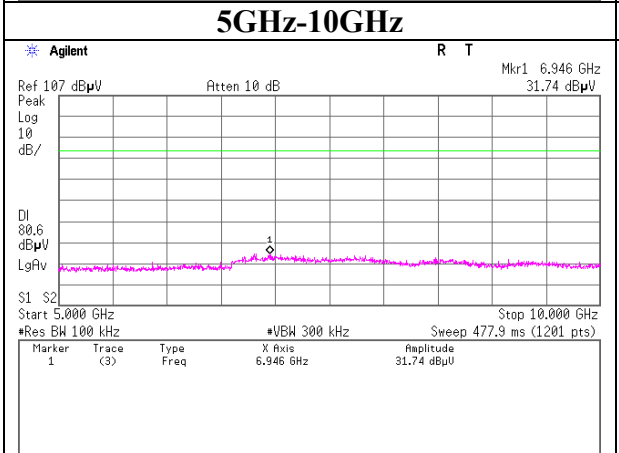
30MHz-1GHz



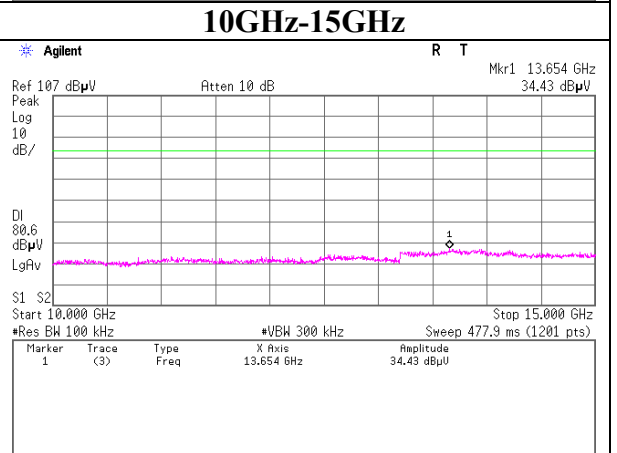
1GHz-5GHz



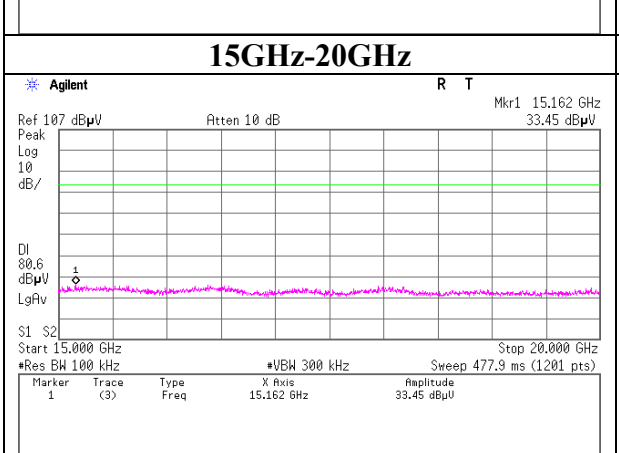
5GHz-10GHz



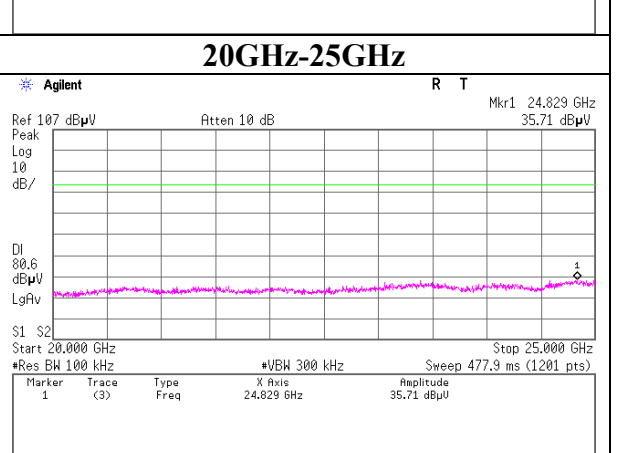
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

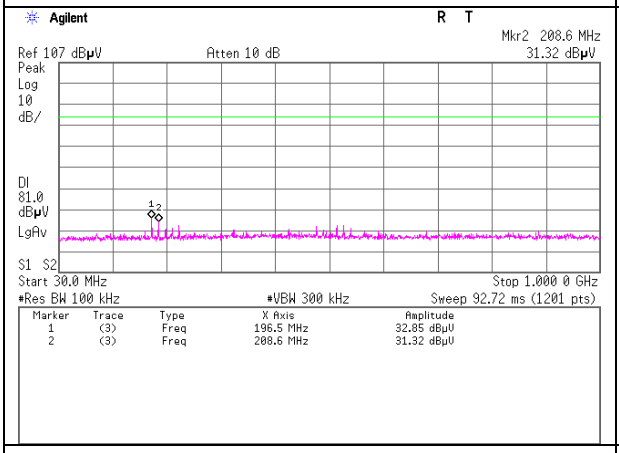


UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

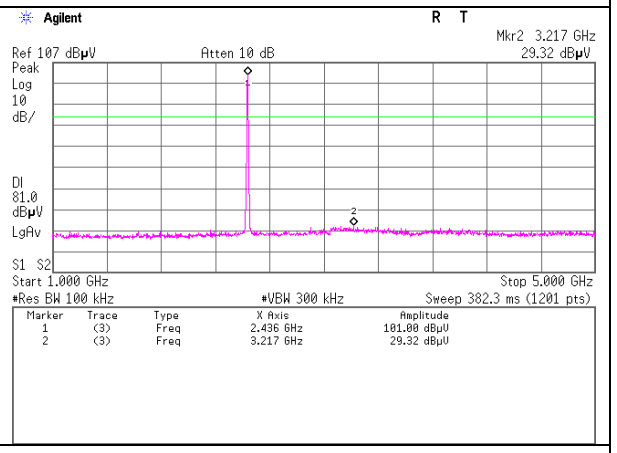
Conducted Spurious Emission

Antenna Port A
Tx 2436.096MHz

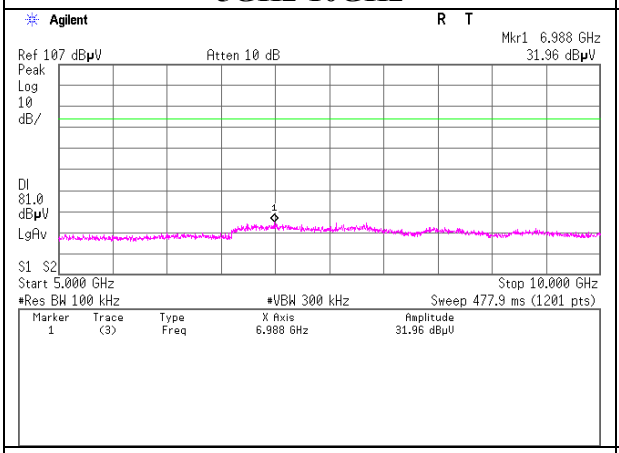
30MHz-1GHz



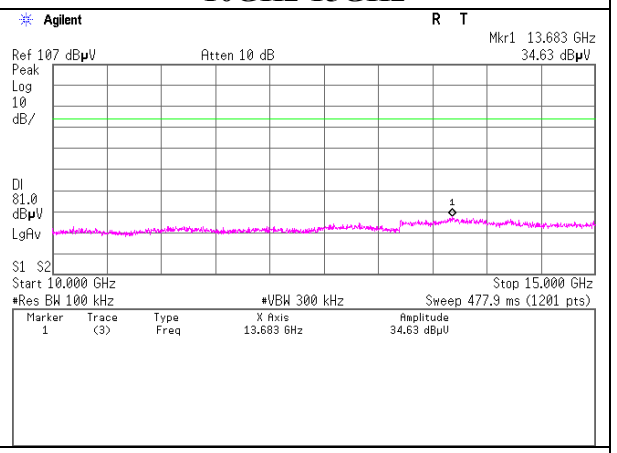
1GHz-5GHz



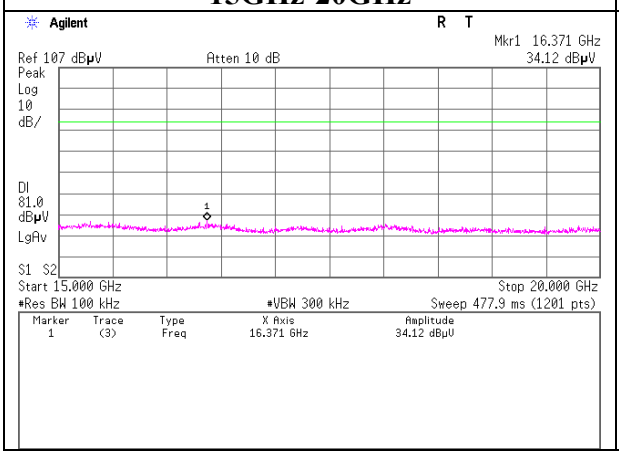
5GHz-10GHz



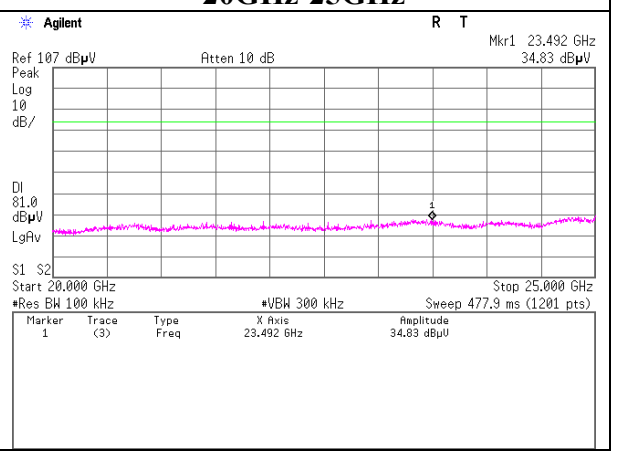
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



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Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
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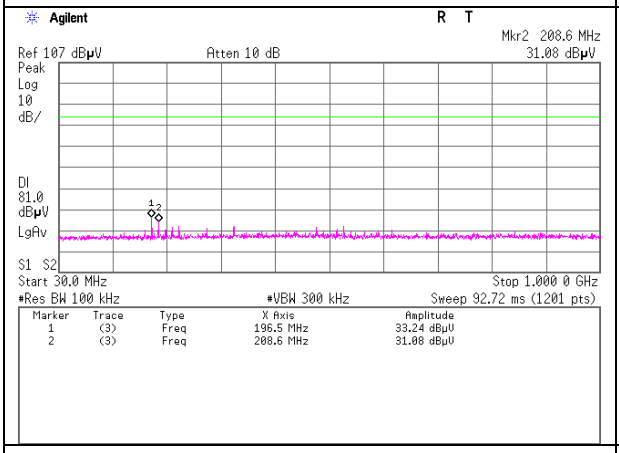
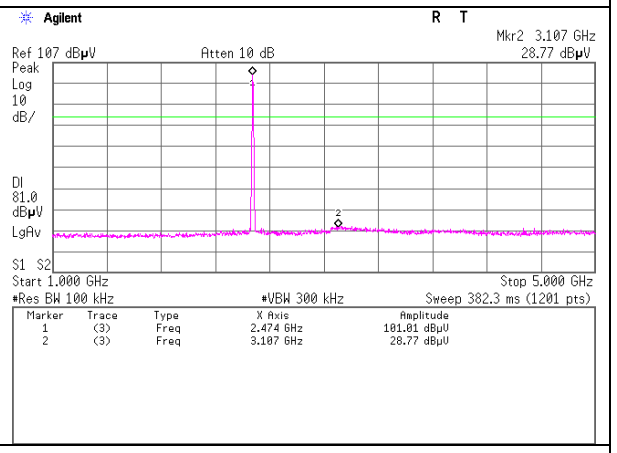
Conducted Spurious Emission

Antenna Port A
Tx 2473.984MHz

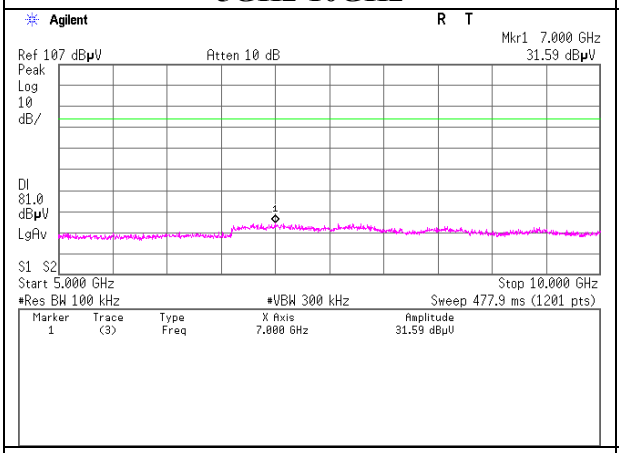
30MHz-1GHz



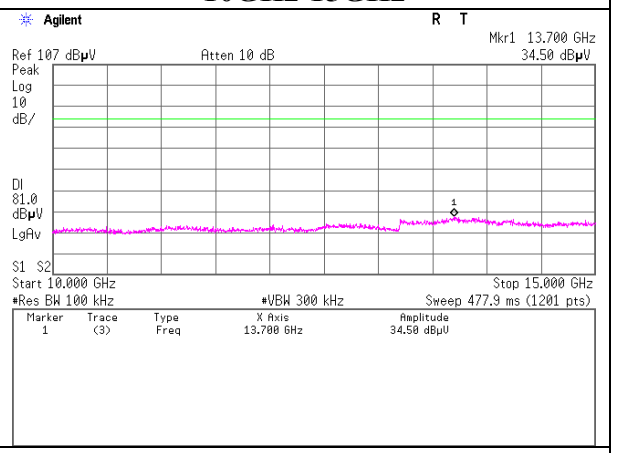
1GHz-5GHz



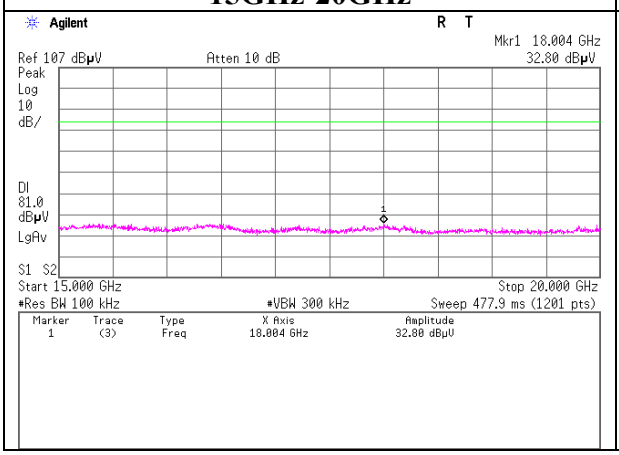
5GHz-10GHz



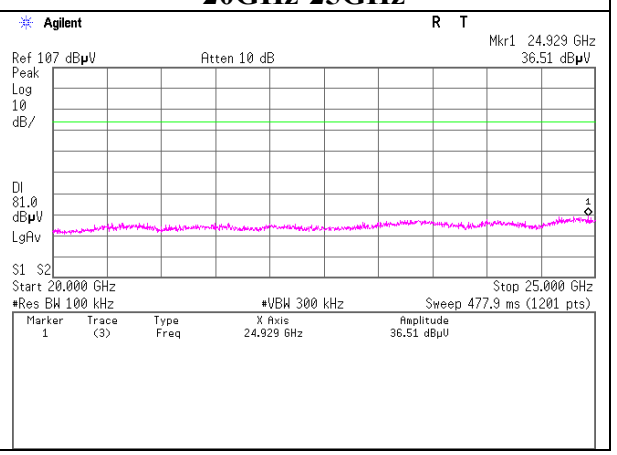
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



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Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
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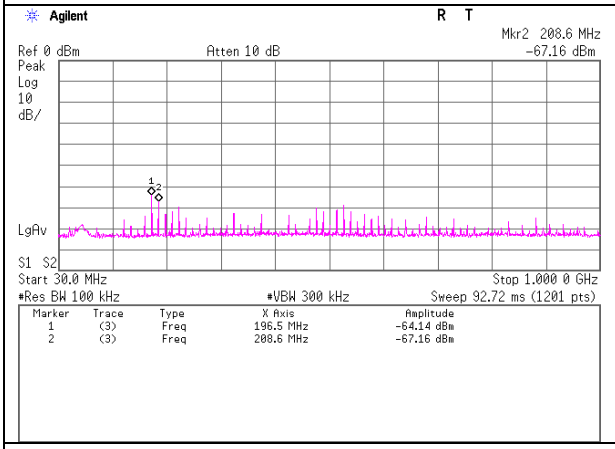
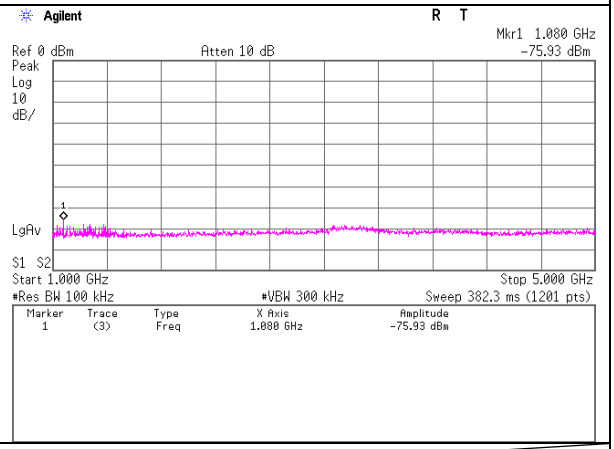
Conducted Spurious Emission

Antenna Port A
Rx 2436.096MHz

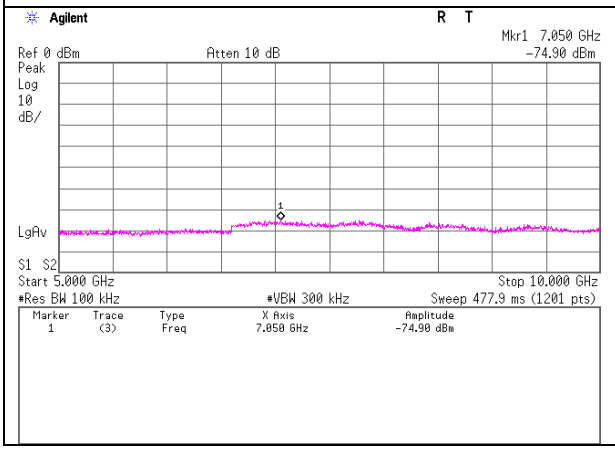
30MHz-1GHz



1GHz-5GHz



5GHz-10GHz



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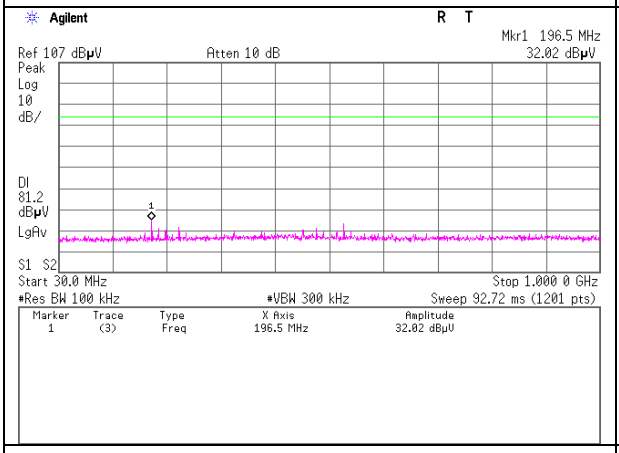
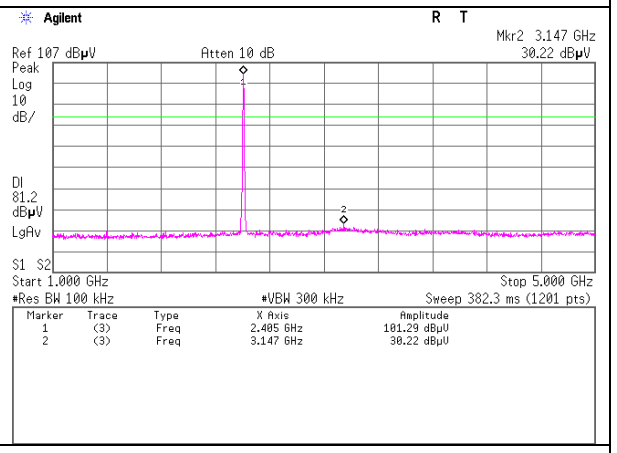
Conducted Spurious Emission

Antenna Port B
Tx 2405.376MHz

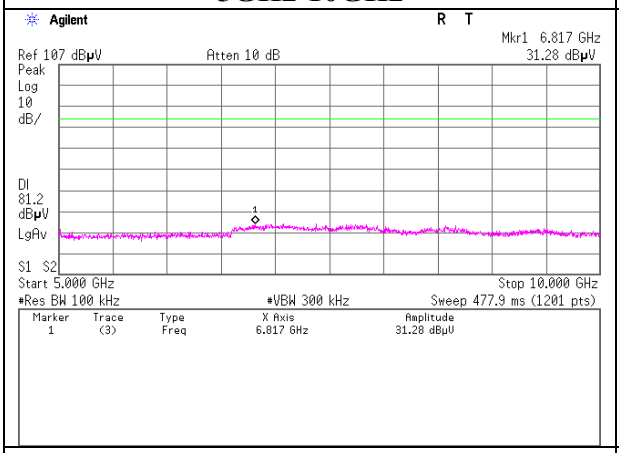
30MHz-1GHz



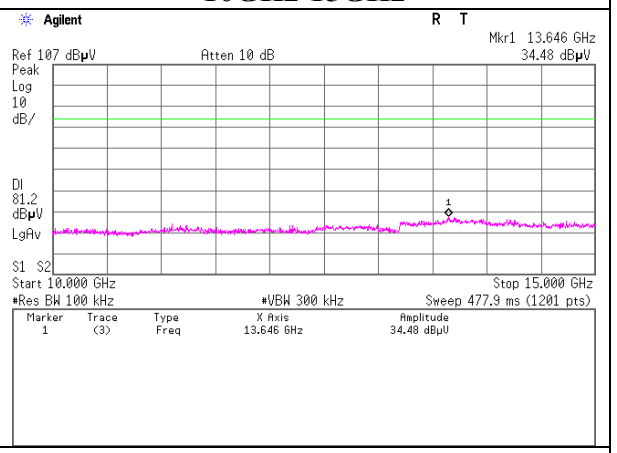
1GHz-5GHz



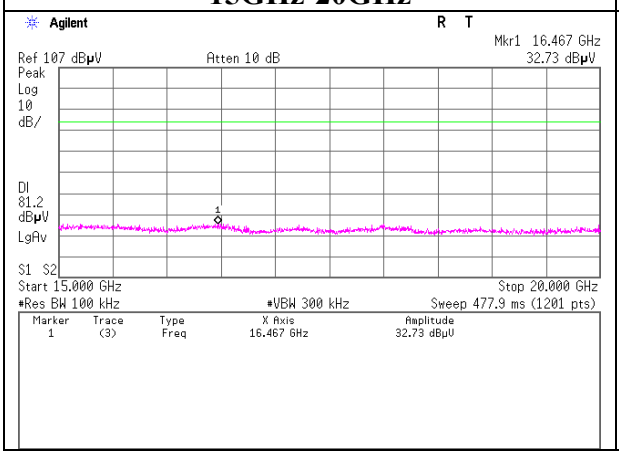
5GHz-10GHz



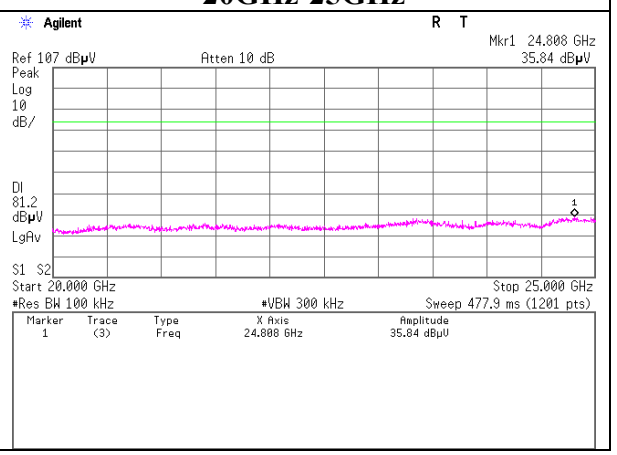
10GHz-15GHz



15GHz-20GHz



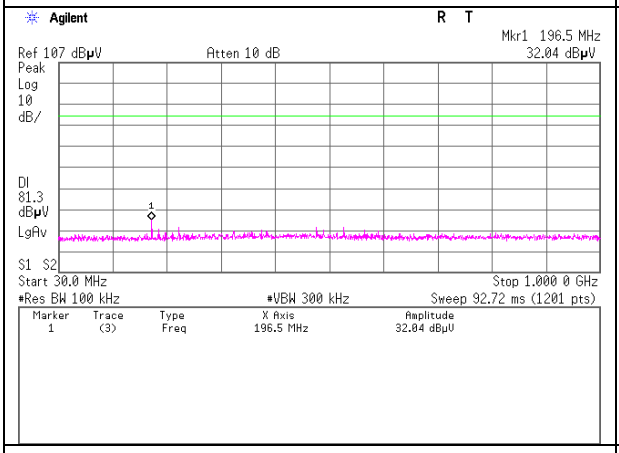
20GHz-25GHz



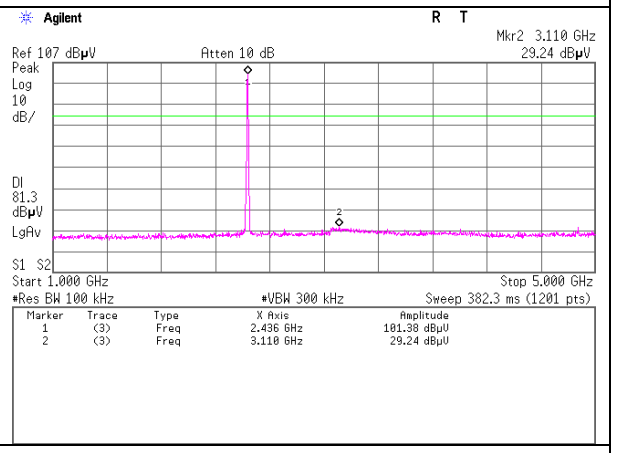
Conducted Spurious Emission

Antenna Port B
Tx 2436.096MHz

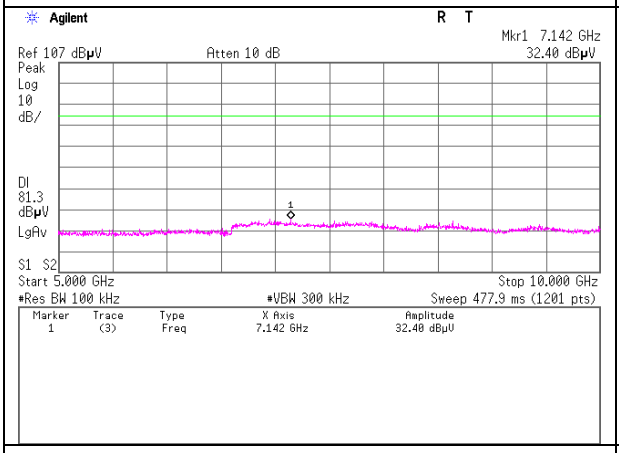
30MHz-1GHz



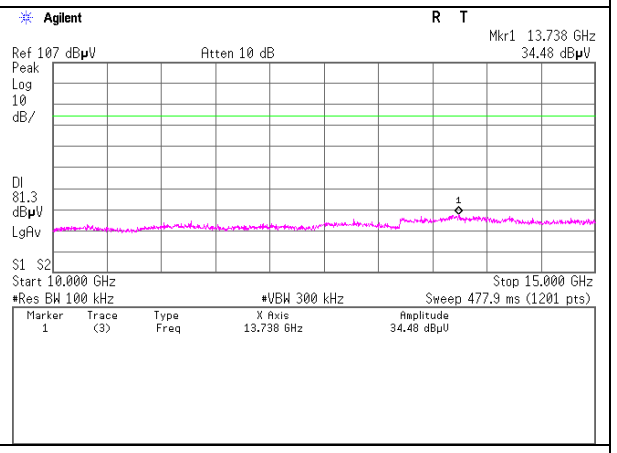
1GHz-5GHz



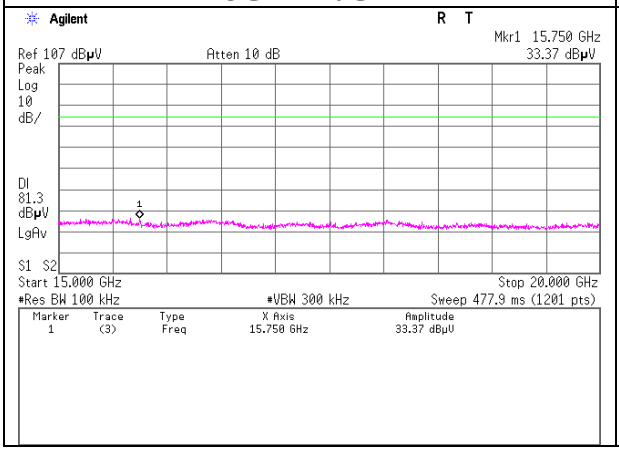
5GHz-10GHz



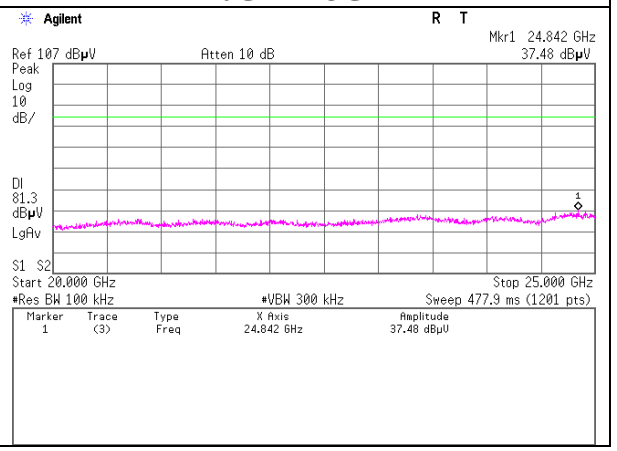
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



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Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
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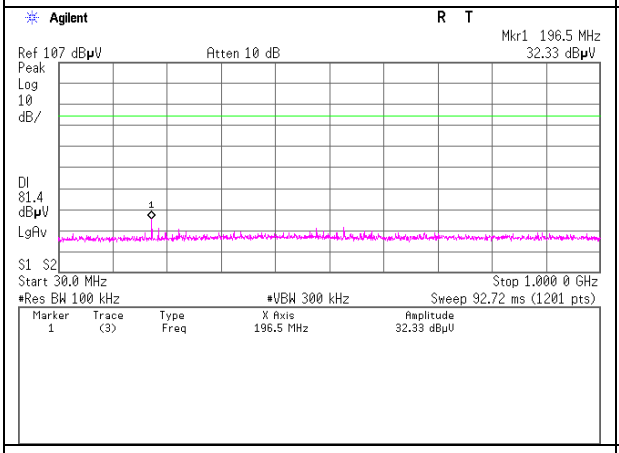
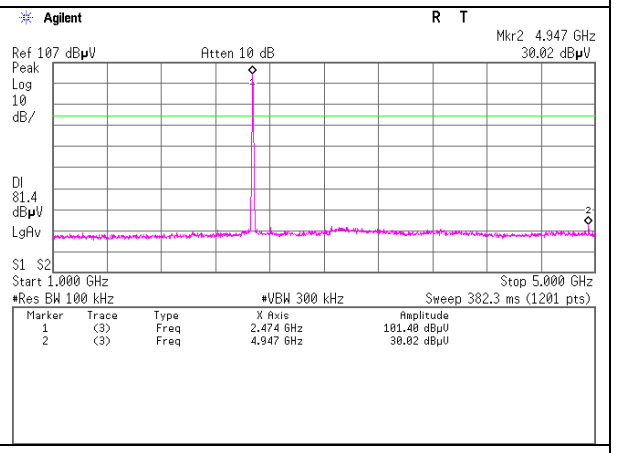
Conducted Spurious Emission

Antenna Port B
Tx 2473.984MHz

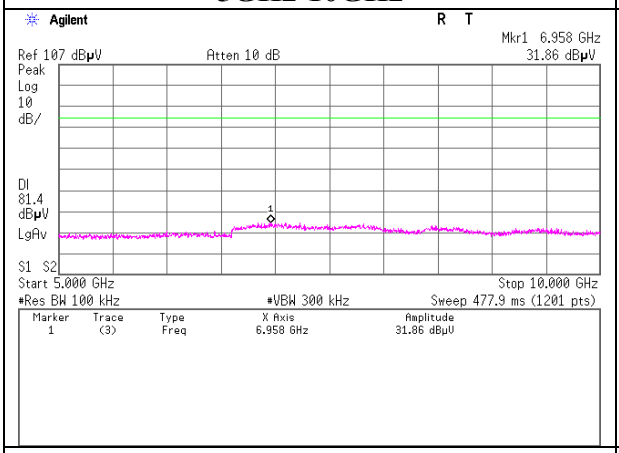
30MHz-1GHz



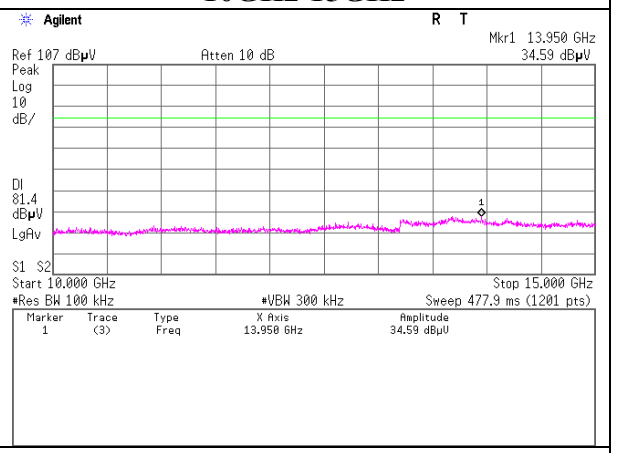
1GHz-5GHz



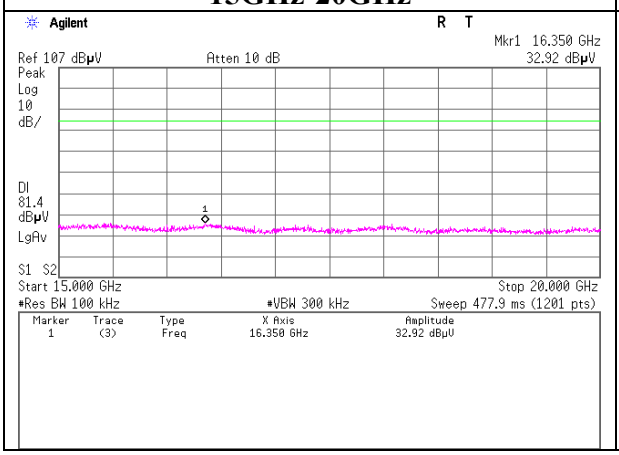
5GHz-10GHz



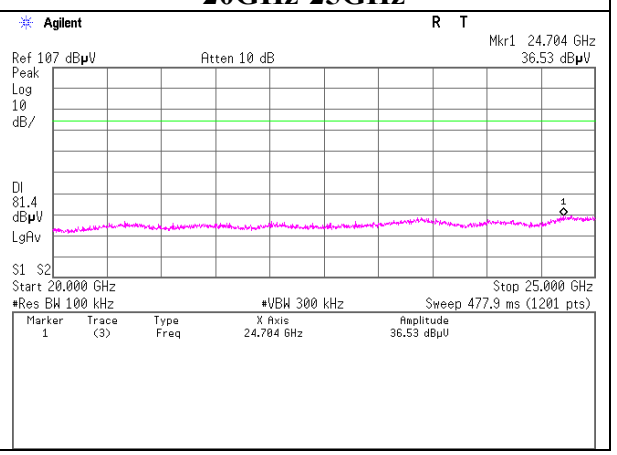
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



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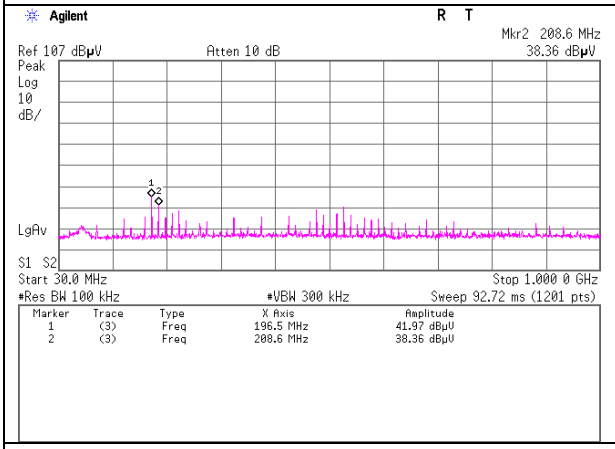
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

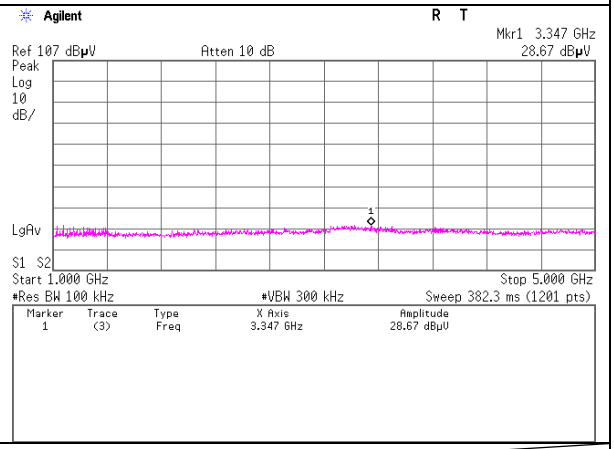
Conducted Spurious Emission

Antenna Port B
Rx 2436.096MHz

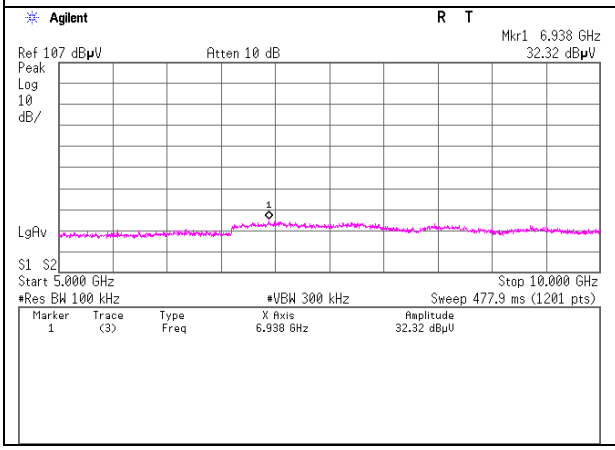
30MHz-1GHz

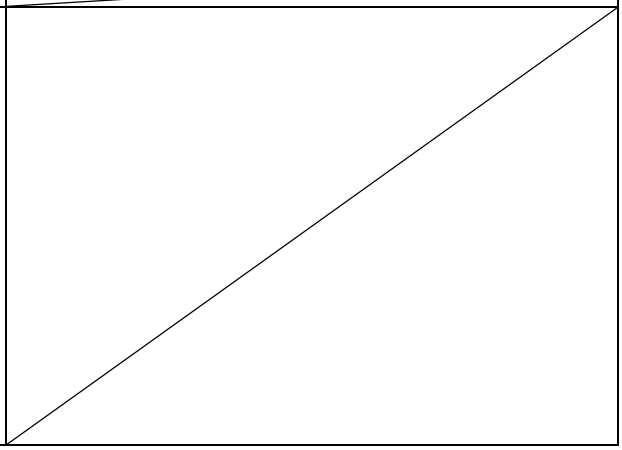


1GHz-5GHz



5GHz-10GHz

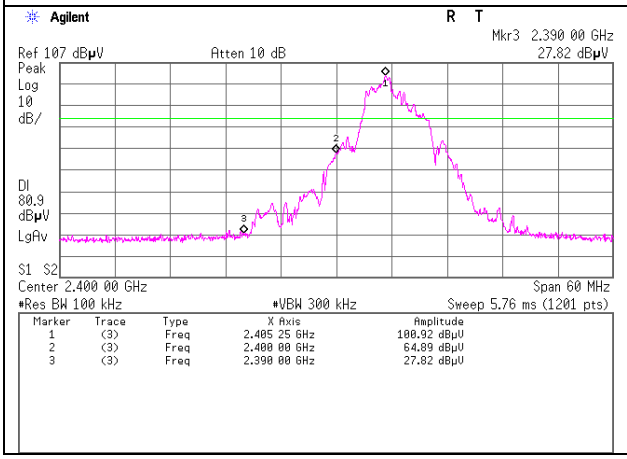




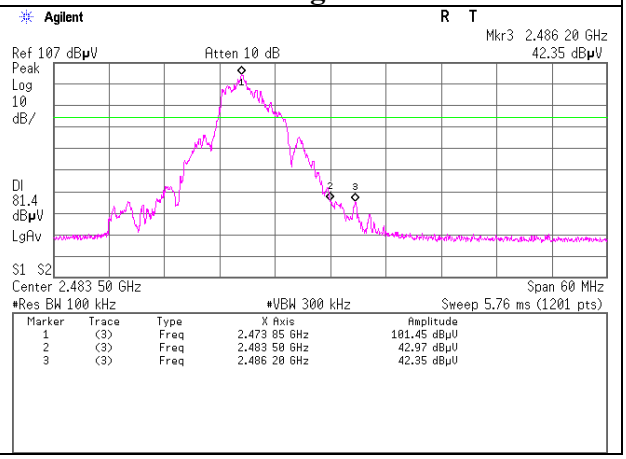
Conducted Emission Band Edge compliance

Antenna Port A Tx

Low

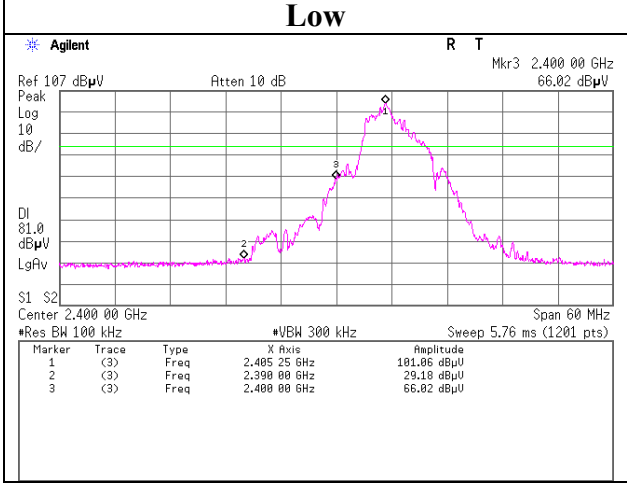


High

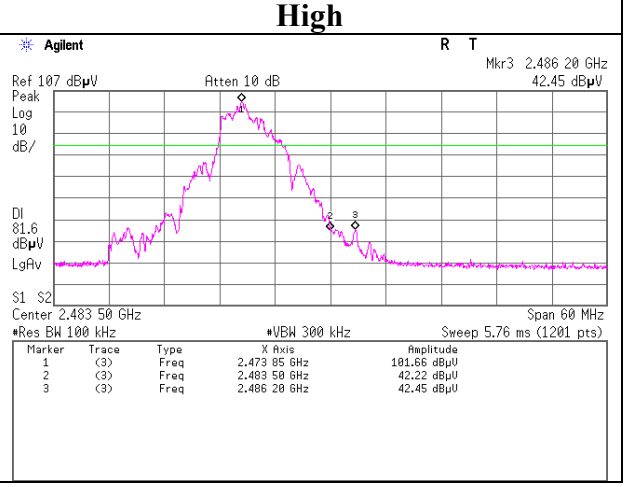


Antenna Port B Tx

Low



High



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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.11 Measurement Room	
Report No.	29KE0002-HO-02	
Date	09/03/2009	09/04/2009
Temperature/ Humidity	27 deg.C./ 45%	26 deg.C./ 67%
Engineer	Takeshi Choda	Takeshi Choda
Mode	Tx	

Antenna Port A

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2405.376	-7.58	1.96	10.08	4.46	8.00	3.54
2436.096	-7.23	1.96	10.08	4.81	8.00	3.19
2473.984	-7.09	1.97	10.08	4.96	8.00	3.04

Antenna Port B

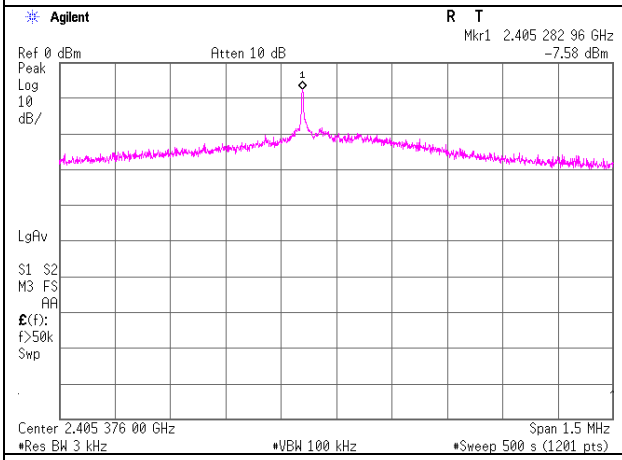
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2405.376	-7.14	1.97	10.08	4.91	8.00	3.10
2436.096	-6.92	1.97	10.08	5.13	8.00	2.88
2473.984	-6.76	1.98	10.08	5.30	8.00	2.71

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

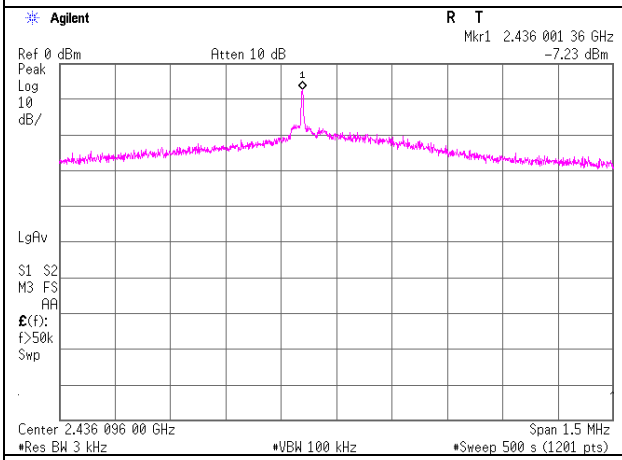
Power Density

Antenna Port A

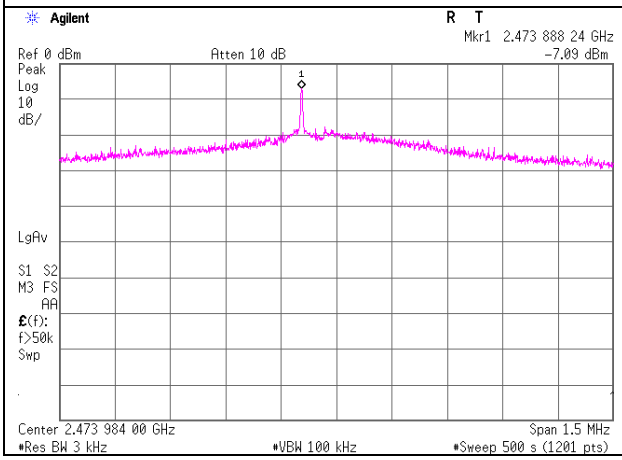
2405.376MHz



2436.096MHz

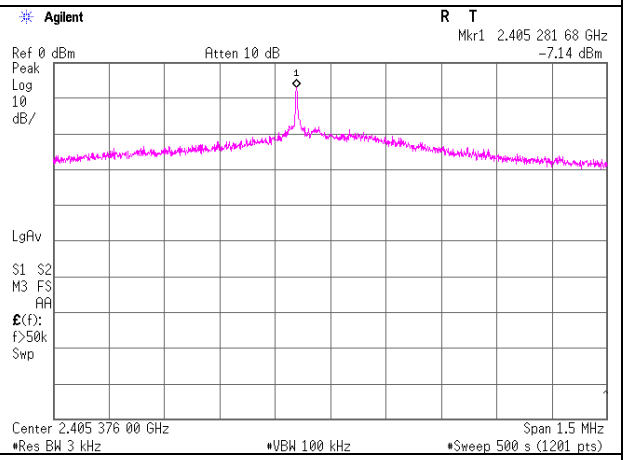


2473.984MHz

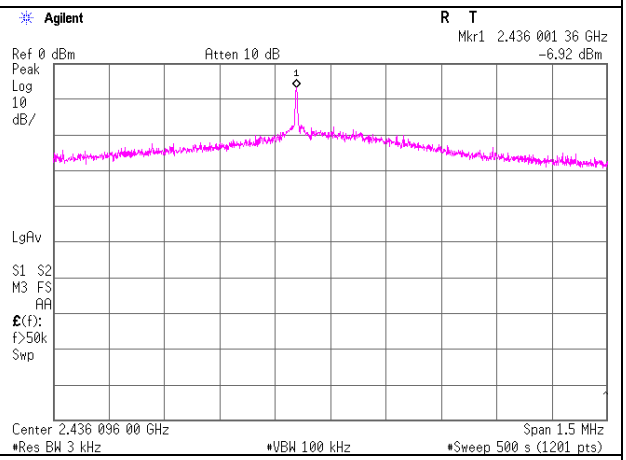


Antenna Port B

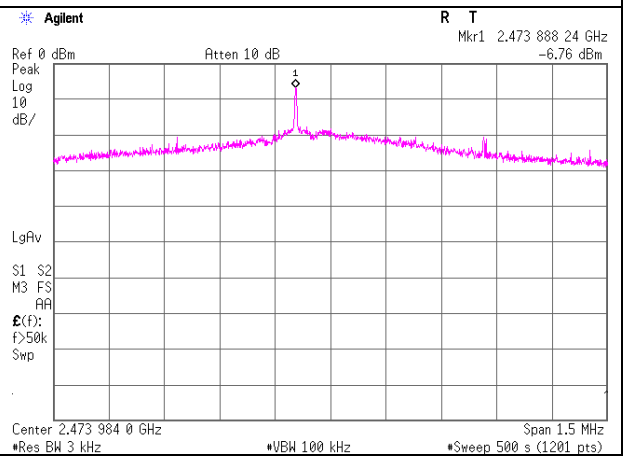
2405.376MHz



2436.096MHz



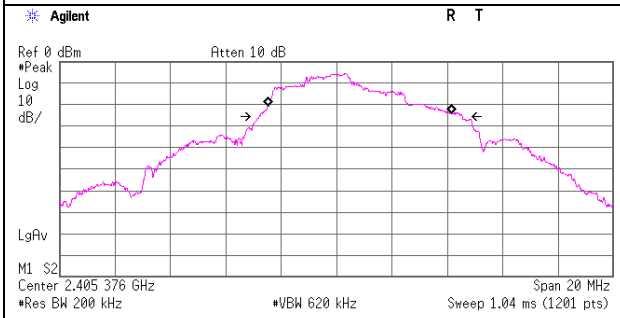
2473.984MHz



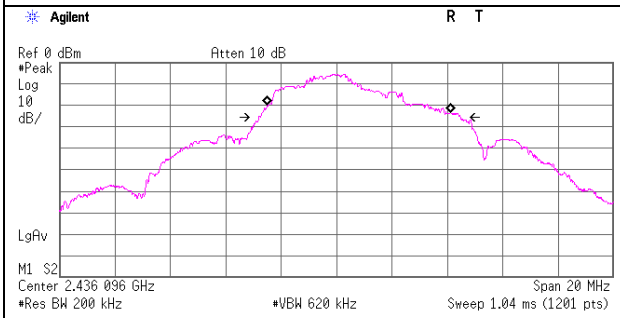
99%Occupied Bandwidth

Antenna Port A

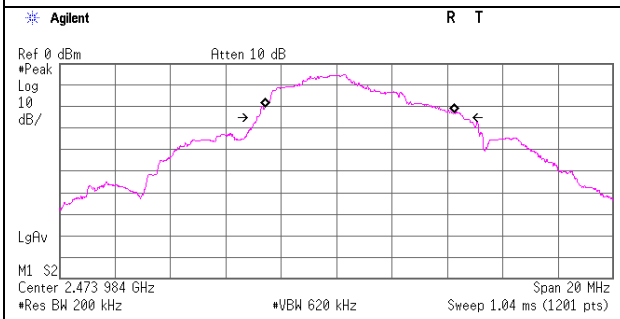
2405.376MHz



2436.096MHz

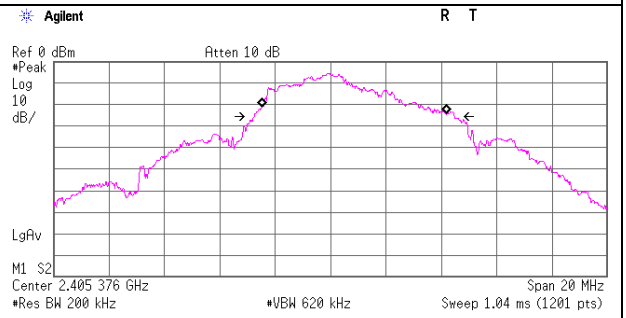


2473.984MHz

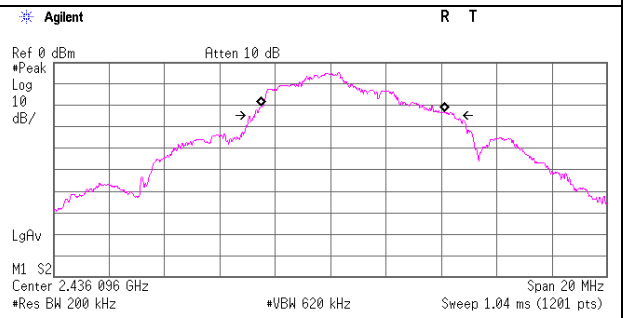


Antenna Port B

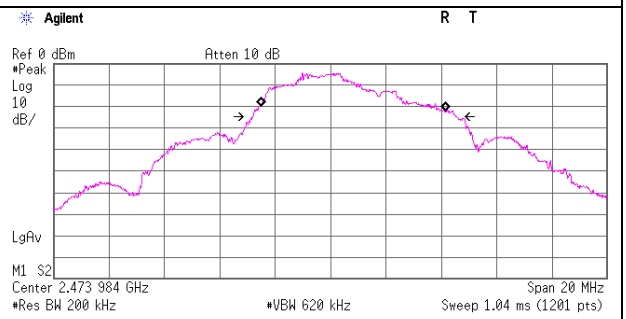
2405.376MHz



2436.096MHz



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
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APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-04	Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE/CE	2009/02/03 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE/CE	2009/02/06 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2009/08/25 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2009/08/10 * 12
MCC-57	Microwave Cable 1G-26.5GHz 6m	Suhner	SUCOFLEX104	246769(1m) / 292411(5m)	RE	2008/11/05 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2009/03/19 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2009/06/18 * 12
MHF-20	High Pass Filter 3.5-18.0GHz	TOKIMEC	TF323DCC	607	RE	2008/12/12 * 12
MCC-79	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278923/4	RE	2008/12/17 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE	2008/10/03 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2009/01/10 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2009/01/10 * 12
MCC-50	Coaxial cable	UL Japan	-	-	RE	2009/03/18 * 12
MAT-31	Attenuator(6dB)	TME	UFA-01	-	RE	2009/03/03 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2009/03/18 * 12
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	AT	2008/12/08 * 12
MMM-17	DIGIITAL HiTESTER	Hioki	3805	070900530	AT	2009/01/14 * 12
MPM-13	Power Meter	Anritsu	ML2495A	0824014	AT	2009/08/26 * 12
MPSE-18	Power sensor	Anritsu	MA2411B	0738174	AT	2009/08/26 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	AT	2009/02/25 * 12
MCC-114	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	290212/4	AT	2009/08/27 * 12
MAT-20	Attenuator(10dB) (above1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	AT	2009/01/16 * 12
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	CE	2009/06/29 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(EUT)	2009/02/18 * 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