

APPENDIX 2: Data of EMI test

Radiated Emission

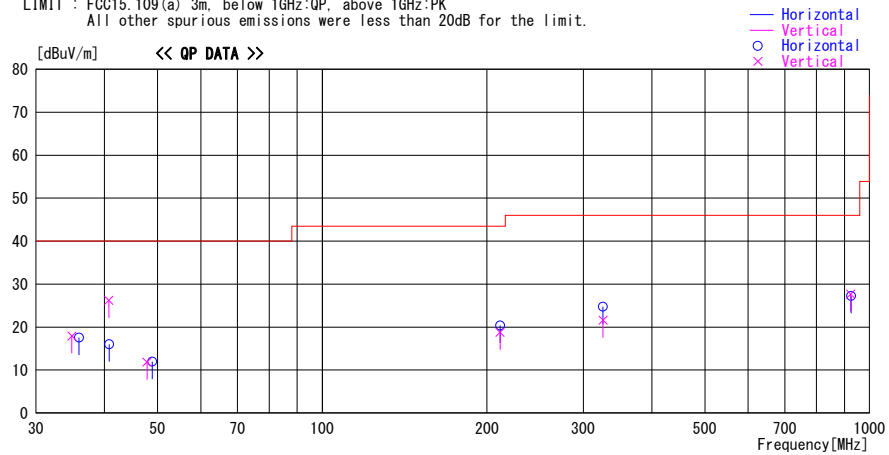
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 2 Semi Anechoic Chamber
Date : 2011/01/31

Report No. : 31FE0147-HO-01
Temp. / Humi. : 20deg. C / 31%
Engineer : Tomotaka Sasagawa

Mode / Remarks : Receiving mode , Worst-axis(H:X,V:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
34.870	22.7	QP	17.1	-21.9	17.9	11	100	Vert.	40.0	22.1	
35.952	22.8	QP	16.7	-21.9	17.6	352	100	Hori.	40.0	22.4	
40.731	33.2	QP	14.8	-21.8	26.2	238	100	Vert.	40.0	13.8	
40.822	23.1	QP	14.7	-21.8	16.0	0	100	Hori.	40.0	24.0	
47.856	22.5	QP	11.1	-21.8	11.8	301	100	Vert.	40.0	28.2	
48.938	22.7	QP	11.0	-21.7	12.0	274	100	Hori.	40.0	28.0	
211.262	23.3	QP	16.9	-19.8	20.4	296	100	Hori.	43.5	23.1	
211.262	21.7	QP	16.9	-19.8	18.8	275	100	Vert.	43.5	24.7	
325.819	28.0	QP	15.6	-18.9	24.7	185	128	Hori.	46.0	21.3	
325.819	24.9	QP	15.6	-18.9	21.6	0	100	Vert.	46.0	24.4	
922.853	22.1	QP	22.3	-16.7	27.7	125	100	Vert.	46.0	18.3	
925.658	21.5	QP	22.4	-16.7	27.2	126	100	Hori.	46.0	18.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz--:HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

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

Radiated Emission

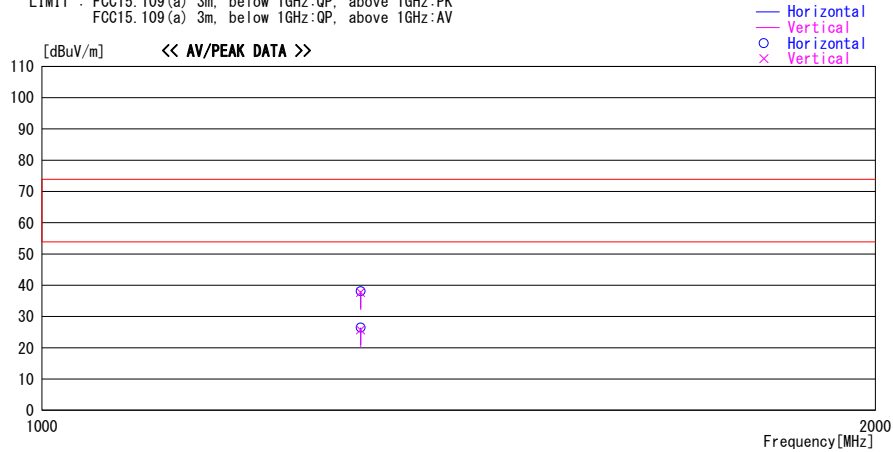
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2011/01/31

Report No. : 31FE0147-HO-01
Temp. / Humi. : 20deg. C / 31%
Engineer : Tomotaka Sasagawa

Mode / Remarks : Receiving mode , Worst-axis(H:X,V:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
1303.280	44.8	PK	24.9	-31.5	38.2	0	100	Hori.	73.9	35.7	
1303.280	32.3	AV	24.9	-31.5	25.7	0	100	Vert.	53.9	28.2	
1303.280	33.1	AV	24.9	-31.5	26.5	0	100	Hori.	53.9	27.4	
1303.280	44.3	PK	24.9	-31.5	37.7	0	100	Vert.	73.9	36.2	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

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

APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2010/09/01 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2010/02/09 * 12
MJM-05	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2010/11/30 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2010/04/19 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2010/10/11 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2010/10/11 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2010/02/22 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2010/11/05 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2010/09/09 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2011/01/16 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2010/09/30 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	148048-143(1m) / 292410(5m)	RE	2010/09/30 * 12

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:

RE: Radiated emission

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