APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

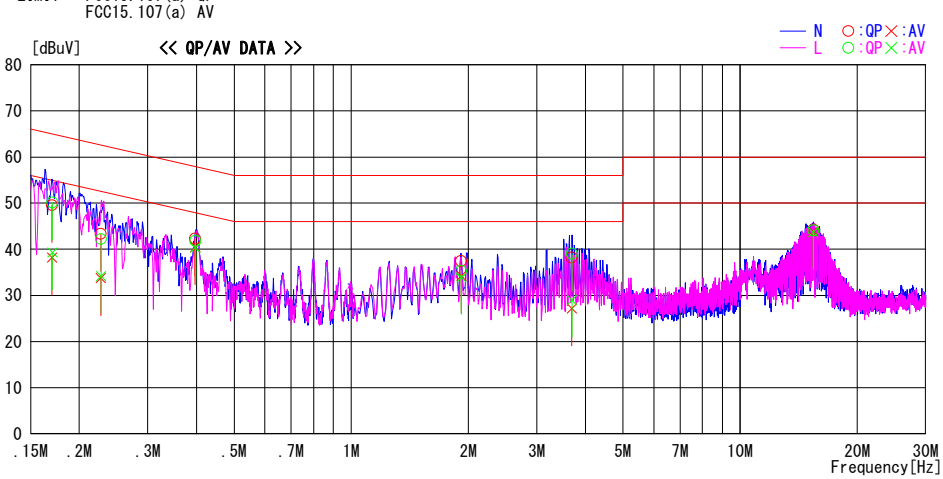
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/11/09

Report No. : 31CE0252-HO-01

Temp./Humi. : 22deg.C. / 43%
Engineer : Takumi Shimada

Mode / Remarks : USB Communication Mode

LIMIT : FCC15.107(a) QP
FCC15.107(a) 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]		
0.17024	36.3	25.0	13.2	49.5	38.2	64.9	54.9	15.4	16.7	N	
0.22692	30.0	20.4	13.3	43.3	33.7	62.6	52.6	19.3	18.9	N	
0.39720	29.0	27.2	13.3	42.3	40.5	57.9	47.9	15.7	7.4	N	
1.92006	24.2	21.0	13.3	37.5	34.3	56.0	46.0	18.6	11.7	N	
3.68850	24.7	13.7	13.5	38.2	27.2	56.0	46.0	17.8	18.8	N	
15.42701	29.6	29.3	14.6	44.2	43.9	60.0	50.0	15.8	6.1	N	
0.17062	36.9	26.1	13.2	50.1	39.3	64.9	54.9	14.8	15.6	L	
0.22736	28.9	20.9	13.3	42.2	34.2	62.5	52.5	20.3	18.3	L	
0.39734	28.5	27.1	13.3	41.8	40.4	57.9	47.9	16.1	7.6	L	
1.92013	22.0	20.6	13.3	35.3	33.9	56.0	46.0	20.7	12.1	L	
3.69141	25.6	15.5	13.5	39.1	29.0	56.0	46.0	17.0	17.0	L	
15.42716	29.5	29.1	14.6	44.1	43.7	60.0	50.0	15.9	6.3	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.

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

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

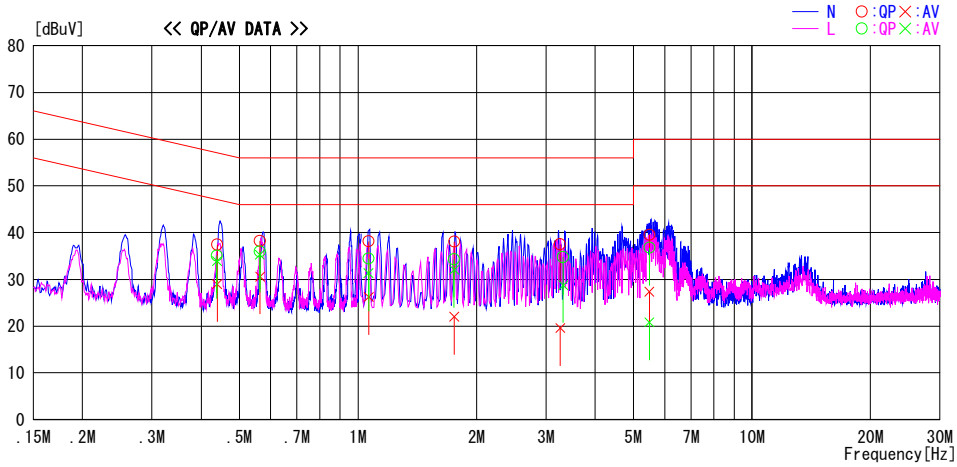
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/11/09

Report No. : 31CE0252-HO-01

Temp./Humi. : 22deg.C. / 43%
Engineer : Takumi Shimada

Mode / Remarks : Charging Mode

LIMIT : FCC15.107(a) QP
FCC15.107(a) 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]		
0.43884	24.0	15.6	13.4	37.4	29.0	57.1	47.1	19.7	18.1	N	
0.56408	24.8	17.2	13.4	38.2	30.6	56.0	46.0	17.8	15.4	N	
1.06496	24.8	12.9	13.3	38.1	26.2	56.0	46.0	17.9	19.8	N	
1.75518	24.7	8.6	13.4	38.1	22.0	56.0	46.0	17.9	24.0	N	
3.25763	23.8	5.9	13.7	37.5	19.6	56.0	46.0	18.5	26.4	N	
5.49107	25.3	13.2	14.2	39.5	27.4	60.0	50.0	20.5	22.6	N	
0.43870	21.7	20.5	13.4	35.1	33.9	57.1	47.1	22.0	13.2	L	
0.56321	22.6	21.9	13.4	36.0	35.3	56.0	46.0	20.0	10.7	L	
1.06384	21.2	18.0	13.3	34.5	31.3	56.0	46.0	21.5	14.7	L	
1.75231	20.9	18.6	13.4	34.3	32.0	56.0	46.0	21.8	14.0	L	
3.31733	21.1	15.1	13.7	34.8	28.8	56.0	46.0	21.2	17.2	L	
5.49087	22.6	6.6	14.2	36.8	20.8	60.0	50.0	23.2	29.2	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.

Radiated Emission

DATA OF RADIATED EMISSION TEST

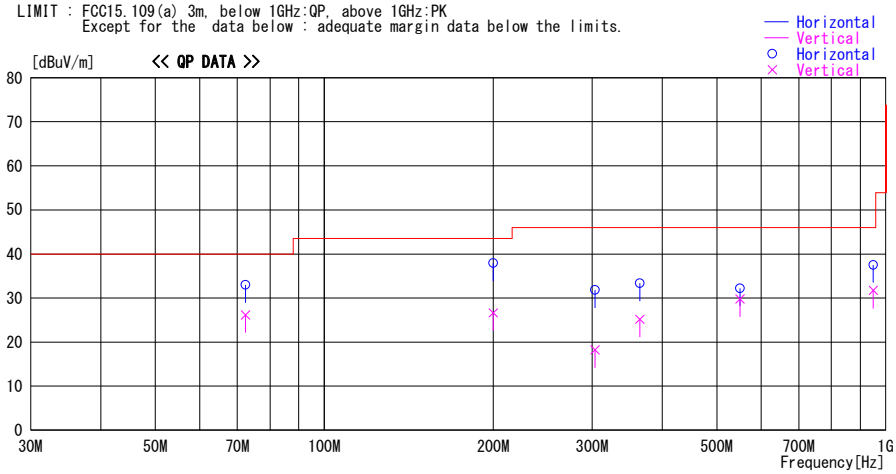
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/11/08

Report No. : 31CE0252-HO-01

Temp. / Humi. : 21deg.C / 52%
Engineer : Hisayoshi Sato

Mode / Remarks : USB Communication Mode Hori: X-axis, Ver: X-axis

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
72.405	50.7	QP	6.7	-24.4	33.0	272	285	Hori.	40.0	7.0	
199.998	44.2	QP	16.7	-23.0	37.9	306	169	Hori.	43.5	5.6	
303.500	38.2	QP	15.8	-22.2	31.8	52	100	Hori.	46.0	14.2	
364.499	38.2	QP	16.9	-21.8	33.3	65	100	Hori.	46.0	12.7	
549.994	33.4	QP	19.6	-20.8	32.2	3	100	Hori.	46.0	13.8	
949.991	30.1	QP	25.5	-18.1	37.5	329	100	Hori.	46.0	8.5	
72.405	43.8	QP	6.7	-24.4	26.1	149	100	Vert.	40.0	13.9	
199.998	32.9	QP	16.7	-23.0	26.6	156	100	Vert.	43.5	16.9	
303.500	24.6	QP	15.8	-22.2	18.2	5	100	Vert.	46.0	27.8	
364.499	30.1	QP	16.9	-21.8	25.2	152	100	Vert.	46.0	20.8	
549.994	31.0	QP	19.6	-20.8	29.8	259	100	Vert.	46.0	16.2	
949.991	24.3	QP	25.5	-18.1	31.7	266	100	Vert.	46.0	14.3	

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

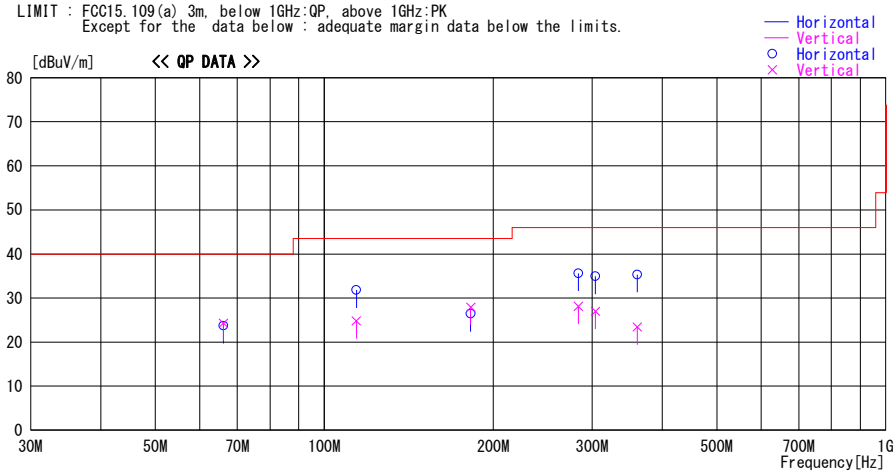
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/11/09

Report No. : 31CE0252-HO-01

Temp. / Humi. : 21deg.C / 52%
Engineer : Hisayoshi Sato

Mode / Remarks : Charging Mode Hori: X-axis, Ver: X-axis

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
66.111	40.8	QP	7.4	-24.5	23.7	258	299	Hori.	40.0	16.3	
113.997	43.5	QP	12.2	-23.9	31.8	248	246	Hori.	43.5	11.7	
182.250	33.3	QP	16.2	-23.1	26.4	254	250	Hori.	43.5	17.1	
283.500	39.2	QP	18.8	-22.4	35.6	49	121	Hori.	46.0	10.4	
303.993	41.3	QP	15.8	-22.2	34.9	84	100	Hori.	46.0	11.1	
360.992	40.2	QP	16.9	-21.8	35.3	41	100	Hori.	46.0	10.7	
66.111	41.4	QP	7.4	-24.5	24.3	248	100	Vert.	40.0	15.7	
113.997	36.5	QP	12.2	-23.9	24.8	1	100	Vert.	43.5	18.7	
182.250	34.8	QP	16.2	-23.1	27.9	61	100	Vert.	43.5	15.6	
283.500	31.7	QP	18.8	-22.4	28.1	51	100	Vert.	46.0	17.9	
303.993	33.4	QP	15.8	-22.2	27.0	173	100	Vert.	46.0	19.0	
360.992	28.3	QP	16.9	-21.8	23.4	184	100	Vert.	46.0	22.6	

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

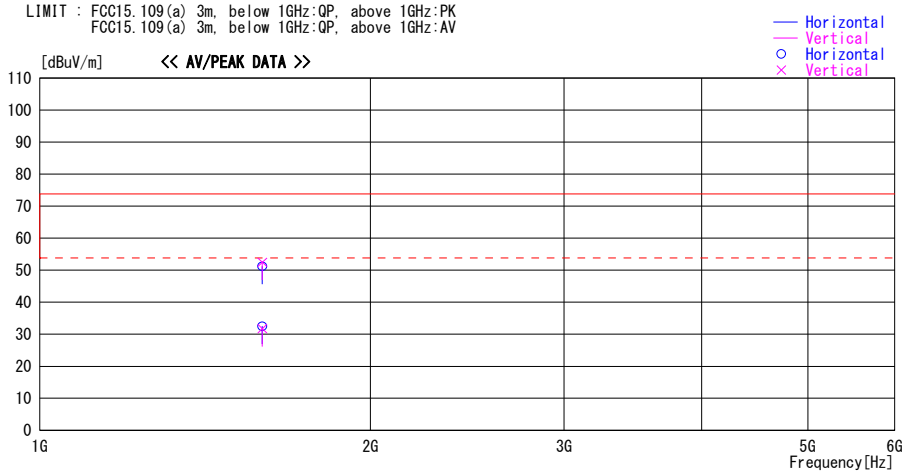
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/11/09

Report No. : 31CE0252-HO-01

Temp. / Humi. : 21deg.C / 52%
Engineer : Hisayoshi Sato

Mode / Remarks : USB Communication Mode Hori: X-axis, Ver: X-axis

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 Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
1594.450	57.0	PK	26.1	-30.6	52.5	67	100	Vert.	73.9	21.4	
1594.450	36.2	AV	26.1	-30.6	31.7	67	100	Vert.	53.9	22.2	
1594.617	55.7	PK	26.1	-30.6	51.2	243	100	Hori.	73.9	22.7	
1594.617	37.0	AV	26.1	-30.6	32.5	243	100	Hori.	53.9	21.4	

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)

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Radiated Emission

DATA OF RADIATED EMISSION TEST

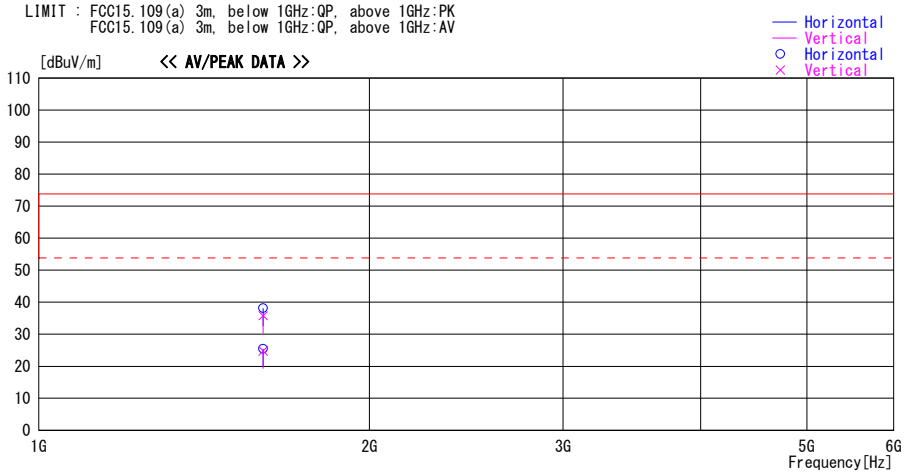
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/11/09

Report No. : 31CE0252-HO-01

Temp. / Humi. : 21deg.C / 52%
Engineer : Hisayoshi Sato

Mode / Remarks : Charging Mode Hori: X-axis, Ver: X-axis

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 Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
1600.000	42.6	PK	26.1	-30.6	38.1	0	100	Hori.	73.9	35.8	
1600.000	30.0	AV	26.1	-30.6	25.5	0	100	Hori.	53.9	28.4	
1600.000	40.3	PK	26.1	-30.6	35.8	0	100	Vert.	73.9	38.1	
1600.000	29.3	AV	26.1	-30.6	24.8	0	100	Vert.	53.9	29.1	

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-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE/CE	2010/02/02 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE/CE	2010/02/09 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2010/02/03 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE/CE	2010/10/27 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2010/10/11 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2010/10/11 * 12
MCC-50	Coaxial cable	UL Japan	-	-	RE	2010/03/18 * 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
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2010/08/08 * 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
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	CE	2009/12/15 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(EUT)	2010/02/04 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	8127364	CE(AE)	2010/02/05 * 12
MTA-31	Terminator	TME	CT-01	-	CE	2010/01/20 * 12
MAT-67	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	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	2010/07/21 * 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