

APPENDIX 2: Data of EMI test

Radiated Emission

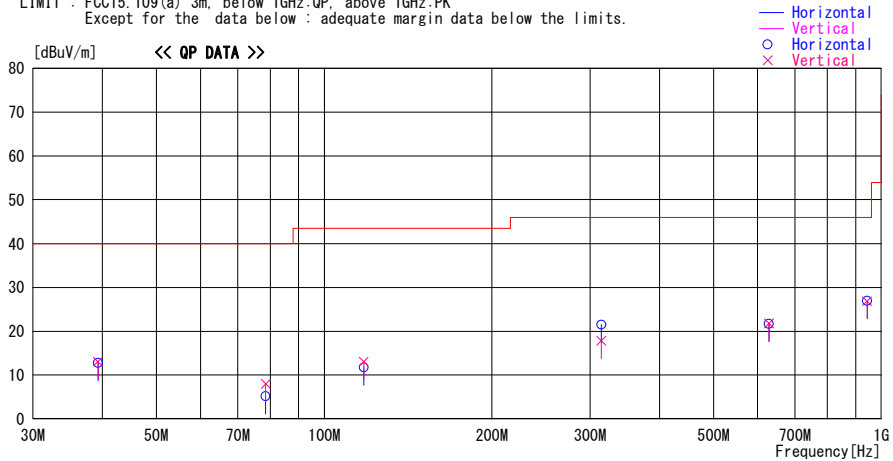
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2011/03/20

Report No. : 31GE0169-HO-01
Temp./Humi. : 22deg. C / 35% RH
Engineer : Hironobu Ohnishi

Mode / Remarks : Receiving mode, Worst axis (Hori: Z, Vert: Z)

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	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
39.281	22.4	QP	15.4	-25.0	12.8	0	300	Hori.	40.0	27.2	No signal.
39.281	22.7	QP	15.4	-25.0	13.1	0	100	Vert.	40.0	26.9	No signal.
78.563	23.0	QP	6.5	-24.3	5.2	145	210	Hori.	40.0	34.8	
78.563	25.8	QP	6.5	-24.3	8.0	282	100	Vert.	40.0	32.0	
117.844	23.0	QP	12.5	-23.8	11.7	189	278	Hori.	43.5	31.8	
117.844	24.4	QP	12.5	-23.8	13.1	64	100	Vert.	43.5	30.4	
314.250	27.7	QP	15.6	-21.8	21.5	2	112	Hori.	46.0	24.5	
314.250	24.0	QP	15.6	-21.8	17.8	195	175	Vert.	46.0	28.2	
628.500	22.1	QP	19.7	-20.1	21.7	0	100	Hori.	46.0	24.3	No signal.
628.500	22.2	QP	19.7	-20.1	21.8	0	100	Vert.	46.0	24.2	No signal.
942.750	21.5	QP	22.7	-17.3	26.9	0	100	Hori.	46.0	19.1	No signal.
942.750	21.5	QP	22.7	-17.3	26.9	0	100	Vert.	46.0	19.1	No signal.

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

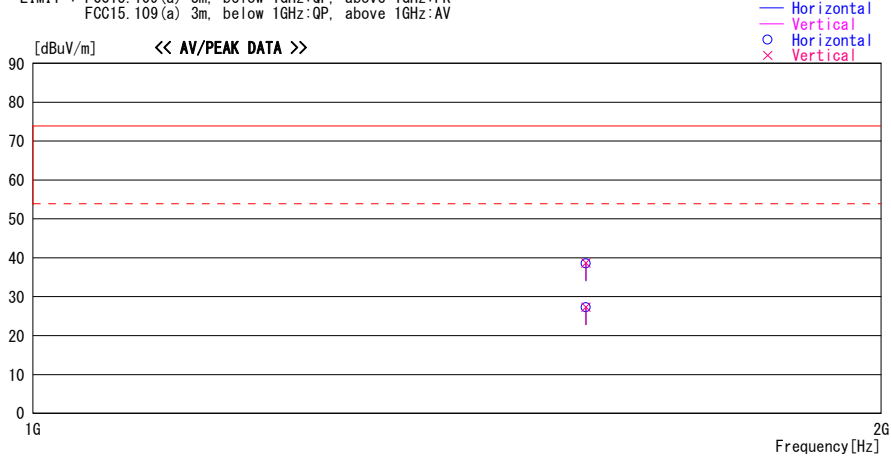
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Mode / Remarks : Receiving mode, Worst axis (Hori: Z, Vert: Z)

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	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1571.250	43.4	PK	27.1	-31.9	38.6	359	100	Hori.	73.9	35.3	No signal.
1571.250	32.1	AV	27.1	-31.9	27.3	359	100	Hori.	53.9	26.6	No signal.
1571.250	43.5	PK	27.1	-31.9	38.7	359	100	Vert.	73.9	35.2	No signal.
1571.250	32.1	AV	27.1	-31.9	27.3	359	100	Vert.	53.9	26.6	No signal.

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-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2011/02/22 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	RE	2011/02/23 * 12
MJM-06	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-09	Spectrum Analyzer	Advantest	R3273	95090115	RE	2010/11/18 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2010/08/23 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2010/10/11 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2010/10/11 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2010/07/06 * 12
MAT-09	Attenuator(6dB)	Weinschel Corp	2	BK7973	RE	2010/11/05 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2011/03/04 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2010/05/07 * 12
MCC-58	Microwave Cable	Suhner	SUCOFLEX104	246770(1m) / 250655(5m)	RE	2011/03/02 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2011/03/10 * 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

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