APPENDIX 2: Data of EMI test

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

DATA OF RADIATED EMISSION TEST

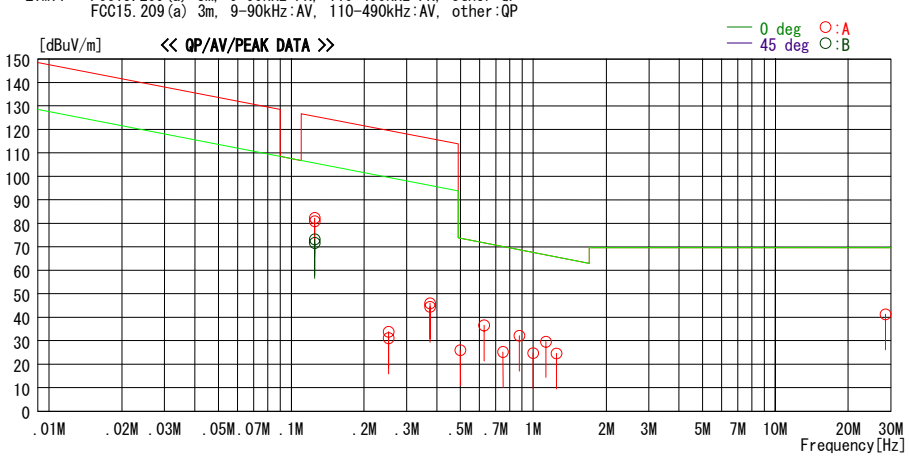
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2010/02/18

Report No. : 29KE0169-HO-01

Temp. / Humi. : 20deg.C / 30%
Engineer : Katsunori Okai

Mode / Remarks : Continuous Transmitting 125kHz, / Worst-axis WCM: X-axis, Immobilizer ANT: Y-axis

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq. [MHz]	Reading [dBuV]	DET	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Antenna [deg]		Table [deg]	Comment
0.12512	94.2	PEAK	20.0	0.2	32.1	82.3	125.6	43.3	0	A	10	
0.12512	92.8	AV	20.0	0.2	32.1	80.9	105.7	24.8	0	A	10	
0.12512	85.1	PEAK	20.0	0.2	32.1	73.2	125.6	52.4	0	B	5	Horizontal
0.12512	83.6	AV	20.0	0.2	32.1	71.7	105.7	34.0	0	B	5	Horizontal
0.25233	45.8	PEAK	19.9	0.2	32.1	33.8	119.5	85.7	0	A	4	
0.25233	43.1	AV	19.9	0.2	32.1	31.1	99.6	68.5	0	A	4	
0.37534	58.1	PEAK	19.8	0.2	32.1	46.0	116.1	70.1	0	A	3	
0.37534	56.5	AV	19.8	0.2	32.1	44.4	96.1	51.7	0	A	3	
0.50000	38.1	QP	19.8	0.2	32.1	26.0	73.6	47.6	0	A	10	
0.62556	48.6	QP	19.8	0.3	32.1	36.6	71.7	35.1	0	A	10	
0.75000	37.1	QP	19.8	0.3	32.1	25.1	70.1	45.0	0	A	10	
0.87576	44.1	QP	19.8	0.3	32.1	32.1	68.7	36.6	0	A	10	
1.00000	36.7	QP	19.8	0.3	32.1	24.7	67.6	42.9	0	A	10	
1.12599	41.6	QP	19.8	0.3	32.1	29.6	66.5	36.9	0	A	10	
1.25000	36.6	QP	19.8	0.3	32.1	24.6	65.6	41.0	0	A	10	
28.52483	52.8	QP	19.0	1.6	32.2	41.2	69.5	28.3	90	A	334	

CHART: WITH FACTOR , ANT TYPE: LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : RESULT[dBuV] = READING[dBuV] + ANT FACTOR[dB] + LOSS[dB](CABLE + ATTEN.- AMP.)

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

Radiated Emission above 30MHz (Spurious Emission)

DATA OF RADIATED EMISSION TEST

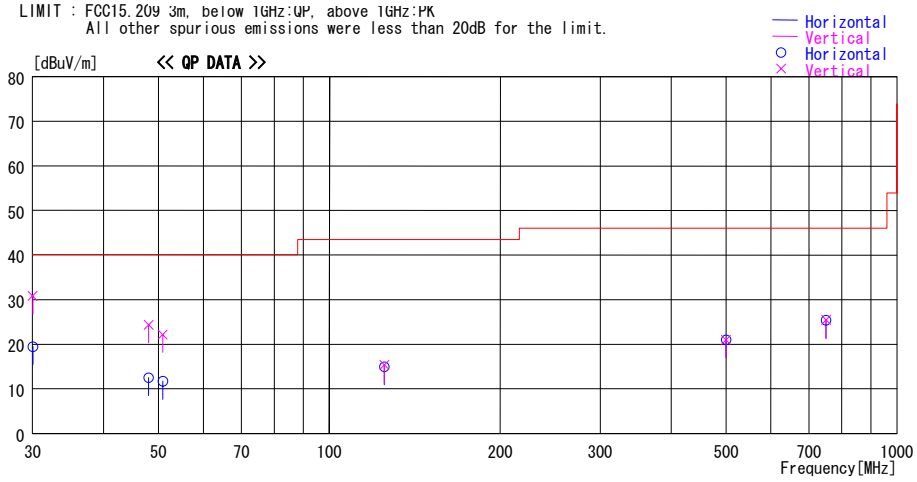
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2010/02/18

Report No. : 29KE0169-HO-01

Temp./Humi. : 20deg.C / 30%
Engineer : Katsunori Okai

Mode / Remarks : Continuous Transmitting 125kHz, / Worst-axis Hor: X-axis,Ver: X-axis

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



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]
30.022	23.3	QP	18.2	-22.0	19.5	0	300	Hori.	40.0	20.5
30.028	34.6	QP	18.2	-22.0	30.8	324	100	Vert.	40.0	9.2
48.006	22.3	QP	12.0	-21.8	12.5	0	300	Hori.	40.0	27.5
48.011	34.2	QP	12.0	-21.8	24.4	68	100	Vert.	40.0	15.6
50.862	32.8	QP	11.1	-21.7	22.2	43	100	Vert.	40.0	17.8
50.865	22.3	QP	11.1	-21.7	11.7	0	300	Hori.	40.0	28.3
125.003	21.7	QP	14.0	-20.7	15.0	0	300	Hori.	43.5	28.5
125.005	22.1	QP	14.0	-20.7	15.4	0	100	Vert.	43.5	28.1
500.003	21.6	QP	18.4	-19.0	21.0	0	100	Hori.	46.0	25.0
500.018	21.6	QP	18.4	-19.0	21.0	0	100	Vert.	46.0	25.0
750.021	21.2	QP	21.8	-17.6	25.4	0	100	Hori.	46.0	20.6
750.023	21.2	QP	21.8	-17.6	25.4	0	100	Vert.	46.0	20.6

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

Radiated Emission (RF Receiving)

DATA OF RADIATED EMISSION TEST

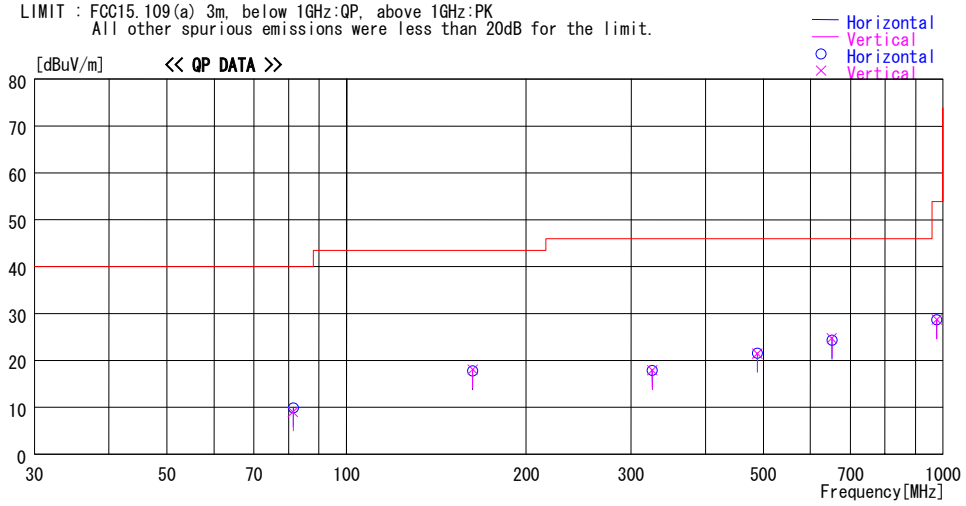
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2010/02/18

Report No. : 29KE0169-HO-01

Temp./Humi. : 21deg.C / 32%
Engineer : Norihisa Hashimoto

Mode / Remarks : RF Receiving 315MHz, / X-axis

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 Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
81.425	23.8	QP	7.3	-21.2	9.9	225	250	Hori.	40.0	30.1
81.425	22.9	QP	7.3	-21.2	9.0	37	145	Vert.	40.0	31.0
162.850	22.2	QP	16.2	-20.3	18.1	181	182	Vert.	43.5	25.4
162.850	21.9	QP	16.2	-20.3	17.8	98	385	Hori.	43.5	25.7
325.700	21.3	QP	15.6	-19.0	17.9	6	100	Hori.	46.0	28.1
325.700	21.3	QP	15.6	-19.0	17.9	65	100	Vert.	46.0	28.1
488.550	22.0	QP	18.4	-18.9	21.5	12	100	Vert.	46.0	24.5
488.550	22.1	QP	18.4	-18.9	21.6	347	145	Hori.	46.0	24.4
651.400	22.4	QP	20.6	-18.3	24.7	132	100	Vert.	46.0	21.3
651.400	22.0	QP	20.6	-18.3	24.3	214	112	Hori.	46.0	21.7
977.100	21.1	QP	23.8	-16.2	28.7	353	100	Hori.	53.9	25.2
977.100	21.1	QP	23.8	-16.2	28.7	9	100	Vert.	53.9	25.2

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

Radiated Emission (RF Receiving)

DATA OF RADIATED EMISSION TEST

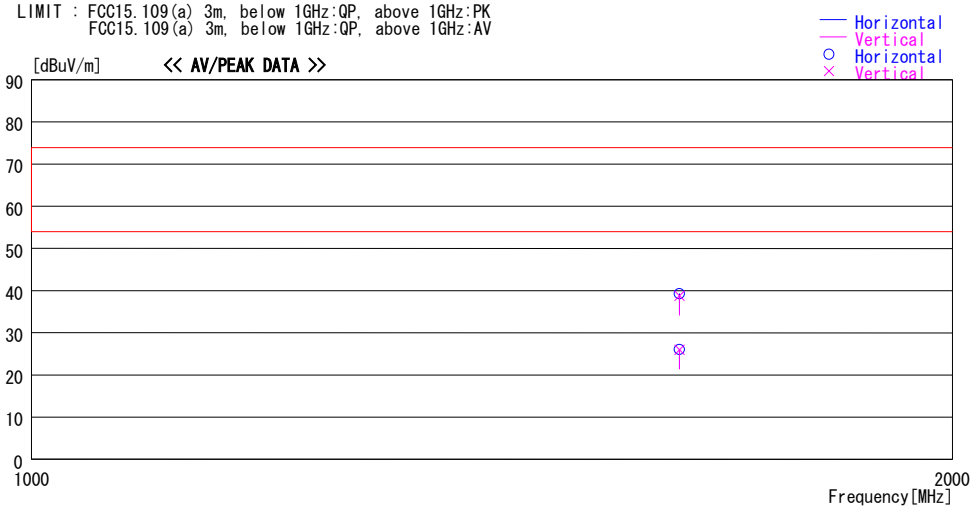
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2010/02/18

Report No. : 29KE0169-HO-01

Temp./Humi. : 21deg.C / 32%
Engineer : Norihisa Hashimoto

Mode / Remarks : RF Receiving 315MHz, / 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]
1628.500	44.0	PK	25.8	-30.5	39.3	0	100	Hori.	73.9	34.6
1628.500	43.4	PK	25.8	-30.5	38.7	0	100	Vert.	73.9	35.2
1628.500	30.8	AV	25.8	-30.5	26.1	0	100	Hori.	53.9	27.8
1628.500	30.7	AV	25.8	-30.5	26.0	0	100	Vert.	53.9	27.9

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)

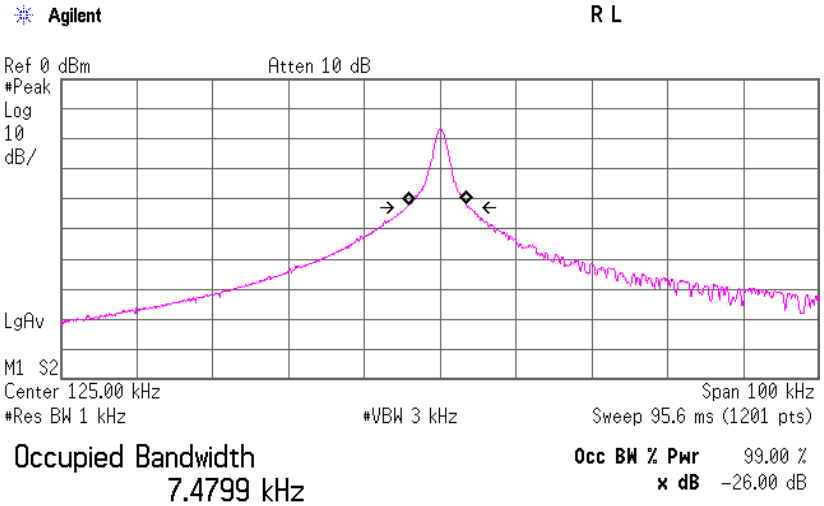
*The test result is rounded off to one or two decimal places, so some differences might be observed.

-26dB Bandwidth and 99% Occupied Bandwidth

UL Japan, Inc.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY	:	OMRON Corporation	REPORT NO	:	29KE0169-HO-01
EQUIPMENT	:	Wireless control module	REGULATION	:	Reference Data (for FCC)/RSS-Gen 4.6.1
MODEL	:	G8D-841M-WCM-N	TEST DISTANCE	:	-
S/ N	:	001	DATE	:	02/18/2010
POWER	:	DC 12V	TEMPERATURE	:	20 deg.C
MODE	:	Continuous Transmitting mode 125kHz	HUMIDITY	:	30 %
			Engineer	:	Katsunori Okai

FREQ [kHz]	-26dB Bandwidth [kHz]	99% Occupied Bandwidth [kHz]
125.0	8.3	7.480



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	2009/08/17 * 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	2009/11/20 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2009/04/14 * 12
MLPA-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	836553/009	RE	2009/11/19 * 12
MCC-13	Coaxial Cable	Fujikura	3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m)	-	RE	2009/02/16 * 12
MCC-31	Coaxial cable	UL Japan	-	-	RE	2009/06/22 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2009/03/18 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2009/10/05 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2009/10/05 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2009/02/16 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2009/11/12 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2009/09/02 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2010/01/19 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	295123(5m) / 287573(1m)	RE	2009/11/19 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2009/09/14 * 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: Spurious emission