APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2006/04/10 * 12
MRENT-26	Spectrum Analyzer	Advantest	R3273	RE	2006/02/15 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2006/02/23 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2005/12/16 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/10/10 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/10/14 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	RE	2006/03/04 * 12
MPA-10	Pre Amplifier	Agilent	8449B	RE	2005/09/07 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2005/08/30 * 12
MCC-16	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2006/02/02 * 12
MOS-02	Digital Humidity Indicator	N.T	NT-1800	RE/ME	2004/11/25 * 24
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE/ME	2005/11/10 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/10/10 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/10/14 * 12
MLPA-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	RE	2005/12/06 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2005/05/24 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/Agilent/TSJ	-	ME	2005/12/18 * 12
MCC-31	Coaxial cable	ULApex	-	ME	2005/06/02 * 12
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2005/11/14 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2005/12/16 * 12
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MOS-01	Digital Humidity Indicator	N.T	NT-1800	RE	2004/11/25 * 24

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Test Item:
ME: Spurious emission (9k-30MHz)
RE: Spurious emission (30M-1GHz)

APPENDIX 3: Data of EMI test

Radiated Emission below 30MHz (Fundamental and Sprious Emission)

125kHz Transmitting

DATA OF MAGNETIC RADIATED EMISSION TEST

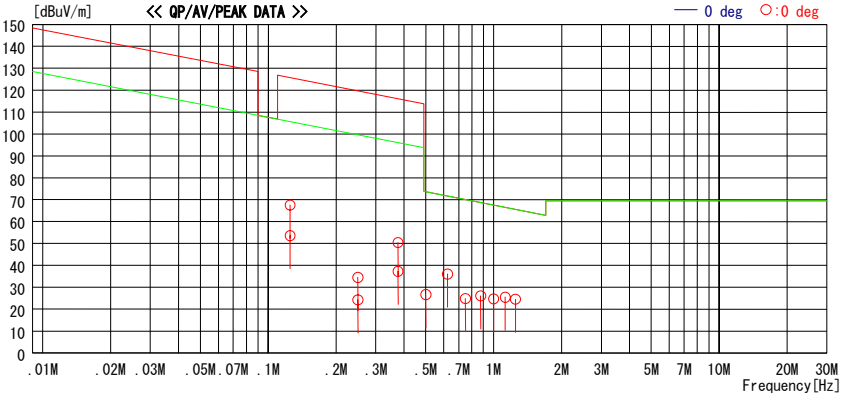
UL Apex Co.,LTD. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/04/14 01:09:09

Applicant : OMRON Corporation
Kind of EUT : WCM
Model No. : G8D-648M
Serial No. : WU0002

Report No. : 26GE0263-HO
Power : DC 12V
Temp./Humi. : 20deg.C / 50%
Operator : Norihisa Hashimoto

Mode / Remarks : Transmitting 125kHz / Y-axis

LIMIT : FCC15C §15.209(a) / RSS-Gen 7.2.2 , 9k-90k:PK / 110k-490k:PK / other:QP , 3m
FCC15C §15.209(a) / RSS-Gen 7.2.2 , 3m



Freq. [MHz]	Reading [dBuV]	DET	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Antenna	Table [deg]
0.12510	74.1	PEAK	19.5	0.2	26.2	67.6	125.7	58.1	0deg	165
0.12510	60.2	AV	19.5	0.2	26.2	53.7	105.7	52.0	0deg	165
0.25010	42.0	PEAK	19.5	0.3	27.3	34.5	119.7	85.2	0deg	176
0.25010	31.7	AV	19.5	0.3	27.3	24.2	99.6	75.4	0deg	176
0.37562	58.4	PEAK	19.5	0.3	27.7	50.5	116.1	65.6	0deg	186
0.37562	45.2	AV	19.5	0.3	27.7	37.3	96.1	58.8	0deg	186
0.50000	34.6	QP	19.5	0.4	27.8	26.7	73.6	46.9	0deg	321
0.62500	44.2	QP	19.5	0.3	27.9	36.1	71.7	35.6	0deg	185
0.75000	33.0	QP	19.5	0.3	27.9	24.9	70.1	45.2	0deg	206
0.87500	34.1	QP	19.5	0.4	27.9	26.1	68.8	42.7	0deg	321
1.00000	32.9	QP	19.5	0.2	27.9	24.7	67.6	42.9	0deg	211
1.12500	33.5	QP	19.5	0.3	27.9	25.4	66.6	41.2	0deg	96
1.25000	32.5	QP	19.6	0.4	27.9	24.6	65.7	41.1	0deg	36

CHART : WITH FACTOR ANT TYPE : LOOP
CALCULATION : READING + ANT FACTOR + LOSS(CABLE + ATTEN.-AMP.)

Page:

Radiated Emission above 30MHz (Sprious Emission)

125kHz Transmitting

DATA OF RADIATED EMISSION TEST

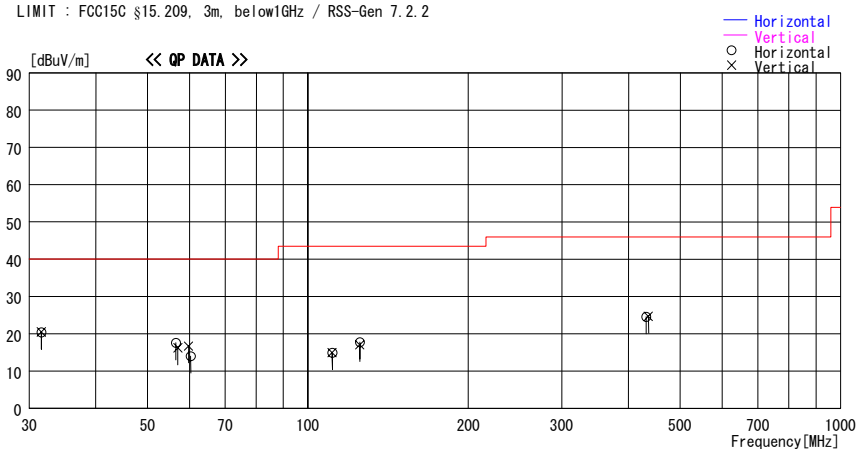
UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/04/14 05:29:16

Applicant : OMRON
Kind of EUT : WCM
Model No. : G8D-648M
Serial No. : WU0002

Report No. : 26GE0263-HO
Power : DC12.0V
Temp./Humi. : 20deg.C / 50%
Operator : Norihisa Hashimoto

Mode / Remarks : Transmitting 125kHz / Y-axis

LIMIT : FCC15C §15.209, 3m, below1GHz / RSS-Gen 7.2.2



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
31.623	23.4	QP	18.0	-21.0	20.4	231	100	Hori.	40.0	19.6	
31.623	23.5	QP	18.0	-21.0	20.5	302	100	Vert.	40.0	19.5	
56.513	28.4	QP	9.3	-20.1	17.6	230	100	Hori.	40.0	22.4	
57.054	27.1	QP	9.2	-20.1	16.2	258	100	Vert.	40.0	23.8	
59.759	28.1	QP	8.6	-20.0	16.7	173	100	Vert.	40.0	23.3	
60.301	25.5	QP	8.5	-20.0	14.0	235	100	Hori.	40.0	26.0	
111.162	22.0	QP	12.0	-19.1	14.9	63	100	Hori.	43.5	28.6	
111.162	22.1	QP	12.0	-19.1	15.0	310	100	Vert.	43.5	28.5	
125.231	23.0	QP	13.5	-18.8	17.7	126	100	Hori.	43.5	25.8	
125.231	22.4	QP	13.5	-18.8	17.1	314	100	Vert.	43.5	26.4	
431.863	23.4	QP	17.7	-16.5	24.6	289	100	Hori.	46.0	21.4	
436.072	23.5	QP	17.7	-16.5	24.7	208	100	Vert.	46.0	21.3	

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN

Radiated Emission (315MHz Receiving)

DATA OF RADIATED EMISSION TEST

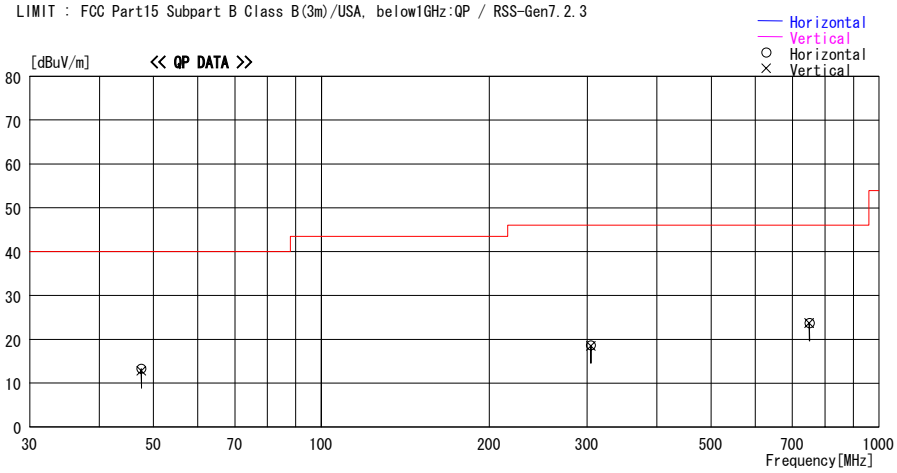
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2006/04/12 03:52:05

Applicant : OMRON
Kind of EUT : WCM
Model No. : G8D-648M
Serial No. : WUO001

Report No. : 26GE0263-HO
Power : DC12.0V
Temp./Humi. : 25deg.C / 52%
Operator : Norihisa Hashimoto

Mode / Remarks : Receiving 315MHz

LIMIT : FCC Part15 Subpart B Class B(3m)/USA, below1GHz:QP / RSS-Gen7.2.3



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
47.550	23.0	QP	11.4	-21.1	13.3	219	300	Hori.	40.0	26.7
47.550	22.5	QP	11.4	-21.1	12.8	108	100	Vert.	40.0	27.2
304.300	21.1	QP	14.3	-16.9	18.5	3	100	Vert.	46.0	27.5
304.300	21.2	QP	14.3	-16.9	18.6	350	100	Hori.	46.0	27.4
750.108	20.0	QP	21.0	-17.3	23.7	3	100	Vert.	46.0	22.3
751.508	20.1	QP	21.0	-17.4	23.7	350	100	Hori.	46.0	22.3

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN

Radiated Emission (315MHz Receiving)

DATA OF RADIATED EMISSION TEST

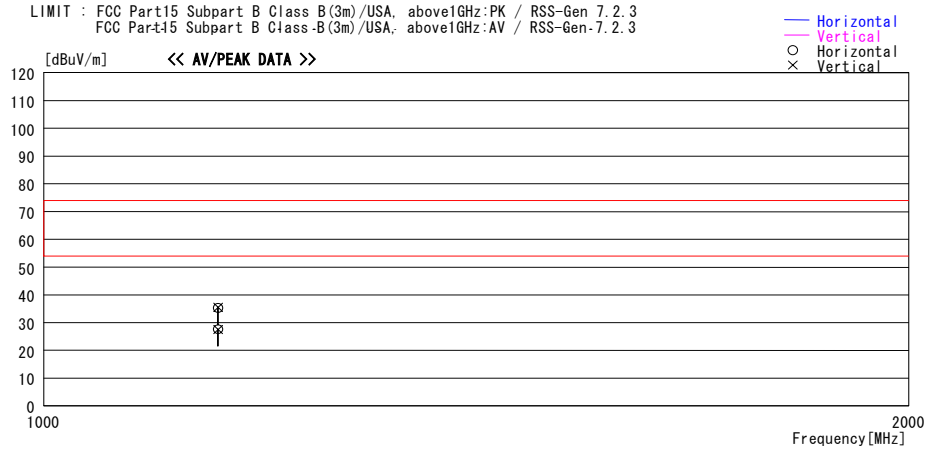
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2006/04/12 05:59:41

Applicant : OMRON
Kind of EUT : WCM
Model No. : G8D-648M
Sample No. : WU0001

Report No. : 26GE0263-HO
Power : DC 12.0V
Temp./Humi. : 25 deg.C / 2 %
Operator : Norihisa Hashimoto

Mode / Remarks : Receiving 315MHz

LIMIT : FCC Part15 Subpart B Class B(3m)/USA, above1GHz:PK / RSS-Gen 7.2.3
FCC Part15 Subpart B Class B(3m)/USA, above1GHz:AV / RSS-Gen 7.2.3



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]
1150.000	43.0	PK	23.3	-31.0	35.3	0	100	Hori.	73.9	38.6
1150.000	43.2	PK	23.3	-31.0	35.5	0	100	Vert.	73.9	38.4
1150.000	35.3	AV	23.3	-31.0	27.6	0	100	Hori.	53.9	26.3
1150.000	35.2	AV	23.3	-31.0	27.5	0	100	Vert.	53.9	26.4

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN

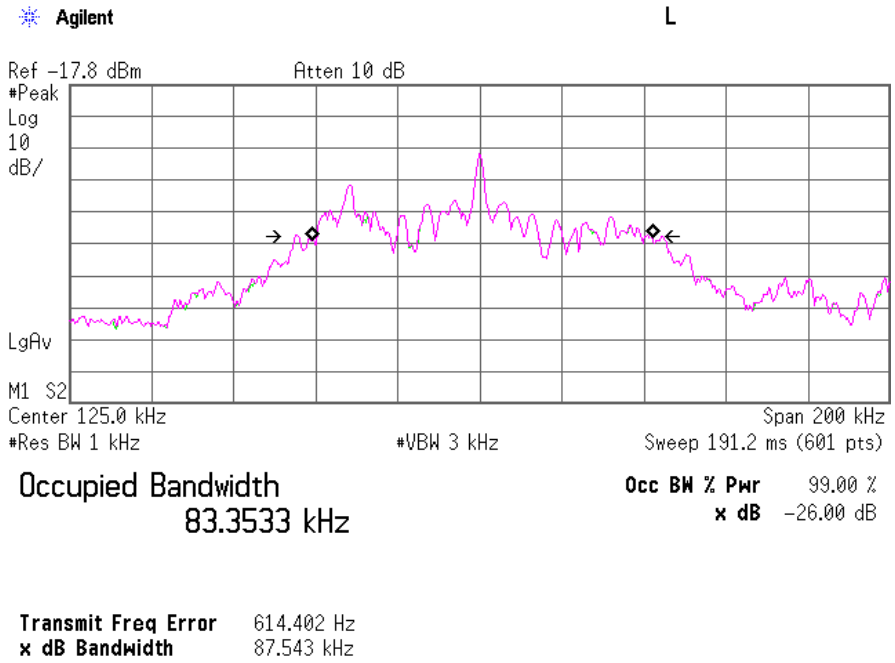
–26dB Bandwidth

UL-Apex
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : OMRON Corporation
Equipment : WCM
Model : G8D-648M
S/N : WU0002
Power : DC12V
Mode : Transmitting

Regulation : Reference data
Test Distance : -
Date : 04/13/2006
Temperature : 20 deg.C.
Humidity : 50 %
Engineer : Norihisa Hashimoto

FREQ [kHz]	-26dB Bandwidth [kHz]
125.0	87.54



99% Occupied Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY	: OMRON Corporation	REPORT NO	: 26GE0263-HO
EQUIPMENT	: WCM	REGULATION	: RSS-Gen 4.4.1
MODEL	: G8D-648M	TEST DISTANCE	: 3m
S/ N	: WU0002	DATE	: 04/13/2006
POWER	: DC12V	TEMPERATURE	: 20 deg.C.
MODE	: Transmitting	HUMIDITY	: 50 %
	: Ant-Max	Engineer	: Norihisa Hashimoto

	FREQ [kHz]	99% Occupid Bandwidth [kHz]
	125.0	83.353