

APPENDIX 2: Data of EMI test

Radiated Emission

DATA OF RADIATED EMISSION TEST

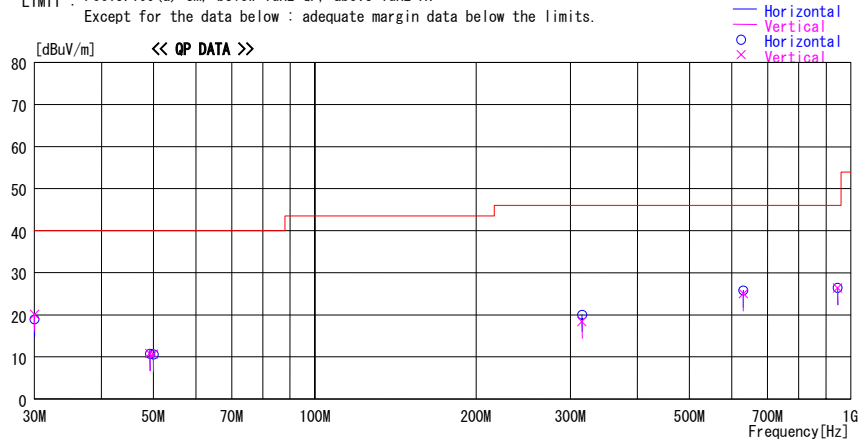
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2008/06/03

Company : Mitsubishi Electric Corporation Himeji Works Report No. : 28IE0193-HO-03
Kind of EUT : SMART KEYLESS SYSTEM (Receiver) Power : DC 3.0V
Model No. : SKE11A-03 Temp./Humi. : 22 deg. C / 68 %
Serial No. : 20080512-R1 Engineer : Akio Hayashi

Mode / Remarks : Continuous Receiving 315MHz mode, Worst(Hor: Z / Ver: Z)

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

Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
30.000	22.0	QP	18.9	-22.0	18.9	0	300	Hori.	40.0	21.1	
30.001	23.2	QP	18.9	-22.0	20.1	162	100	Vert.	40.0	19.9	
49.253	22.0	QP	10.4	-21.7	10.7	0	300	Hori.	40.0	29.3	
49.253	22.1	QP	10.4	-21.7	10.8	0	100	Vert.	40.0	29.2	
50.000	22.1	QP	10.2	-21.7	10.6	0	300	Hori.	40.0	29.4	
50.000	22.1	QP	10.2	-21.7	10.6	0	100	Vert.	40.0	29.4	
315.220	24.2	QP	14.9	-19.1	20.0	212	100	Hori.	46.0	26.0	
315.220	22.6	QP	14.9	-19.1	18.4	272	100	Vert.	46.0	27.6	
630.440	24.7	QP	19.7	-18.6	25.8	142	100	Hori.	46.0	20.2	
630.440	23.9	QP	19.7	-18.6	25.0	97	130	Vert.	46.0	21.0	
945.660	20.4	QP	22.4	-16.4	26.4	293	100	Hori.	46.0	19.6	
945.660	20.4	QP	22.4	-16.4	26.4	0	100	Vert.	46.0	19.6	

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.

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Radiated Emission

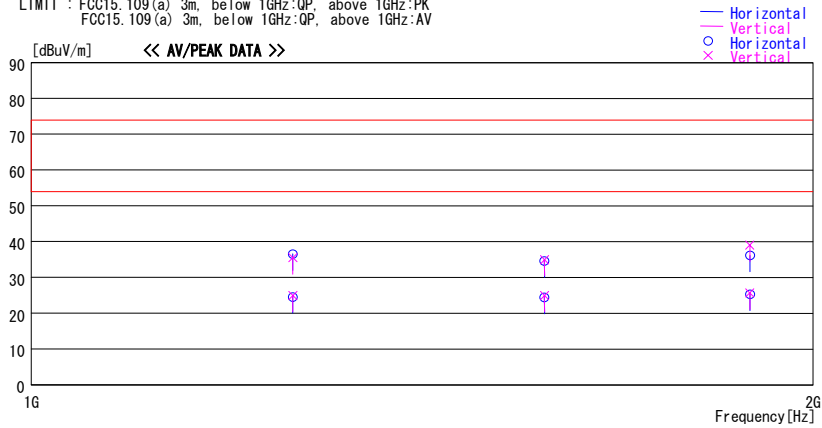
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Mode / Remarks : Continuous Receiving 315MHz mode, Worst(Hor: Z / Ver: Z)

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 [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
1260.880	43.0	PK	24.8	-31.2	36.6	0	100	Hori.	73.9	37.3	
1260.880	31.0	AV	24.8	-31.2	24.6	0	100	Hori.	53.9	29.3	
1260.880	41.9	PK	24.8	-31.2	35.5	0	100	Vert.	73.9	38.4	
1260.880	31.4	AV	24.8	-31.2	25.0	0	100	Vert.	53.9	28.9	
1576.100	29.9	AV	25.2	-30.6	24.5	0	100	Hori.	53.9	29.4	
1576.100	40.1	PK	25.2	-30.6	34.7	0	100	Hori.	73.9	39.2	
1576.100	40.4	PK	25.2	-30.6	35.0	0	100	Vert.	73.9	38.9	
1576.100	30.3	AV	25.2	-30.6	24.9	0	100	Vert.	53.9	29.0	
1891.320	29.7	AV	25.7	-30.1	25.3	0	100	Hori.	53.9	28.6	
1891.320	40.6	PK	25.7	-30.1	36.2	0	100	Hori.	73.9	37.8	
1891.320	43.4	PK	25.7	-30.1	39.0	0	100	Vert.	73.9	34.9	
1891.320	30.1	AV	25.7	-30.1	25.7	0	100	Vert.	53.9	28.2	

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.

APPENDIX 3: Test instruments

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2008/04/17 * 12
MOS-02	Digital Humidity Indicator	N.T	NT-1800	RE	-
MJM-05	Measure	PROMART	SEN1955	RE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MRENT-62	Spectrum Analyzer	Agilent	E4448A	RE	2007/11/27 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	RE	2008/04/02 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2007/10/21 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2007/10/21 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2008/02/15 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2007/11/13 * 12
MPA-09	Pre Amplifier	Agilent	8447D	RE	2007/09/13 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2008/01/19 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2008/05/12 * 12
MPA-10	Pre Amplifier	Agilent	8449B	RE	2007/09/27 * 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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