

APPENDIX 2: Data of EMI test

Radiated Emission

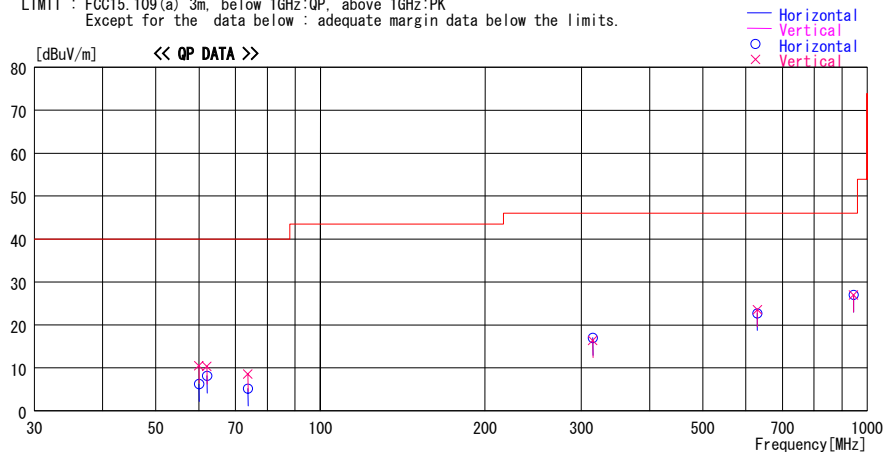
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2009/06/05

Company : Mitsubishi Electric Corporation Himeji Works Report No. : 29JE0146-HO-01
Kind of EUT : SMART KEYLESS SYSTEM (Receiver) Power : DC 12.0V
Model No. : SKE11A-03 (X1T540 VARIANT) Temp./Humi. : 24deg.C. / 58%
Serial No. : 20090604-R1 Engineer : Takayuki Shimada

Mode / Remarks : Continuous Receiving mode (315MHz), Max-axis(H:X, V: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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
60.008	23.3	QP	7.5	-24.6	6.2	27	110	Hori.	40.0	33.8	
60.008	27.6	QP	7.5	-24.6	10.5	336	202	Vert.	40.0	29.5	
62.038	25.6	QP	7.2	-24.6	8.2	0	109	Hori.	40.0	31.8	
62.038	27.7	QP	7.2	-24.6	10.3	246	199	Vert.	40.0	29.7	
73.704	23.3	QP	6.2	-24.3	5.2	126	300	Hori.	40.0	34.8	
73.704	26.6	QP	6.2	-24.3	8.5	293	177	Vert.	40.0	31.5	
314.767	23.9	QP	15.1	-22.0	17.0	210	100	Hori.	46.0	29.0	
314.767	23.3	QP	15.1	-22.0	16.4	181	118	Vert.	46.0	29.6	
629.534	22.9	QP	19.8	-20.0	22.7	210	100	Hori.	46.0	23.3	
629.534	23.8	QP	19.8	-20.0	23.6	174	100	Vert.	46.0	22.4	
944.301	21.5	QP	22.8	-17.3	27.0	0	100	Hori.	46.0	19.0	
944.301	21.5	QP	22.8	-17.3	27.0	0	100	Vert.	46.0	19.0	

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

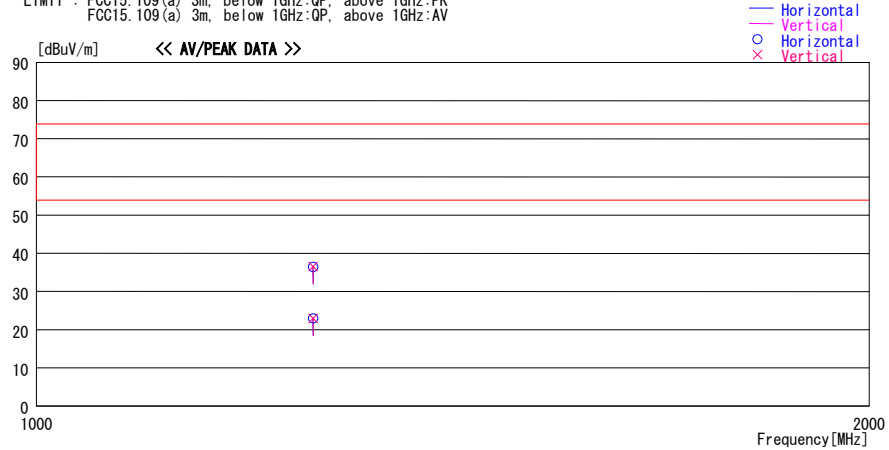
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2009/06/05

Company : Mitsubishi Electric Corporation Himeji Works
Kind of EUT : SMART KEYLESS SYSTEM (Receiver)
Model No. : SKE11A-03 (X1T540 VARIANT)
Serial No. : 20090604-R1

Report No. : 29JE0146-HO-01
Power : DC 12.0V
Temp./Humi. : 24deg. C. / 58%
Engineer : Takayuki Shimada

Mode / Remarks : Continuous Receiving mode (315MHz), Max-axis(H:X, V: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]	
1259.068	43.6	PK	25.0	-32.1	36.5	0	100	Hori.	73.9	37.4	
1259.068	43.6	PK	25.0	-32.1	36.5	0	100	Vert.	73.9	37.4	
1259.068	30.1	AV	25.0	-32.1	23.0	0	100	Hori.	53.9	30.9	
1259.068	30.1	AV	25.0	-32.1	23.0	0	100	Vert.	53.9	30.9	

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 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	Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2009/02/02 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	RE	2009/02/06 * 12
MJM-06	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2008/08/18 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2008/06/12 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2009/01/19 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2009/01/10 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2008/07/18 * 12
MAT-09	Attenuator(6dB)	Weinschel Corp	2	BK7973	RE	2008/11/14 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2009/03/18 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2009/04/30 * 12
MCC-56	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	174410(1m) / 284655(5m)	RE	2009/01/07 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2009/03/19 * 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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