

APPENDIX 2: Data of EMI test

Radiated Emission (below 1GHz)
Antenna: Receiver

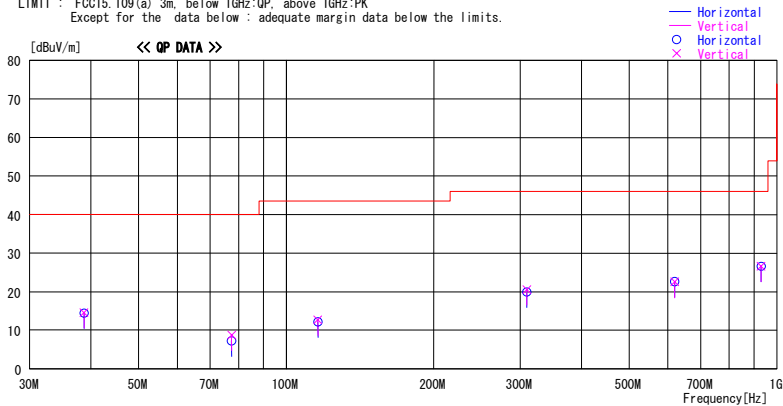
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2008/08/25

Company : DENSO CORPORATION Report No. : 29AE0108-HO-01
Kind of EUT : Remote Keyless Entry System (Receiver) Power : DC 5.0V
Model No. : 13CZL Temp./Humi. : 23 deg.C. / 76 %
Serial No. : No.1 Enginner : Takayuki Shimada

Mode / Remarks : Receiving 312.15MHz, Antenna:Receiver, Max axis(H:Z, 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]	Gain [dB]							
38.706	22.2	QP	14.2	-21.9	14.5	0	300	Hori.	40.0	25.5	
38.706	22.3	QP	14.2	-21.9	14.6	0	100	Vert.	40.0	25.4	
77.413	22.2	QP	6.4	-21.3	7.3	251	100	Hori.	40.0	32.7	
77.413	23.7	QP	6.4	-21.3	8.8	42	382	Vert.	40.0	31.2	
116.119	21.6	QP	11.5	-20.9	12.2	0	300	Hori.	43.5	31.3	
116.119	22.1	QP	11.5	-20.9	12.7	51	100	Vert.	43.5	30.8	
309.650	24.3	QP	14.7	-19.0	20.0	345	100	Hori.	46.0	26.0	
309.650	24.8	QP	14.7	-19.0	20.5	102	160	Vert.	46.0	25.5	
619.300	21.7	QP	19.6	-18.7	22.6	0	100	Hori.	46.0	23.4	
619.300	21.6	QP	19.6	-18.7	22.5	0	100	Vert.	46.0	23.5	
928.950	20.9	QP	22.2	-16.5	26.6	0	100	Hori.	46.0	19.4	
928.950	20.9	QP	22.2	-16.5	26.6	0	100	Vert.	46.0	19.4	

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 (below 1GHz)
Antenna: Trunk

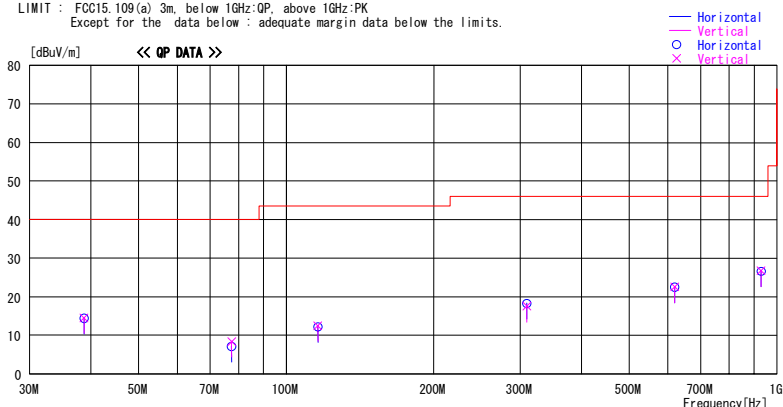
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LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
 Except for the data below : adequate margin data below the limits.



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]							
38.706	22.1	QP	14.2	-21.9	14.4	0	300	Hori.	40.0	25.6	
38.706	22.2	QP	14.2	-21.9	14.5	0	100	Vert.	40.0	25.5	
77.413	22.0	QP	6.4	-21.3	7.1	0	300	Hori.	40.0	32.9	
77.413	23.3	QP	6.4	-21.3	8.4	114	385	Vert.	40.0	31.6	
116.119	21.6	QP	11.5	-20.9	12.2	0	300	Hori.	43.5	31.3	
116.119	21.9	QP	11.5	-20.9	12.5	85	100	Vert.	43.5	31.0	
309.650	22.6	QP	14.7	-19.0	18.3	251	162	Hori.	46.0	27.7	
309.650	21.8	QP	14.7	-19.0	17.5	184	169	Vert.	46.0	28.5	
619.300	21.6	QP	19.6	-18.7	22.5	0	100	Hori.	46.0	23.5	
619.300	21.6	QP	19.6	-18.7	22.5	0	100	Vert.	46.0	23.5	
928.950	20.9	QP	22.2	-16.5	26.6	0	100	Hori.	46.0	19.4	
928.950	21.0	QP	22.2	-16.5	26.7	0	100	Vert.	46.0	19.3	

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)

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Radiated Emission (above 1GHz)
Antenna: Receiver

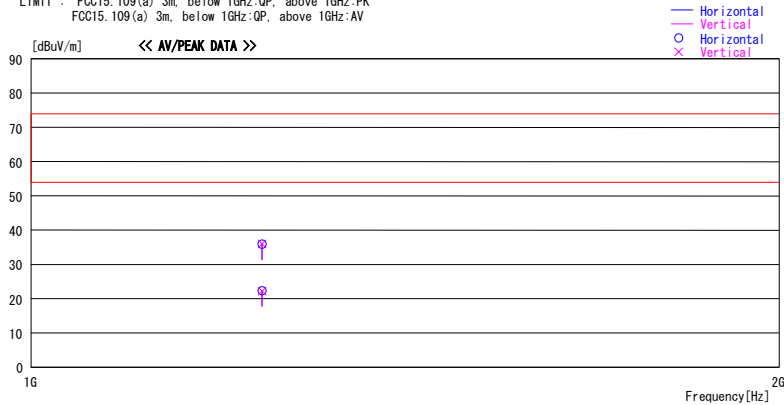
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LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
 FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss & Gain [dB]							
1238.600	42.4	PK	24.8	-31.3	35.9	0	100	Hori.	73.9	38.0	
1238.600	28.9	AV	24.8	-31.3	22.4	0	100	Hori.	53.9	31.5	
1238.600	42.5	PK	24.8	-31.3	36.0	0	100	Vert.	73.9	37.9	
1238.600	28.7	AV	24.8	-31.3	22.2	0	100	Vert.	53.9	31.7	

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)

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Radiated Emission (above 1GHz)
Antenna: Trunk

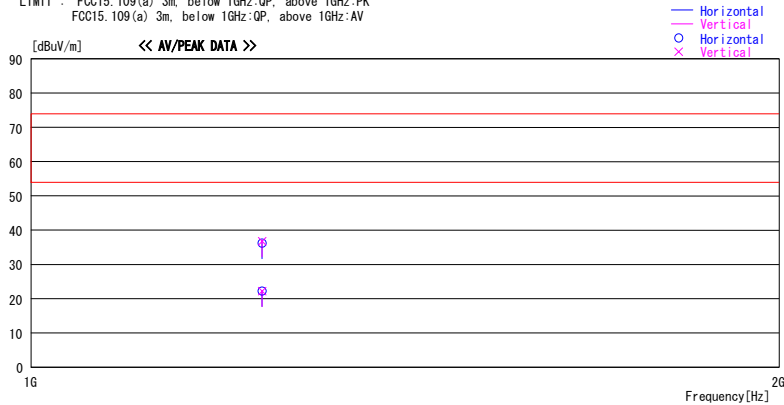
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LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBUV]	DET	Antenna		Level [dBUV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBUV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss & Gain [dB]							
1238.600	42.7	PK	24.8	-31.3	36.2	0	100	Hori.	73.9	37.7	
1238.600	28.8	AV	24.8	-31.3	22.3	0	100	Hori.	53.9	31.6	
1238.600	43.3	PK	24.8	-31.3	36.8	0	100	Vert.	73.9	37.1	
1238.600	28.7	AV	24.8	-31.3	22.2	0	100	Vert.	53.9	31.7	

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)

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APPENDIX 3: 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	2008/04/17 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	RE	2007/12/27 * 12
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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