APPENDIX 2: Data of EMI test

Radiated Emission

DATA OF RADIATED EMISSION TEST

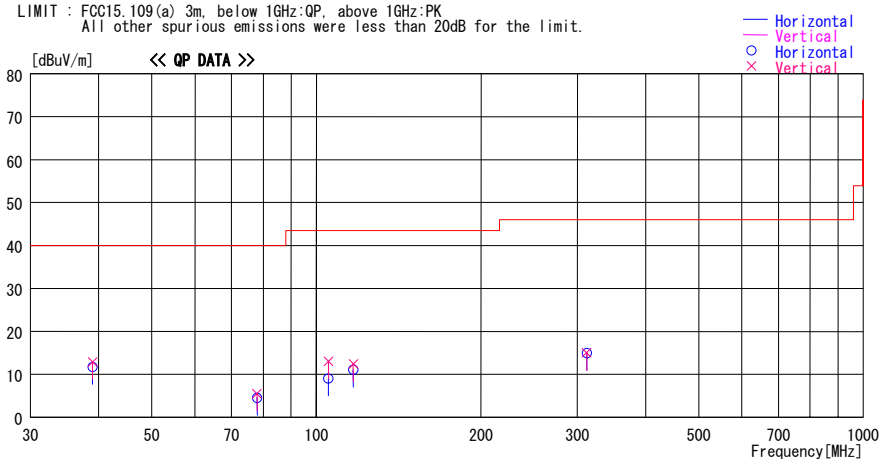
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2009/02/23

Applicant : DENSO CORPORATION
Kind of EUT : Remote Seat Control System (Receiver)
Model No. : 13BDH
Serial No. : 001

Report No. : 29EE0181-HO-01
Power : DC 12.0V
Temp. / Humi. : 20 deg.C. / 35 %
Engineer : Tomohisa Nakagawa

Mode / Remarks : Receiving mode, Worst-axis : Hori:Y-axis, Vert:Y-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]	Comment
38.959	23.5	QP	14.3	-24.9	12.9	197	100	Vert.	40.0	27.1	
38.962	22.3	QP	14.3	-24.9	11.7	123	300	Hori.	40.0	28.3	
77.923	23.5	QP	6.1	-24.1	5.5	136	110	Vert.	40.0	34.5	
77.924	22.5	QP	6.1	-24.1	4.5	197	100	Hori.	40.0	35.5	
105.211	22.4	QP	10.5	-23.8	9.1	0	100	Hori.	43.5	34.4	
105.293	26.3	QP	10.5	-23.8	13.0	158	229	Vert.	43.5	30.5	
116.886	22.2	QP	12.6	-23.7	11.1	49	300	Hori.	43.5	32.4	
116.886	23.5	QP	12.6	-23.7	12.4	103	100	Vert.	43.5	31.1	
312.150	21.9	QP	15.0	-21.9	15.0	0	100	Hori.	46.0	31.0	
312.150	21.9	QP	15.0	-21.9	15.0	0	100	Vert.	46.0	31.0	

CHART:WITH FACTOR ANT TYPE : -30MHz Active Rod,30-200MHz BICONICAL,200MHz-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

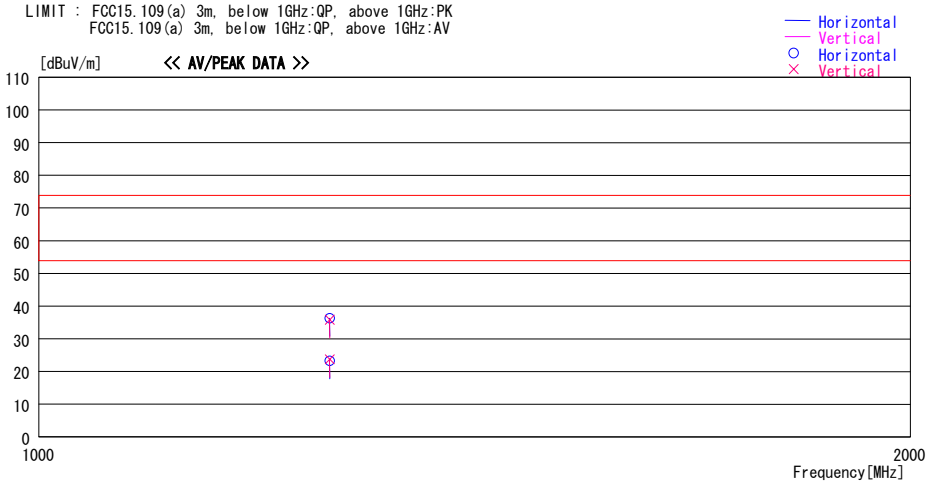
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2009/02/23

Applicant : DENSO CORPORATION
Kind of EUT : Remote Seat Control System (Receiver)
Model No. : 13BDH
Serial No. : 001

Report No. : 29EE0181-HO-01
Power : DC 12.0V
Temp. / Humi. : 20 deg. C. / 35 %
Engineer : Tomohisa Nakagawa

Mode / Remarks : Receiving mode, Worst-axis : Hori:Y-axis, Vert:Y-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]	Comment
1260.161	43.9	PK	25.0	-32.5	36.4	0	100	Hori.	73.9	37.5	
1260.161	30.8	AV	25.0	-32.5	23.3	0	100	Hori.	53.9	30.6	
1260.190	43.3	PK	25.0	-32.5	35.8	0	100	Vert.	73.9	38.1	
1260.190	31.2	AV	25.0	-32.5	23.7	0	100	Vert.	53.9	30.2	

CHART:WITH FACTOR ANT TYPE : -30MHz Active Rod, 30-200MHz BICONICAL, 200MHz-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

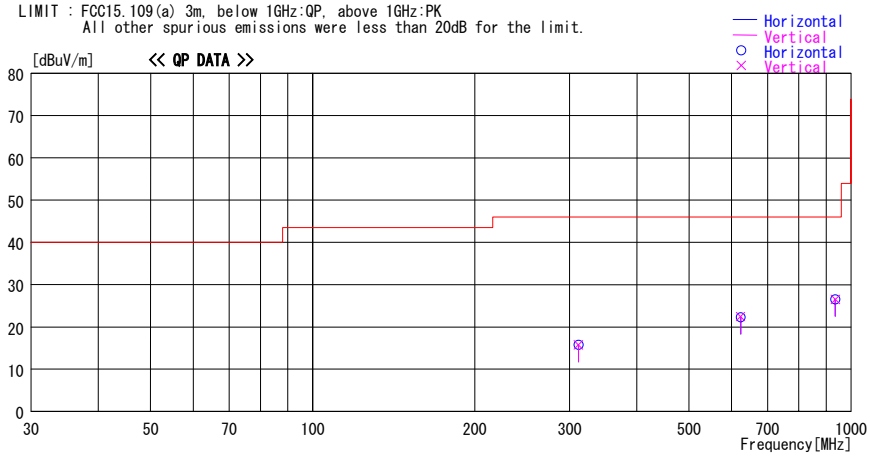
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2009/03/12

Company	: DENSO CORPORATION	Report No.	: 29EE0181-HO-01
Kind of EUT	: Remote Seat Control System(Receiver)	Power	: DC 12.0V
Model No.	: 13BDH	Temp./Humi.	: 19deg.C / 27%
Serial No.	: 001	Engineer	: Hironobu Ohnishi

Mode / Remarks : Receiving mode, Worst-axis : Hori:Y-axis, Vort:Y-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]	Comment
311.695	21.2	QP	13.5	-18.9	15.8	0	100	Hori.	46.0	30.2	NS
311.695	21.1	QP	13.5	-18.9	15.7	0	100	Vert.	46.0	30.3	NS
623.390	21.7	QP	19.3	-18.7	22.3	0	100	Hori.	46.0	23.7	NS
623.390	21.8	QP	19.3	-18.7	22.4	0	100	Vert.	46.0	23.6	NS
935.085	21.0	QP	22.2	-16.7	26.5	0	100	Hori.	46.0	19.5	NS
935.085	21.0	QP	22.2	-16.7	26.5	0	100	Vert.	46.0	19.5	NS

NS:No Signal Detected

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)

*Local Oscillator Frequency and its 2nd/3rd Harmonics were not detected.
*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	-
CUST-MSTW-14	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
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-30	Attenuator(6dB)	TME	UFA-01	-	RE	2009/03/02 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2008/03/06 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2008/04/23 * 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	2008/03/13 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2009/02/25 * 12
MAEC-02	Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2008/04/17 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2009/02/05 * 12
MJM-05	Measure	PROMART	SEN1955	-	RE	-
MRENT-62	Spectrum Analyzer	Agilent	E4448A	MY46180856	RE	2008/11/25 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2008/04/02 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2008/10/18 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2008/10/18 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2009/02/16 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2008/11/14 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2008/09/04 * 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