

APPENDIX 2: Data of EMI test

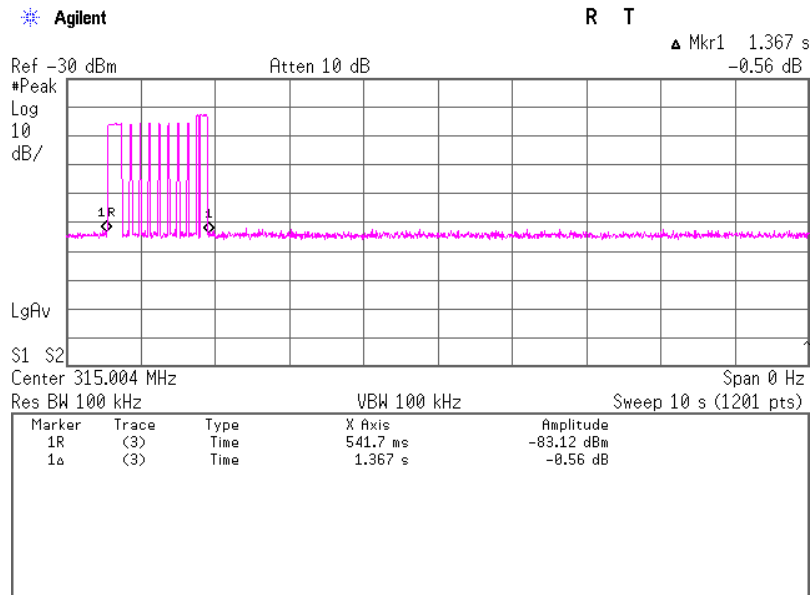
Automatically deactivate

UL Japan, Inc.
 Head Office EMC Lab. No.3 Semi Anechoic Chamber

COMPANY : Alps Electric Co., Ltd.
 EQUIPMENT : Remote Control for the Vehicle
 MODEL : 9 179 842
 S/N : 2
 POWER : DC 3.0V
 Mode : Normal use mode
 Axis : -

REPORT NO : 28IE0168-HO-01
 REGULATION : FCC15.231(a)(1)
 TEST DISTANCE : -
 DATE : 04/25/2008
 TEMPERATURE : 22 deg.C.
 HUMIDITY : 50%
 ENGINEER : Kazufumi Nakai

Time of Transmitting [sec]	Limit [sec]	Result
1.37	5.00	Pass



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Radiated Emission (Electric Field Strength of Fundamental and Spurious Emission)

UL Japan, Inc.
Head Office EMC Lab. No.3 Semi Anechoic Chamber

COMPANY : Alps Electric Co., Ltd.
EQUIPMENT : Remote Control for the Vehicle
MODEL : 9 179 842
S/N : 1
POWER : DC 3.0V
Mode : Transmitting mode
Axis : Hor.: X-axis, Ver.: Y-axis

REPORT NO : 28IE0168-HO-01
REGULATION : FCC Part15 Subpart C 15.231(b) / 15.205 / 15.209
TEST DISTANCE : 3m
DATE : 04/25/2008
TEMPERATURE : 22 deg.C.
HUMIDITY : 50%
ENGINEER : Kazufumi Nakai

PK DETECT (BW 120kHz)

No.	FREQ [MHz]	T/R READING		ANT Factor [dB/m]	AMP GAIN [dB]	LOSS [dB]	RESULT		Limit [dBuV/m]	MARGIN	
		HOR [dBuV]	VER				HOR [dBuV/m]	VER		HOR [dB]	VER [dB]
1	315.00	71.0	67.6	15.0	32.0	10.0	64.0	60.6	75.6	11.6	15.0
2	630.00	49.8	48.5	19.4	32.0	11.9	49.1	47.8	55.6	6.5	7.8
3	945.00	39.4	35.2	22.2	30.8	13.4	44.2	40.0	55.6	11.4	15.6

PK DETECT (RBW: 1MHz, VBW: 1MHz) (Inside Restricted bands)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	LOSS [dB]	RESULT		Limit [dBuV/m]	MARGIN	
		HOR [dBuV]	VER				HOR [dBuV/m]	VER		HOR [dB]	VER [dB]
5	1575.00	52.6	57.4	25.7	33.8	2.3	46.8	51.6	53.9	7.1	2.3
7	2205.00	48.6	47.2	26.3	32.9	2.6	44.6	43.2	53.9	9.3	10.7
9	2835.00	48.5	44.3	27.6	32.6	2.9	46.4	42.2	53.9	7.5	11.7

PK DETECT (RBW: 1MHz, VBW: 1MHz) (Outside Restricted bands)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	LOSS [dB]	RESULT		Limit [dBuV/m]	MARGIN	
		HOR [dBuV]	VER				HOR [dBuV/m]	VER		HOR [dB]	VER [dB]
4	1260.00	49.5	53.4	25.0	34.6	2.1	42.0	45.9	55.6	13.6	9.7
6	1890.00	51.1	51.8	25.8	33.2	2.4	46.1	46.8	55.6	9.5	8.8
8	2520.00	49.8	46.5	27.0	32.8	2.7	46.7	43.4	55.6	8.9	12.2
10	3150.00	49.5	47.3	28.2	32.4	3.0	48.3	46.1	55.6	7.3	9.5

REMARKS ANTENNA TYPE:30-300MHz Biconical / 300-1000MHz Logperiodic / 1-3.2GHz Horn
CALCULATION RESULT=Reading + ANT Factor - Amp Gain + LOSS (Cable+ ATTEN.)

- * The test above 1GHz was performed with PK DETECT.
- * Applying the limit of AV to the PK data, there were some margin and it was adopted.
- * The result is rounded off to the second decimal place, so some differences might be observed.
- *The limit was converted from V to dBuV, and it is rounded off to the second decimal place.
- *Except for the above table : All other spurious emissions were less than 20dB for the limit.

The carrier level (or, noise levels) was (or were) measured at each position of all three axes X, Y and Z, and the position that has the maximum noise was determined. With the position, the noise levels of all the frequencies was measured.

-20dB Bandwidth

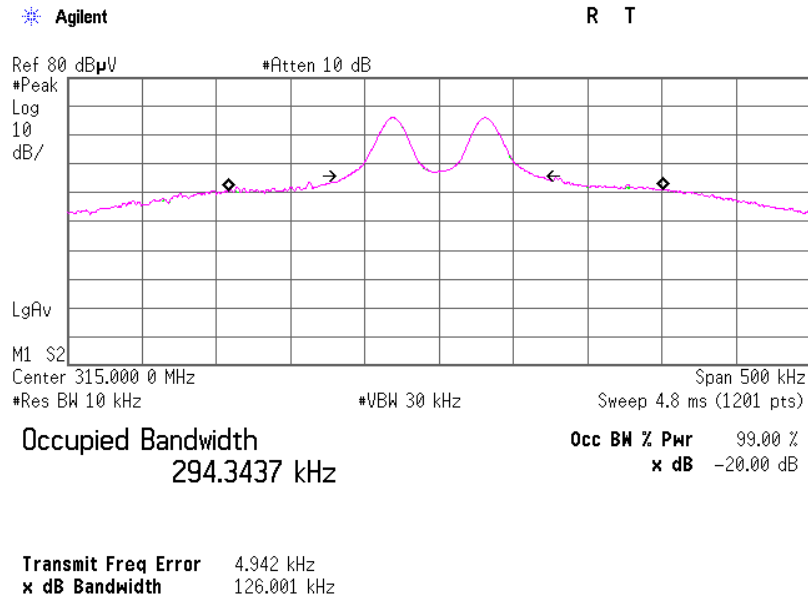
UL Japan, Inc.
 Head Office EMC Lab. No.3 Semi Anechoic Chamber

COMPANY : Alps Electric Co., Ltd.
 EQUIPMENT : Remote Control for the Vehicle
 MODEL : 9 179 842
 S/N : 1
 POWER : DC 3.0V
 Mode : Transmitting mode
 Axis : Ver.: Y-axis

REPORT NO : 28IE0168-HO-01
 REGULATION : FCC15.231(c)
 TEST DISTANCE : 3m
 DATE : 04/25/2008
 TEMPERATURE : 22 deg.C.
 HUMIDITY : 50%
 ENGINEER : Kazufumi Nakai

Bandwidth Limit : Fundamental Frequency 314.35 MHz X 0.25% = 785.88 kHz

-20dB Bandwidth	Bandwidth Limit	Result
[kHz]	[kHz]	
126.00	785.88	Pass



99% Occupied Bandwidth

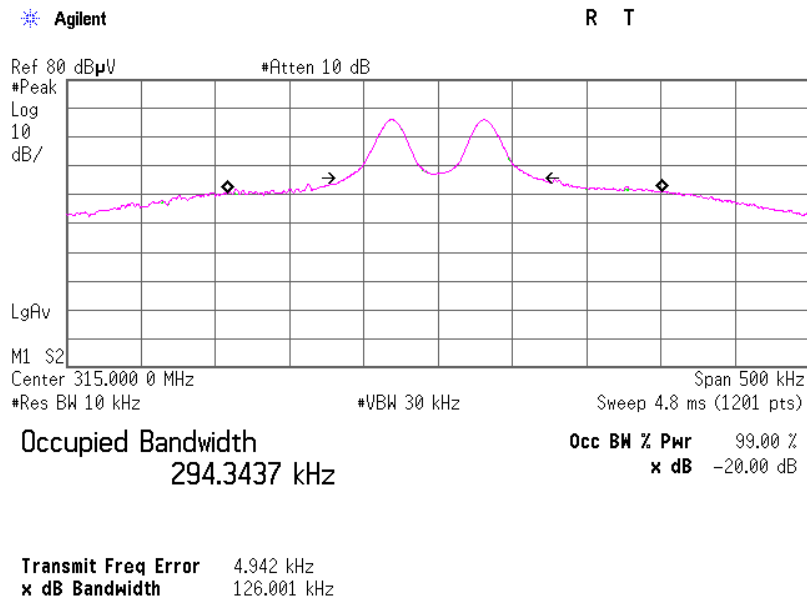
UL Japan, Inc.
Head Office EMC Lab. No.3 Semi Anechoic Chamber

COMPANY : Alps Electric Co., Ltd.
EQUIPMENT : Remote Control for the Vehicle
MODEL : 9 179 842
S/N : 1
POWER : DC 3.0V
Mode : Transmitting mode
Axis : Ver.: Y-axis

REPORT NO : 28IE0168-HO-01
REGULATION : RSS-210 A1.1.3
TEST DISTANCE : 3m
DATE : 04/25/2008
TEMPERATURE : 22 deg.C.
HUMIDITY : 50%
ENGINEER : Kazufumi Nakai

Bandwidth Limit : Fundamental Frequency 314.35 MHz X 0.25% = 785.875 kHz

99% Occupied Bandwidth	Bandwidth Limit	Result
[kHz]	[kHz]	
294.34	785.88	Pass



APPENDIX 3: Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2008/03/25 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	RE	2008/01/10 * 12
MJM-06	Measure	PROMART	SEN1955	RE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MRENT-62	Spectrum Analyzer	Agilent	E4448A	RE	2007/11/27 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2008/01/12 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2008/01/12 * 12
MCC-51	Coaxial cable	UL Japan	-	RE	2007/07/26 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2008/03/10 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	RE	2008/03/06 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2008/04/23 * 12
MCC-56	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2008/03/12 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE	2008/03/13 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2008/02/20 * 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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