

**APPENDIX 2: Data of EMI test**

**Radiated Emission**

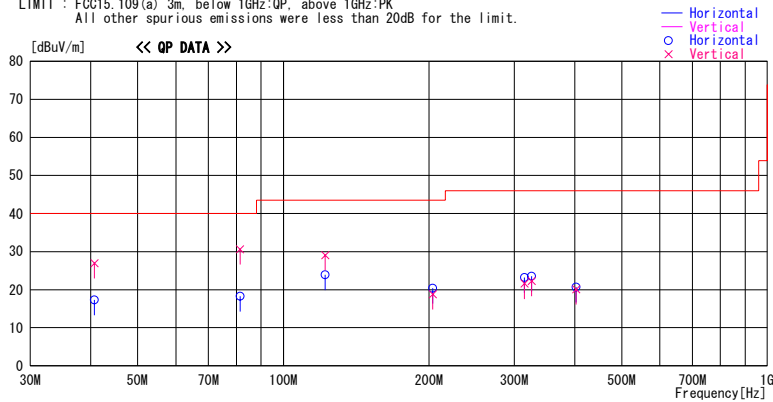
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2008/01/08

Company : Alps Electric Co., Ltd. Report No. : 28EE0011-HO-01  
Kind of EUT : TPMS Tuner Power : DC 10.0V  
Model No. : TW1U280 Temp./Humi. : 24deg.C / 35%  
Serial No. : 071220-1 Operator : Takahiro Hatakeda

Mode / Remarks : Constant Power Supply Mode (IGN=ON)

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		Level [dBuV/m]	Angle [Deg.]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss & Gain [dB]						
40.712	28.3	QP	13.7	-24.7	17.3	321	335	Hori.	40.0	22.7
40.713	38.0	QP	13.7	-24.7	27.0	220	100	Vert.	40.0	13.0
81.420	35.3	QP	7.2	-24.2	18.3	223	231	Hori.	40.0	21.7
81.420	47.6	QP	7.2	-24.2	30.6	271	100	Vert.	40.0	9.4
122.130	39.5	QP	13.3	-23.7	29.1	256	100	Vert.	43.5	14.4
122.130	34.3	QP	13.3	-23.7	23.9	221	303	Hori.	43.5	19.6
203.550	24.9	QP	16.7	-22.8	18.8	124	100	Vert.	43.5	24.7
203.550	26.5	QP	16.7	-22.8	20.4	221	185	Hori.	43.5	23.1
315.000	27.3	QP	16.3	-22.0	21.6	45	180	Vert.	46.0	24.4
315.000	28.9	QP	16.3	-22.0	23.2	288	100	Hori.	46.0	22.8
325.700	28.9	QP	16.5	-21.9	23.5	269	100	Hori.	46.0	22.5
325.700	27.7	QP	16.5	-21.9	22.3	359	154	Vert.	46.0	23.7
402.775	24.5	QP	17.6	-21.4	20.7	63	100	Hori.	46.0	25.3
402.775	23.9	QP	17.6	-21.4	20.1	302	100	Vert.	46.0	25.9

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.

**Radiated Emission**

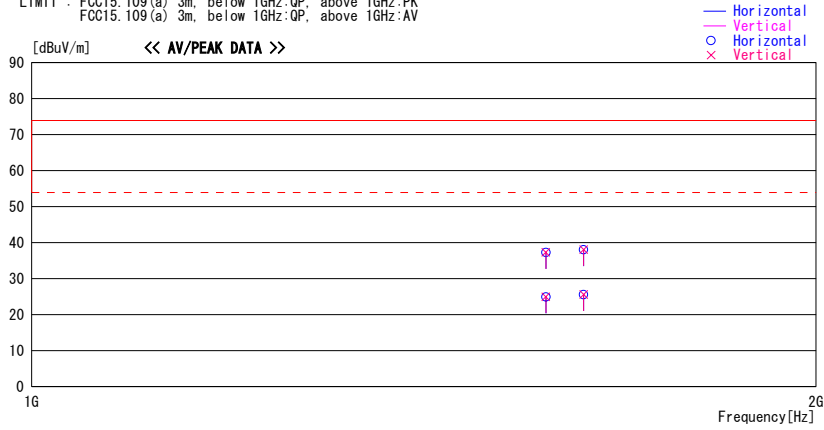
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Date : 2008/01/08

Company : Alps Electric Co., Ltd. Report No. : 28EE0011-HO-01  
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Model No. : TWC1U280 Temp./Humi. : 24deg.C / 35%  
Serial No. : 071220-1 Operator : Takahiro Hatakeda

Mode / Remarks : Constant Power Supply Mode(IGN=ON)

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
			Factor	Gain						
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
1575.000	42.8	PK	25.6	-31.1	37.3	0	100	Hori.	73.9	36.6
1575.000	42.8	PK	25.6	-31.1	37.3	0	100	Vert.	73.9	36.6
1575.000	30.4	AV	25.6	-31.1	24.9	0	100	Hori.	53.9	29.0
1575.000	30.5	AV	25.6	-31.1	25.0	0	100	Vert.	53.9	28.9
1628.500	43.3	PK	25.7	-31.0	38.0	0	100	Hori.	73.9	35.9
1628.500	43.4	PK	25.7	-31.0	38.1	0	100	Vert.	73.9	35.8
1628.500	30.9	AV	25.7	-31.0	25.6	0	100	Hori.	53.9	28.3
1628.500	30.9	AV	25.7	-31.0	25.6	0	100	Vert.	53.9	28.3

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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### APPENDIX 3: Test instruments

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-04	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2007/03/03 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	RE	2006/01/19 * 24
MJM-07	Measure	PROMART	SEN1955	RE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	RE	2007/01/19 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	RE	2007/01/19 * 12
MAT-31	Attenuator(6dB)	TME	UFA-01	RE	2007/03/05 * 12
MCC-50	Coaxial cable	UL Japan	-	RE	2007/03/06 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	RE	2007/03/12 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	RE	2007/09/14 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120 D	RE	2007/08/16 * 12
MCC-57	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLE X104	RE	2007/03/30 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	RE	2007/03/12 * 12
MSA-05	Spectrum Analyzer	Advantest	R3273	RE	2007/06/01 * 12
MCB-02	Car Battery	YUASA	40B19L	RE	Pre Check

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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