

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No. : 27FE0254-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Passive Entry System (Control Unit)
Model No. : TWD1J679
Serial No. : 933756
Power : DC12V
Mode : Transmitting(125kHz)
Remarks : PK(9-90kHz and 110-490kHz)
Date : 2/13/2007
Test Distance : 3 m
Temperature : 21 °C Engineer : Toyokazu Imamura
Humidity : 35 %
Regulation : FCC Part15C § 15.209 9KHz-490kHz (3m) Pk

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER	HOR [dB]	VER		
1.	0.13	BB	108.5	104.7	19.3	23.4	0.1	5.2	109.7	105.9	125.3	15.6	19.4	
2.	0.25	BB	61.6	54.7	19.3	27.6	0.1	6.0	59.4	52.5	119.6	60.2	67.1	
3.	0.38	BB	59.1	55.3	19.4	28.1	0.1	6.0	56.5	52.7	116.0	59.5	63.3	

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KLP-01 (HFH2-Z2)

AMP: KAF-05 (8447D) ■ CABLE: KCC-30_31_32_34 (RE) ■ RECEIVER: APRCV03 (SMV41)

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 Model No. : TWD1J679
 Serial No. : 933756
 Power : DC12V
 Mode : Transmitting(125kHz)
 Remarks : QP and AV(9-90kHz and 110-490kHz)
 Date : 2/13/2007
 Test Distance : 3 m
 Temperature : 21 °C Engineer : Toyokazu Imamura
 Humidity : 35 %
 Regulation : FCC Part15C § 15.209 9KHz-30MHz (3m)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER		HOR [dB]	VER
1.	0.13	BB	92.0	88.2	19.3	23.4	0.1	5.2	93.2	89.4	105.3	12.1	15.9
2.	0.25	BB	46.7	40.4	19.3	27.6	0.1	6.0	44.5	38.2	99.6	55.1	61.4
3.	0.38	BB	41.6	40.6	19.4	28.1	0.1	6.0	39.0	38.0	96.0	57.0	58.0
4.	0.50	BB	46.0	35.8	19.4	28.2	0.1	6.0	43.3	33.1	73.6	30.3	40.5
5.	0.63	BB	45.1	40.3	19.4	28.4	0.2	6.0	42.3	37.5	71.6	29.3	34.1
6.	0.75	BB	34.2	28.8	19.4	28.4	0.2	6.0	31.4	26.0	70.1	38.7	44.1
7.	0.88	BB	40.6	35.9	19.5	28.3	0.2	6.0	38.0	33.3	68.7	30.7	35.4
8.	1.00	BB	36.5	31.7	19.5	28.3	0.2	6.0	33.9	29.1	67.6	33.7	38.5
9.	1.13	BB	34.8	32.5	19.5	28.3	0.2	6.0	32.2	29.9	66.5	34.3	36.6
10.	1.25	BB	27.2	27.4	19.5	28.4	0.2	6.0	24.5	24.7	65.7	41.2	41.0
11.	19.63	BB	36.6	47.5	20.3	28.5	0.8	6.0	35.2	46.1	69.5	34.3	23.4
12.	29.00	BB	31.0	42.2	21.5	28.5	1.0	6.0	31.0	42.2	69.5	38.5	27.3

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KLP-01 (HFH2-Z2)
 AMP: KAF-05 (8447D) ■ CABLE: KCC-30_31_32_34 (RE) ■ RECEIVER: APRCV03 (SMV41)

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 Kind of Equipment : Passive Entry System (Control Unit)
 Model No. : TWD1J679
 Serial No. : 933756
 Power : DC12V
 Mode : Transmitting(125kHz)
 Remarks : QP
 Date : 2/13/2007
 Test Distance : 3 m
 Temperature : 21 °C
 Humidity : 35 %
 Regulation : FCC Part15C § 15.209

Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER					HOR [dB μ V/m]	VER		HOR [dB]	VER
1.	32.37	BB	25.3	37.1	18.2	28.5	1.1	6.0	22.1	33.9	40.0	17.9	6.1
2.	51.75	BB	22.1	40.8	10.1	28.5	1.4	6.0	11.1	29.8	40.0	28.9	10.2
3.	85.86	BB	25.3	35.6	7.8	28.4	1.8	6.0	12.5	22.8	40.0	27.5	17.2
4.	98.51	BB	32.8	44.3	10.2	28.5	2.0	6.1	22.6	34.1	43.5	20.9	9.4
5.	118.24	BB	31.7	38.9	13.1	28.4	2.2	6.1	24.7	31.9	43.5	18.8	11.6

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

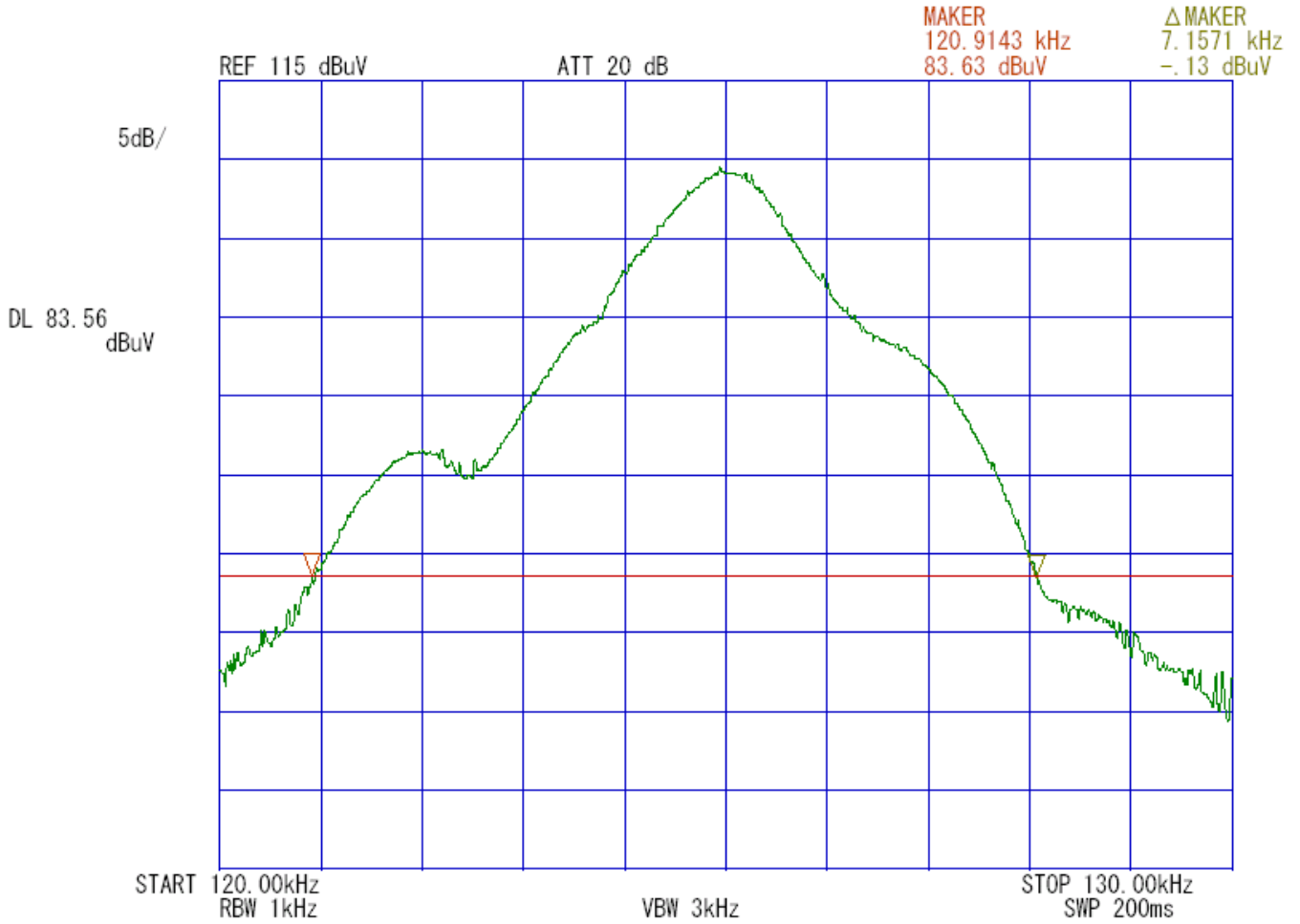
■ ANTENNA : KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz
 ■ AMP : KAF-05 (8447D) ■ CABLE : KCC-30_31_32_34 (RE) ■ RECEIVER : APRCV03 (SMV41)

-26dB Bandwidth

COMPANY : Alps Electric Co., Ltd.
EQUIPMENT : Passive Entry System(Control Unit)
MODEL NUMBER: TWD1J679
SERIAL NUMBER: 933756
FCC ID : CWTWDJ679
POWER : DC12V

UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber
REPORT NO : 27FE0254-YK-A
REGULATION : -
DATE : 2007/02/13
TEMP./HUMI : 21°C/35%
TEST MODE : Transmitting (125kHz)
ENGINEER : Toyokazu Imamura

-26dB Bandwidth
[kHz]
7.157



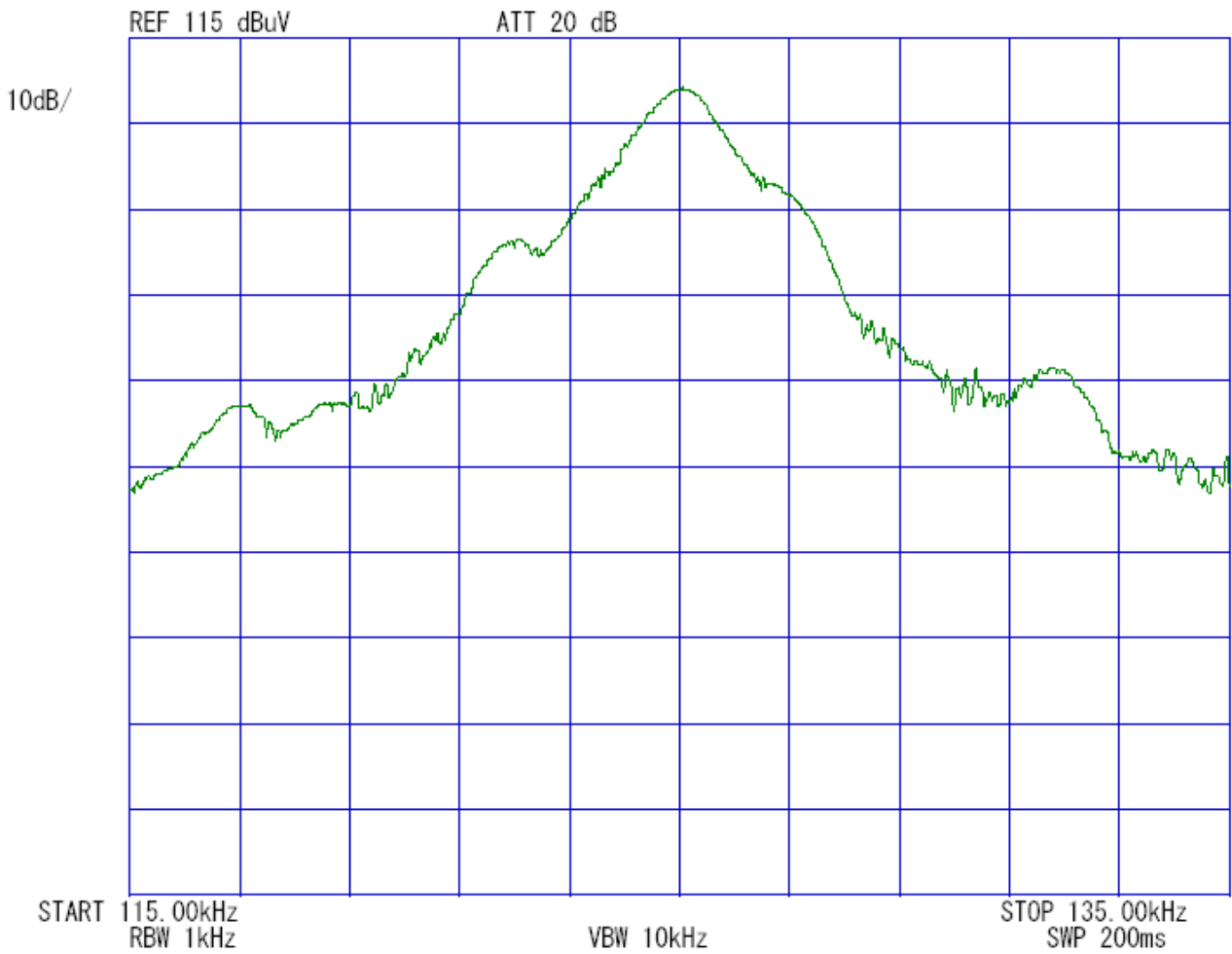
Occupied Bandwidth(99%)

COMPANY : Alps Electric Co., Ltd.
EQUIPMENT : Passive Entry System(Control Unit)
MODEL NUMBER: TWD1J679
SERIAL NUMBER: 933756
FCC ID : CWTWDJ679
POWER : DC12V

UL Apex Co.,Ltd. Yamakita No.1 Anechoic Chamber
REPORT NO : 27FE0254-YK-A
DATE : 2007/02/13
TEMP./HUMI : 21°C/35%
TEST MODE : Transmitting (125kHz)
ENGINEER : Toyokazu Imamura

99% Occupied Bandwidth
[kHz]
5.87

OBW (99%) : 5.87kHz



APPENDIX 3
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
YA-RE	Radiated emission(software)	UL-Apex	RE(Ver.1.5)	RE/BW	-
KAEC-01(NSA)	Anechoic Chamber	JSE	Semi 3m	RE/BW	2006/08/31 * 12
KAF-05	Pre Amplifier	Agilent	8447D	RE/BW	2006/04/21 * 12
KAT6-01	Attenuator	INMET	18N-6dB	RE/BW	2006/03/24 * 12
KBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2007/01/06 * 12
KCC-30/31/32 /34/KRM-03	Coaxial Cable/RF Relay Matrix	Fujikura/Suhner/TSJ	5D-2W/S04272B/RFM-E421	RE/BW	2006/11/27 * 12
KLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2007/01/06 * 12
KSA-04	Spectrum Analyzer	Advantest	R3271A	RE/BW	2006/09/05 * 12
KOS-02	Humidity Indicator	Custom	CTH-190	RE/BW	2006/07/10 * 24
APRCV03	Test Receiver	MEB	SMV41	RE	2006/10/04 * 12
KLP-01	Loop Antenna	Rohde & Schwarz	HFH2-Z2	RE/BW	2006/06/01 * 12
KJM-01	Measure	TAJIMA	GL19-55	RE/BW	-

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 .

Test Item :

- RE: Radiated emission,
- BW: Bandwidth