EMI TEST REPORT

Test Report No. : 19G0003-05-2

ALPINE ELECTRONICS, INC.

Type of Equipment:	Car Audio Receiver with rear seat audio Transmitter
Model No.:	RBU
Test standard:	FCC Part 15 Subpart C
Test Result:	Complied

- 1. This test report shall not be reproduced except in full, without the written approval of A-Pex International Co., Ltd.
- 2. The results in this report apply only to the sample tested.
- 3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.

4. The test results in this test report are traceable to the national or international standards.

5. This test report does not constitute an endorsement by NIST/NVLAP or U.S. Government.

Date of test :

December 27, 2000

Tested by :

Applicant:

Fumiaki Matsuo

Tetsuya Hashimoto

Director of EMC Section

Approved by:

EMC Section Q. Hashemo

Date of issue: January 16, 2001

Form Version No. 2



This laboratory is registered by the NIST/NVLAP, U.S.A. The tests reported herein have been performed in accordance with its terms of registration.

A-pex International Co., Ltd. YAMAKITA LAB.

907 Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken, 258-0124 JAPAN

		Test report No. : 19G0005-05-	
		Page Issued date	: 2 of 17 : January 16, 2001
SECTION 2 :	Equipment under test (E.U.T.)		3
SECTION 3 :	Test specification, methods & procedures		4
SECTION 4 :	Operation of E.U.T. during testing		5
SECTION 5 :	Summary of test results		7
SECTION 6 :	Test instruments		12
SECTION 7 :	Radiated emission		13
APPENDIX 1:	Photographs of test setup		15
APPENDIX 2:	Data of EMI test		17

SECTION 1: Client information

Company Name	: ALPINE ELECTRONICS, INC.
Brand Name	: ALPINE
Address	: 20-1 Yoshima-Kogyodanchi, Iwaki-city, Fukushima, 970-1192 JAPAN
Telephone Number	: +81-246-36-4111
Facsimile Number	: +81-246-36-6090
Contact Person	: Shinichi Asuke

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Unique Type Identification: Car Audio Receiver with rear seat audio Transmitter

Model No.	: RBU
Rating	: DC13.5V typ.
Country of Manufacture	: JAPAN
Receipt Date of Sample	: December 2, 2000

2.2 Product description

ALPINE ELECTRONICS, INC. Model: RBU (referred to as the EUT in this report) is a Car Audio Receiver with rear seat audio Transmitter.

Clock Frequency:	11.2896MHz, 6.00MHz (for TX), 4.00MHz, 38kHz (for TX), 32.768kHz.
Transmitting Frequency:	912.5MHz, 914MHz.(This EUT has two transmitting channels)
IF Frequency:	10.7MHz.

SECTION 3: Test specification, methods & procedures

3.1 Test specification

Test Specification : FCC Part 15 Subpart C

 Title
 : FCC 47CFR Part15 Radio Frequency Device

 Subpart C Intentional Radiators

3.2 Methods & Procedures

No.	Item	Test Procedure	Specification	Remarks
1	Radiated emission	FCC/ANSI C63.4:1992	-	Measuring
				distance of 3m

SECTION 4: Operation of E.U.T. during testing

4.1 Operating modes

The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

Operation: 1)Transmitting Mode (912.5MHz CH-1, 914MHz CH-2) 2) Receiving Mode

Justification: The system was configured in typical fashion (as a customer would normally use it) for testing.

4.2 Configuration and peripherals

Front View



*Cabling was taken into consideration and test data was taken under worse case conditions.

Top View



*Cabling was taken into consideration and test data was taken under worse case conditions.

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 Test report No.
 : 19G0005-05-2
 Page
 : 6 of 17

 Issued date
 : January 16, 2001

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID
A	Car Audio Receiver with rear seat audio Transmitter	RBU	TB1AA2100R 1170	ALPINE ELECTRONICS, INC	
В	DC Power Supply	PAN35-10A	DE001677	KIKUSUI	-

Meshed column are represented EUT

List of cables used

No.	Name	Length (m)	Shield	Backshell material
1	DC Power Cable	1.8	Unshielded	P.V.C.
2	Speaker & Control Cable	0.3	Unshielded	P.V.C.
3	Receiver Antenna Cable	0.3	Shielded	P.V.C.
4	AC Power Cable	2.0	Unshielded	P.V.C.

 Telephone:
 int +81 465 77 1011

 Facsimile:
 int +81 465 77 2112

 Test report No.
 : 19G0005-05-2

 Page
 : 7 of 17

 Issued date
 : January 16, 2001

SECTION 5: Summary of test results

5.1 Test results

No.	Item	Test Procedure	Specification	Remarks	Results
1	Radiated emission	FCC/ANSI C63.4:1992	_	Measuring	Complied
				distance of 3m	

A-PEX INTERNATIONAL hereby confirms that E.U.T., in the configuration tested, complies with the specifications FCC Part15 Subpart C.

5.1.1 Data of radiated emission test

FCC Part 15

The initial step in collecting radiated data was a spectrum analyzer peak scan of the measurement range (30MHz-10000MHz).

The final data was reported in the worst-case emissions. The minimum margin to the limit is as follows :

Subpart C § 15.249 (a), (b), (d)

1) Transmitting Mode (CH-1)

1) Tranonneung					
Frequency	Receiver Reading	Correction Factor	Field Strength	Limit	Margin
(MHZ)	(aBuv)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)
1825.06	55.6	-3.8	51.8	54.0	2.2
2) Transmitting	Mode (CH-2)		•		
	Receiver	Correction	Field		
Frequency	Reading	Factor	Strength	Limit	Margin
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)
1827.96	55.5	-3.8	51.7	54.0	2.3

*30MHz-1000MHz: All readings are quasi-peak mode.

*1000MHz-2750MHz: All readings are AV mode. (We confirmed that peak mode data did not over limit 20dB) *2750MHz-10000MHz: All readings are peak mode.

Subpart C 15.249 (C)						
1) Transmitting Mo	de (CH-1) Pagaivar	Correction	Field			
Frequency	Reading	Factor	Strength	Limit	Margin	
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
30.00	25.9	-2.3	23.6	40.0	16.4	
2) Transmitting Mo	de (CH-2)		F' 11			
Fraguancy	Receiver	Correction	Field	Limit	Margin	
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
	· · · ·	. ,	× ,	、 <i>,</i>	. ,	
30.05	30.1	-2.3	27.8	40.0	12.2	
3) Receiving Mode						
	Receiver	Correction	Field			
Frequency	Reading	Factor	Strength	Limit	Margin	
(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
30.01	26.5	-2.3	24.2	40.0	15.8	

* All readings are quasi-peak mode.

Subpart C 15.249 (e) N/A

Field strength calculation

The field strength is calculated by adding the Antenna Factor, Cable Factor and Antenna Pad, and subtracting the Amplifier Gain from the measured reading. The sample calculation is as follows :

FS = RA + AF + CF + AT - AGCorrection factor

where FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Factor AT = Antenna Pad AG = Amplifier Gain

Subpart C 15.249 (a), (b), (d) 1) Transmitting Mode (CH-1)

Assume a receiver reading of 55.6dBuV is obtained. The antenna Factor of 28.9dB, Cable Factor of 4.0dB and Antenna Pad of 0.0dB is added.

The Amplifier Gain of 36.7dB is subtracted, giving a field strength of 51.8dBuV/m.

 $FS = \ 55.6 + 28.9 + 4.0 + 0.0 - 36.7 \ = \ 51.8 dBuV/m$

2) Transmitting Mode (CH-2)

Assume a receiver reading of 55.5dBuV is obtained. The antenna Factor of 28.9dB, Cable Factor of 4.0dB and Antenna Pad of 0.0dB is added.

The Amplifier Gain of 36.7dB is subtracted, giving a field strength of 51.7dBuV/m.

 $FS = \ 55.5 + 28.9 + 4.0 + 0.0 - 36.7 \ = \ 51.7 dBuV/m$

Subpart C 15.249 (C)

1) Transmitting Mode (CH-1)

Assume a receiver reading of 25.9dBuV is obtained. The antenna Factor of 18.7dB, Cable Factor of 1.3dB and Antenna Pad of 6.0dB is added.

The Amplifier Gain of 28.3dB is subtracted, giving a field strength of 23.6dBuV/m.

 $FS = \ 25.9 + 18.7 + 1.3 + 6.0 - 28.3 \ = \ 23.6 dBuV/m$

2) Transmitting Mode (CH-2)

Assume a receiver reading of 30.1dBuV is obtained. The antenna Factor of 18.7dB, Cable Factor of 1.3dB and Antenna Pad of 6.0dB is added.

The Amplifier Gain of 28.3dB is subtracted, giving a field strength of 27.8dBuV/m.

 $FS = \ 30.1 + 18.7 + 1.3 + 6.0 - 28.3 \ = \ 27.8 dBuV/m$

3) Receiving Mode

Assume a receiver reading of 26.5dBuV is obtained. The antenna Factor of 18.7dB, Cable Factor of 1.3dB and Antenna Pad of 6.0dB is added.

The Amplifier Gain of 28.3dB is subtracted, giving a field strength of 24.2dBuV/m.

 $FS = \ 26.5 + 18.7 + 1.3 + 6.0 - 28.3 \ = \ 24.2 dBuV/m$

 Test report No.
 : 19G0005-05-2
 Page
 : 11 of 17

 Issued date
 : January 16, 2001

5.2 Uncertainty

Radiated emission test

The measurement uncertainty (with a 95% confidence level) for this test was ±3.3dB.

The data listed in this test report may exceed the test limit because it does not have enough margin (more than 3.3dB).

5.3 Test instruments

Refer to SECTION 6: TEST INSTRUMENTS

5.4 Test location

A-PEX International Co.,Ltd. Yamakita No.1 Open Test Site. 907, Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken 258-0124 Japan Telephone number : +81-465-77-1011 Facsimile number : +81-465-77-2112

This site has been fully described in a report dated September 24, 1999 submitted to FCC office, and accepted in a letter dated October 8, 1999 (95486)

*NVLAP Lab. code : 200441-0

5.5 Photographs of test setup

Refer to Appendix 1.

5.6 Data of EMI test

Refer to Appendix 2.

SECTION 6: Test instruments

EMI test instrnment

Instrument	Manufacturer	Model No.	Control No.	Calibration date / Interval
Pre-Amplifier	Hewlett Packard	8447D	KAF-01	September 5, 2000 / 1year
Pre-Amplifier	Hewlett Packard	8449B	KAF-02	September 12, 2000 / 1year
Biconical Antenna	Schwarzbeck	BBA9106	KBA-01	September 3, 2000 / 1year
Logperiodic Antenna	Schwarzbeck	USLP9143	KLA-02	September 3, 2000 / 1year
DRG Horn Antenna	A.H.Systems	SAS-200/571	KHA-01	October 17, 1999 / 3year
Spectrum Analyzer	ADVANTEST	R3271	SA-05	December 9, 2000 / 1year
Test Receiver	Rohde & Schwarz	ESCS30	KTR-02	December 4, 2000 / 1year

*All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

SECTION 7: Radiated emission

7.1 Operating environment

The test was carried out in an open test site.

Temperature	: 15 degree
Humidity	: 40 %

7.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The rear of EUT, including peripherals was aligned and flush with rear of tabletop.I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged 40cm height to the ground plane. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

A drawing of the set up is shown in fig. 1 and the photos of Appendix 1.

Figure 1. Drawing of the test set-up



7.3 Test conditions

Frequency range	:	30MHz -	10000MHz
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Test distance : 3m

EUT position : Table top

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Test report No.	: 19G0005-05-2
Page	: 14 of 17
Issued date	: January 16, 2001

7.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on an open test site with a ground plane and at a distance of 3m.

Pre check measurements were performed within a screened room or used search coil for ambient noise at high-level, especially from 272MHz to 288MHz. Measurements were performed with a quasi-peak detector.

The measuring antenna height was varied between 1 to 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization. The EUT was put into operation at Transmitting Mode and Receiving Mode.

7.5 Results

Summary of the test results: Pass (The test data is shown in Appendix 2.)

Date: December 27, 2000

Test engineer: F. Matsuo

Test report No.	: 19G0005-05-2
Page	: 15 of 17
Issued date	: January 16, 2001

APPENDIX 1: Photographs of test setup

This section contains the following photographs:

Page 16 : Radiated emission

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Test report No.	: 19G0005-05-2
Page	: 16 of 17
Issued date	: January 16, 2001

Radiated emission





A-pex International Co., Ltd. **YAMAKITA LAB.** 907 Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken, 258-0124 JAPAN

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APPENDIX 2: Data of EMI test

This section contains the following data

Radiated emission FCC Part 15 Subpart C Transmitting (CH-1)	15.249 (a), (b), (d): A2-01 to A2-02
Transmitting (CH-2)	<u>A2-03 to A2-04</u>
Radiated emission FCC Part 15 Subpart C Transmitting (CH-1)	15.249 (C): <u>A2-05 to A2-06</u>
Transmitting (CH-2)	A2-07 to A2-08
Receiving	<u>A2-09 to A2-10</u>
Fundamental wave chart: Transmitting (CH-1)	<u>A2-11</u>
Transmitting (CH-2)	<u>A2-12</u>

A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No. : 19G0003-05-2

Appl Kind Seri Powe Mode Rema Date Test	licant d of Equ al No. ial No. ar arks d Distan	ipmen ce	t	ALP Car RBU TB1 DC1 Tra 12/ 3_m	INE ELE Audio AA2100R 3.5V nsmitti 27/2000	CTRON Receiv 1170 ng (CH-	ICS INC /er wit -1)	h rear	seat a	udio T * Ma	ransmit Tsux	ter	
Temp Humi Regi	perature idity ulation			: 15 : 40 : FCC	°C % 150.902	-028M	17 (?m)		Engińee	r :	Fumiak	i Mats	uo
No.	FREQ.	ANT TYPE	REAE HOR [dB /	ν DING VER μV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESI HOR [dB µ]	ULT VER V/m] [d	LIMITS BµV/m]	MAF HOR [c	RGIN VER HB]
$ \begin{array}{c} 1.\\ 2.\\ 3.\\ 4.\\ 5.\\ 6.\\ \end{array} $	912. 49 1825. 06 2737. 53 3649. 98 4560. 30 5472. 43	BB BB BB BB BB BB	$\begin{array}{c} 68.\ 7\\ 53.\ 2\\ 47.\ 1\\ 47.\ 9\\ 42.\ 8\\ 41.\ 9\end{array}$	75. 2 55. 6 50. 7 49. 1 43. 9 41. 9	$\begin{array}{c} 22.\ 6\\ 28.\ 9\\ 31.\ 4\\ 32.\ 6\\ 33.\ 7\\ 35.\ 5\end{array}$	$\begin{array}{c} 28.\ 7\\ 36.\ 7\\ 36.\ 5\\ 36.\ 4\\ 36.\ 0\\ 35.\ 4\end{array}$	$8.7 \\ 4.0 \\ 5.2 \\ 5.7 \\ 6.5 \\ 7.2$	$\begin{array}{c} 6. \ 1 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \\ 0. \ 0 \end{array}$	77. 4 49. 4 47. 2 49. 8 47. 0 49. 2	83. 9 51. 8 50. 8 51. 0 48. 1 49. 2	$94. 0 \\ 54. 0 \\ 54. 0 \\ 54. 0 \\ 54. 0 \\ 54. 0 \\ 54. 0 \\ 54. 0$	$ \begin{array}{c} 16. \ 6\\ 4. \ 6\\ 6. \ 8\\ 4. \ 2\\ 7. \ 0\\ 4. \ 8 \end{array} $	10. 1 2. 2 3. 2 3. 0 5. 9 4. 8

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

*KLA-01 (USLP9143) /KHA-01 (SAS-200/571) *CABLE:KCC-D1/D2*PREAMP:KAF-01/KAF-02*EM1 RECEIVER :KTR-02 (ESCS30)

A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No. : 19G0003-05-2

ALPINE ELECTRONICS INC.	
Car Audio Receiver with rea	r seat audio Transmitter
RBU	
TB1AA2100R1170	
DC13, 5V	
Transmitting(CH-1)	
G Cart 17	
12/27/2000	× m-t
3 m	H. Malsur
15 °C	Engineer : Fumiaki Matsuo
40 %	
FCC15C 902-928MHz (3m)	
	ALPINE ELECTRONICS INC. Car Audio Receiver with rea RBU TB1AA2100R1170 DC13.5V Transmitting(CH-1) 12/27/2000 3 m 15 °C 40 % FCC15C 902-928MHz(3m)



A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No.: 19G0003-05-2

App Kir Moo Ser Pow Moo Ren Dat	olicant nd of Equ del No. rial No. ver de narks ce	ipmen	t	: ALP : Car : RBU : TB1 : DC1 : Tra : : 12/	INE ELE Audio AA2100R 3.5V nsmitti 27/2000	CTRON Receiv 1170 ng (CH-	ICS INC ver wit -2)	, h rear	⁻ seat a	udio T	ransmit m -	ter	
Tes Ten Hun Reg	st Distand nperature nidity gulation	ce		: 3 m : 15 : 40 : FCC	°C % 15C 902	-928MI	tz (3m)		Engineé	<u>/4. //</u> r :	<u>lalsu/</u> Fumiak	2 i Matsı	10
No.	FREQ. [MHz]	ANT TYPE	REAL HOR [dB,	DING VER uV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RES HOR [dBμ]	ULT VER V/m] [d	LIMITS ΒμV/m]	MAR HOR [d	GIN VER B]
1. 2.	914.02 1827.96	BB BB	69.0 51.7	75.5 55.5	22.6 28.9	28.7 36.7	8.7 4.0	6. 1 0. 0	77.7 47.9	84.2 51.7	94. 0 54. 0	16.3 6.1	9.8 2.3
3.	2741.95	BB	47.2	51.6	31.4	36.5	5.2	0.0	47.3	51.7	54.0	6.7	2.3
$^{4.}_{5.}$	3655.96 4570.14	BB	45. 3 43. 5	49.8 41.8	32.6 33.7	36.4 36.0	5.7 6.5	0.0	47.2	51.7 46.0	54.0 54.0	ь. 8 6. 3	2.3 8.0

50.8

49.1

54.0

4.9

3.2

0.0

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

35.5

35.4

7.2

*KLA-01 (USLP9143) /KHA-01 (SAS-200/571) *CABLE:KCC-D1/D2*PREAMP:KAF-01/KAF-02*EMI RECEIVER :KTR-02(ESCS30)

41.8

5485.10 BB

6.

43.5

A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No. : 1960003-05-2

Applicant :	ALPINE ELECTRONICS INC.		
Kind of Equipment	Car Audio Receiver with rear	r seat audio	o Transmitter
Model No.	RBU		
Serial No. :	TB1AA2100R1170		
Power :	DC13, 5V		
Mode :	Transmitting(CH-2)		
Remarks :		~	
Date :	12/27/2000	×	mt
Test Distance :	3 m	A.	Malsus
Temperature :	15 °C	Enginéer	: Fumiaki Matsuo
Humidity :	40 %	2	
Regulation :	FCC15C 902-928MHz (3m)		



Page: A 2 - 0

A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No.: 19G0003-05-2

24.2

22.8

24.2

23.0

Appl Kind Mode Seri Powe Mode Rema	icant of Equ I No. al No. r rks	ipmen	t	: ALP : Car : RBU : TB1 : DC1 : Tra	Audio AA2100R 3.5V nsmitti	CTRON Receiv R1170 ng (CH-	ICS INC ver wit -1)). ch rear	seat a	udio Tu \sim	ransmit	ter	
Test	Distano erature	ce		: 12/ : 3 m : 15	27/2000 °C	ĵ		Ē	nginée	<u>4.</u> r :	<u>latsur</u> Fumiak	<u>Q</u> i Mats	uo
Hum i Regu	dity lation			: 40 : FCC	% Part15	B CLAS	SS B						
No.	FREQ.	ANT TYPE	REAL HOR [dB]	DING VER µV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RES HOR [dB µ	ULT I VER V/m][dI	.IMITS 3μV/m]	MAI HOR [d	RGIN VER HB]
1. 2. 3. 4. 5.	30.00 60.00 78.00 162.00 531.23	BB BB BB BB BB	23.5 25.9 29.8 20.2 20.2	25. 9 29. 4 28. 6 20. 8 20. 2	18.7 7.3 6.8 15.6 18.4	28. 3 28. 1 28. 3 28. 2 29. 2	$ \begin{array}{r} 1.3 \\ 1.9 \\ 2.2 \\ 3.2 \\ 6.3 \\ \end{array} $	$ \begin{array}{c} 6.0\\ 6.0\\ 6.0\\ 6.0\\ 6.1 \end{array} $	21. 2 13. 0 16. 5 16. 8 21. 8	23. 616. 515. 317. 421. 8	$ \begin{array}{r} 40.0\\ 40.0\\ 40.0\\ 43.5\\ 46.0 \end{array} $	18.8 27.0 23.5 26.7 24.2	$ \begin{array}{r} 16.4 \\ 23.5 \\ 24.7 \\ 26.1 \\ 24.2 \end{array} $

6.1

6.6

23.2

21.8

23.0

46.0

46.0

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

18.9

20.6

6.

BB

573.23

20.8

*ANTENNA: KBA-01 (BBA9106) 30~299. 99MHz /KLA-01 (USLP9143) 300~1000MHz *CABLE: KCC-10/11/12/13/18*PREAMP: KAF-01 (8447D) *EMI RECEIVER : KTR-02 (ESCS30)

29.2

A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No. : 1960003-05-2

Applicant Kind of Equipment Model No. Serial No. Power Mode Bamarka	: ALPINE ELECTRONICS INC. : Car Audio Receiver with : RBU : TB1AA2100R1170 : DC13.5V : Transmitting(CH-1)	rear seat audio Transmitter
Temarks Date Test Distance Temperature Humidity Regulation	: : 12/27/2000 : 3 m : 15 °C : 40 % : FCC Part15B CLASS B	<u>A. MatsuQ</u> Enginéer : Fumiaki Matsuo



Page: A 2 - 06

A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No. : 1960003-05-2

Applicant Kind of Equipment Model No. Serial No. Power Mode	 ALPINE ELECTRONICS INC. Car Audio Receiver with real RBU TB1AA2100R1170 DC13.5V Transmitting(CH-2) 	ar seat audio Transmitter
Remarks		
Date	: 12/27/2000	× m+
Test Distance	: 3 m	A. Malsur
Temperature Humidity Regulation	: 15 °C : 40 % : FCC Part15B CLASS B	Engineer : Fumiaki Matsuo
No EPEO ANT I	DEADING ANT AND CADLE ATTEN	DECULT LIMITE MADOIN

NO.	FREQ.	ANI TYPE	HOR	VER	FACTOR	GAIN	LOSS	ATTEN.	HOR	VFR	LIMHIS	MAI	VFR
	[MHz]		[dB	μ V]	[dB/m]	[dB]	[dB]	[dB]	[dB μ]	V/m] [d	${ m B}\mu{ m V/m}]$	[0	HB]
1.	30.05	BB	24.5	30.1	18.7	28.3	1.3	6.0	22.2	27.8	40.0	17.8	12.2
2.	60.00	BB	33.4	27.9	7.3	28.1	1.9	6.0	20.5	15.0	40.0	19.5	25.0
3.	78.00	BB	28.5	29.0	6.8	28.3	2.2	6.0	15.2	15.7	40.0	24.8	24.3
4.	162.00	BB	20.2	20.5	15.6	28.2	3.2	6.0	16.8	17.1	43.5	26.7	26.4
5.	531.23	BB	20.2	20.2	18.4	29.2	6.3	6.1	21.8	21.8	46.0	24.2	24.2
6.	573.23	BB	20.6	20.6	18.9	29.2	6.6	6.1	23.0	23.0	46.0	23.0	23.0

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

*ANTENNA:KBA-01 (BBA9106) 30~299. 99MHz /KLA-01 (USLP9143) 300~1000MHz *CABLE:KCC-10/11/12/13/18*PREAMP:KAF-01 (8447D) *EMI RECEIVER :KTR-02 (ESCS30)

A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No. : 19G0003–05–2

Applicant	: ALPINE ELECTRONICS INC.	
Kind of Equipment	Car Audio Receiver with	rear seat audio Transmitter
Model No.	: RBU	
Serial No.	: TB1AA2100R1170	
Power	: DC13.5V	
Mode	: Transmitting(CH-2)	
Remarks	:	
Date	: 12/27/2000	× m+
Test Distance	: 3 m	4. Malsud
Temperature	: 15 °C	Enginéer : Fumiaki Matsuo
Humidity	: 40 %	-
Regulation	: FCC Part15B CLASS B	



A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No. : 1960003-05-2

Appli Kind Model Seria Power Mode Remar Date Test	cant of Equ No. al No. ks Distan	ipmen ce	t	: ALP : Car : RBU : TB1 : DC1 : Rec : 12/ : 3 m	INE ELE Audio AA2100R 3.5V eiving 27/2000	CTRON Receiv R1170	ICS INC ver wit	: h rear	seat a	audio Tr	ransmit	ter	
Humic Regul	ity ation			40 40 FCC	% Part15	B CLAS	SS B		Enginee	r :	Fumiak	ı Matsı	JO
No.	FREQ. [MHz]	ANT TYPE	READ HOR [dB µ	ING VER ιV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RES HOR [dB µ	SULT I VER V/m] [d]	LIMITS BμV/m]	MAR HOR [c	KGIN VER IB]
1. 2. 3. 4. 5. 6.	$\begin{array}{c} 30.\ 01\\ 60.\ 00\\ 78.\ 00\\ 162.\ 00\\ 531.\ 23\\ 573.\ 23 \end{array}$	BB BB BB BB BB BB	25. 2 32. 5 29. 9 20. 3 20. 3 21. 0	26. 5 28. 5 29. 5 21. 0 20. 3 20. 7	$ 18.7 \\ 7.3 \\ 6.8 \\ 15.6 \\ 18.4 \\ 18.9 $	28. 3 28. 1 28. 3 28. 2 29. 2 29. 2	1.3 1.9 2.2 3.2 6.3 6.6	$ \begin{array}{c} 6.0\\ 6.0\\ 6.0\\ 6.0\\ 6.1\\ 6.1 \end{array} $	22. 9 19. 6 16. 6 16. 9 21. 9 23. 4	$\begin{array}{c} 24.2 \\ 15.6 \\ 16.2 \\ 17.6 \\ 21.9 \\ 23.1 \end{array}$	$\begin{array}{c} 40.\ 0\\ 40.\ 0\\ 40.\ 0\\ 43.\ 5\\ 46.\ 0\\ 46.\ 0\end{array}$	17. 120. 423. 426. 624. 122. 6	15. 8 24. 4 23. 8 25. 9 24. 1 22. 9

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

*ANTENNA:KBA-01 (BBA9106) 30~299.99MHz /KLA-01 (USLP9143) 300~1000MHz *CABLE:KCC-10/11/12/13/18*PREAMP:KAF-01 (8447D) *EMI RECEIVER :KTR-02 (ESCS30)

A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No. : 1960003-05-2

ALPINE ELECTRONICS INC.	
Car Audio Receiver with real	r seat audio Transmitter
RBU	
TB1AA2100R1170	
DC13. 5V	
Receiving	
-	
12/27/2000	~ m+
3 m	A. Malsud
15 ℃	Enginéer : Fumiaki Matsuo
40 %	-
FCC Part15B CLASS B	
	ALPINE ELECTRONICS INC. Car Audio Receiver with real RBU TB1AA2100R1170 DC13.5V Receiving 12/27/2000 3 m 15 °C 40 % FCC Part15B CLASS B



DATA OF RADIATION TEST CHART

A-PEX INTERNATIONAL CO., LTD. YAMAKITA No.1 OPEN TEST SITE Report No. : 19G0003-05-2

Applicant	ALPINE ELECTRONICS INC.	•
Kind of Equipment	Car Audio Receiver with rea	r seat audio Transmitter
Model No.	RBU	
Serial No.	TB1AA2100R1170	
Power	DC13.5V	
Mode	Transmitting(CH-1)	
Remarks		
Date	12/27/2000	> m+
Test Distance	3 m	4. Malsul
Temperature	15 °C	Engineer : Fumiaki Matsuo
Humidity	40 %	0
Regulation 1	FCC15C 902-928MHz(3m)	
Regulation 2	None	

