



# EMI TEST REPORT

**Test Report No. : 26BE0051-HO-F1**

**Applicant** : Alps Electric Co., Ltd.  
**Type of Equipment** : Label Printer  
**Model No.** : CDPR22  
**FCC ID** : QT5-CDPR22  
**Test Standard** : FCC Part15 Subpart C,  
Section 15.207, Section 15.209, Section 15.247: 2006  
**Test Result** : Complied

1. This test report shall not be reproduced except in full, without the written approval of UL Apex 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.

**Date of test:** January 12, 14, 17, 18 and May 10, 11, 2006

**Tested by:**

I. Isozaki  
Ichiro Isozaki &

T. Imamura  
Toyokazu Imamura

M. Hosaka  
Makoto Hosaka &

T. Suzuki  
Takahiro Suzuki

**Approved by:**

O. Watatani  
Osamu Watatani  
Site Manager of Yamakita EMC Lab.

**UL Apex Co., Ltd.**

**YAMAKITA EMC LAB.**

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MF060b(01.06.05)

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## 1 Applicant Information

Company Name : Alps Electric Co., Ltd.

Brand Name : ALPS

Address : 41-25, Yanagi-machi, Noda Onahama, Iwaki-shi, Fukushima-ken 971-8615 JAPAN

Telephone Number : +81 246 58 6464

Facsimile Number : +81 246 58 7994

Contact Person : Koichi Sugiyama

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## 2 Product Description

Type of Equipment : Label Printer  
Model No. : CDPR22  
Serial No. : Out of Band emission (Radiated), Hopping mode: #10  
Out of Band emission (Radiated), except Hopping mode: #6  
Antenna port conducted test: #4  
Rating : AC100-120/220-240V, 50/60Hz  
Country of Manufacture : Japan  
Receipt Date of Sample : January 12, 2006  
Condition of EUT : Engineering prototype  
(Not for Sale: This sample is equivalent to mass-produced items.)

Frequency of operation : 2427-2469MHz  
Other clock frequency : Custom IC: 32MHz, CPU: 50MHz, USB: 480MHz  
Type of modulation : ASK (FHSS)  
Antenna type : Dipole antenna  
Antenna connector type : U.FL  
Antenna gain : 1.58 dBi  
Mode of operation : Simplex

Emission designation : 1M53AXD  
Operation temperature range : 0 ~ 40 deg. C.

The RFID installed in the Label Printer employs a homodyne system, therefore the receiver input bandwidth is same as the transmitting frequency operation.

### FCC Part15.31 (e)

The Label Printer provides the module with stable power supply (DC 3.3 V), therefore, the equipment complies power supply regulation.

### FCC Part15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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### 3 Test Specification, Procedures and Results

#### 3.1 Test specification

Test specification : FCC Part15 Subpart C: 2006  
 Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators  
 Section 15.207 Conducted limits  
 Section 15.209 Radiated emission limits, general requirements  
 Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz,  
 and 5725-5850MHz

#### 3.2 Procedures & Results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.4:2003 7. AC powerline conducted emission measurements	Section 15.207	-		7.3dB (2.0305MHz, L1, AV, Tx&Rx 2427MHz)	Complied
Carrier Frequency Separation	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247 (a)(1)	Conducted	N/A	*See data.	Complied
20dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247 (a)(1)	Conducted	N/A		Complied
Number of Hopping Frequency	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247 (a)(1)(iii)	Conducted	N/A		Complied
Dwell time	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247 (a)(1)(iii)	Conducted	N/A		Complied
Maximum Peak Output Power	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247 (b)(1)	Conducted	N/A		Complied
Spurious Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.209 Section15.247(d)	Conducted / Radiated	N/A		2.0dB (24490.00MHz, Horizontal & Vertical, Tx Hopping)

The measurements also referred to FCC Public Notice DA 00-705 "Guidance on Measurement for Frequency Hopping Spread Spectrum Systems".

\* No addition, exclusion nor deviation has been made from the standard.

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### 3.3 Uncertainty

#### Conducted emission test

The measurement uncertainty (with 95% confidence level) for this test is  $\pm 2.7$ dB.  
The data listed in this test report has enough margin, more than site margin.

#### Antenna port conducted test

The measurement uncertainty (with 95% confidence level) for this test is  $\pm 0.4$ dB.

#### Spurious emission test (Radiated)

The measurement uncertainty (with 95% confidence level) for this test using Biconical antenna is  $\pm 4.5$ dB.  
The measurement uncertainty (with 95% confidence level) for this test using Logperiodic antenna is  $\pm 4.3$ dB.  
The measurement uncertainty (with 95% confidence level) for this test using Horn antenna is  $\pm 5.2$ dB.  
The data listed in this report meets the limits unless the uncertainty is taken into consideration.

### 3.4 Test Location

UL Apex Co., Ltd. Yamakita EMC Lab.  
907, Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken 258-0124 JAPAN  
Telephone number : +81 465 77 1011  
Facsimile number : +81 465 77 2112  
NVLAP Lab. code : 200441-0

No. 1 test site has been fully described in a report submitted to FCC office, and accepted on August 26, 2005 (Registration No.: 95486).  
IC Registration No. : IC3489A

No. 2 test site has been fully described in a report submitted to FCC office, and accepted on April 4, 2005 (Registration No.: 466226).  
IC Registration No. : IC3489A-2

No. 1 anechoic chamber has been fully described in a report submitted to FCC office, and accepted on November 2, 2005 (Registration No.: 95967).  
IC Registration No. : IC3489A-B

Test room	Width x Depth x Height (m)	Test room	Width x Depth x Height (m)
No.1 shielded room	8.0 x 5.0 x 2.5	No.1 EMS lab. (Semi-anechoic chamber)	10.0 x 7.5 x 5.7
No.2 shielded room	5.0 x 4.0 x 2.5		
No.3 shielded room	4.0 x 5.0 x 2.7		

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## 4 System Test Configuration

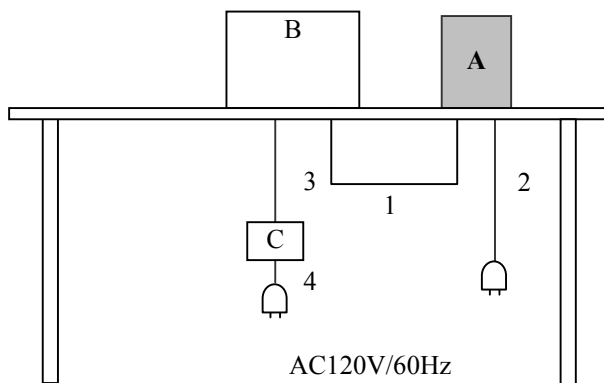
### 4.1 Justification

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

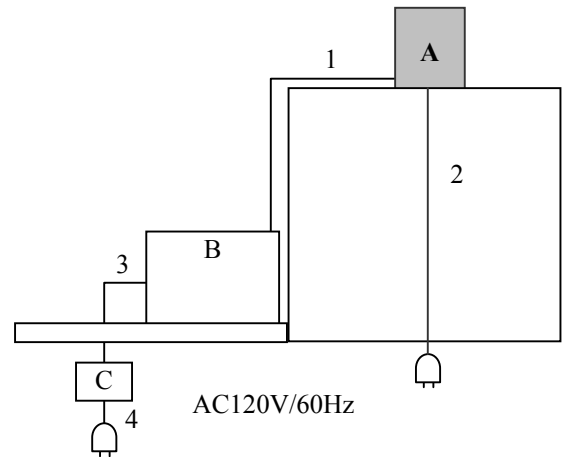
- Test mode: Transmitting/Receiving mode (Packet size: DH5)
- Low channel : 2427MHz
  - Middle channel : 2449MHz
  - High channel : 2469MHz
  - Hopping

### 4.2 Configuration of Tested System

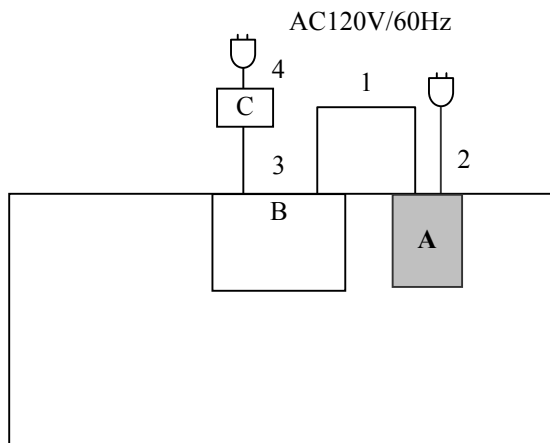
Front View (Conducted emission)



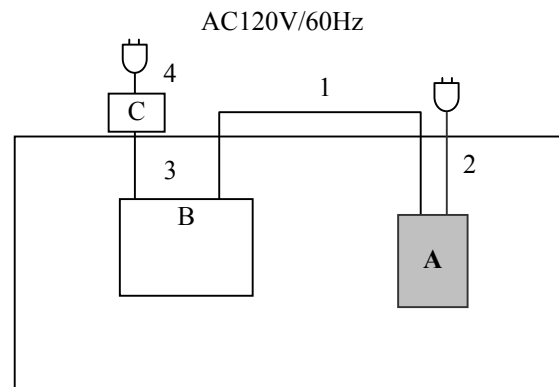
Front View (Radiated emission)



Top View (Conducted emission)



Top View (Radiated emission)



\* Test data was taken under worse case conditions.

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**Description of EUT and support equipment**

No.	Item	Model number	Serial number	Manufacturer	FCC ID (Remarks)
A	Label Printer	CDPR22	#4 #6 *1	ALPS	QT5-CDPR22 (EUT)
B	Personal Computer	PPX	-	DELL	-
C	AC Adaptor	ADP-70EB	-	DELL	-

\*1) For Conducted emission and Out of Band emission (Radiated), the model of serial #6 was under the test. The model of serial #4 was under the test for Antenna port conducted test.

**List of cables used**

No.	Name	Length (m)	Shield	Remark
1	Serial cable	1.6	Shielded	-
2	AC Power cable	2.9	Unshielded	-
3	DC cable	1.8	Unshielded	-
4	AC Power cable	1.8	Unshielded	-

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## 5 Conducted Emissions

### 5.1 Operating environment

The test was carried out in No.3 shielded room.

### 5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.8m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals was aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN) and excess AC cable was bundled in center. I/O cable 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 at a 40cm height to the ground plane.

### 5.3 Test conditions

Frequency range : 0.15 - 30MHz  
EUT operation mode : Transmitting/Receiving

### 5.4 Test procedure

The EUT was connected to a LISN (AMN).  
An overview sweep with peak detection has been performed.  
The Conducted emission measurements were made with the following detector function of the test receiver.  
Detector: QP/AV  
IF Bandwidth: 10kHz

### 5.5 Results

Summary of the test results : Pass  
Test data : APPENDIX 2 Page 15 - 19

Date : January 14, 2006 Test engineer : Ichiro Isozaki

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## 6 Carrier Frequency Separation

### Test Procedure

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass  
Date: January 17, 2006

Test data: APPENDIX 2 Page 20  
Test engineer : Toyokazu Imamura

## 7 20dB Bandwidth

### Test Procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass  
Date: January 17, 2006

Test data: APPENDIX 2 Page 21  
Test engineer : Toyokazu Imamura

## 8 Number of Hopping Frequency

### Test Procedure

The Number of Hopping Frequency was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass  
Date: January 17, 2006

Test data: APPENDIX 2 Page 22 to 23  
Test engineer : Toyokazu Imamura

## 9 Dwell time

### Test Procedure

The Dwell time was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass  
Date: January 17, 2006

Test data: APPENDIX 2 Page 24 to 25  
Test engineer : Toyokazu Imamura

## 10 Maximum Peak Output Power

### Test Procedure

The Maximum Peak Output Power was measured with a power meter connected to the antenna port.

Summary of the test results: Pass  
Date: January 17, 2006

Test data: APPENDIX 2 Page 26  
Test engineer : Toyokazu Imamura

## 11 Out of Band Emissions (Antenna Port Conducted)

### Test Procedure

The Out of Band Emissions was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass  
Date: January 18 and May 11, 2006

Test data: APPENDIX 2 Page 27 - 34  
Test engineer : Toyokazu Imamura and Makoto Hosaka

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## 12 Out of Band Emissions (Radiated)

### 12.1 Operating environment

The test was carried out in No.1 anechoic chamber.

### 12.2 Test configuration

EUT was placed on a platform of nominal size, 0.5m by 0.5m, raised 80cm above the conducting ground plane. A drawing of the set up is shown in the photos of Appendix 1.

### 12.3 Test conditions

Frequency range : 30MHz - 26.5GHz  
Test distance : 3m  
EUT operation mode : Transmitting/Receiving

### 12.4 Test procedure

The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3m. The measuring antenna height was varied between 1 and 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.

In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

Measurements were performed with QP, PK, and AV detector. The radiated emission measurements were made with the following detector function of the test receiver. When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
Detector	QP: BW 120kHz	PK: RBW: 1MHz/VBW: 1MHz
IF Bandwidth		AV: RBW: 1MHz/VBW: 10Hz

### 12.5 Results

Summary of the test results : Pass  
Test data : APPENDIX 2 Page 35 - 38 (30 - 1000MHz)  
: APPENDIX 2 Page 39 - 46 (1 - 26.5GHz)

Date : January 12, 17 and May 10, 2006  
Test engineer : Toyokazu Imamura, Takahiro Suzuki and Makoto Hosaka

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### **APPENDIX 1: Photographs of test setup**

Page 13	:	Conducted emission
Page 14	:	Radiated emission

### **APPENDIX 2: Test Data**

Page 15 - 19	:	Conducted Emission
Page 20	:	Carrier Frequency Separation
Page 21	:	20dB Bandwidth
Page 22 - 23	:	Number of Hopping Frequency
Page 24 - 25	:	Dwell time
Page 26	:	Maximum Peak Output Power
Page 27 - 34	:	Out of Band Emissions (Antenna Port Conducted)
Page 35 - 46	:	Out of Band Emissions (Radiated)
35-38	:	30-1000MHz
39-46	:	1-26.5GHz
Page 47 - 48	:	Occupied Bandwidth

### **APPENDIX 3: Test instruments**

Page 49	:	Test instruments
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# DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.  
YAMAKITA No.3 SHIELD ROOM  
Report No. : 26BE0051-H0 - **F1**

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2427MHz  
 Remarks : -  
 Date : 1/14/2006  
 Phase : Single Phase  
 Temperature : 22 °C  
 Humidity : 42 %  
 Regulation : FCC Part15C §15.207. (CISPR Pub. 22 )

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μV]	AV	QP [dB μV]	AV				QP [dB]	AV [dB μV]	QP [dB μV]	AV [dB μV]	QP [dB]	AV [dB]
1.	0.1500	31.5	-	32.5	-	0.1	0.1	0.0	32.7	-	66.0	56.0	33.3	-
2.	0.1958	46.4	42.7	46.8	45.4	0.1	0.1	0.0	47.0	45.6	63.8	53.8	16.8	8.2
3.	0.3937	35.3	-	36.9	-	0.1	0.2	0.0	37.2	-	58.0	48.0	20.8	-
4.	0.6549	35.3	34.9	35.5	35.1	0.1	0.2	0.0	35.8	35.4	56.0	46.0	20.2	10.6
5.	0.7210	34.7	-	34.4	-	0.1	0.2	0.0	35.0	-	56.0	46.0	21.0	-
6.	1.7686	34.0	32.0	38.9	38.0	0.1	0.4	0.0	39.4	38.5	56.0	46.0	16.6	7.5
7.	2.0305	30.6	27.9	38.7	38.2	0.1	0.4	0.0	39.2	38.7	56.0	46.0	16.8	7.3
8.	2.1614	33.2	-	32.4	-	0.1	0.4	0.0	33.7	-	56.0	46.0	22.3	-
9.	9.9899	40.7	34.3	40.0	33.3	0.6	1.2	0.0	42.5	36.1	60.0	50.0	17.5	13.9

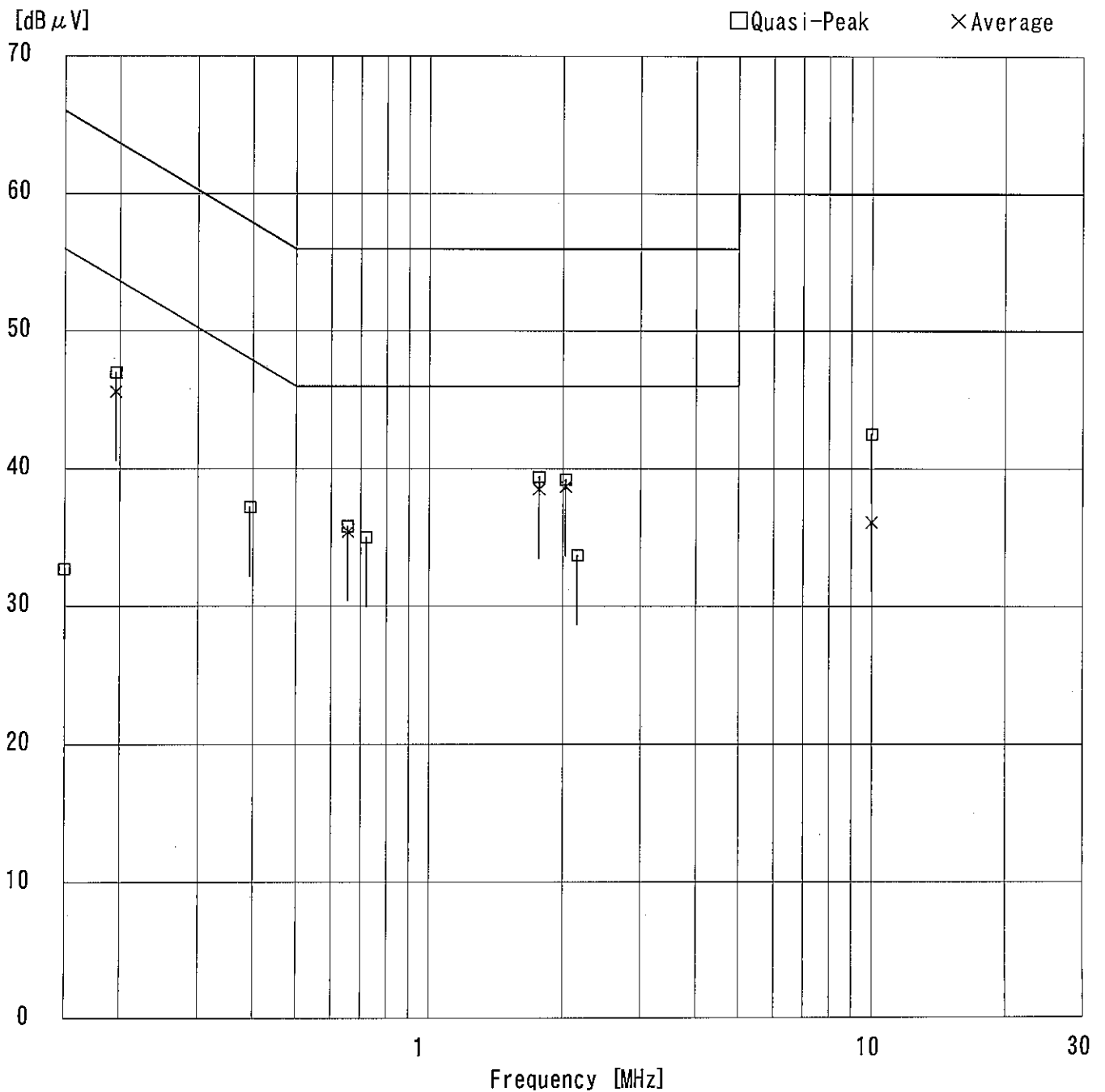
CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

■ LISN: KLS-05 (NSLK8126)    ■ COAXIAL CABLE: KCC-24/25/26/28  
 ■ PULSE LIMITER: KPL-02    ■ EMI RECEIVER: KTR-03 (ESHS10)

# DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.  
YAMAKITA No.3 SHIELD ROOM  
Report No. : 26BE0051-H0 = **F I**

Applicant	: ALPS ELECTRIC CO., LTD.	
Kind of Equipment	: Label Printer	
Model No.	: CDPR22	
Serial No.	: #6	
Power	: AC120V/60Hz	
Mode	: Transmitting/Receiving 2427MHz	
Remarks	: -	
Date	: 1/14/2006	
Phase	: Single Phase	
Temperature	: 22 °C	Engineer : Ichiro Isozaki
Humidity	: 42 %	
Regulation	: FCC Part15C § 15. 207. (CISPR Pub. 22 )	





# DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd.

YAMAKITA No.3 SHIELD ROOM

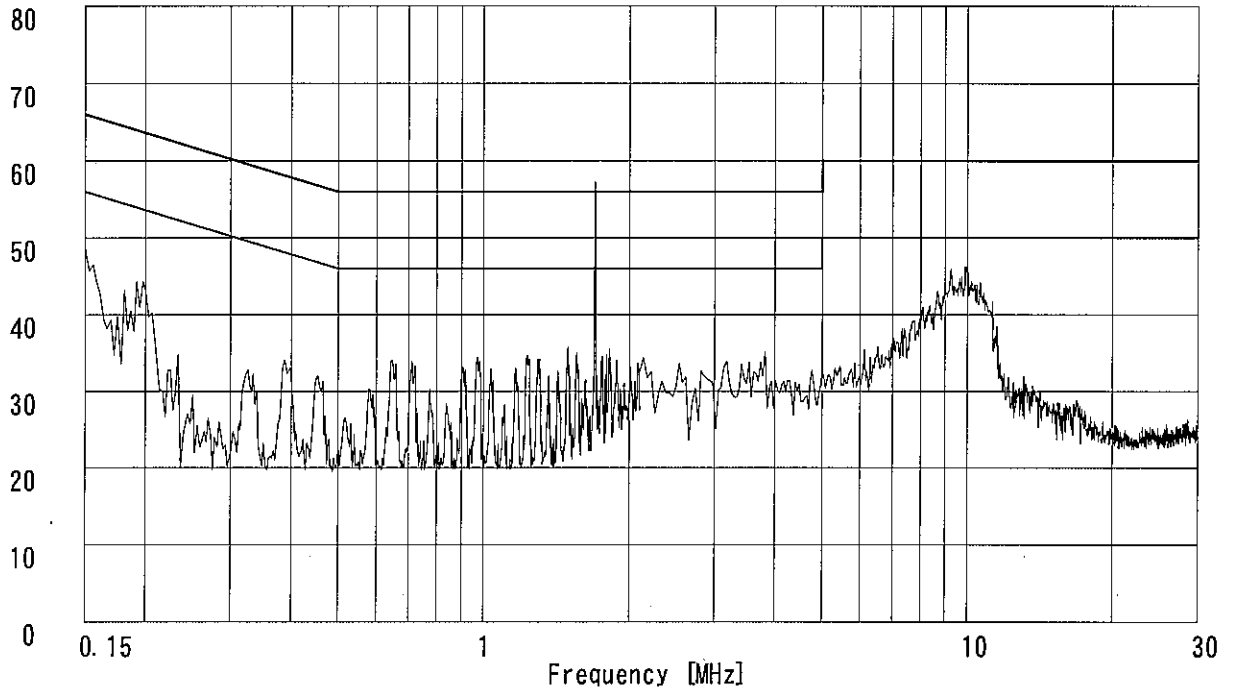
Report No. : 26BE0051-H0. **F 1**

Applicant : ALPS ELECTRIC CO., LTD.  
Kind of Equipment : Label Printer  
Model No. : CDPR22  
Serial No. : #6  
Power : AC120V/60Hz  
Mode : Transmitting/Receiving 2427MHz  
Remarks : -  
Date : 1/14/2006  
Phase : Single Phase  
Temperature : 22 °C  
Humidity : 42 %  
Regulation 1 : FCC Part15C § 15. 207. (CISPR Pub. 22 )  
Regulation 2 : None

Engineer : Ichiro Isozaki

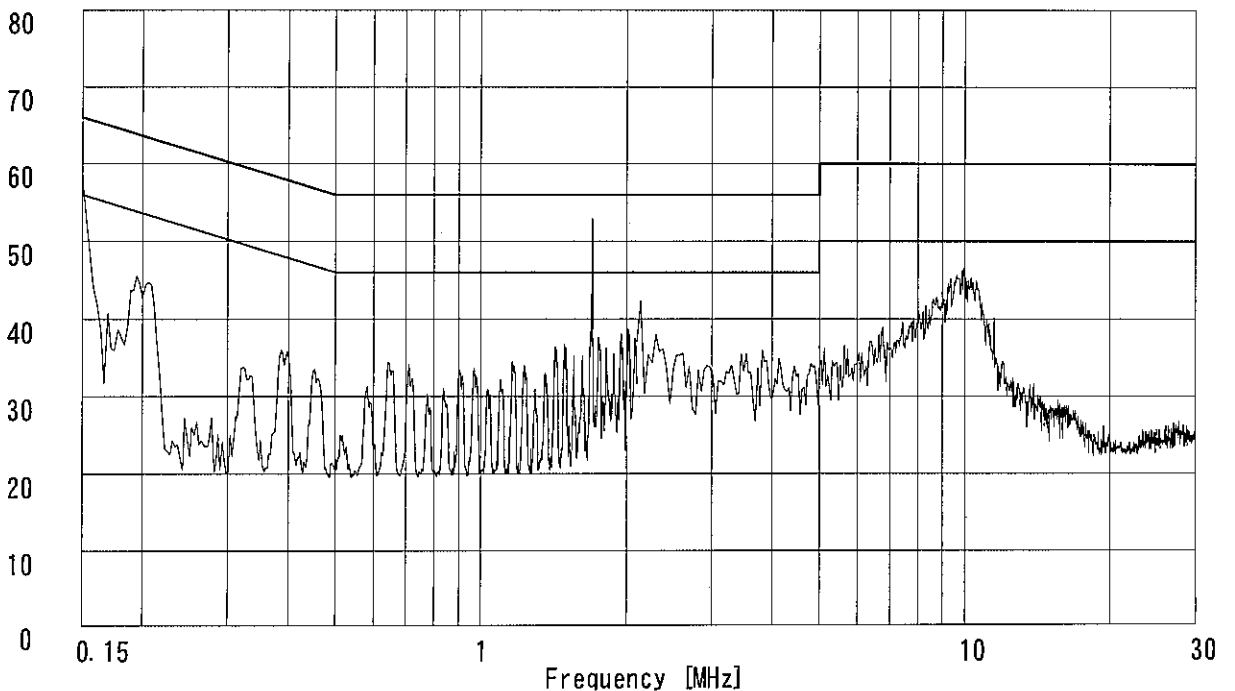
Emission Level [dB $\mu$ V]

PHASE:N



Emission Level [dB $\mu$ V]

PHASE:L1



Page:

# DATA OF CONDUCTION TEST CHART

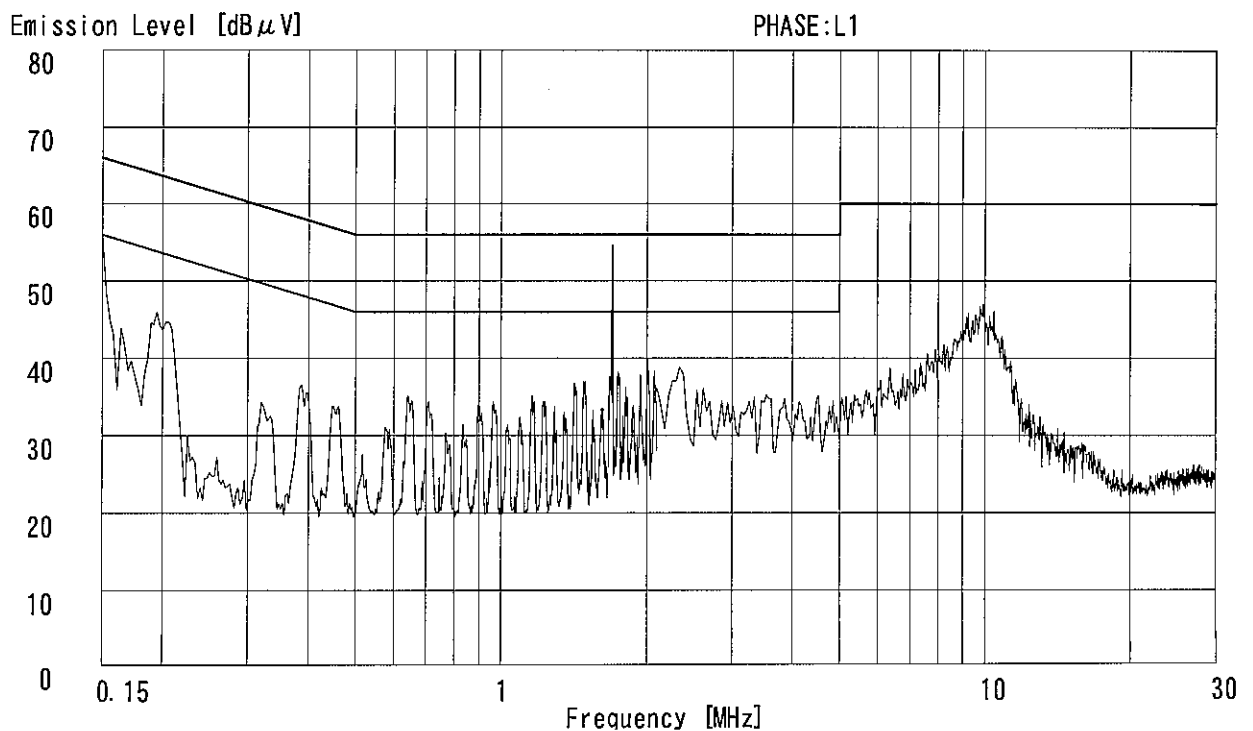
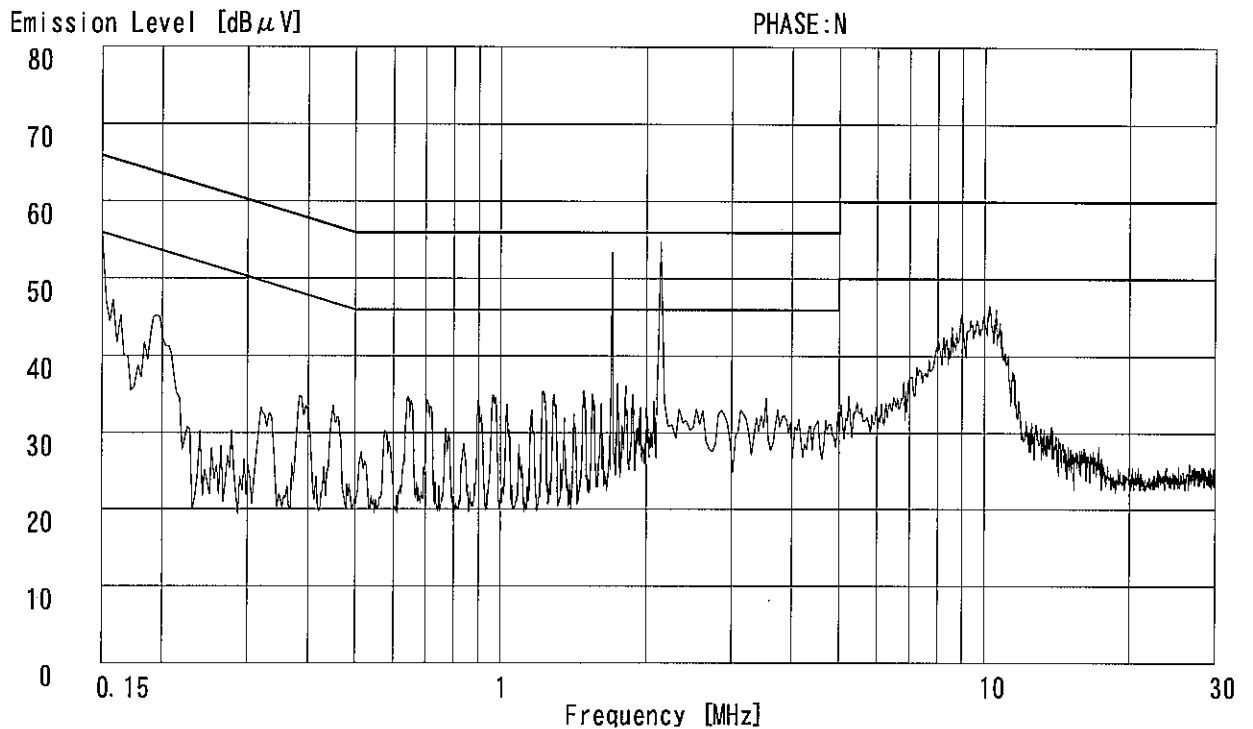
UL Apex Co.,Ltd.

YAMAKITA No.3 SHIELD ROOM

Report No. : 26BE0051-H0 - F 1

Applicant : ALPS ELECTRIC CO., LTD.  
Kind of Equipment : Label Printer  
Model No. : CDPR22  
Serial No. : #6  
Power : AC120V/60Hz  
Mode : Transmitting/Receiving 2449MHz  
Remarks : -  
Date : 1/14/2006  
Phase : Single Phase  
Temperature : 22 °C  
Humidity : 42 %  
Regulation 1 : FCC Part15C § 15. 207. (CISPR Pub. 22 )  
Regulation 2 : None

Engineer : Ichiro Isozaki



Page:

# DATA OF CONDUCTION TEST CHART

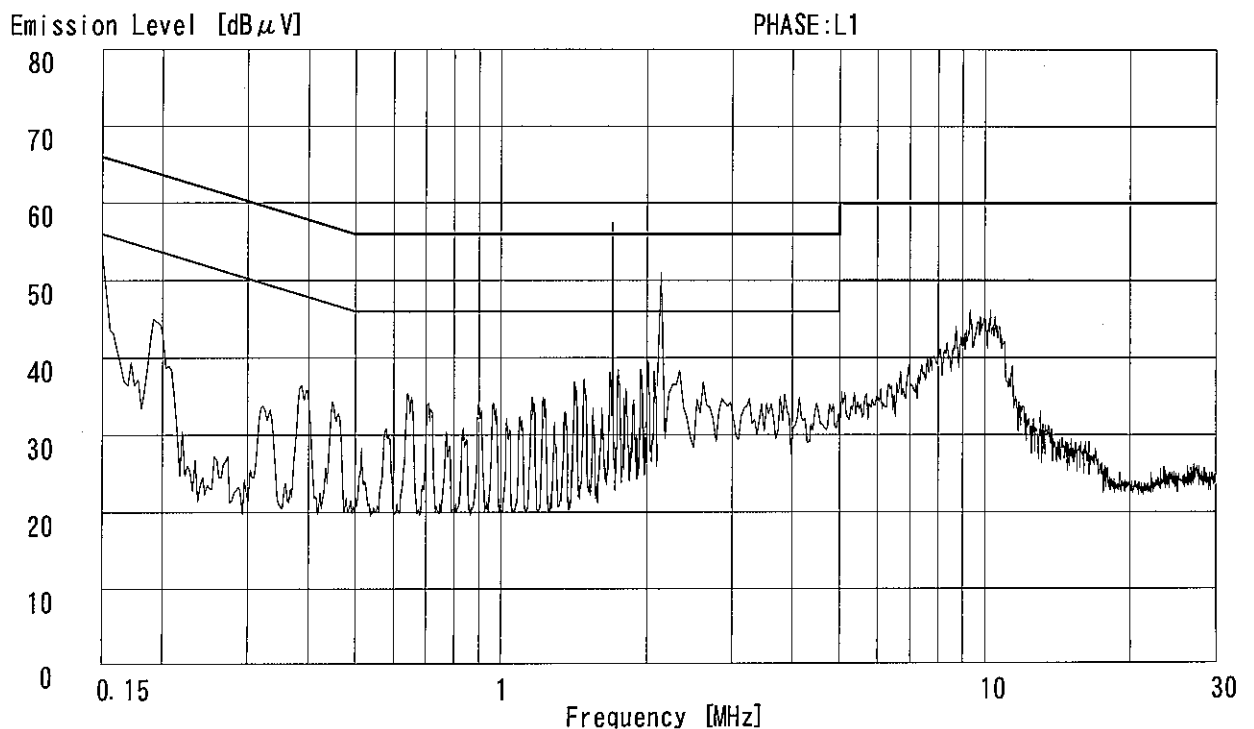
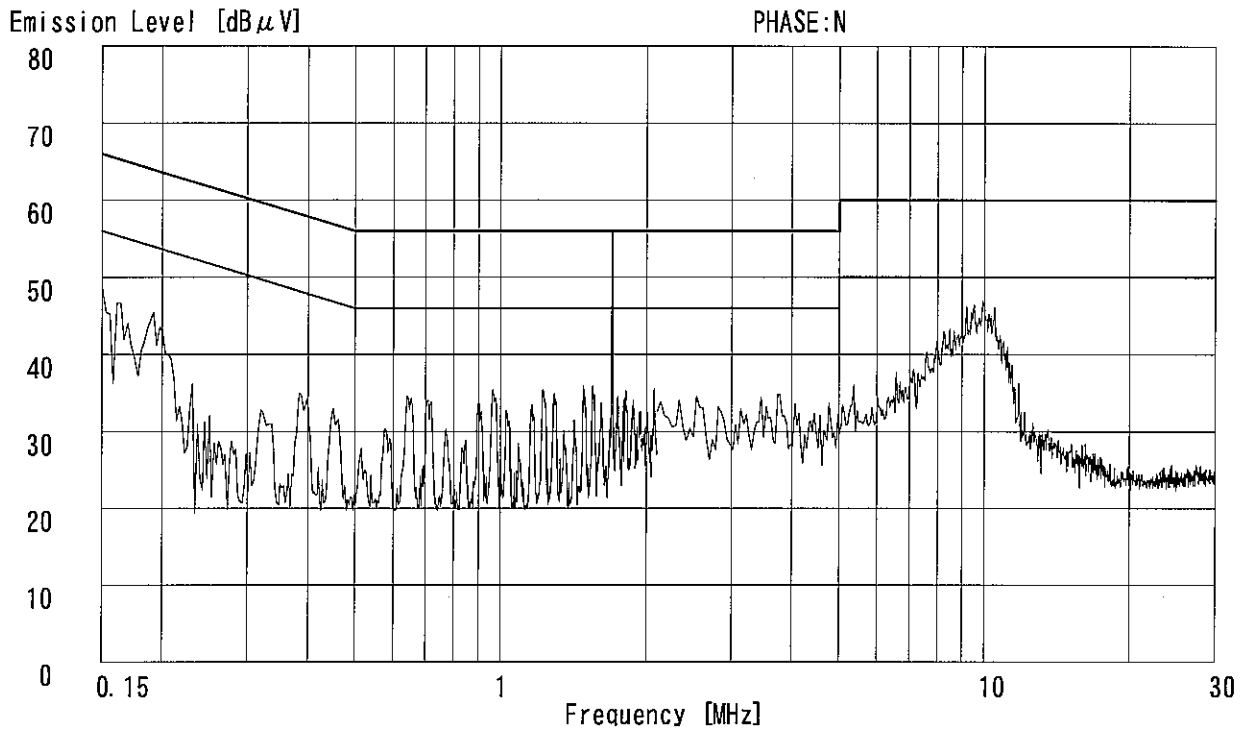
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Applicant : ALPS ELECTRIC CO., LTD.  
Kind of Equipment : Label Printer  
Model No. : C DPR22  
Serial No. : #6  
Power : AC120V/60Hz  
Mode : Transmitting/Receiving 2469MHz  
Remarks : -  
Date : 1/14/2006  
Phase : Single Phase  
Temperature : 22 °C  
Humidity : 42 %  
Regulation 1 : FCC Part15C § 15. 207. (CISPR Pub. 22 )  
Regulation 2 : None

Engineer : Ichiro Isozaki

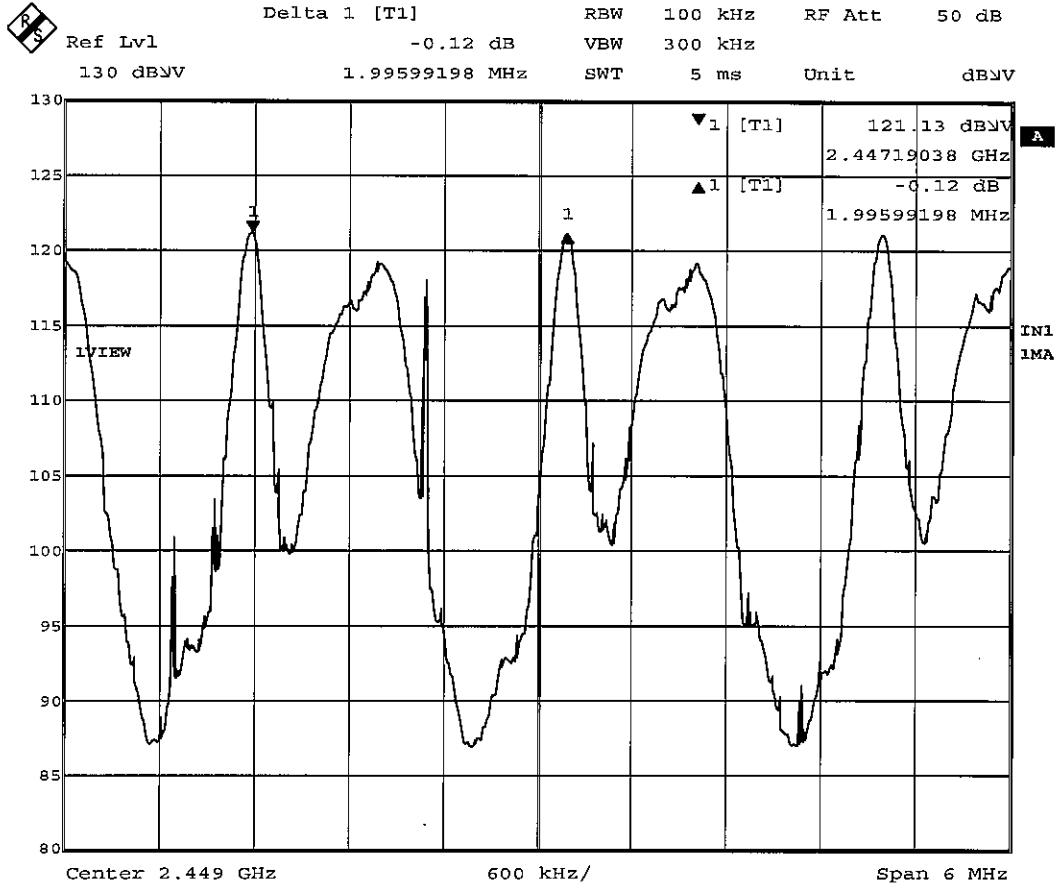


### Channel Separation: FCC 15.247(a)(1)

**COMPANY** : Alps Electric Co., Ltd.  
**EQUIPMENT** : Label Printer  
**MODEL NUMBER**: CDPR22  
**SERIAL NUMBER**: #4  
**FCC ID** : QT5-CDPR22  
**POWER** : AC120V/60Hz

**UL Apex Co.,Ltd. Yamakita No.4 Shielded Room**  
**REPORT NO** : 26BE0051-HO-F1  
**REGULATION** : Fcc Part15SubpartC 247(a)(1)  
**DATE** : 2006/01/17  
**TEMP/HUMI** : 20°C/38%  
**TEST MODE** : Transmitting/Receiving  
**ENGINEER** : Toyokazu Imamura

**1. Hopping:1995.99kHz**



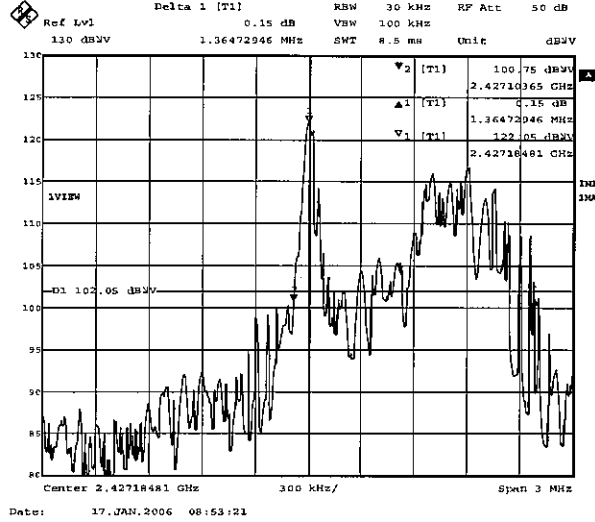
Date: 17.JAN.2006 09:07:04

## 20dB Bandwidth: FCC 15.247(a)(1)

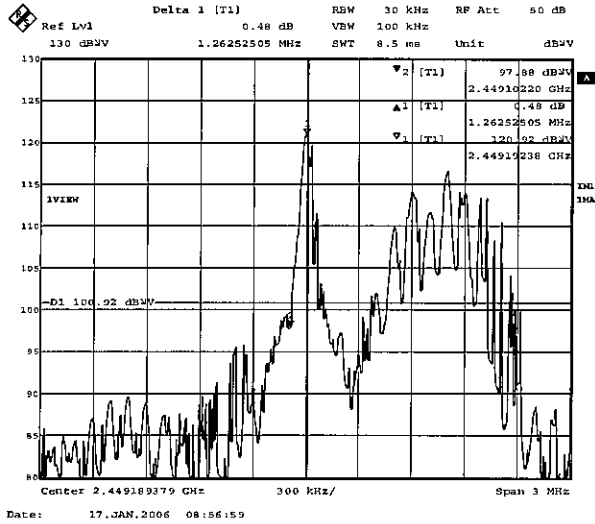
**COMPANY** : Alps Electric Co., Ltd.  
**EQUIPMENT** : Label Printer  
**MODEL NUMBER**: CDPR22  
**SERIAL NUMBER**: #4  
**FCC ID** : QT5-CDPR22  
**POWER** : AC120V/60Hz

**UL Apex Co.,Ltd. Yamakita No.4 Shielded Room**  
**REPORT NO** : 26BE0051-HO-F1  
**REGULATION** : Fcc Part15SubpartC 247(a)(1)  
**DATE** : 2006/01/17  
**TEMP/HUMI** : 20°C/38%  
**TEST MODE** : Transmitting/Receiving  
**ENGINEER** : Toyokazu Imamura

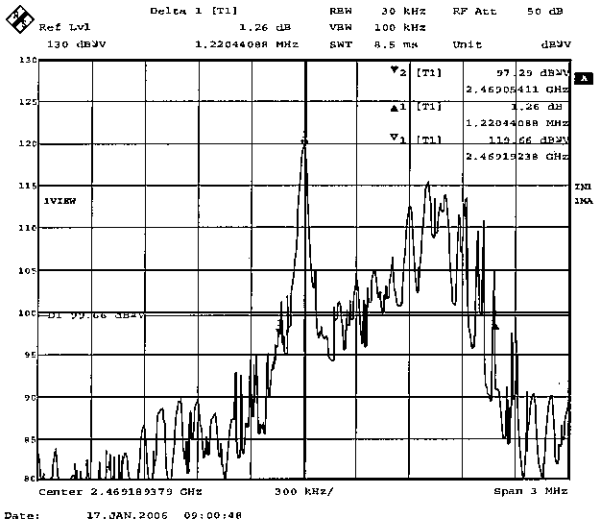
### 1. ch : 2427MHz/20dB Bandwidth:1364.73kHz



### 2. ch : 2449MHz/20dB Bandwidth:1262.53kHz



### 3. ch : 2469MHz/20dB Bandwidth:1220.44kHz



**Channel Utilization: FCC 15.247(a)(1)(iii)**

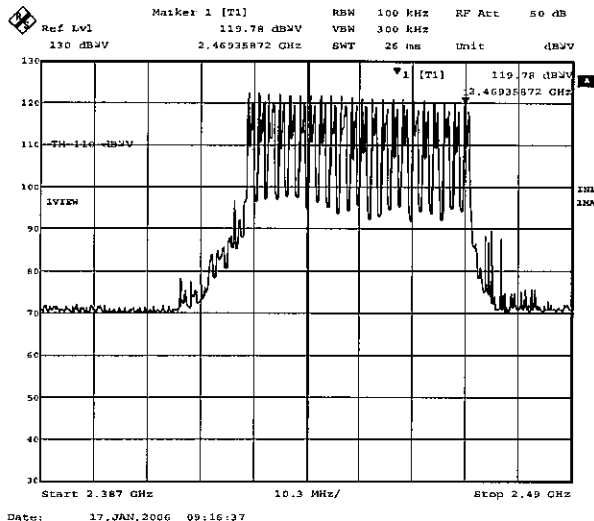
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY : Alps Electric Co., Ltd.  
 EQUIPMENT : Label Printer  
 MODEL NUMBER: CDPR22  
 SERIAL NUMBER: #4  
 FCC ID : QT5-CDPR22  
 POWER : AC120V/60Hz

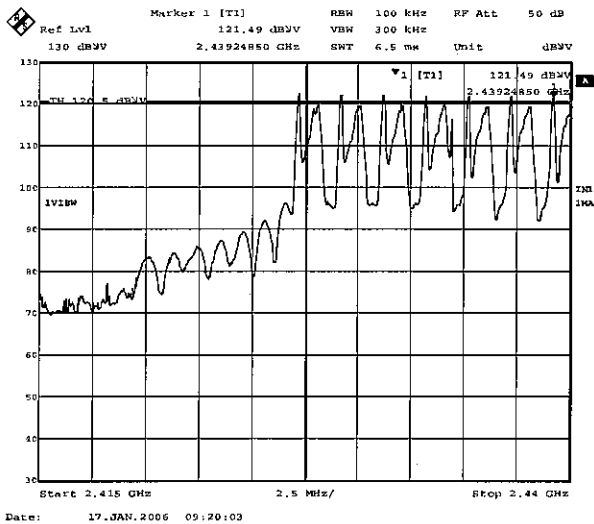
REPORT NO : 26BE0051-HO-F1  
 REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)  
 DATE : 2006/01/17  
 TEMP/HUMI : 20°C/38%  
 TEST MODE : Transmitting/Receiving  
 ENGINEER : Toyokazu Imamura

**Hopping: 22ch**

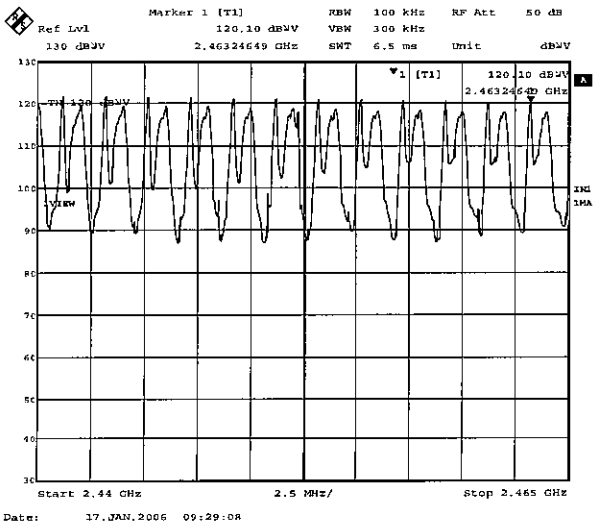
1.



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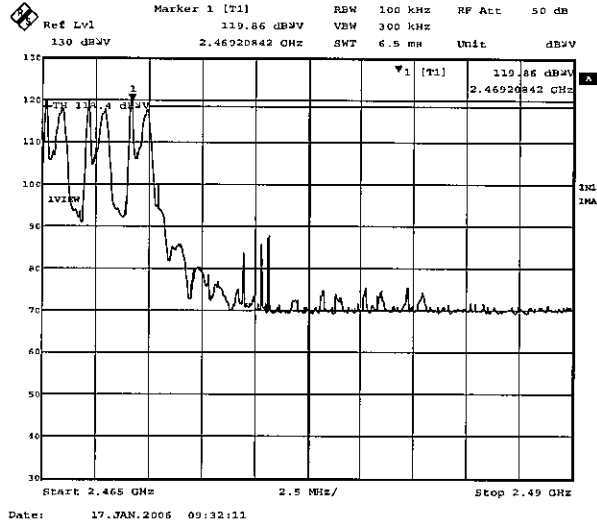


Channel Utilization: FCC 15.247(a)(1)(iii)

COMPANY : Alps Electric Co., Ltd.  
EQUIPMENT : Label Printer  
MODEL NUMBER: CDPR22  
SERIAL NUMBER: #4  
FCC ID : QT5-CDPR22  
POWER : AC120V/60Hz

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room  
REPORT NO : 26BE0051-HO-F1  
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)  
DATE : 2006/01/17  
TEMP/HUMI : 20°C/38%  
TEST MODE : Transmitting/Receiving  
ENGINEER : Toyokazu Imamura

4.

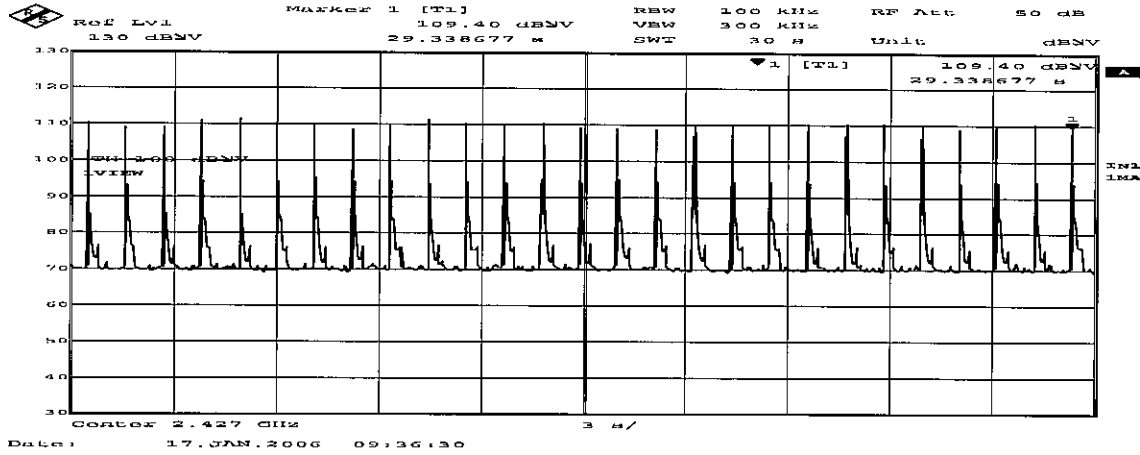


Dwell Time: FCC 15.247(a)(1)(iii)

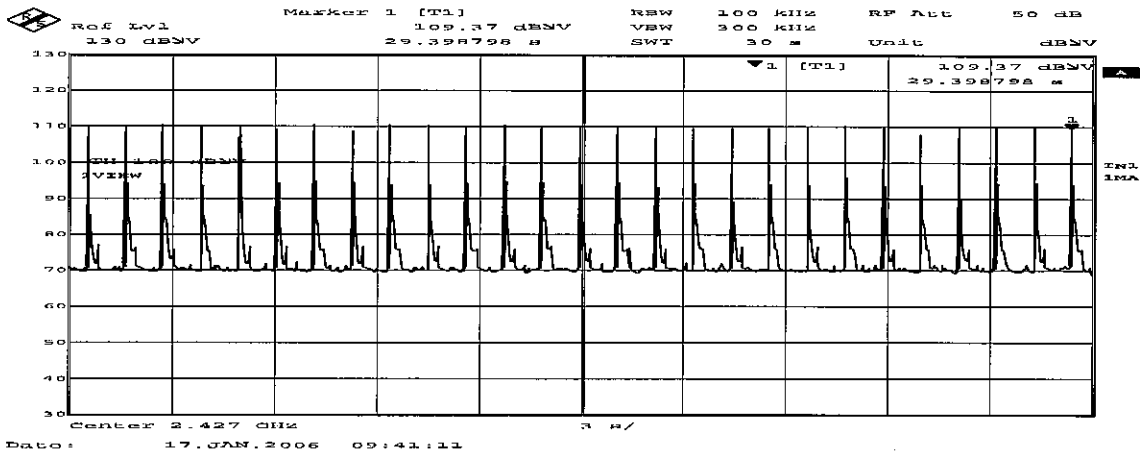
COMPANY : Alps Electric Co., Ltd.  
 EQUIPMENT : Label Printer  
 MODEL NUMBER: CDPR22  
 SERIAL NUMBER: #4  
 FCC ID : QT5-CDPR22  
 POWER : AC120V/60Hz

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room  
 REPORT NO : 26BE0051-HO-F1  
 REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)  
 DATE : 2006/01/17  
 TEMP/HUMI : 20°C/38%  
 TEST MODE : Transmitting/Receiving  
 ENGINEER : Toyokazu Imamura

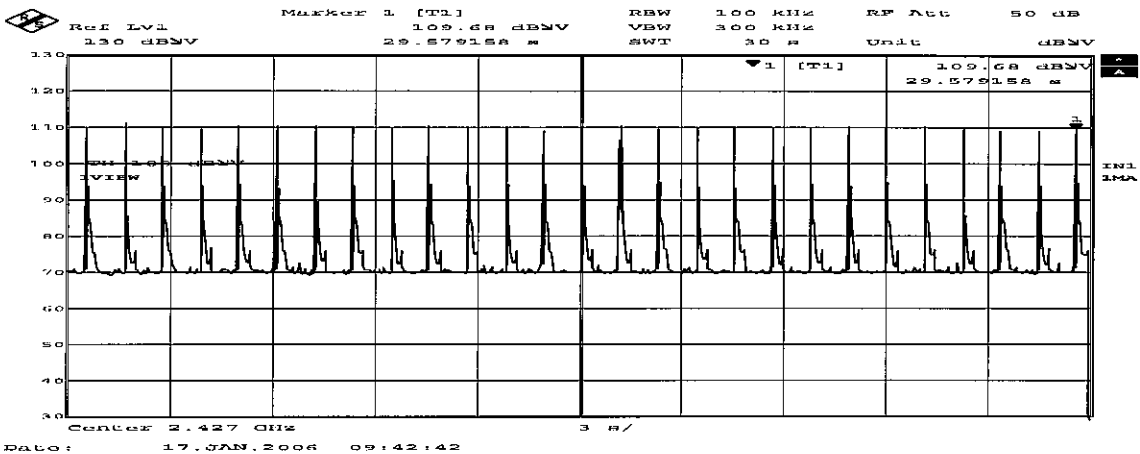
Hopping:  
 Count 1



Count 2



Count 3

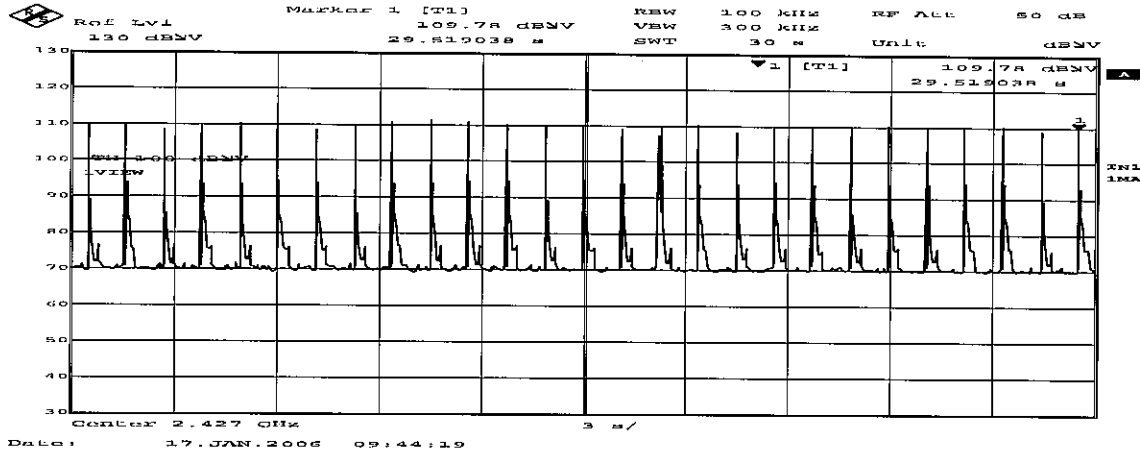




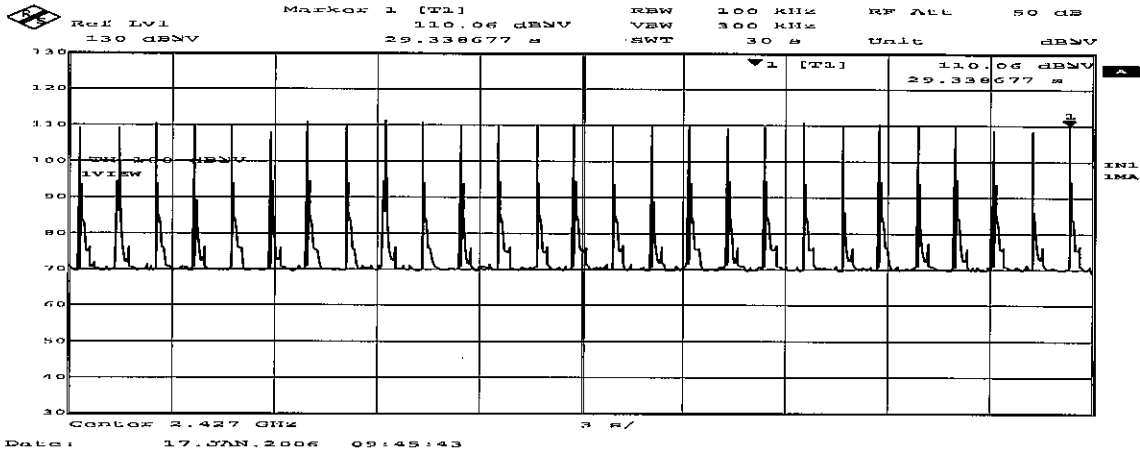
**Dwell Time: FCC 15.247(a)(1)(iii)**

COMPANY : Alps Electric Co., Ltd.  
 EQUIPMENT : Label Printer  
 MODEL NUMBER: CDP22  
 SERIAL NUMBER: #4  
 FCC ID : QT5-CDPR22  
 POWER : AC120V/60Hz  
 Count 4

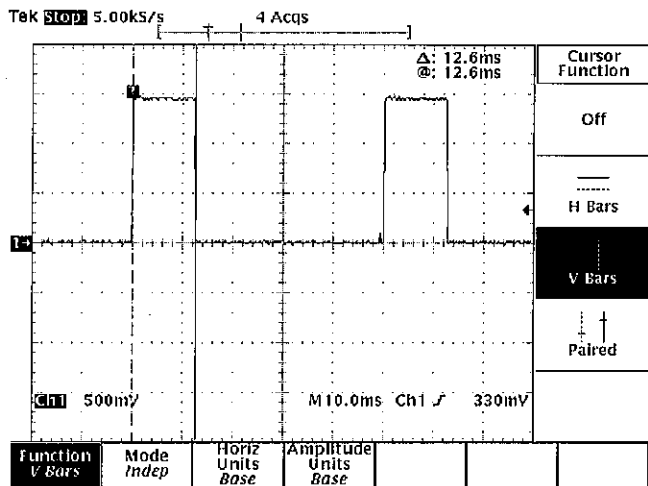
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room  
 REPORT NO : 26BE0051-HO-F1  
 REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)  
 DATE : 2006/01/17  
 TEMP/HUMI : 20°C/38%  
 TEST MODE : Transmitting/Receiving  
 ENGINEER : Toyokazu Imamura



**Count 5**



**Duty cycle(Hopping)**



Average times of rising in 30 sec. of sweep =  $(27 + 27 + 27 + 27 + 27) / 5 = 27$   
 Average times of rising in 1 sec. =  $27 / 30s = 0.9$   
 Average times of rising in 0.4x =  $0.4 * 22ch * 0.9 = 7.92$   
 Dwell time =  $7.92 * 12.6 = 99.8 [ms]$   
 Limit : Dwell Time < 0.4[s]

# Maximum Peak Conducted Output Power

UL Apex Co.,Ltd  
YAMAKITA No.4 Shielded Room

COMPANY : ALPS ELECTRIC Co.,LTD.  
EQUIPMENT : Label Printer  
MODEL NUMBER : CDPR22  
SERIAL NUMBER : #4  
FCC ID : QT5-CDPR22  
POWER : AC120V/60Hz  
TEST MODE : Transmitting/Receiving

REPORT NO : 26BE0051-HO-F1  
REGULATION : Fcc Part15SubpartC 247(b)(1)  
DATE : 2006/01/17  
TEMP./HUMI : 20°C/38%

ENGINEER : Toyokazu Imamura

CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]	Limit (1W) [dBm]	MARGIN [dB]
Low	2427.00	15.10	1.00	16.10	30.0	13.90
Mid	2449.00	14.15	1.00	15.15	30.0	14.85
High	2469.00	12.98	1.00	13.98	30.0	16.02
Hopping	-	15.26	1.00	16.26	30.0	13.74

Limit: 1W=30dBm

P/M: Power Meter

CABLE LOSS:The Cable Prepared by The Client + KCC-D16

\* Peak output power was measured with the peak function of the Power Meter.

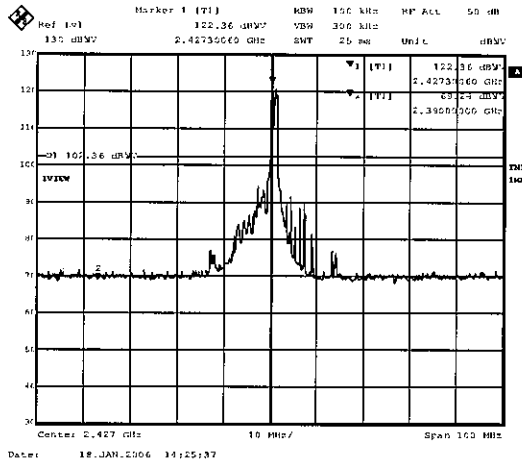
**Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)**

COMPANY : Alps Electric Co., Ltd.  
 EQUIPMENT : Label Printer  
 MODEL NUMBER: C DPR22  
 SERIAL NUMBER: #4  
 FCC ID : QT5-CDPR22  
 POWER : AC120V/60Hz

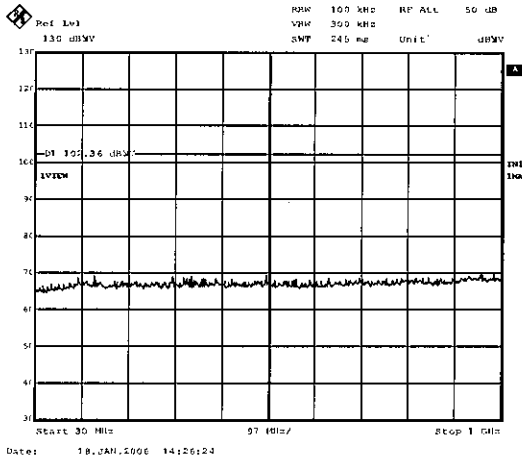
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room  
 REPORT NO : 26BE0051-HO-F1  
 REGULATION : Fcc Part15SubpartC 247(d)  
 DATE : 2006/01/18  
 TEMP/HUMI : 20°C/34%  
 TEST MODE : Transmitting/Receiving  
 ENGINEER : Toyokazu Imamura

Ch:2427MHz

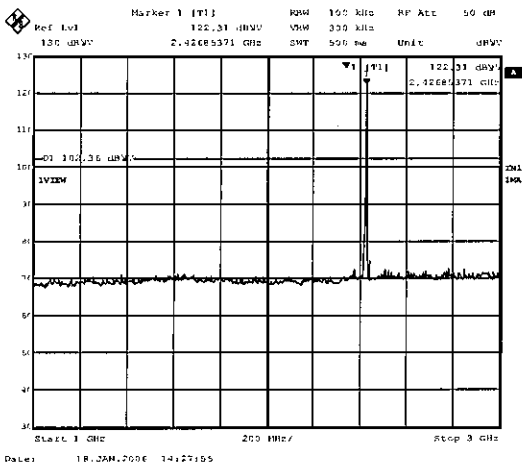
1.



2.



3.



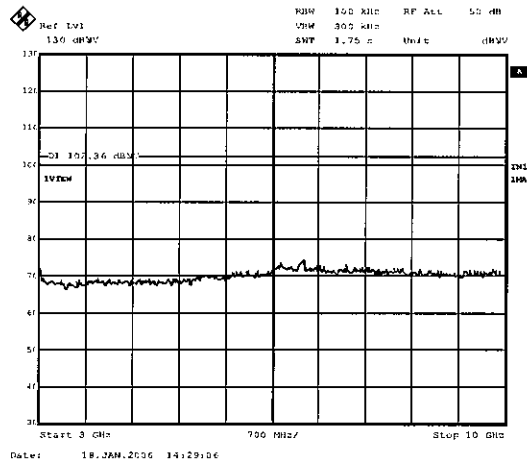
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

COMPANY : Alps Electric Co., Ltd.  
 EQUIPMENT : Label Printer  
 MODEL NUMBER : CDPR22  
 SERIAL NUMBER : #4  
 FCC ID : QT5-CDPR22  
 POWER : AC120V/60Hz

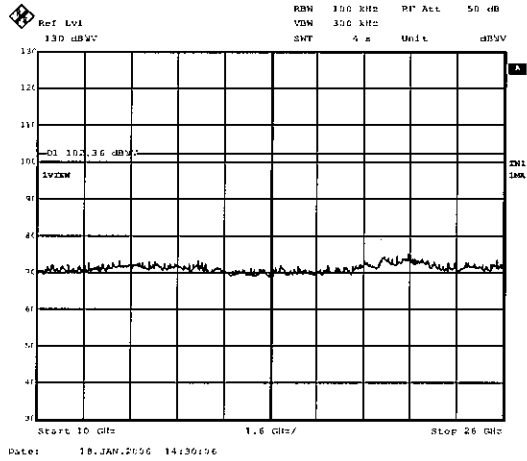
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room  
 REPORT NO : 26BE0051-HO-F1  
 REGULATION : Fcc Part15SubpartC 247(d)  
 DATE : 2006/01/18  
 TEMP/HUMI : 20°C/34%  
 TEST MODE : Transmitting/Receiving  
 ENGINEER : Toyokazu Imamura

Ch:2427MHz

4.



5.



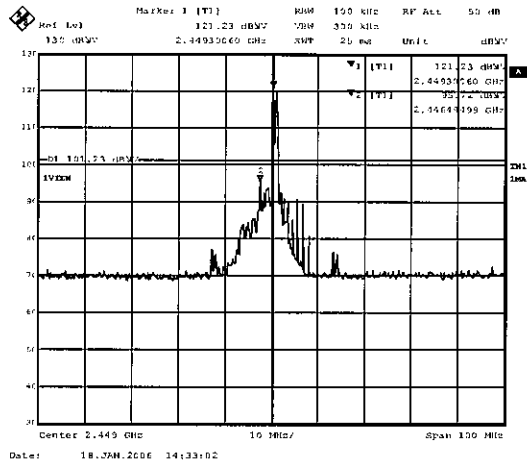
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

COMPANY : Alps Electric Co., Ltd.  
 EQUIPMENT : Label Printer  
 MODEL NUMBER: CDPR22  
 SERIAL NUMBER: #4  
 FCC ID : QT5-CDPR22  
 POWER : AC120V/60Hz

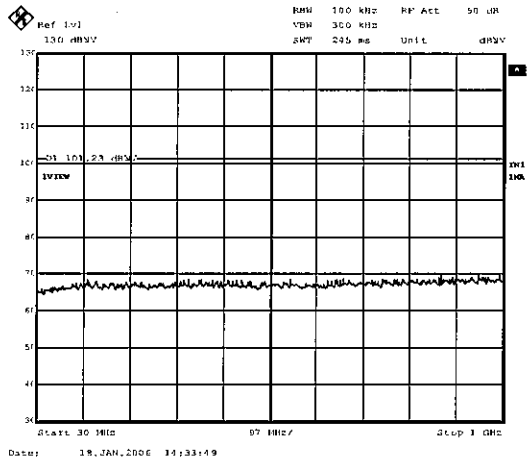
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room  
 REPORT NO : 26BE0051-HO-F1  
 REGULATION : Fcc Part15SubpartC 247(d)  
 DATE : 2006/01/18  
 TEMP/HUMI : 20°C/34%  
 TEST MODE : Transmitting/Receiving  
 ENGINEER : Toyokazu Imamura

Ch:2449MHz

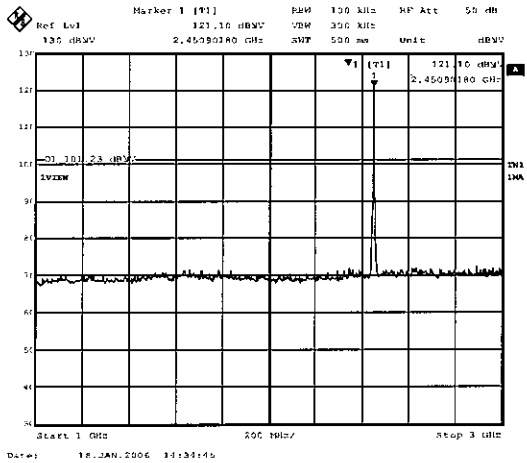
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2.



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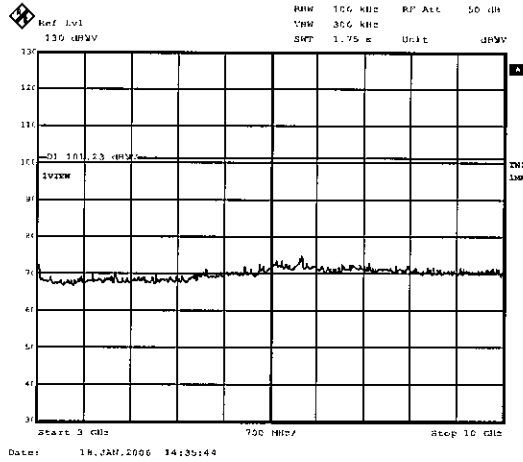
**Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)**

COMPANY : Alps Electric Co., Ltd.  
 EQUIPMENT : Label Printer  
 MODEL NUMBER: CDPR22  
 SERIAL NUMBER: #4  
 FCC ID :QT5-CDPR22  
 POWER : AC120V/60Hz

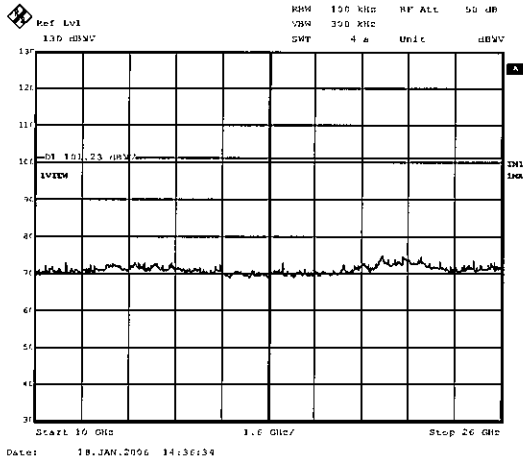
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room  
 REPORT NO : 26BE0051-HO-F1  
 REGULATION : Fcc Part15SubpartC 247(d)  
 DATE : 2006/01/18  
 TEMP./HUMI : 20°C/34%  
 TEST MODE : Transmitting/Receiving  
 ENGINEER : Toyokazu Imamura

Ch:2449MHz

4.



5.



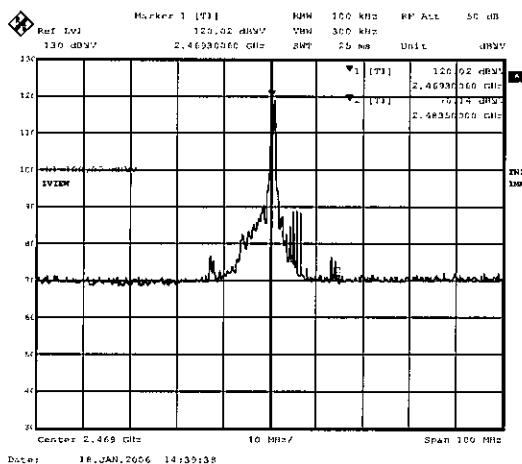
### Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

**COMPANY** : Alps Electric Co., Ltd.  
**EQUIPMENT** : Label Printer  
**MODEL NUMBER**: C DPR22  
**SERIAL NUMBER**: #4  
**FCC ID** : QT5-CDPR22  
**POWER** : AC120V/60Hz

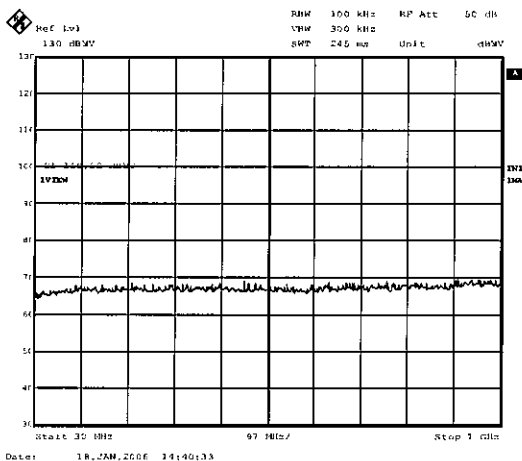
**UL Apex Co.,Ltd. Yamakita No.4 Shielded Room**  
**REPORT NO** : 26BE0051-HO-F1  
**REGULATION** : Fcc Part15SubpartC 247(d)  
**DATE** : 2006/01/18  
**TEMP./HUMI** : 20°C/34%  
**TEST MODE** : Transmitting/Receiving  
**ENGINEER** : Toyokazu Imamura

**Ch:2469MHz**

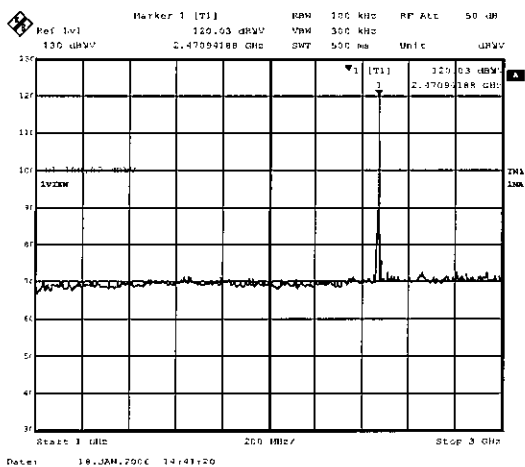
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2.



3.



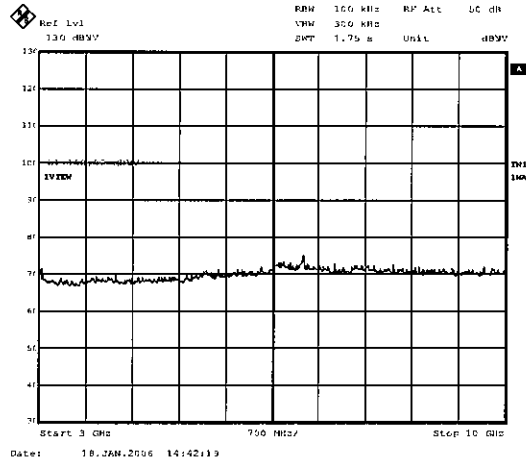
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

COMPANY : Alps Electric Co., Ltd.  
 EQUIPMENT : Label Printer  
 MODEL NUMBER: CDPR22  
 SERIAL NUMBER: #4  
 FCC ID :QT5-CDPR22  
 POWER : AC120V/60Hz

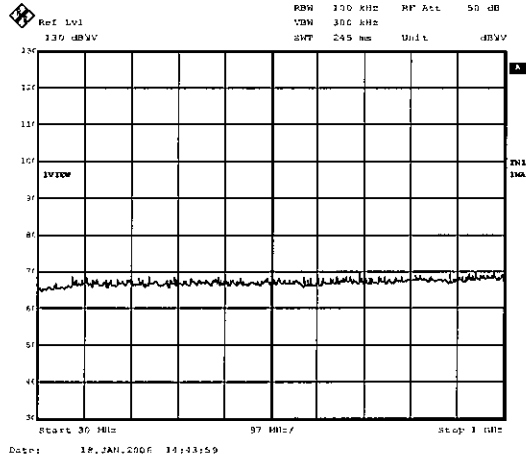
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room  
 REPORT NO : 26BE0051-HO-F1  
 REGULATION : Fcc Part15SubpartC 247(d)  
 DATE : 2006/01/18  
 TEMP/HUMI : 20°C/34%  
 TEST MODE : Transmitting/Receiving  
 ENGINEER : Toyokazu Imamura

Ch:2469MHz

4.



5.





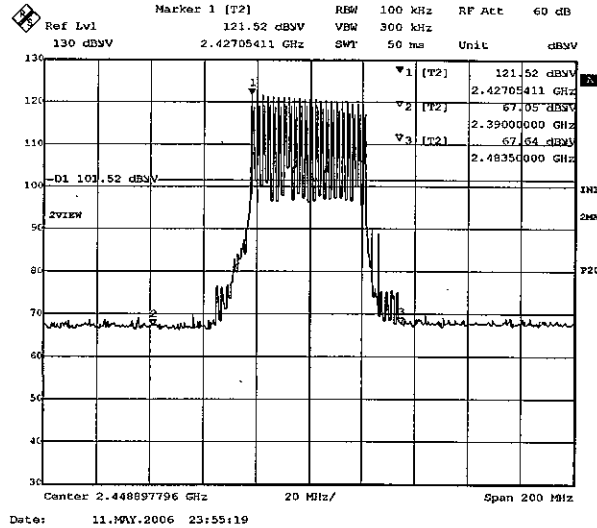
# Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

**COMPANY** : Alps Electric Co., Ltd.  
**EQUIPMENT** : Label Printer  
**MODEL NUMBER**: CDPR22  
**SERIAL NUMBER**: #4  
**FCC ID** : QT5-CDPR22  
**POWER** : AC120V/60Hz

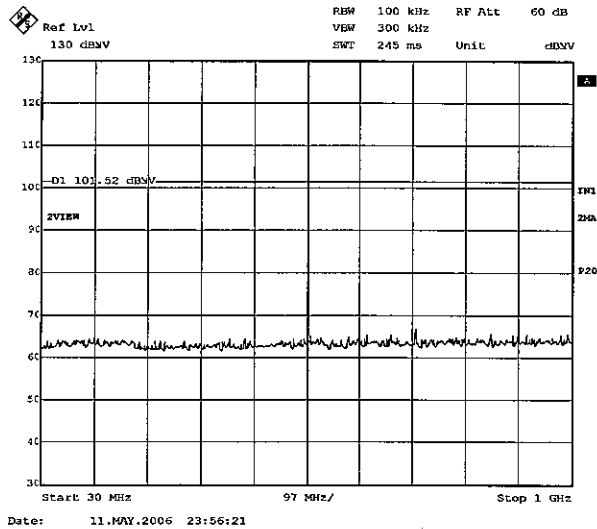
**UL Apex Co.,Ltd. Yamakita No.2 Shielded Room**  
**REPORT NO** : 26BE0051-HO - F 1  
**REGULATION** : Fcc Part15SubpartC 247(d)  
**DATE** : 2006/05/11  
**TEMP/HUMI** : 22°C/66%  
**TEST MODE** : Transmitting/Receiving (Hopping)  
**ENGINEER** : Makoto Hosaka

## Hopping

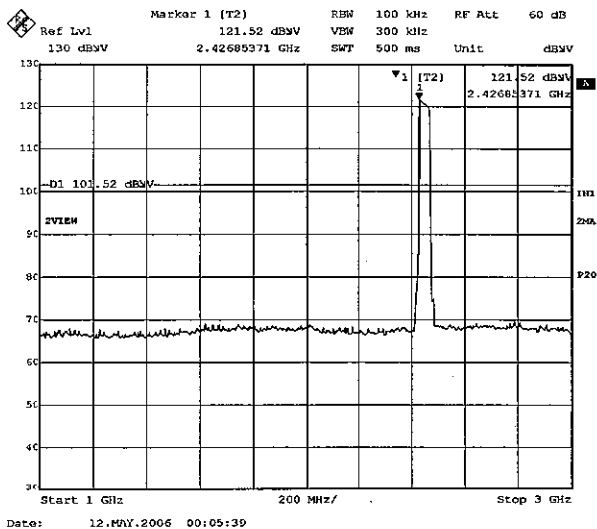
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2.



3.

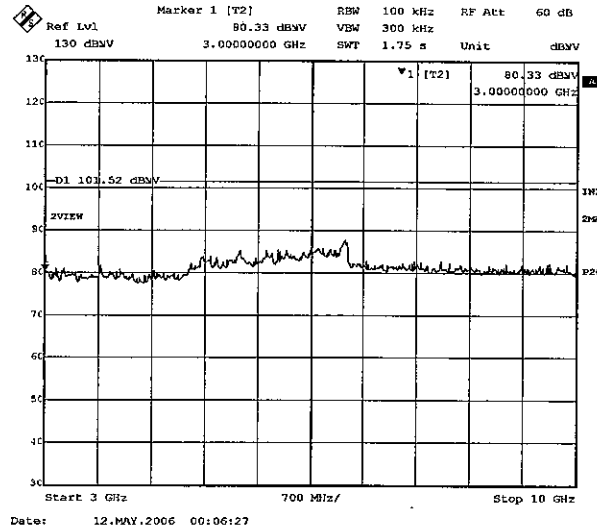


# Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

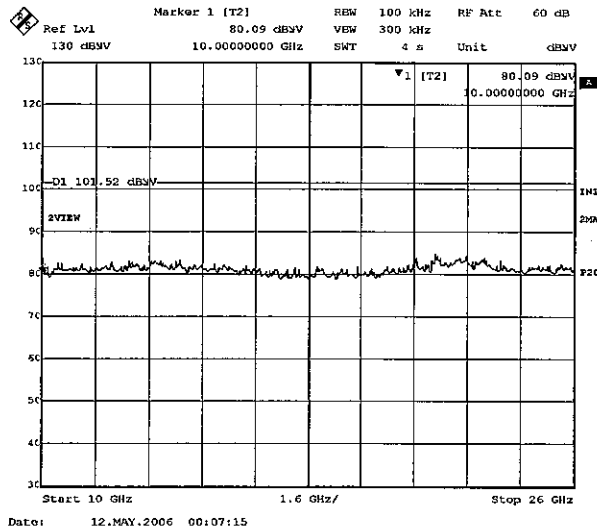
**COMPANY** : Alps Electric Co., Ltd.  
**EQUIPMENT** : Label Printer  
**MODEL NUMBER**: CDPR22  
**SERIAL NUMBER**: #4  
**FCC ID** : QT5-CDPR22  
**POWER** : AC120V/60Hz

**UL Apex Co.,Ltd. Yamakita No.2 Shielded Room**  
**REPORT NO** : 26BE0051-HO  
**REGULATION** : Fcc Part15SubpartC 247(d)  
**DATE** : 2006/05/11  
**TEMP./HUMI** : 22°C/66%  
**TEST MODE** : Transmitting/Receiving (Hopping)  
**ENGINEER** : Makoto Hosaka

4.



5.



# DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 26BE0051-H0 - **F 1**

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2427MHz  
 Remarks :  
 Date : 1/12/2006  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 28 %  
 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 μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	35.28	BB	22.5	29.9	16.5	27.6	1.2	6.0	18.6	26.0	40.0	21.4	14.0
2.	86.46	BB	33.9	42.8	7.2	27.5	1.9	6.0	21.5	30.4	40.0	18.5	9.6
3.	103.40	BB	32.2	38.9	10.6	27.5	2.1	6.0	23.4	30.1	43.5	20.1	13.4
4.	332.79	BB	32.5	36.9	15.1	26.9	4.1	6.0	30.8	35.2	46.0	15.2	10.8
5.	480.06	BB	31.7	37.4	18.1	27.7	5.1	6.0	33.2	38.9	46.0	12.8	7.1
6.	671.91	BB	38.6	37.6	20.5	28.0	5.7	6.0	42.8	41.8	46.0	3.2	4.2
7.	750.04	BB	31.3	28.2	21.2	27.9	6.0	6.0	36.6	33.5	46.0	9.4	12.5

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

■ ANTENNA: KBA-03 (BBA9106) 30-299MHz/KLA-03 (USLP9143) 300-1000MHz

■ AMP: KAF-05 (8447D) ■ RECEIVER: KTR-01 (ES140) ■ KCC-30\_31\_32\_34 (RE)

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 26BE0051-H0 - F 1

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2449MHz  
 Remarks :  
 Date : 1/12/2006  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 28 %  
 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 μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	35.20	BB	22.4	29.6	16.5	27.6	1.2	6.0	18.5	25.7	40.0	21.5	14.3
2.	87.26	BB	32.9	42.3	7.3	27.5	1.9	6.0	20.6	30.0	40.0	19.4	10.0
3.	103.20	BB	33.4	39.2	10.6	27.5	2.1	6.0	24.6	30.4	43.5	18.9	13.1
4.	332.96	BB	30.9	35.7	15.1	26.9	4.1	6.0	29.2	34.0	46.0	16.8	12.0
5.	480.06	BB	31.0	37.2	18.1	27.7	5.1	6.0	32.5	38.7	46.0	13.5	7.3
6.	671.91	BB	35.3	33.7	20.5	28.0	5.7	6.0	39.5	37.9	46.0	6.5	8.1
7.	750.04	BB	31.4	29.9	21.2	27.9	6.0	6.0	36.7	35.2	46.0	9.3	10.8

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

■ ANTENNA: KBA-03 (BBA9106) 30-299MHz/KLA-03 (USLP9143) 300-1000MHz  
 ■ AMP: KAF-05 (8447D) ■ RECEIVER: KTR-01 (ES140) ■ KCC-30\_31\_32\_34 (RE)

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 26BE0051-H0 - F 1

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2469MHz  
 Remarks :  
 Date : 1/12/2006  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 28 %  
 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 μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	35.32	BB	22.4	29.6	16.5	27.6	1.2	6.0	18.5	25.7	40.0	21.5	14.3
2.	86.38	BB	33.8	42.8	7.2	27.5	1.9	6.0	21.4	30.4	40.0	18.6	9.6
3.	103.68	BB	33.6	38.5	10.7	27.5	2.1	6.0	24.9	29.8	43.5	18.6	13.7
4.	332.83	BB	32.3	37.9	15.1	26.9	4.1	6.0	30.6	36.2	46.0	15.4	9.8
5.	480.06	BB	31.4	37.1	18.1	27.7	5.1	6.0	32.9	38.6	46.0	13.1	7.4
6.	671.91	BB	37.4	38.5	20.5	28.0	5.7	6.0	41.6	42.7	46.0	4.4	3.3
7.	750.04	BB	31.4	28.9	21.2	27.9	6.0	6.0	36.7	34.2	46.0	9.3	11.8

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

■ ANTENNA: KBA-03 (BBA9106) 30-299MHz/KLA-03 (USLP9143) 300-1000MHz  
 ■ AMP: KAF-05 (8447D) ■ RECEIVER: KTR-01 (ES140) ■ KCC-30\_31\_32\_34 (RE)

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 26BE0051-H0 - F I

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #10  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving Hopping  
 Remarks : -  
 Date : 5/10/2006  
 Test Distance : 3 m  
 Temperature : 22 °C  
 Humidity : 60 %  
 Regulation : FCC Part15C § 15. 209

Engineer : Makoto Hosaka

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER	HOR [dB]	VER		
1.	68.11	BB	31.0	44.6	7.7	28.5	1.6	6.0	17.8	31.4	40.0	22.2	8.6	
2.	85.75	BB	26.9	37.3	8.2	28.4	1.9	6.0	14.6	25.0	40.0	25.4	15.0	
3.	129.42	BB	33.3	32.5	14.0	28.3	2.3	6.1	27.4	26.6	43.5	16.1	16.9	
4.	271.41	BB	25.8	33.7	18.8	27.6	3.5	6.0	26.5	34.4	46.0	19.5	11.6	
5.	431.95	BB	31.8	33.4	18.2	28.7	5.0	6.0	32.3	33.9	46.0	13.7	12.1	
6.	500.03	BB	30.5	32.2	18.5	29.0	5.2	6.0	31.2	32.9	46.0	14.8	13.1	
7.	671.92	BB	34.0	35.5	20.0	29.2	5.7	6.0	36.5	38.0	46.0	9.5	8.0	
8.	700.05	BB	34.5	34.3	20.1	29.3	5.8	6.0	37.1	36.9	46.0	8.9	9.1	
9.	800.06	BB	36.9	36.9	22.0	29.0	6.2	6.1	42.2	42.2	46.0	3.8	3.8	

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

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz  
 ■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-05 (8447D) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 26BE0051-H0- 1

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2427MHz  
 Remarks : PK (RBW:1MHz, VBW:1MHz)  
 Date : 1/17/2006  
 Test Distance : 3 m  
 Temperature : 20 °C  
 Humidity : 38 %  
 Regulation : FCC Part15C § 15. 209 (PK Detection) 1-26GHz:3m/26-40GHz:1m  
 Engineer : Takahiro Suzuki

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	2390.00	BB	40.8	40.6	32.1	37.0	4.0	10.0	49.9	49.7	74.0	24.1	24.3
2.	4854.00	BB	57.6	58.8	35.1	36.5	5.5	0.5	62.2	63.4	74.0	11.8	10.6
3.	7281.00	BB	45.1	47.6	37.3	36.8	6.6	0.2	52.4	54.9	74.0	21.6	19.1
4.	9708.00	BB	42.3	42.1	36.6	37.1	7.4	0.4	49.6	49.4	74.0	24.4	24.6
5.	12135.00	BB	39.3	40.6	40.3	36.0	8.2	0.0	51.8	53.1	74.0	22.2	20.9
6.	14562.00	BB	38.9	39.8	42.7	35.2	8.9	0.4	55.7	56.6	74.0	18.3	17.4
7.	16989.00	BB	39.7	39.9	46.0	35.6	9.7	0.6	60.4	60.6	74.0	13.6	13.4
8.	19416.00	BB	42.8	42.5	38.5	35.1	10.4	0.0	56.6	56.3	74.0	17.4	17.7
9.	21843.00	BB	43.1	42.7	39.1	35.3	10.8	0.0	57.7	57.3	74.0	16.3	16.7
10.	24270.00	BB	41.3	41.8	39.4	34.9	11.1	0.0	56.9	57.4	74.0	17.1	16.6

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

■ ANTENNA: KHA-02 (1-18GHz) / KHA-04 (18-26GHz)  
 ■ AMP: KAF-04 (8449B) ■ SPECTRUM ANALYZER: KSA-04 ■ CABLE: KCC-D3/D7

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 26BE0051-H0- F 1

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2427MHz  
 Remarks : AV (RBW:1MHz, VBW:10Hz)  
 Date : 1/17/2006  
 Test Distance : 3 m  
 Temperature : 20 °C  
 Humidity : 38 %  
 Regulation : FCC Part15C § 15. 209 (AV Detection) 1-26GHz:3m/26-40GHz:1m  
 Engineer : Takahiro Suzuki

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	2390.00	BB	29.9	29.4	32.1	37.0	4.0	10.0	39.0	38.5	54.0	15.0	15.5
2.	4854.00	BB	40.0	41.6	35.1	36.5	5.5	0.5	44.6	46.2	54.0	9.4	7.8
3.	7281.00	BB	31.0	33.6	37.3	36.8	6.6	0.2	38.3	40.9	54.0	15.7	13.1
4.	9708.00	BB	28.8	28.9	36.6	37.1	7.4	0.4	36.1	36.2	54.0	17.9	17.8
5.	12135.00	BB	28.7	28.8	40.3	36.0	8.2	0.0	41.2	41.3	54.0	12.8	12.7
6.	14562.00	BB	29.4	29.5	42.7	35.2	8.9	0.4	46.2	46.3	54.0	7.8	7.7
7.	16989.00	BB	30.6	30.7	46.0	35.6	9.7	0.6	51.3	51.4	54.0	2.7	2.6
8.	19416.00	BB	31.1	30.9	38.5	35.1	10.4	0.0	44.9	44.7	54.0	9.1	9.3
9.	21843.00	BB	32.7	32.8	39.1	35.3	10.8	0.0	47.3	47.4	54.0	6.7	6.6
10.	24270.00	BB	32.5	32.4	39.4	34.9	11.1	0.0	48.1	48.0	54.0	5.9	6.0

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

■ ANTENNA: KHA-02 (1-18GHz) / KHA-04 (18-26GHz)  
 ■ AMP: KAF-04 (8449B) ■ SPECTRUM ANALYZER: KSA-04 ■ CABLE: KCC-D3/D7



# DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 26BE0051-H0 **F1**

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2449MHz  
 Remarks : PK (RBW:1MHz, VBW:1MHz)  
 Date : 1/17/2006  
 Test Distance : 3 m  
 Temperature : 20 °C Engineer : Takahiro Suzuki  
 Humidity : 38 %  
 Regulation : FCC Part15C § 15. 209 (PK Detection) 1-26GHz:3m/26-40GHz:1m

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	4898.00	BB	58.0	59.6	35.3	36.5	5.5	0.5	62.8	64.4	74.0	11.2	9.6
2.	7347.00	BB	44.8	47.4	37.4	36.8	6.7	0.2	52.3	54.9	74.0	21.7	19.1
3.	9796.00	BB	42.1	42.5	36.6	37.1	7.4	0.3	49.3	49.7	74.0	24.7	24.3
4.	12245.00	BB	39.5	40.1	39.9	35.9	8.1	0.0	51.6	52.2	74.0	22.4	21.8
5.	14694.00	BB	38.8	39.6	42.6	35.4	9.0	0.5	55.5	56.3	74.0	18.5	17.7
6.	17143.00	BB	39.6	39.7	45.9	35.6	9.6	0.5	60.0	60.1	74.0	14.0	13.9
7.	19592.00	BB	42.6	42.7	38.4	35.2	10.5	0.0	56.3	56.4	74.0	17.7	17.6
8.	22041.00	BB	43.2	42.8	39.1	35.1	10.9	0.0	58.1	57.7	74.0	15.9	16.3
9.	24490.00	BB	41.5	41.6	39.4	35.0	11.1	0.0	57.0	57.1	74.0	17.0	16.9

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

■ ANTENNA: KHA-02 (1-18GHz) / KHA-04 (18-26GHz)

■ AMP: KAF-04 (8449B) ■ SPECTRUM ANALYZER: KSA-04 ■ CABLE: KCC-D3/D7

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 26BE0051-H0- F 1

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2449MHz  
 Remarks : AV (RBW:1MHz, VBW:10Hz)  
 Date : 1/17/2006  
 Test Distance : 3 m  
 Temperature : 20 °C  
 Humidity : 38 %  
 Regulation : FCC Part15C § 15. 209 (AV Detection) 1-26GHz:3m/26-40GHz:1m

Engineer : Takahiro Suzuki

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	4898.00	BB	41.9	43.0	35.3	36.5	5.5	0.5	46.7	47.8	54.0	7.3	6.2
2.	7347.00	BB	30.8	34.5	37.4	36.8	6.7	0.2	38.3	42.0	54.0	15.7	12.0
3.	9796.00	BB	28.9	29.0	36.6	37.1	7.4	0.3	36.1	36.2	54.0	17.9	17.8
4.	12245.00	BB	28.8	28.7	39.9	35.9	8.1	0.0	40.9	40.8	54.0	13.1	13.2
5.	14694.00	BB	29.5	29.4	42.6	35.4	9.0	0.5	46.2	46.1	54.0	7.8	7.9
6.	17143.00	BB	30.5	30.9	45.9	35.6	9.6	0.5	50.9	51.3	54.0	3.1	2.7
7.	19592.00	BB	30.9	31.1	38.4	35.2	10.5	0.0	44.6	44.8	54.0	9.4	9.2
8.	22041.00	BB	32.8	32.9	39.1	35.1	10.9	0.0	47.7	47.8	54.0	6.3	6.2
9.	24490.00	BB	32.4	32.6	39.4	35.0	11.1	0.0	47.9	48.1	54.0	6.1	5.9

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

■ ANTENNA: KHA-02 (1-18GHz) / KHA-04 (18-26GHz)

■ AMP: KAF-04 (8449B) ■ SPECTRUM ANALYZER: KSA-04 ■ CABLE: KCC-D3/D7

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 26BE0051-H0 F1

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2469MHz  
 Remarks : PK (RBW:1MHz, VBW:1MHz)  
 Date : 1/17/2006  
 Test Distance : 3 m  
 Temperature : 20 °C  
 Humidity : 38 %  
 Regulation : FCC Part15C § 15. 209 (PK Detection) 1-26GHz:3m/26-40GHz:1m  
Engineer : Takahiro Suzuki

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	2483.50	BB	41.4	42.5	30.1	37.1	4.0	10.0	48.4	49.5	74.0	25.6	24.5
2.	4938.00	BB	56.1	59.8	35.4	36.4	5.6	0.5	61.2	64.9	74.0	12.8	9.1
3.	7407.00	BB	45.0	47.2	37.5	36.8	6.7	0.2	52.6	54.8	74.0	21.4	19.2
4.	9876.00	BB	41.9	42.6	36.5	37.1	7.4	0.2	48.9	49.6	74.0	25.1	24.4
5.	12345.00	BB	39.7	39.8	39.5	35.8	8.1	0.0	51.5	51.6	74.0	22.5	22.4
6.	14814.00	BB	38.7	39.5	42.5	35.6	9.0	0.7	55.3	56.1	74.0	18.7	17.9
7.	17283.00	BB	39.7	39.8	45.8	35.6	9.6	0.3	59.8	59.9	74.0	14.2	14.1
8.	19752.00	BB	42.4	42.8	38.5	35.1	10.5	0.0	56.3	56.7	74.0	17.7	17.3
9.	22221.00	BB	43.3	42.9	39.2	35.0	11.0	0.0	58.5	58.1	74.0	15.5	15.9
10.	24690.00	BB	41.4	41.7	39.5	34.8	11.4	0.0	57.5	57.8	74.0	16.5	16.2

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

■ ANTENNA: KHA-02 (1-18GHz) / KHA-04 (18-26GHz)

■ AMP: KAF-04 (8449B) ■ SPECTRUM ANALYZER: KSA-04 ■ CABLE: KCC-D3/D7

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 26BE0051-H0 7.7.1

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #6  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving 2469MHz  
 Remarks : AV (RBW:1MHz, VBW:10Hz)  
 Date : 1/17/2006  
 Test Distance : 3 m  
 Temperature : 20 °C  
 Humidity : 38 %  
 Regulation : FCC Part15C § 15. 209 (AV Detection) 1-26GHz:3m/26-40GHz:1m  
Engineer : Takahiro Suzuki

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	2483.50	BB	31.6	32.2	30.1	37.1	4.0	10.0	38.6	39.2	54.0	15.4	14.8
2.	4938.00	BB	40.6	43.5	35.4	36.4	5.6	0.5	45.7	48.6	54.0	8.3	5.4
3.	7407.00	BB	30.9	34.7	37.5	36.8	6.7	0.2	38.5	42.3	54.0	15.5	11.7
4.	9876.00	BB	28.7	29.0	36.5	37.1	7.4	0.2	35.7	36.0	54.0	18.3	18.0
5.	12345.00	BB	28.6	28.9	39.5	35.8	8.1	0.0	40.4	40.7	54.0	13.6	13.3
6.	14814.00	BB	29.6	29.3	42.5	35.6	9.0	0.7	46.2	45.9	54.0	7.8	8.1
7.	17283.00	BB	30.7	30.8	45.8	35.6	9.6	0.3	50.8	50.9	54.0	3.2	3.1
8.	19752.00	BB	30.8	31.2	38.5	35.1	10.5	0.0	44.7	45.1	54.0	9.3	8.9
9.	22221.00	BB	32.9	32.7	39.2	35.0	11.0	0.0	48.1	47.9	54.0	5.9	6.1
10.	24690.00	BB	32.6	32.7	39.5	34.8	11.4	0.0	48.7	48.8	54.0	5.3	5.2

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

■ ANTENNA: KHA-02 (1-18GHz) / KHA-04 (18-26GHz)

■ AMP: KAF-04 (8449B) ■ SPECTRUM ANALYZER: KSA-04 ■ CABLE: KCC-D3/D7

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 26BE0051-H0 - F 1

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #10  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving Hopping  
 Remarks : PK RBW:1MHz, VBW:1MHz  
 Date : 5/10/2006  
 Test Distance : 3 m  
 Temperature : 22 °C  
 Humidity : 60 %  
 Regulation : FCC Part15C § 15. 209 (PK Detection)

Engineer : Makoto Hosaka

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	2390.00	BB	46.0	45.1	28.7	36.8	4.0	9.9	51.8	50.9	74.0	22.2	23.1
2.	2483.50	BB	43.7	43.6	28.8	36.8	4.0	9.9	49.6	49.5	74.0	24.4	24.5
3.	4927.57	BB	55.0	51.6	33.2	37.3	5.8	0.4	57.1	53.7	74.0	16.9	20.3
4.	7287.45	BB	48.6	48.2	36.6	37.0	6.6	0.5	55.3	54.9	74.0	18.7	19.1
5.	9740.73	BB	42.9	47.5	38.4	37.0	7.6	0.9	52.8	57.4	74.0	21.2	16.6
6.	12245.00	BB	42.5	41.8	40.5	35.7	8.8	0.5	56.6	55.9	74.0	17.4	18.1
7.	14694.00	BB	43.8	42.7	42.8	34.3	9.3	0.7	62.3	61.2	74.0	11.7	12.8
8.	17143.00	BB	43.1	42.8	43.5	34.1	9.7	0.4	62.6	62.3	74.0	11.4	11.7
9.	19592.00	BB	42.7	41.8	40.9	34.3	10.3	0.0	59.6	58.7	74.0	14.4	15.3
10.	22041.00	BB	41.9	41.6	40.8	33.7	11.1	0.0	60.1	59.8	74.0	13.9	14.2
11.	24490.00	BB	42.7	43.7	40.7	33.0	11.5	0.0	61.9	62.9	74.0	12.1	11.1

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

■ ANTENNA:KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz

■ CABLE:KCC-D3/D7 ■ PREAMP:KAF-02 (8447B) ■ SPECTRUM ANALYZER:KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Apex Co.,Ltd.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 26BE0051-H0 - F1

Applicant : ALPS ELECTRIC CO., LTD.  
 Kind of Equipment : Label Printer  
 Model No. : CDPR22  
 Serial No. : #10  
 Power : AC120V/60Hz  
 Mode : Transmitting/Receiving Hopping  
 Remarks : AV RBW:1MHz, VBW:10Hz  
 Date : 5/10/2006  
 Test Distance : 3 m  
 Temperature : 22 °C  
 Humidity : 60 %  
 Regulation : FCC Part15C § 15.209 (AV Detection)

Engineer : Makoto Hosaka

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER					HOR [dB μV/m]	VER		HOR [dB]	VER
1.	2390.00	BB	32.8	32.8	28.7	36.8	4.0	9.9	38.6	38.6	54.0	15.4	15.4
2.	2483.50	BB	34.9	34.7	28.8	36.8	4.0	9.9	40.8	40.6	54.0	13.2	13.4
3.	4927.57	BB	39.3	38.6	33.2	37.3	5.8	0.4	41.4	40.7	54.0	12.6	13.3
4.	7287.45	BB	33.3	35.6	36.6	37.0	6.6	0.5	40.0	42.3	54.0	14.0	11.7
5.	9740.73	BB	31.1	32.1	38.4	37.0	7.6	0.9	41.0	42.0	54.0	13.0	12.0
6.	12245.00	BB	30.9	30.9	40.5	35.7	8.8	0.5	45.0	45.0	54.0	9.0	9.0
7.	14694.00	BB	31.5	31.5	42.8	34.3	9.3	0.7	50.0	50.0	54.0	4.0	4.0
8.	17143.00	BB	30.1	30.9	43.5	34.1	9.7	0.4	49.6	50.4	54.0	4.4	3.6
9.	19592.00	BB	31.3	31.3	40.9	34.3	10.3	0.0	48.2	48.2	54.0	5.8	5.8
10.	22041.00	BB	31.4	31.9	40.8	33.7	11.1	0.0	49.6	50.1	54.0	4.4	3.9
11.	24490.00	BB	32.8	32.8	40.7	33.0	11.5	0.0	52.0	52.0	54.0	2.0	2.0

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

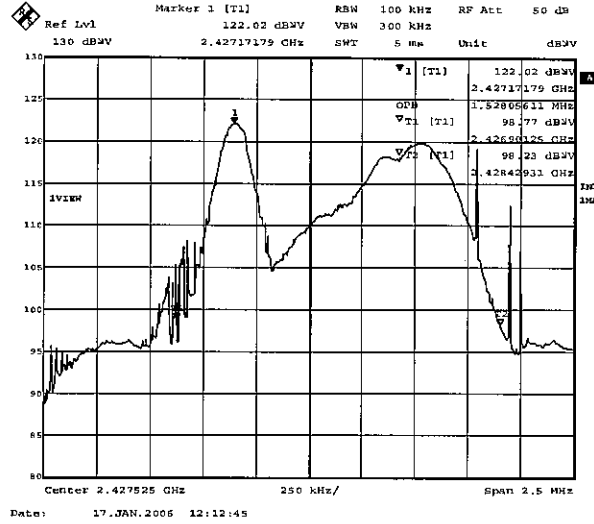
■ ANTENNA: KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz  
 ■ CABLE: KCC-D3/D7 ■ PREAMP: KAF-02 (8447B) ■ SPECTRUM ANALYZER: KTR-01 (ES140)

## Occupied Bandwidth(99%)

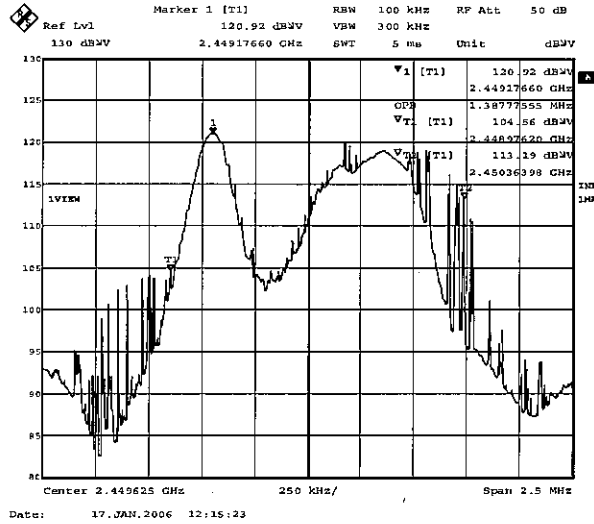
**COMPANY** : Alps Electric Co., Ltd.  
**EQUIPMENT** : Label Printer  
**MODEL NUMBER**: CDPR22  
**SERIAL NUMBER**: #4  
**FCC ID** : QT5-CDPR22  
**POWER** : AC120V/60Hz

**UL Apex Co.,Ltd. Yamakita No.4 Shielded Room**  
**REPORT NO** : 26BE0051-HO-F1  
**REGULATION** : RSS-210  
**DATE** : 2006/01/17  
**TEMP/HUMI** : 20°C/38%  
**TEST MODE** : Transmitting/Receiving  
**ENGINEER** : Toyokazu Imamura

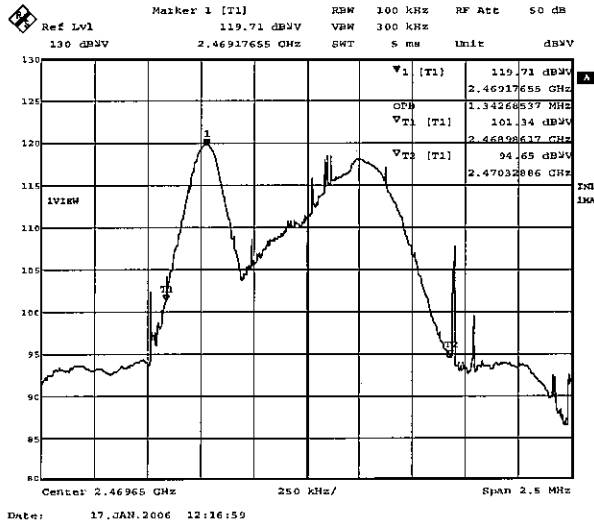
### 1. ch : 2427MHz/Occupied Bandwidth:1528.06kHz



### 2. ch : 2449MHz/Occupied Bandwidth:1387.78kHz



### 3. ch : 2469MHz/Occupied Bandwidth:1342.69kHz

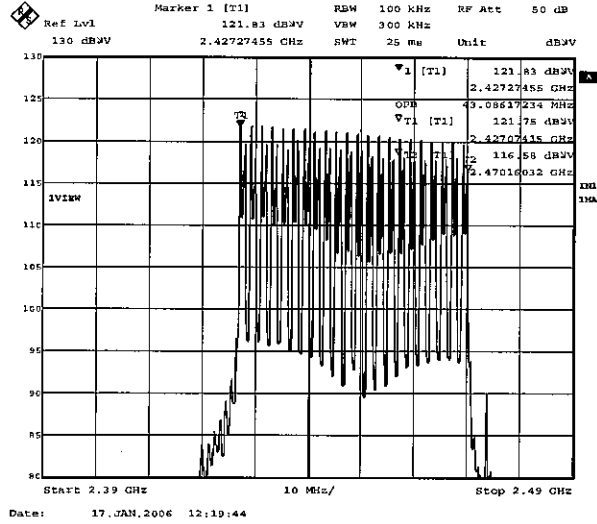


## Occupied Bandwidth(99%)

**COMPANY** : Alps Electric Co., Ltd.  
**EQUIPMENT** : Label Printer  
**MODEL NUMBER** : CDPR22  
**SERIAL NUMBER** : #4  
**FCC ID** : QT5-CDPR22  
**POWER** : AC120V/60Hz

**UL Apex Co.,Ltd. Yamakita No.4 Shielded Room**  
**REPORT NO** : 26BE0051-HO-F1  
**REGULATION** : RSS-210  
**DATE** : 2006/01/17  
**TEMP./HUMI** : 20°C/38%  
**TEST MODE** : Transmitting/Receiving  
**ENGINEER** : Toyokazu Imamura

### 4. Hopping/Occupied Bandwidth:43.09MHz





**APPENDIX 3 Test Instruments**

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
KAEC-01(NS A)	Anechoic Chamber	JSE	Semi 3m	RE	2005/09/03 * 12
KAF-02	Pre Amplifier	Hewlett Packard	8449B	RE	2005/04/28 * 12 2006/04/24 * 12
KAF-05	Pre Amplifier	Agilent	8447D	RE	2005/05/11 * 12
KAT10-S1	Attenuator	Agilent	8449D 010	RE	2005/04/12 * 12 2006/04/11 * 12
KAT6-01	Attenuator	INMET	18N-6dB	RE	2005/04/07 * 12 2006/03/24 * 12
KBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/01/29 * 12
KCC-24/25/26/ 28/KPL-02	Coaxial Cable/Pulse Limiter	Fujikura/Suhner/PMM	5D-2W/5D-2W/S04 272B/S04272B/PL0 1	CE	2005/09/02 * 12
KCC-30/31/32/ 34	Coaxial Cable	Fujikura/Suhner	5D-2W/S04272B	RE	2005/12/22 * 12
KCC-D3/D7	Coaxial Cable	Rosenberger/Advantest	2201/JUN-08-01-06 1	RE	2005/04/12 * 12 2006/04/11 * 12
KFL-01	Highpass Filter	Hewlett Packard	84300 80038	RE	2005/04/12 * 12 2006/04/11 * 12
KHA-02	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2005/10/15 * 12
KHA-04	Horn Antenna	EMCO	3160-09	RE	2005/05/14 * 12
KLS-05	LISN(AMN)	Schwarzbeck	NSLK8126	CE (EUT)	2005/09/06 * 12
KLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE	2005/09/06 * 12
KPM-05	Power meter	Agilent	E4417A	AT 5	2005/03/02 * 12
KPSS-01	Power sensor	Agilent	E9327A	AT 5	2005/03/04 * 12
KSA-02	Spectrum Analyzer	Advantest	R3265A	CE	2005/11/10 * 12
KSA-04	Spectrum Analyzer	Advantest	R3271A	RE	2005/09/13 * 12
KTM-06	Terminator	TME	CT-01BP	CE	2005/04/07 * 12
KTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE/AT 1-4,6	2005/08/05 * 12
KTR-03	Test Receiver	Rohde & Schwarz	ESHS10	CE	2005/05/11 * 12
KCC-D16	Coaxial Cable	INSULATED WIRE INC	KPS-1501-200-KPS	AT 1-6	2005/09/02 * 12
KST-09	Digitizing Oscilloscope	Tektronix	TDS420A	AT 4	2005/08/31 * 12

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

Test Item:

CE: Conducted Emission

RE: Out of Band Emission (Radiated)

1 30-1000MHz

2 1-26.5GHz

3 Hopping (30-1000MHz, 1-26.5GHz)

AT: Antenna Terminal Conducted test

1 Carrier Frequency Separation

2 20dB Bandwidth

3 Number of Hopping Frequency

4 Dwell time

5 Maximum Peak Output Power

6 Out of Band Emission (Conducted)

**UL Apex Co., Ltd.**

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MF060b(01.06.05)