



# TEST DATA OF LCA150S-12

(100V INPUT)

Regulated DC Power Supply

Date : Aug. 13. 1999

Approved by :

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Design Manager

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Design Engineer

**コーセル株式会社**

**COSEL CO.,LTD.**

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Model		LCA150S-12		Temperature		25°C																																	
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Object		+12.0V 12.5A																																					
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<p>瞬時停電保障時間とは、出力電圧が定電圧精度の規格範囲を保持している瞬時停電時間をいう。</p> <p>(注)斜線は定格負荷電流範囲を示す。</p>																																																										



Model		LCA150S-12		Temperature	25°C																																															
Item		Load Regulation 静的負荷変動		Testing Circuitry	Figure A																																															
Object		+12.0V12.5A																																																		
1. Graph			△ Input Volt. 85V □ Input Volt. 100V ○ Input Volt. 132V	2. Values																																																
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# COSEL

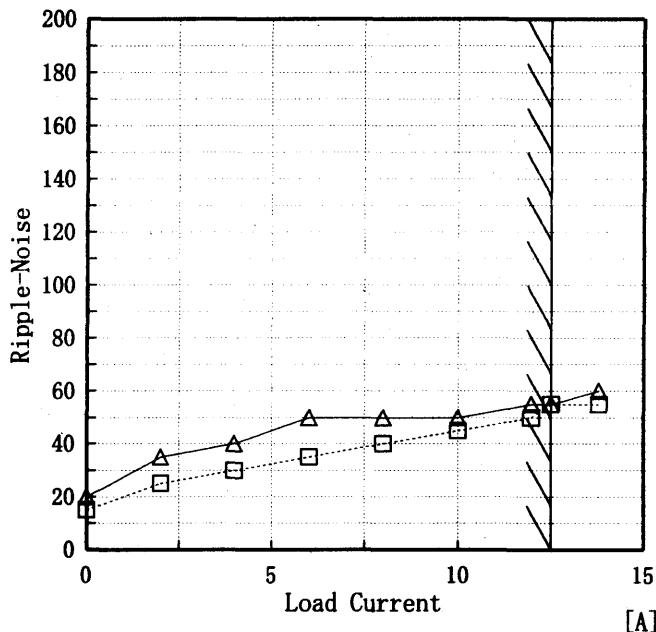
Model		LCA150S-12																																							
Item		Ripple Voltage (by Load Current) リップル電圧(負荷電流特性)																																							
Object		+12.0V 12.5A																																							
1. Graph		2. Values																																							
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Load Current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]																																							
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<p>T1: Due to AC Input Line                  入力商用周期                  T2: Due to Switching                  スイッチング周期</p> <p>Fig. Complex Ripple Wave Form                  図 リップル波形詳細図</p>																																									

# COSEL

Model	LCA150S-12	Temperature	25°C
Item	Ripple-Noise リップルノイズ	Testing Circuitry	Figure A

Object +12.0V12.5A

1. Graph  
 [mV]  
 □ Input Volt. 85V  
 △ Input Volt. 132V



2. Values

Load current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]
	Ripple-Noise [mV]	Ripple-Noise [mV]
0.00	15	20
2.00	25	35
4.00	30	40
6.00	35	50
8.00	40	50
10.00	45	50
12.00	50	55
12.50	55	55
13.80	55	60
—	—	—
—	—	—

Ripple-Noise is shown as p-p in the figure below.

Note: Slanted line shows the range of the rated load current.

リップルノイズは、下図 p-p 値で示される。

(注)斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line  
 入力商用周期

T2: Due to Switching  
 スイッチング周期

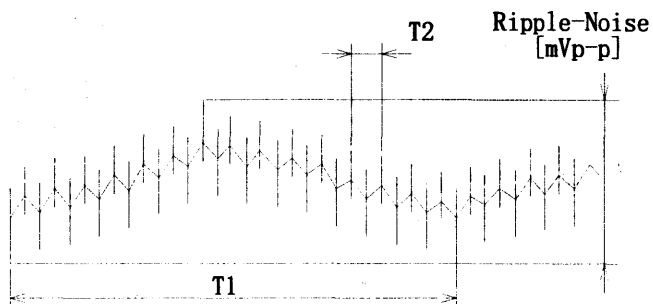


Fig. Complex Ripple Wave Form

図 リップル波形詳細図

# COSEL

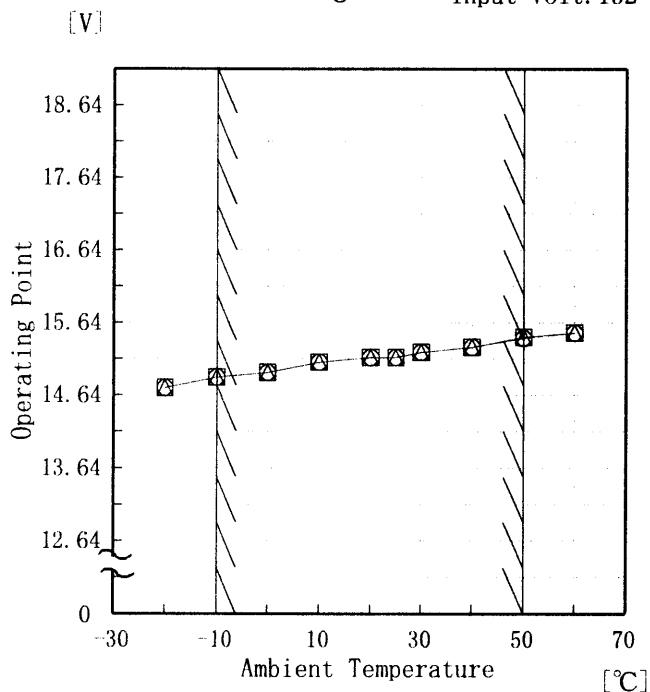
Model		LCA150S-12	Temperature 25°C Testing Circuitry Figure A																																																								
Item		Overcurrent Protection 過電流保護																																																									
Object		+12.0V12.5A	2. Values																																																								
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Model	LCA150S-12
Item	Overvoltage Protection 過電圧保護
Object	+12.0V12.5A

Testing Circuitry Figure A

1. Graph
- △— Input Volt. 85 V
  - Input Volt. 100 V
  - Input Volt. 132 V



Load 0%

Note: Slanted line shows the range of the rated ambient temperature.

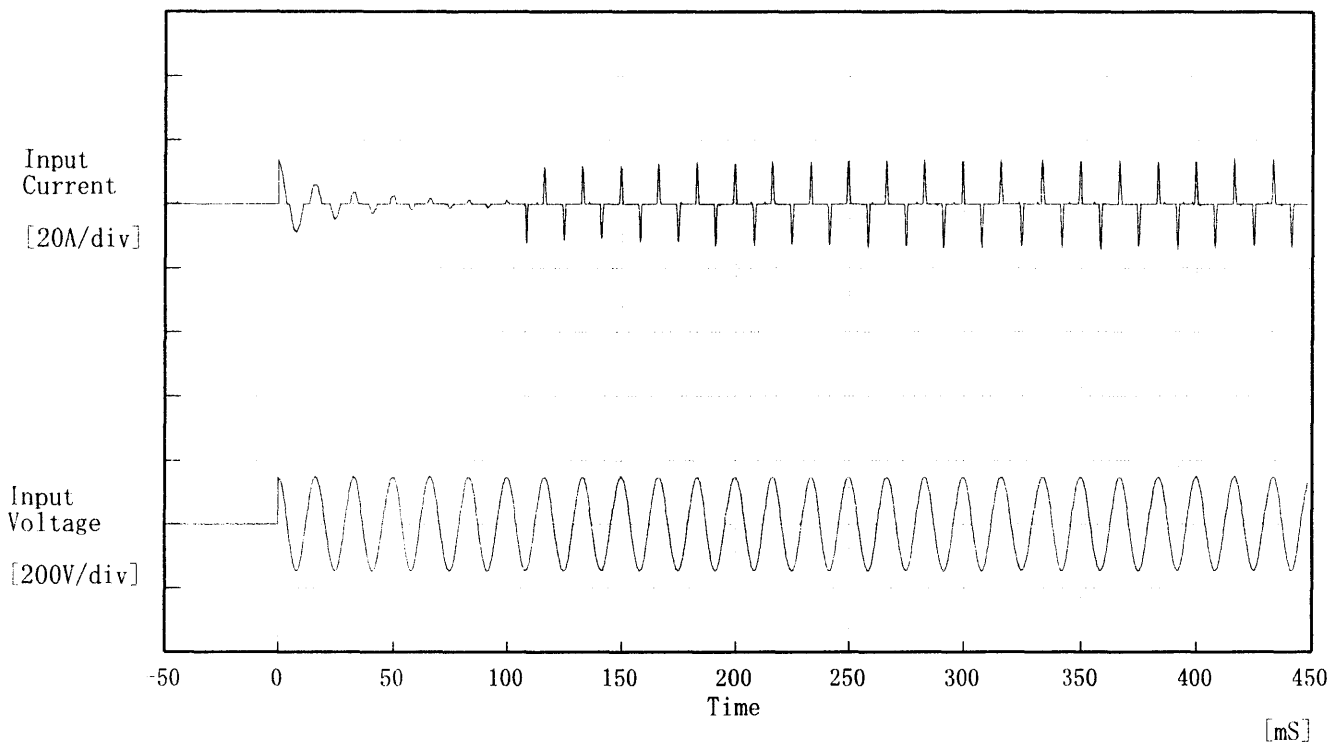
(注) 斜線は定格周囲温度範囲を示す。

2. Values

Ambient Temp. [°C]	Operating Point [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	14.74	14.74	14.74
-10	14.88	14.88	14.88
0	14.95	14.95	14.95
10	15.09	15.09	15.09
20	15.16	15.16	15.16
25	15.16	15.16	15.16
30	15.23	15.23	15.23
40	15.30	15.30	15.30
50	15.44	15.44	15.43
60	15.50	15.50	15.50
—	—	—	—

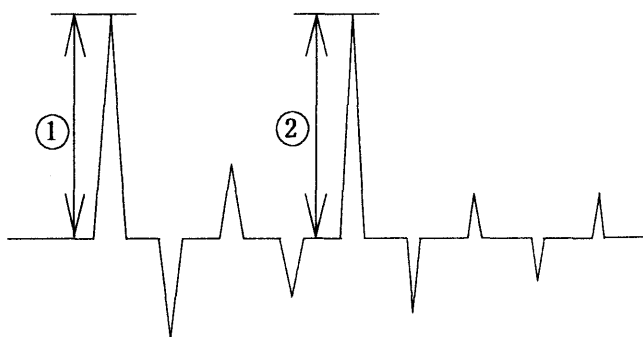
# COSEL

Model	LCA150S-12	Temperature	25°C
Item	Inrush Current 突入電流	Testing Circuitry	Figure A
Object	_____		



Input Voltage 100 V  
 Frequency 60 Hz  
 Load 100 %  
 Inrush Current

- ① 13.80 [A]
- ② 14.40 [A]



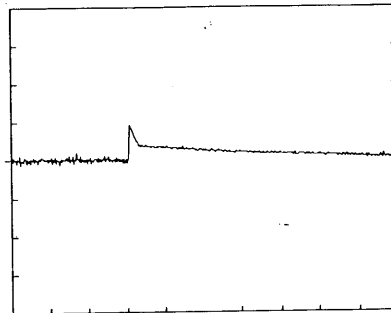
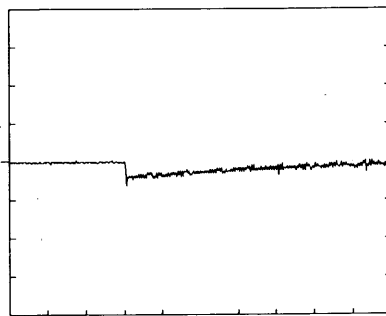


Model		LCA150S-12	Temperature 25°C Testing Circuitry Figure A
Item		Dynamic Load Responce 動的負荷変動	
Object		+12.0V 12.5A	

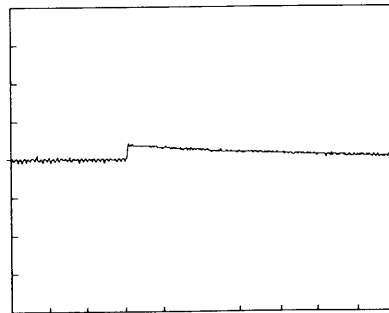
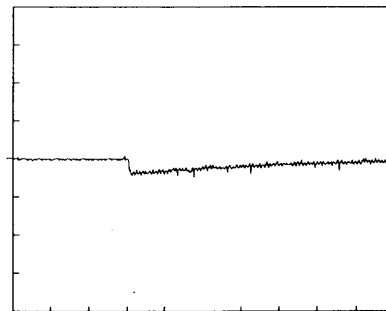
Input Volt. 100 V  
Cycle 1000 mS



Load 0% ↔  
Load 100 %



Load 0% ↔  
Load 50 %



100 mV/div

10 mS/div

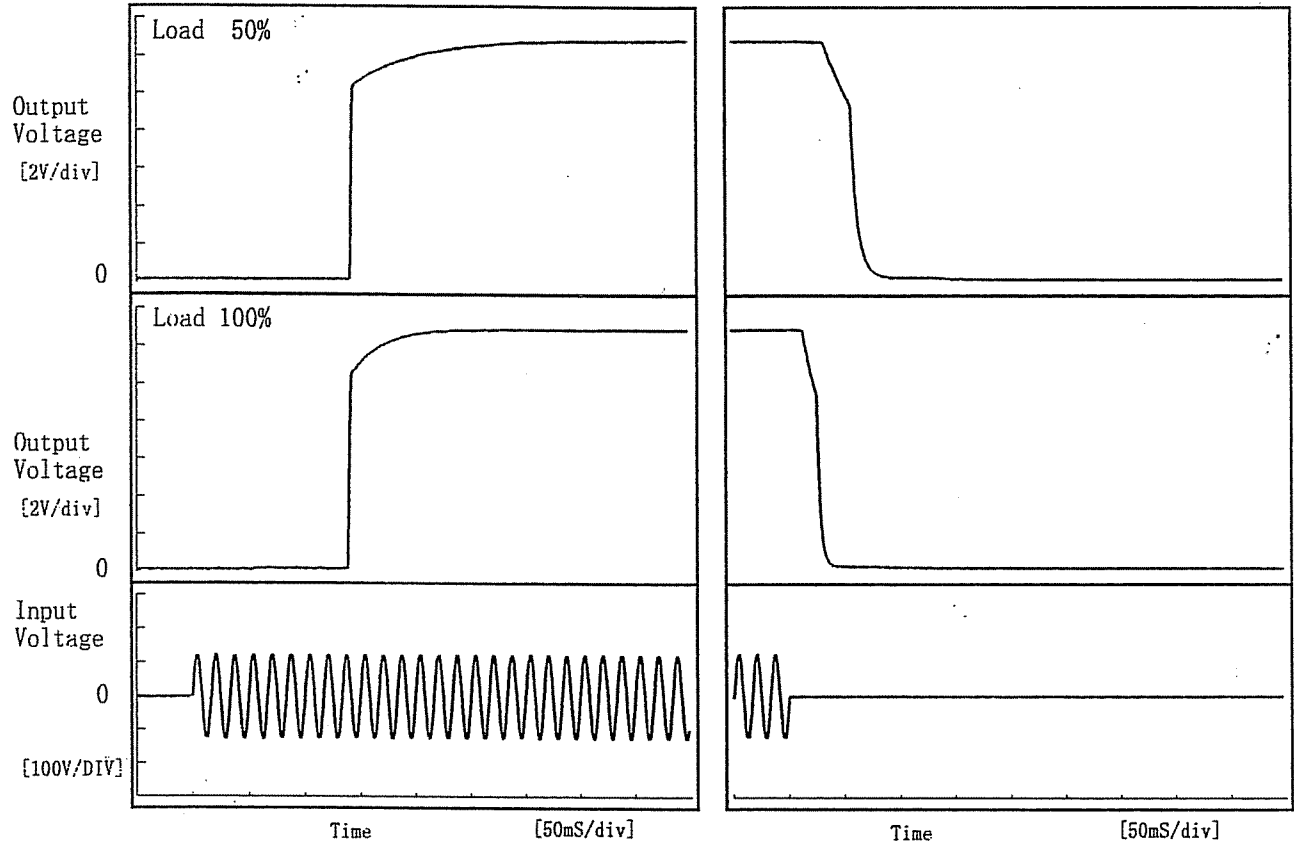


# COSEL

Model	LCA150S-12	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	±12.0V12.5A		

1. Graph

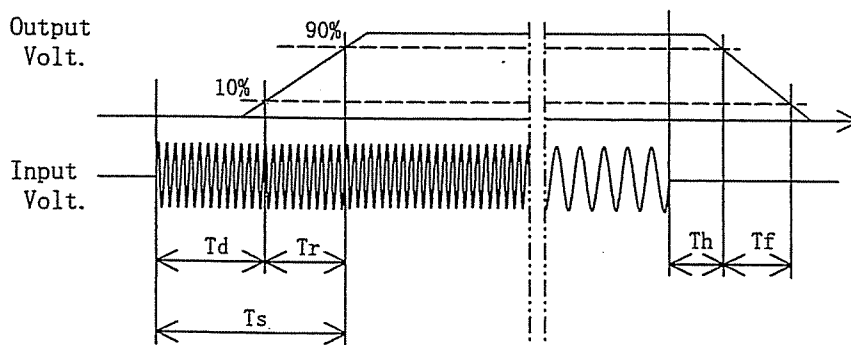
Input Volt. 85 V



2. Values

[mS]

Load	Time	T d	T r	T s	T h	T f
50 %		140.5	12.8	153.3	45.8	25.5
100 %		141.0	13.0	154.0	20.5	13.5

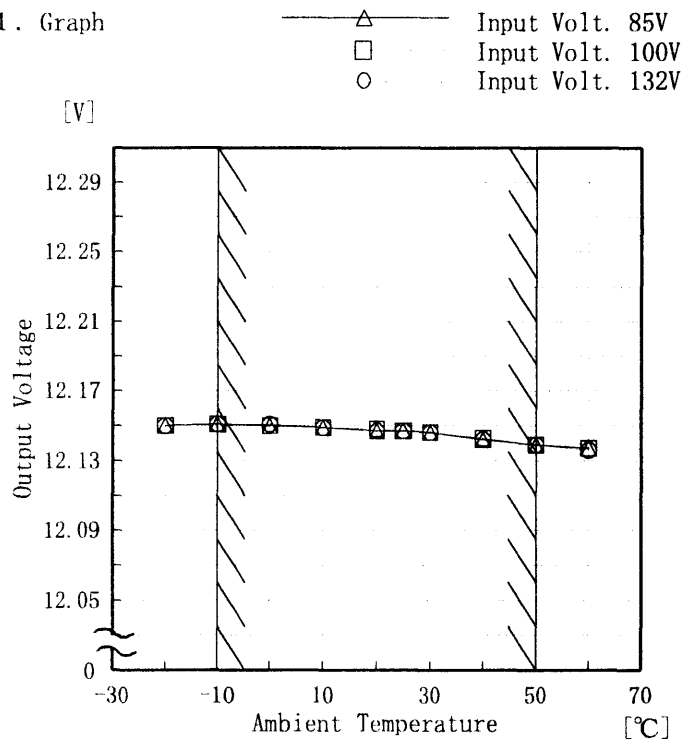




Model	LCA150S-12
Item	Ambient Temperature Drift 周囲温度変動
Object	+12.0V12.5A

Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated ambient temperature.

(注)斜線は定格周囲温度範囲を示す。

2. Values

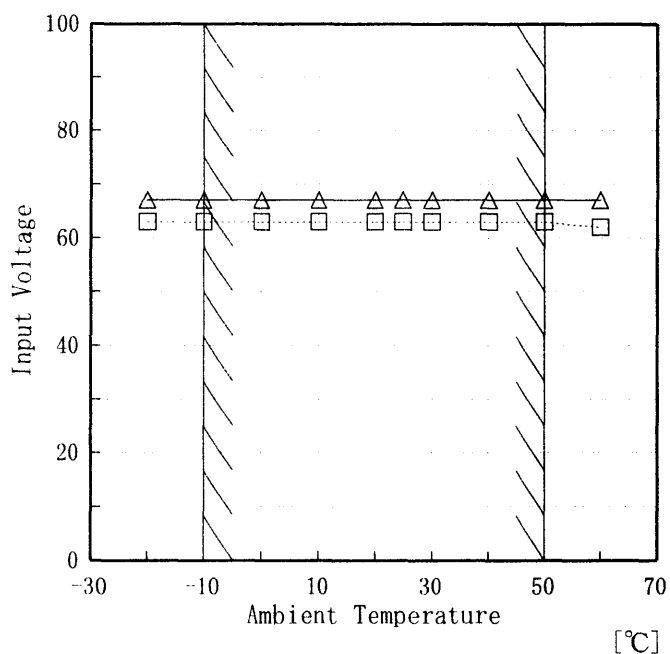
Temperature [°C]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	12.150	12.150	12.150
-10	12.151	12.151	12.151
0	12.150	12.150	12.151
10	12.149	12.149	12.149
20	12.147	12.148	12.147
25	12.147	12.147	12.147
30	12.146	12.146	12.146
40	12.142	12.143	12.142
50	12.139	12.139	12.139
60	12.137	12.137	12.136
—	—	—	—



Model	LCA150S-12
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+12.0V12.5A

Testing Circuitry Figure A

1. Graph □ Load 50%  
—△— Load 100%



2. Values

Ambient Temp. [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	63	67
-10	63	67
0	63	67
10	63	67
20	63	67
25	63	67
30	63	67
40	63	67
50	63	67
60	62	67
—	—	—

Note: Slanted line shows the range of the rated ambient temperature.

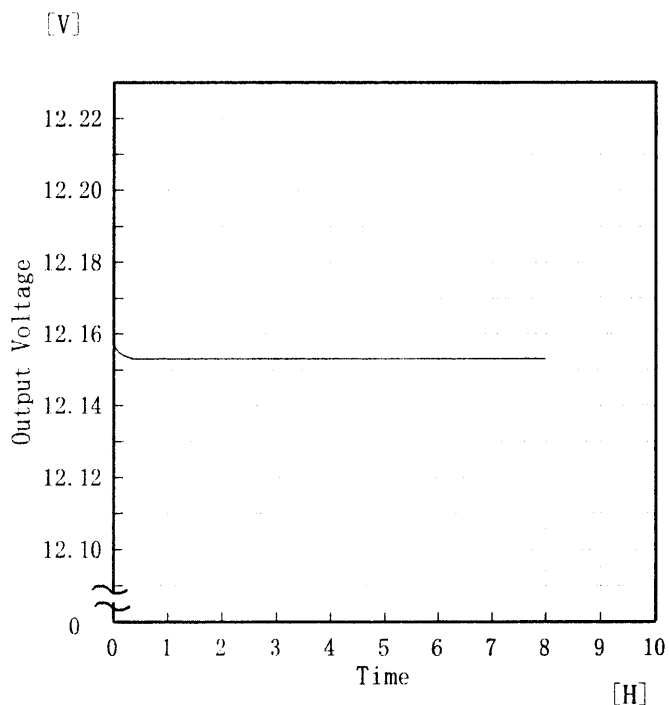
(注) 斜線は定格周囲温度範囲を示す。

Model		LCA150S-12	Testing Circuitry Figure A																																					
Item		Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)																																						
Object		+12.0V 12.5A	2. Values																																					
1. Graph		<div style="display: flex; justify-content: space-around;"> <span>□ Load 50%</span> <span>△ Load 100%</span> </div> <p style="text-align: center;">Input Volt. 100 V</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p> <p>(注) 斜線は定格周囲温度範囲を示す。</p>																																						
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Ambient Temp. [°C]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]																																						
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40	10	15																																						
50	10	15																																						
60	10	15																																						
—	—	—																																						



Model	LCA150S-12	Temperature	25 °C
Item	Time Lapse Drift 経時ドリフト	Testing Circuitry	Figure A
Object	+12.0V12.5A		

1. Graph



Input Volt. 100V  
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	12.157
0.5	12.153
1.0	12.153
2.0	12.153
3.0	12.153
4.0	12.153
5.0	12.153
6.0	12.153
7.0	12.153
8.0	12.153



<b>COSEL</b>		
Model	LCA150S-12	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+12.0V12.5A	

Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -10~50 °C

Input Voltage : 85~132 V

Load Current : 0.00~12.50 A

\* Output Voltage Accuracy =  $\pm (\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

$$* \text{Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

定電圧精度

周囲温度、入力電圧、負荷を下記仕様内で、任意に変動させたときの出力電圧の変動をいう。

周囲温度 -10~50 °C

入力電圧 85~132 V

負荷電流 0.00~12.50 A

\* 定電圧精度(変動値) =  $\pm (\text{出力電圧の最高値} - \text{出力電圧の最低値}) / 2$

$$* \text{定電圧精度(変動率)} = \frac{\text{変動値}}{\text{定格出力電圧}} \times 100$$

Item	Temperature [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-10	85	0.00	12.152	±6	±0.1
Minimum Voltage	50	132	12.50	12.140		



<b>COSEL</b>		
Model	LCA150S-12	
Item	Condensation 結露特性	Testing Circuitry Figure A
Object	+12.0V 12.5A	

1. Condensation test

Testing procedure is as follows.

- ① Keeping and cooling the unit in a tank at -10°C for an hour with the input off.
- ② Taking it out of the tank and dewing itself in a room where the temperature is 25°C and the humidity is 40%RH.
- ③ Testing electrical characteristics of the unit to confirm there be no fault.

1. 結露特性試験

入力を切った状態で、恒温槽で-10°Cに冷却しておき、約1時間後に恒温槽から取り出し、室温25°C、湿度40%RHの状態におき結露させ、その電気的特性の測定を行い、異常のないことを確認する。

2. Values

Item	Data	Testing Conditions
Output Voltage [V]	12.155	Input Volt. : 100V, Load Current : 12.5A
Line Regulation [mV]	3	Input Volt. : 85~132V, Load Current : 12.5A
Load Regulation [mV]	6	Input Volt. : 100V, Load Current : 0~12.5A



Model		LCA150S-12		Temperature 25°C Testing Circuitry Figure B
Item		Leakage Current 漏洩電流		
Object		_____		

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DENTORI	0.18	0.20	0.27
(B) IEC60950	0.18	0.21	0.28

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 230 [V]	Input Volt. 264 [V]
(B) IEC60950	--	--	--

2. Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

交流入力 of 両相について測定し、その大きい方を漏洩電流測定値とする。





Model		LCA150S-12	Temperature		25°C
Item		Line Noise Tolerance 入力雑音耐量	Testing Circuitry		Figure C
Object		+12.0V12.5A			

1. Results

Pulse Width [ nS ]	MODE	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation
1000	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation

2. Conditions

Input Voltage : 100 V  
 Pulse Voltage : 2000 V  
 Pulse Cycle : 10 mS  
 Pulse Input Duration : 1 min. or more  
 Load : 100 %



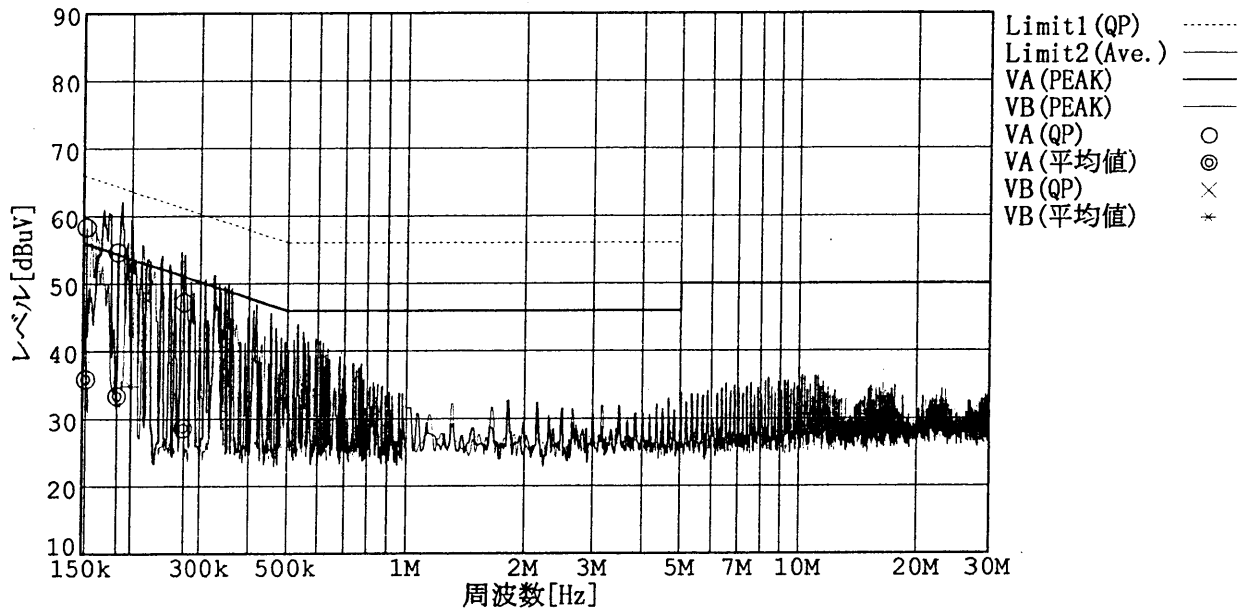
Model		LCA150S-12	
Item		Conducted Emission 雑音端子電圧	Temperature 25°C Testing Circuitry Figure D
Object			

1. Graph

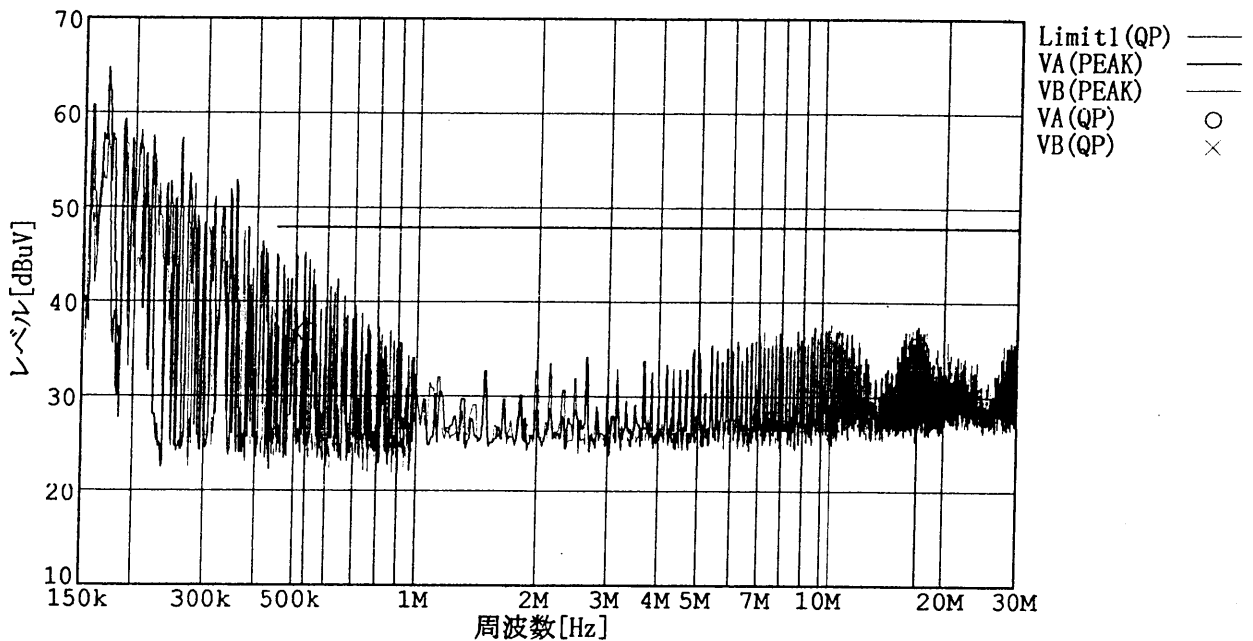
Remarks

Input Volt. 100 V (VCCI Class B)  
120 V (FCC Class B)  
Load 100 %

規格 1: [VCCI] Class B (QP)  
規格 2: [VCCI] Class B (平均値)



規格 1: [FCC Part15] Class B



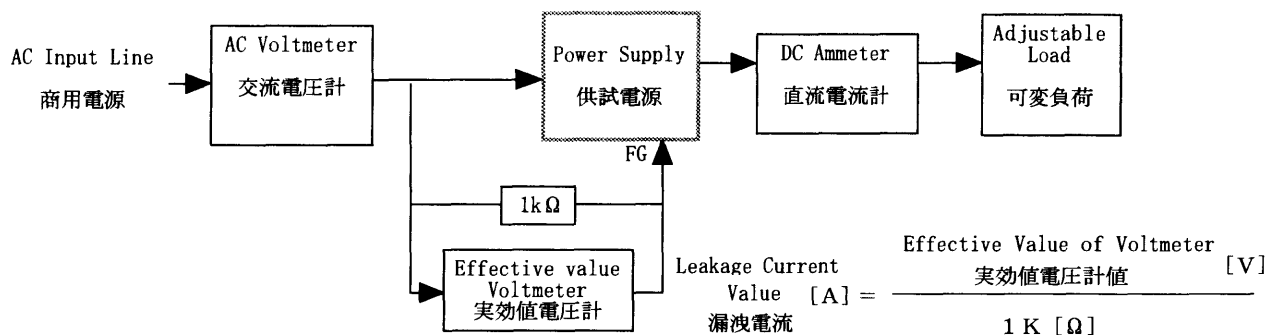
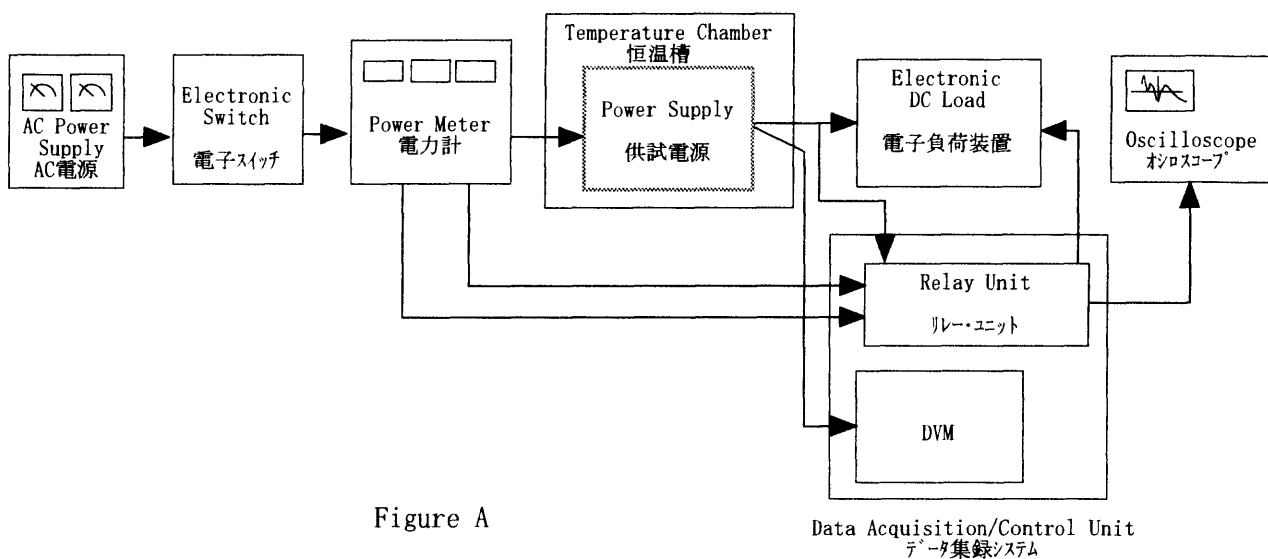


Figure B (DENTORI)

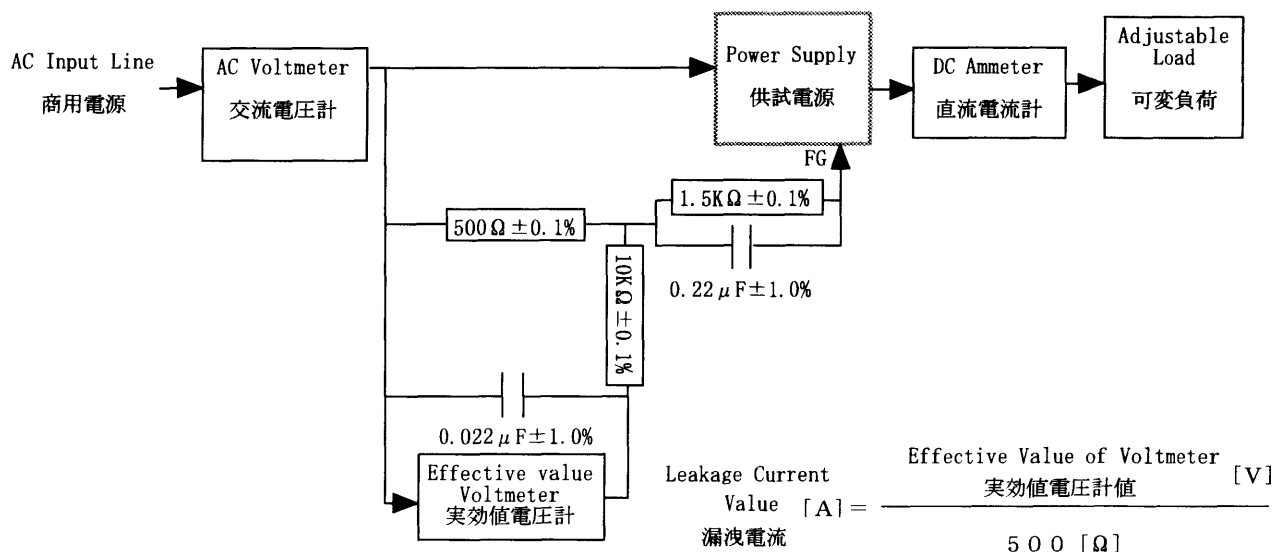


Figure B (IEC 60950)

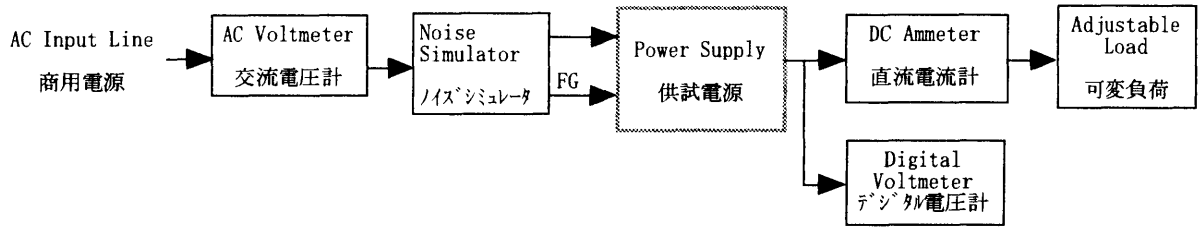


Figure C

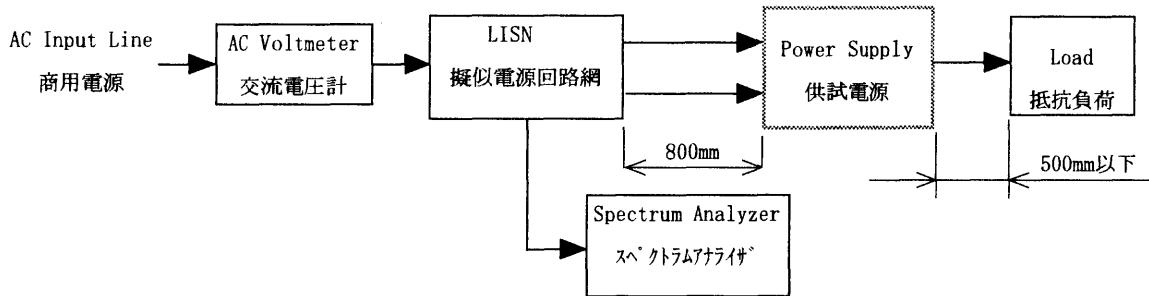


Figure D

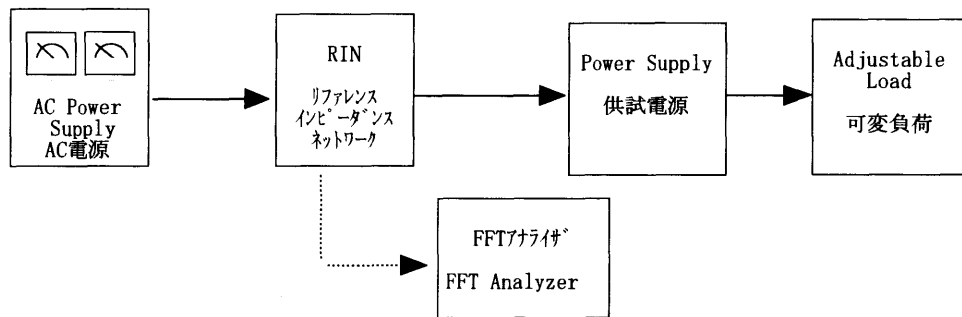


Figure E