



TEST DATA OF LDA300W-12

(100V INPUT)

Regulated DC Power Supply

Date : Feb. 22. 1997

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Design Engineer

コーセル株式会社

COSEL CO., LTD.

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Model		LDA300W-12	Temperature 25°C Testing Circuitry Figure A																														
Item		Line Regulation 静的入力変動																															
Object		+12V27A																															
1. Graph		<p>-----□----- Load 50%</p> <p>-----△----- Load 100%</p>	2. Values																														
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Input Voltage [V]	Load 50% Output Volt. [V]	Load 100% Output Volt. [V]																															
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Item		Efficiency 効率	Testing Circuitry		Figure A																																
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Input Voltage [V]	Load 50%	Load 100%																																			
	Efficiency [%]	Efficiency [%]																																			
75	79.72	77.35																																			
80	80.33	78.09																																			
85	80.56	78.85																																			
90	80.73	79.23																																			
100	80.85	80.00																																			
110	80.77	80.59																																			
120	80.53	81.00																																			
132	80.33	81.20																																			
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<p>Note: Slanted line shows the range of the rated input voltage.</p> <p>(注)斜線は定格入力電圧範囲を示す。</p>																																					



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Item		Hold-Up Time 出力保持時間	Testing Circuitry		Figure A																																
Object		+12V27A																																			
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Input Voltage [V]	Load 50%	Load 100%																																			
	Hold-Up Time [mS]	Hold-Up Time [mS]																																			
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120	114	50																																			
132	144	66																																			
140	167	77																																			
<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</p> <p>Note: Slanted line shows the range of the rated input voltage.</p> <p>出力保持時間とは、AC入力断から出力電圧が、定電圧精度の規格範囲を保持しているところまでの時間。</p> <p>(注)斜線は定格入力電圧範囲を示す。</p>																																					



Model		LDA300W-12	Testing Circuitry		Figure A	25°C
Item		Instantaneous Interruption Compensation 瞬時停電保障				
Object		+12V27A				
1. Graph		<p> <input type="checkbox"/> —△— Input Volt. 85V <input type="checkbox"/> - - -□- - - Input Volt. 100V <input type="checkbox"/> - - -○- - - Input Volt. 132V </p>	2. Values			
Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]			
	Time [mS]					
0.0	—	—	—			
5.0	91	162	346			
10.0	43	74	177			
15.0	26	50	113			
20.0	16	34	82			
25.0	10	26	63			
27.0	8	22	56			
30.0	6	18	52			
—	—	—	—			
—	—	—	—			
—	—	—	—			

This duration covers from Shut-off of AC-IN to the moment when output voltage descends to its 95% of the rated.

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

瞬時停電保障時間とは、出力電圧が定格値の95%になる時の瞬時停電時間をいう。

(注)斜線は定格負荷電流範囲を示す。



Model		LDA300W-12	Temperature		25°C																																												
Item		Load Regulation 静的負荷変動	Testing Circuitry		Figure A																																												
Object		+12V27A																																															
1. Graph			2. Values																																														
<p> △— Input Volt. 100V □--- Input Volt. 100V ○---- Input Volt. 132V </p> <p>Output Voltage [V]</p> <p>Load Current [A]</p>			<table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Input Volt. 100[V] Output Volt. [V]</th> <th>Input Volt. 100[V] Output Volt. [V]</th> <th>Input Volt. 132[V] Output Volt. [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>12.036</td><td>12.036</td><td>12.036</td></tr> <tr><td>4.0</td><td>12.034</td><td>12.034</td><td>12.034</td></tr> <tr><td>8.0</td><td>12.033</td><td>12.033</td><td>12.033</td></tr> <tr><td>12.0</td><td>12.031</td><td>12.032</td><td>12.032</td></tr> <tr><td>16.0</td><td>12.030</td><td>12.030</td><td>12.031</td></tr> <tr><td>20.0</td><td>12.029</td><td>12.029</td><td>12.030</td></tr> <tr><td>24.0</td><td>12.028</td><td>12.028</td><td>12.029</td></tr> <tr><td>27.0</td><td>12.027</td><td>12.027</td><td>12.028</td></tr> <tr><td>29.7</td><td>12.026</td><td>12.027</td><td>12.027</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>			Load Current [A]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 132[V] Output Volt. [V]	0.0	12.036	12.036	12.036	4.0	12.034	12.034	12.034	8.0	12.033	12.033	12.033	12.0	12.031	12.032	12.032	16.0	12.030	12.030	12.031	20.0	12.029	12.029	12.030	24.0	12.028	12.028	12.029	27.0	12.027	12.027	12.028	29.7	12.026	12.027	12.027	—	—	—	—
Load Current [A]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 132[V] Output Volt. [V]																																														
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<p>Model LDA300W-12</p> <p>Item Ripple Voltage (by Load Current) リップル電圧(負荷電流特性)</p> <p>Object +12V27A</p>		<p>Temperature 25°C</p> <p>Testing Circuitry Figure A</p>																																						
<p>1. Graph</p> <p>[mV]</p> <p>-----□----- Input Volt. 85V</p> <p>-----△----- Input Volt. 132V</p>	<p>2. Values</p>	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th>Input Volt. 85 [V]</th> <th>Input Volt. 132 [V]</th> </tr> <tr> <th>Ripple Output Volt. [mV]</th> <th>Ripple Output Volt. [mV]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>10</td><td>10</td></tr> <tr><td>5.0</td><td>20</td><td>20</td></tr> <tr><td>10.0</td><td>25</td><td>25</td></tr> <tr><td>15.0</td><td>30</td><td>25</td></tr> <tr><td>20.0</td><td>35</td><td>30</td></tr> <tr><td>25.0</td><td>40</td><td>30</td></tr> <tr><td>27.0</td><td>45</td><td>35</td></tr> <tr><td>30.0</td><td>50</td><td>40</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>	Load Current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]	0.0	10	10	5.0	20	20	10.0	25	25	15.0	30	25	20.0	35	30	25.0	40	30	27.0	45	35	30.0	50	40	—	—	—	—	—	—	—	—	—
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</p> <p>T2: Due to Switching スイッチング周期</p>																																								
<p>Fig. Complex Ripple Wave Form</p> <p>図 リップル波形詳細図</p>																																								

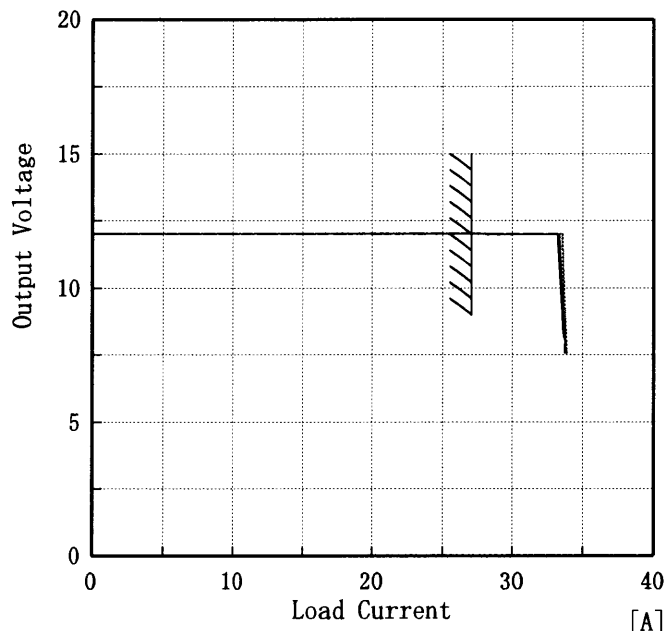
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Load current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]																																								
	Ripple-Noise [mV]	Ripple-Noise [mV]																																								
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Model	LDA300W-12
Item	Overcurrent Protection 過電流保護
Object	+12V27A

Temperature 25°C
Testing Circuitry Figure A

1. Graph
 [V] ————— Input Volt. 85 V
 ————— Input Volt. 100 V
 ————— Input Volt. 132 V



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

Hiccap operation occurs when the output voltage is under 8V.

(注)斜線は定格負荷電流範囲を示す。

8V以下は間欠動作となる。

2. Values

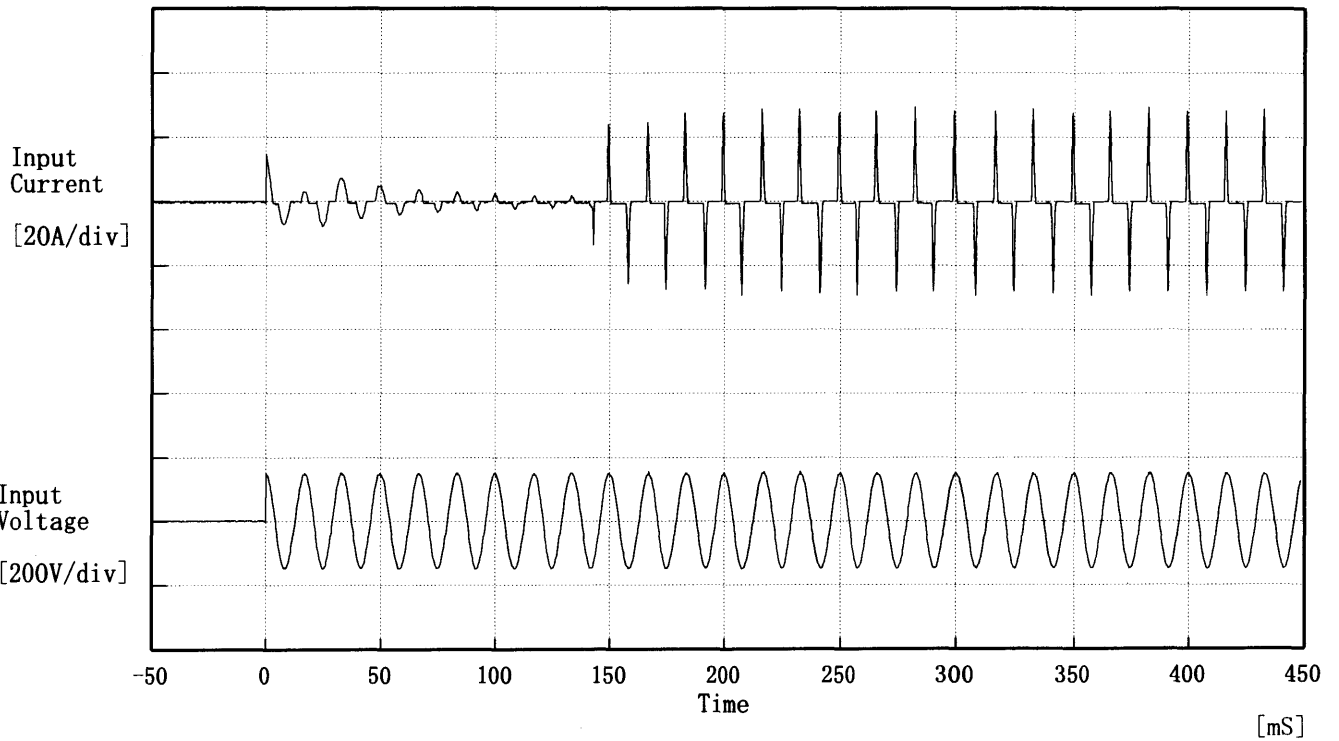
Output Voltage [V]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Load Current [A]	Load Current [A]	Load Current [A]
12.00	33.58	33.36	33.21
11.40	33.58	33.40	33.29
10.80	33.61	33.45	33.35
9.60	33.69	33.56	33.49
8.40	33.79	33.68	33.62
7.20	—	—	—
6.00	—	—	—
4.80	—	—	—
3.60	—	—	—
2.40	—	—	—
1.20	—	—	—
0.00	—	—	—



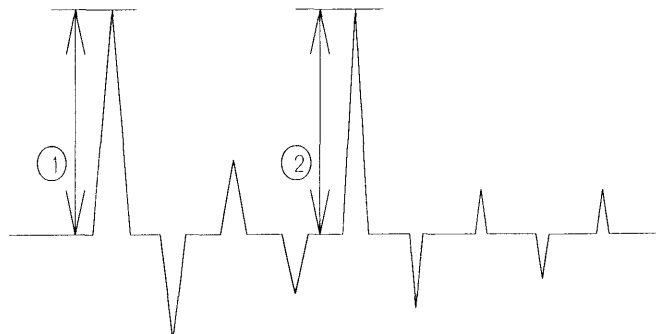
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Item		Overvoltage Protection 過電圧保護																																																					
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1. Graph		<p> △ ——— Input Volt. 85 V □ - - - - - Input Volt. 100 V ○ ······ Input Volt. 132 V </p> <p>[V]</p> <p>Ambient Temperature [°C]</p>	2. Values																																																				
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Ambient Temp. [°C]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																				
	Operating Point [V]																																																						
-20	15.27	15.27	15.27																																																				
-10	15.40	15.40	15.40																																																				
0	15.48	15.48	15.48																																																				
10	15.55	15.55	15.55																																																				
20	15.65	15.65	15.65																																																				
25	15.69	15.69	15.69																																																				
30	15.74	15.74	15.74																																																				
40	15.83	15.83	15.83																																																				
50	15.92	15.92	15.92																																																				
60	16.00	16.00	16.00																																																				
—	—	—	—																																																				
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。																																																							

COSEL

Model	LDA300W-12	Temperature	25°C
Item	Inrush Current 突入電流	Testing Circuitry	Figure A
Object	_____		



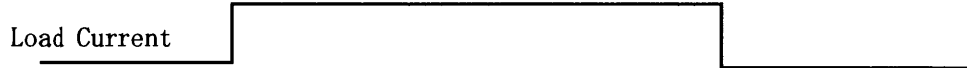
Input Voltage 100 V
 Frequency 60 Hz
 Load 100 %
 Inrush Current
 ① 15.00 [A]
 ② 29.40 [A]



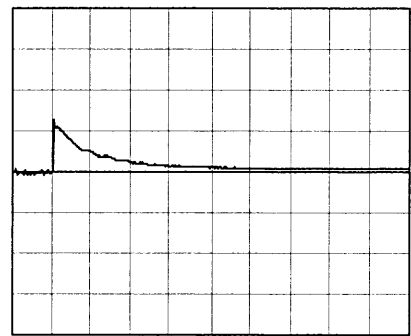
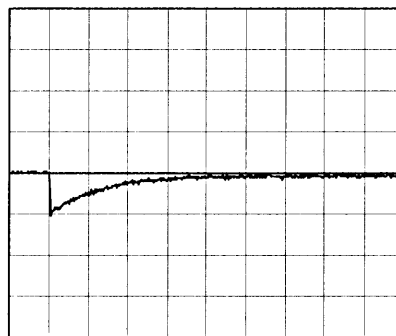
COSEL

Model	LDA300W-12	Temperature	25°C
Item	Dynamic Load Responce 動的負荷変動	Testing Circuitry	Figure A
Object	+12V27A		

Input Volt. 100 V
Cycle 1000 mS

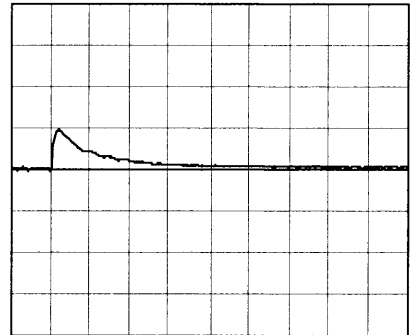
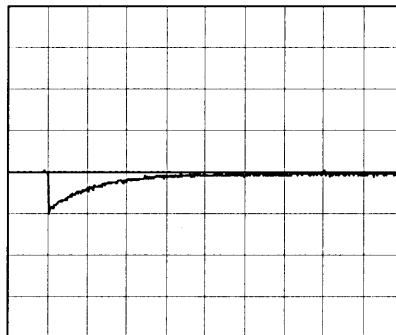


Min. Load ←→
Load 100 %



Min. Load ←→
Load 50 %

100 mV/div

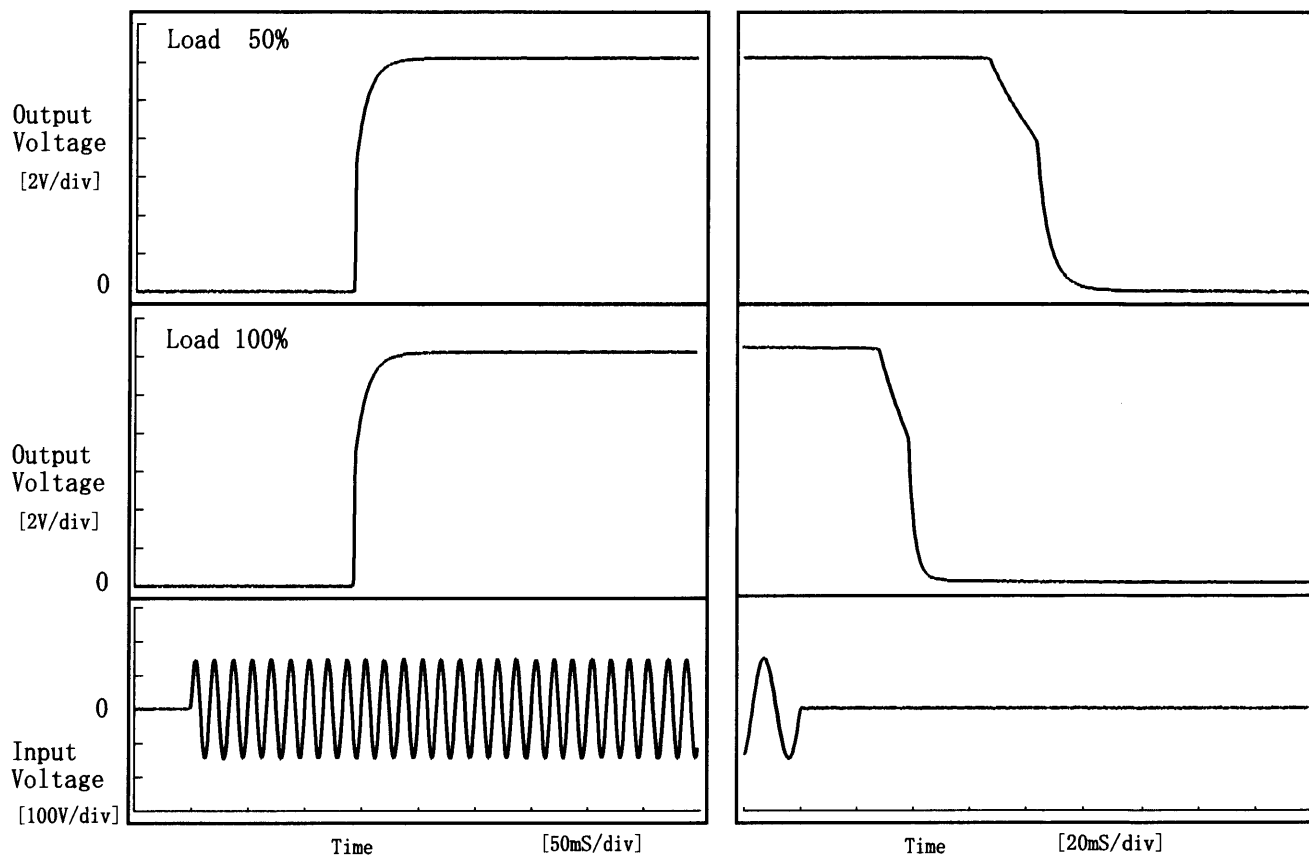


10 mV/div

COSEL

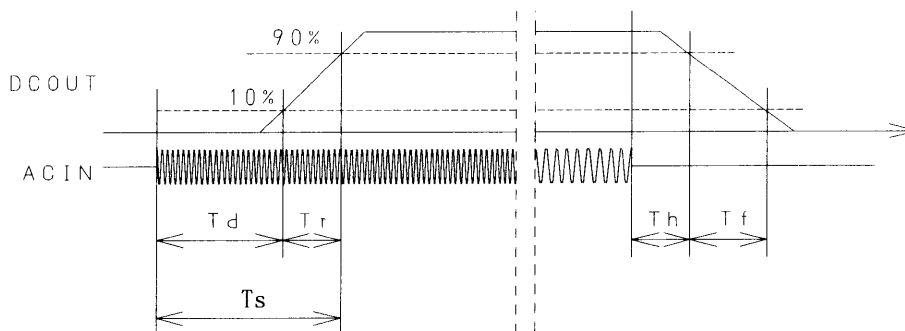
Model	LDA300W-12	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+12V27A		

1. Graph



2. Values

		[mS]				
Load \ Time	Time	T _d	T _r	T _s	T _h	T _f
50 %		142.8	15.3	158.0	71.8	20.7
100 %		143.3	15.3	158.5	31.3	11.8



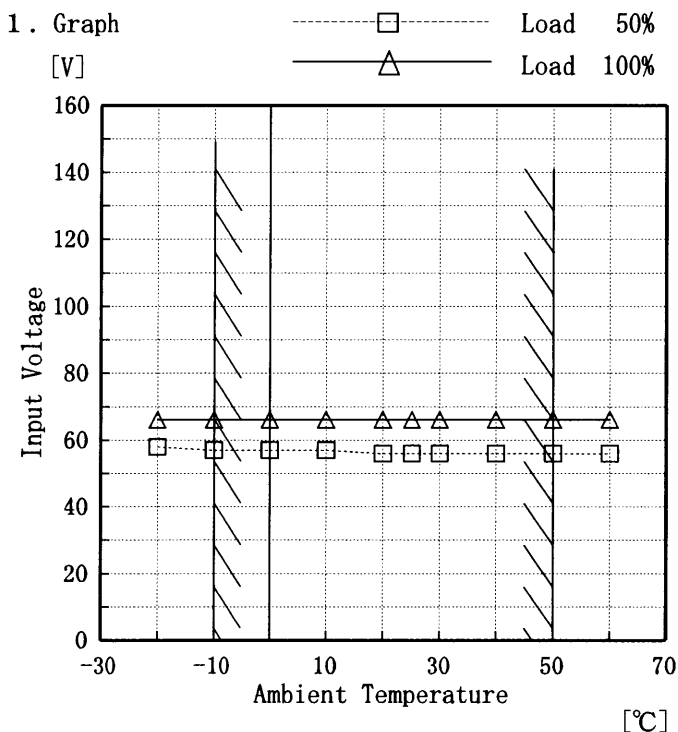


Model		LDA300W-12																																																		
Item		Ambient Temperature Drift 周囲温度変動	Testing Circuitry Figure A																																																	
Object		+12V27A																																																		
1. Graph		<p> △ Input Volt. 100V □ Input Volt. 100V ○ Input Volt. 132V </p>	2. Values																																																	
		<table border="1"> <thead> <tr> <th>Temperature [°C]</th> <th>Input Volt. 100[V] Output Volt. [V]</th> <th>Input Volt. 100[V] Output Volt. [V]</th> <th>Input Volt. 132[V] Output Volt. [V]</th> </tr> </thead> <tbody> <tr><td>-20</td><td>12.051</td><td>12.052</td><td>12.052</td></tr> <tr><td>-10</td><td>12.046</td><td>12.046</td><td>12.047</td></tr> <tr><td>0</td><td>12.040</td><td>12.040</td><td>12.041</td></tr> <tr><td>10</td><td>12.035</td><td>12.035</td><td>12.035</td></tr> <tr><td>20</td><td>12.031</td><td>12.031</td><td>12.031</td></tr> <tr><td>25</td><td>12.028</td><td>12.029</td><td>12.029</td></tr> <tr><td>30</td><td>12.025</td><td>12.025</td><td>12.026</td></tr> <tr><td>40</td><td>12.019</td><td>12.019</td><td>12.020</td></tr> <tr><td>50</td><td>12.013</td><td>12.013</td><td>12.014</td></tr> <tr><td>60</td><td>12.005</td><td>12.005</td><td>12.005</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>			Temperature [°C]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 132[V] Output Volt. [V]	-20	12.051	12.052	12.052	-10	12.046	12.046	12.047	0	12.040	12.040	12.041	10	12.035	12.035	12.035	20	12.031	12.031	12.031	25	12.028	12.029	12.029	30	12.025	12.025	12.026	40	12.019	12.019	12.020	50	12.013	12.013	12.014	60	12.005	12.005	12.005	—	—	—	—
Temperature [°C]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 132[V] Output Volt. [V]																																																	
-20	12.051	12.052	12.052																																																	
-10	12.046	12.046	12.047																																																	
0	12.040	12.040	12.041																																																	
10	12.035	12.035	12.035																																																	
20	12.031	12.031	12.031																																																	
25	12.028	12.029	12.029																																																	
30	12.025	12.025	12.026																																																	
40	12.019	12.019	12.020																																																	
50	12.013	12.013	12.014																																																	
60	12.005	12.005	12.005																																																	
—	—	—	—																																																	
		Load 100%																																																		
		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	LDA300W-12
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+12V27A

Testing Circuitry Figure A



2. Values

Ambient Temp. [°C]	Load 50%	Load 100%
	Input Volt. [V]	Input Volt. [V]
-20	58	66
-10	57	66
0	57	66
10	57	66
20	56	66
25	56	66
30	56	66
40	56	66
50	56	66
60	56	66
—	—	—

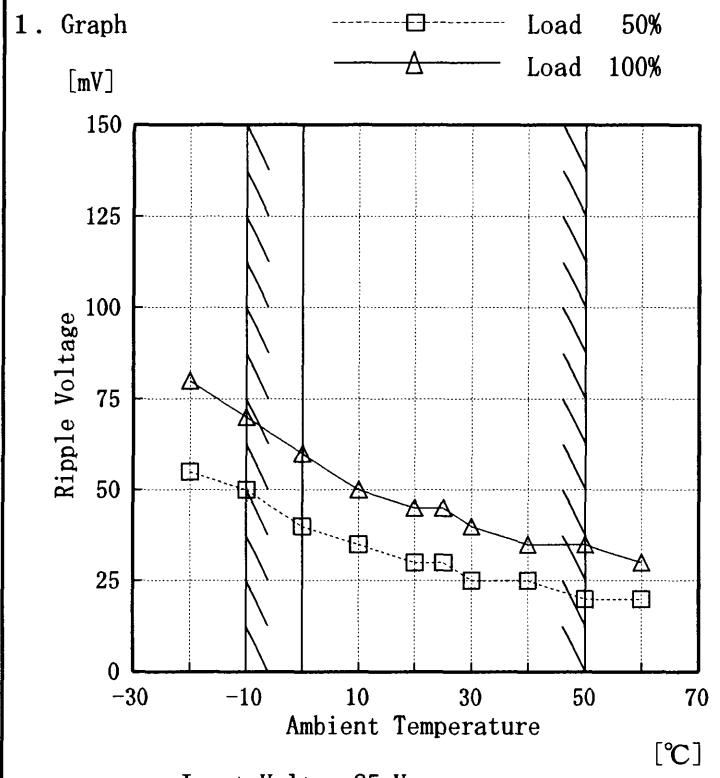
Note: Slanted line shows the range of the rated ambient temperature.

(注)斜線は定格周囲温度範囲を示す。



Model	LDA300W-12
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+12V27A

Testing Circuitry Figure A



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]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]
-20	55	80
-10	50	70
0	40	60
10	35	50
20	30	45
25	30	45
30	25	40
40	25	35
50	20	35
60	20	30
—	—	—



COSEL																									
Model	LDA300W-12	Temperature	25 °C																						
Item	Time Lapse Drift 経時ドリフト	Testing Circuitry	Figure A																						
Object	+12V27A																								
<p>1. Graph</p> <p>[V]</p> <p style="text-align: center;">Time [H]</p> <p>Input Volt. 100V Load 100%</p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>12.034</td></tr> <tr><td>0.5</td><td>12.030</td></tr> <tr><td>1.0</td><td>12.030</td></tr> <tr><td>2.0</td><td>12.030</td></tr> <tr><td>3.0</td><td>12.030</td></tr> <tr><td>4.0</td><td>12.030</td></tr> <tr><td>5.0</td><td>12.030</td></tr> <tr><td>6.0</td><td>12.030</td></tr> <tr><td>7.0</td><td>12.030</td></tr> <tr><td>8.0</td><td>12.030</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	12.034	0.5	12.030	1.0	12.030	2.0	12.030	3.0	12.030	4.0	12.030	5.0	12.030	6.0	12.030	7.0	12.030	8.0	12.030
Time since start [H]	Output Voltage [V]																								
0.0	12.034																								
0.5	12.030																								
1.0	12.030																								
2.0	12.030																								
3.0	12.030																								
4.0	12.030																								
5.0	12.030																								
6.0	12.030																								
7.0	12.030																								
8.0	12.030																								



Model		LDA300W-12	Testing Circuitry Figure A
Item		Output Voltage Accuracy 定電圧精度	
Object		+12V27A	

Output Voltage Accuracy

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

Temperature : -10~50 °C

Input Voltage : 100~132 V

Load Current : 0~27 A

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

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

定電圧精度

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 100~132 V

負過電流 0~27 A

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

* 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	132	0	12.046	±17	±0.142
Minimum Voltage	50	100	27	12.012		

COSEL

Model		LDA300W-12		
Item		Condensation 結露特性		
Object		+12V27A		
		Testing Circuitry Figure A		
<p>1. Condensation test</p> <p>Testing procedure is as follows.</p> <p>① Keeping and cooling the unit in a tank at -10°C for an hour with the input off.</p> <p>② Taking it out of the tank and dewing itself in a room where the temperature is 25°C and the humidity is 45%RH.</p> <p>③ Testing electrical characteristics of the unit to confirm there be no fault.</p> <p>④ Repeating ①, ② and ③ three times.</p> <p>1. 結露特性試験</p> <p>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45%RHの状態におき結露させ、その電気的特性の測定を3度行い、異常のないことを確認する。</p>				
2. Values				
	Times	Output Voltage [V]	Ripple Voltage [mV]	Ripple Noise [mV]
Load 50 %	1	12.03	40	60
	2	12.03	40	60
	3	12.03	40	60
Load 100 %	1	12.03	40	60
	2	12.03	40	60
	3	12.03	40	60
Input Volt. 100 V				



Model		LDA300W-12	Testing Circuitry Figure B
Item		Leakage Current 漏洩電流	
Object		+12V27A	

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DENTORI	0.20	0.23	0.31
(B) UL	0.20	0.23	0.31
(C) CSA	0.20	0.23	0.31

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 220 [V]	Input Volt. 264 [V]
(D) VDE	—	—	—

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。

Load 100 %



Model		LDA300W-12	Testing Circuitry Figure C
Item		Line Noise Tolerance 入力雑音耐量	
Object		+12V27A	

1. Results

Pulse Width [n S]	MODE	Operating Point of Overvoltage Protection [V] 過電圧保護動作値	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	15.64	no regulation
	NORMAL	15.64	no regulation
1000	COMMON	15.64	no regulation
	NORMAL	15.64	no regulation

Conditions

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

COSEL

Model	LDA300W-12	Testing Circuitry Figure D
Item	Conducted Emission 雑音端子電圧	
Object	+12V27A	

1. Graph

Remarks

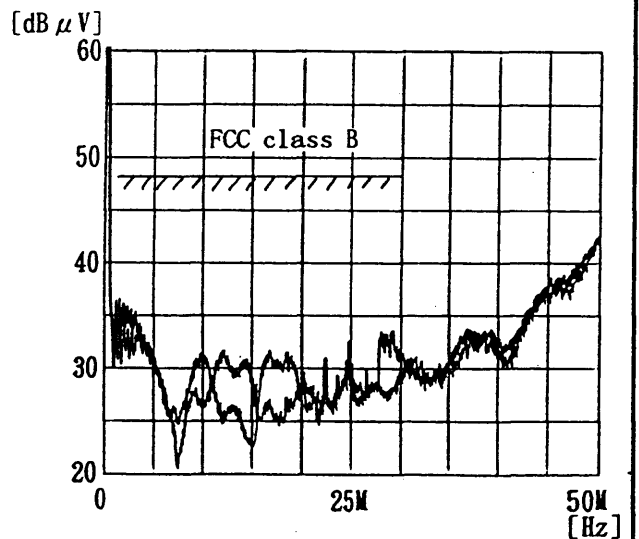
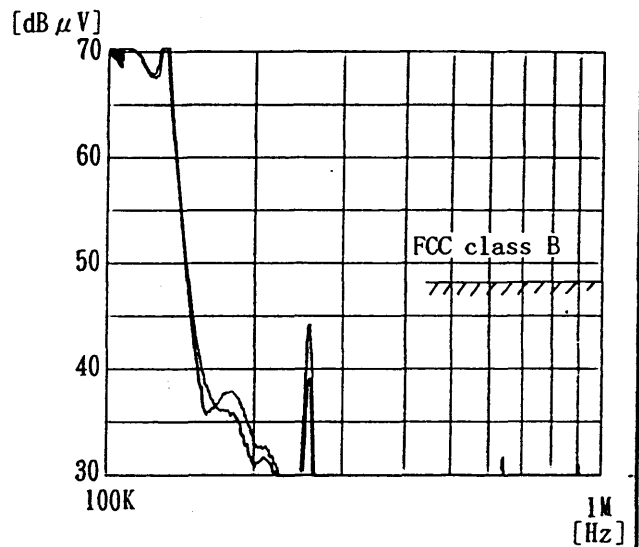
Input Volt. 120 V

Load 100 %

Note: Slanted line shows the range of Tolerance.

(注)斜線は許容値を示す。

NO	Standards	Standards Complied	Frequency [MHz]	Tolerance [dB/μV]
1	FCC Class A		0.45~1.6	60
			1.6~30	69.5
2	FCC Class B	○	0.45~30	48
3	VCCI -1		0.15~0.5	79
			0.5~30	73
4	VCCI -2	○	0.15~0.5	66-56
			0.5~5	56
			5~30	60
5	CISPR 22 Class A (EN55022)		0.15~0.5	79
			0.5~30	73
6	CISPR 22 Class B (EN55022)		0.15~0.5	66-56
			0.5~5	56
			5~30	60



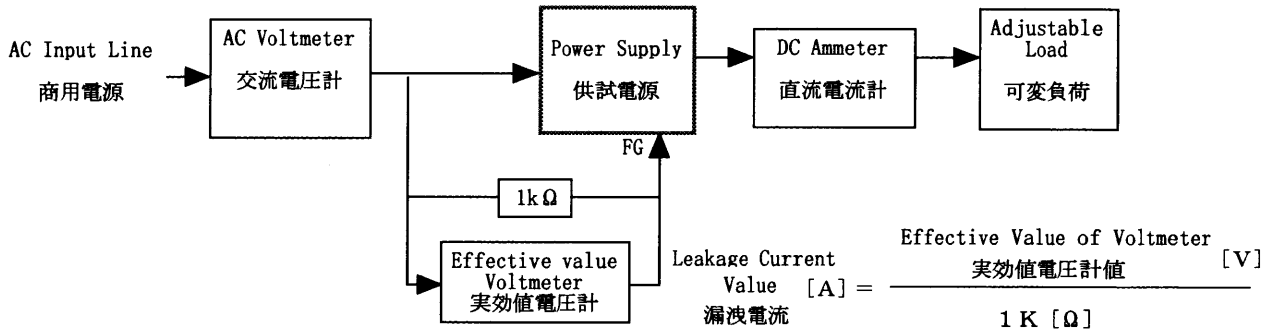
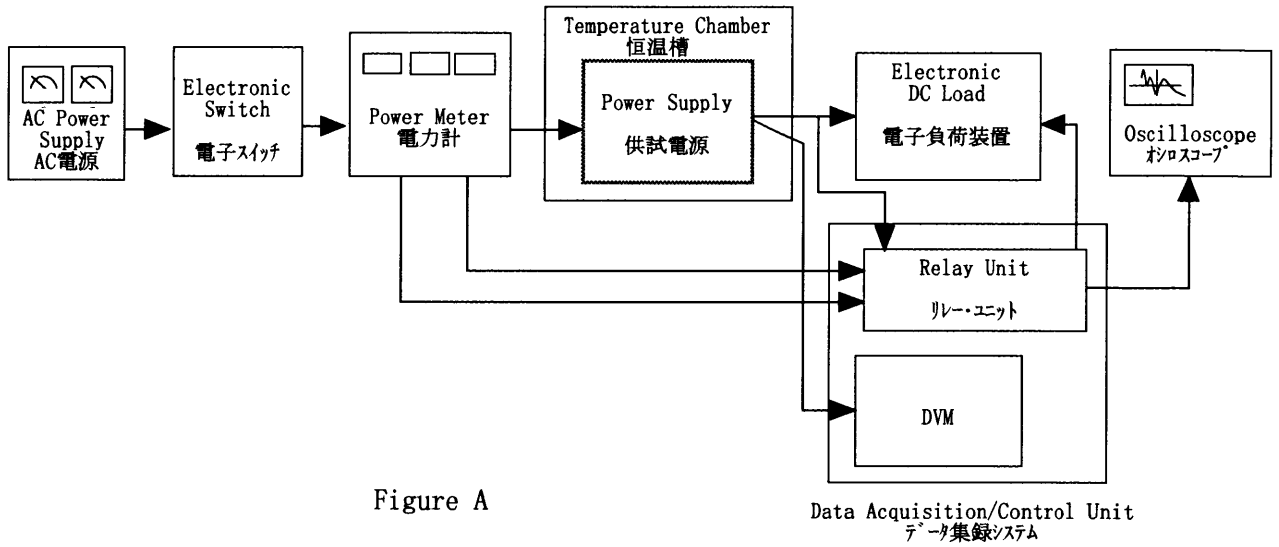


Figure B (DENTORI)

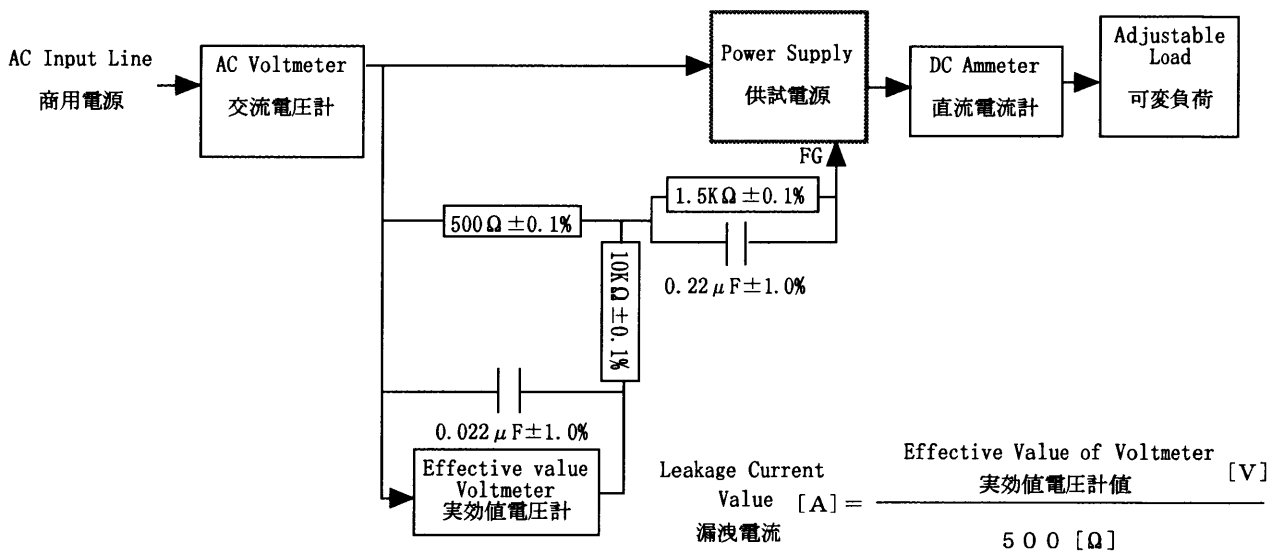


Figure B (UL, CSA, VDE)

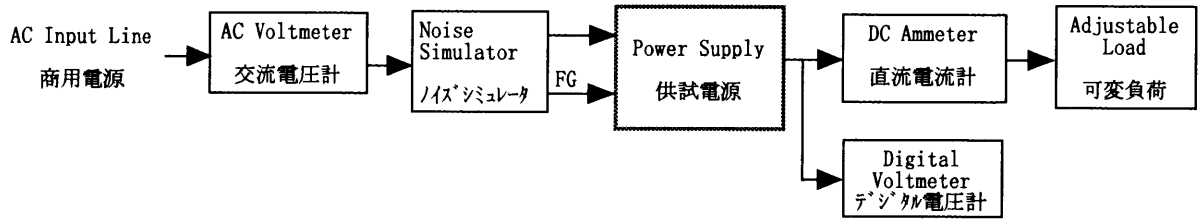


Figure C

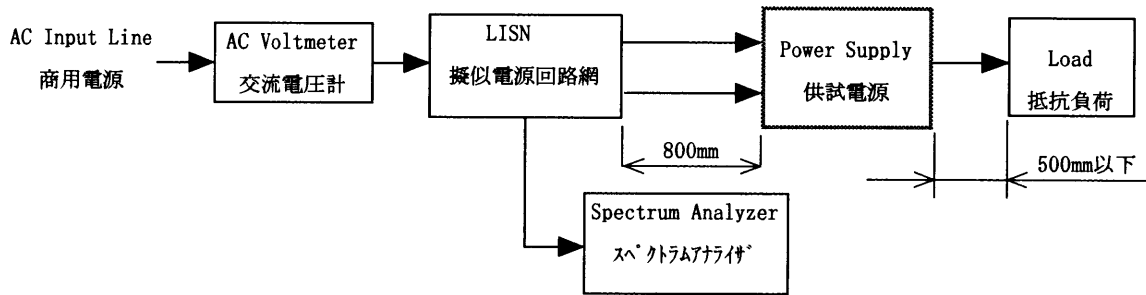


Figure D

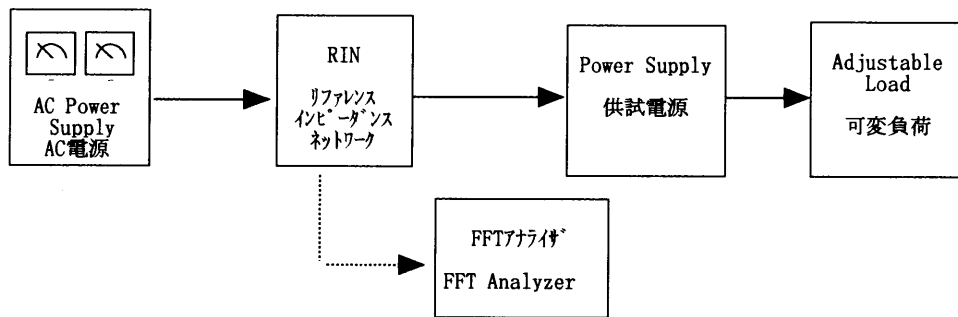


Figure E