

GU10 FOR (EE13)**TEST REPORT**

Input voltage range: 198~242Vac

Output voltage & current :9V/650mA

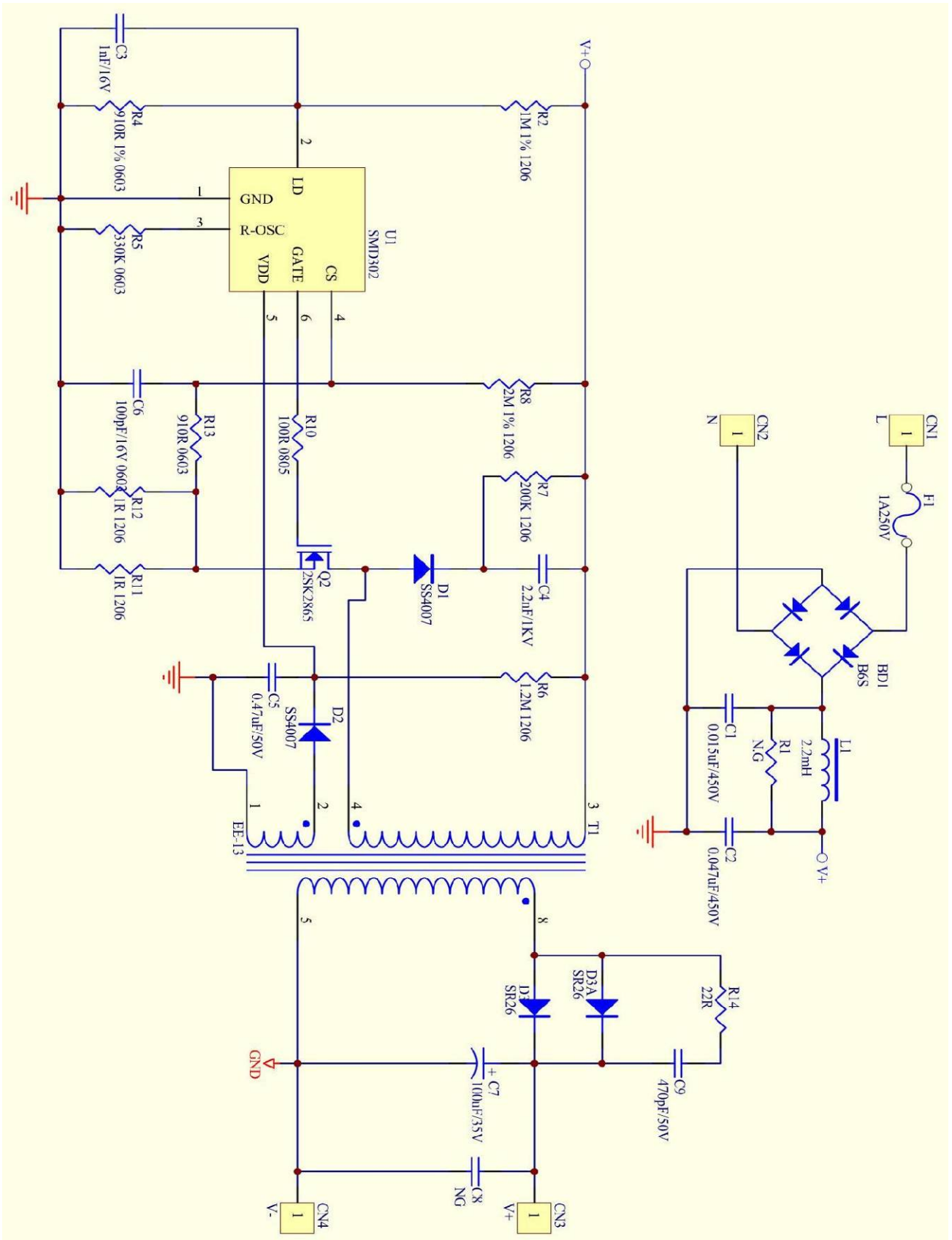
Date(s) of Test: 2011/04/15

APPROVED BY:	CHECKED BY:	PAPERED BY:
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CHECK LIST

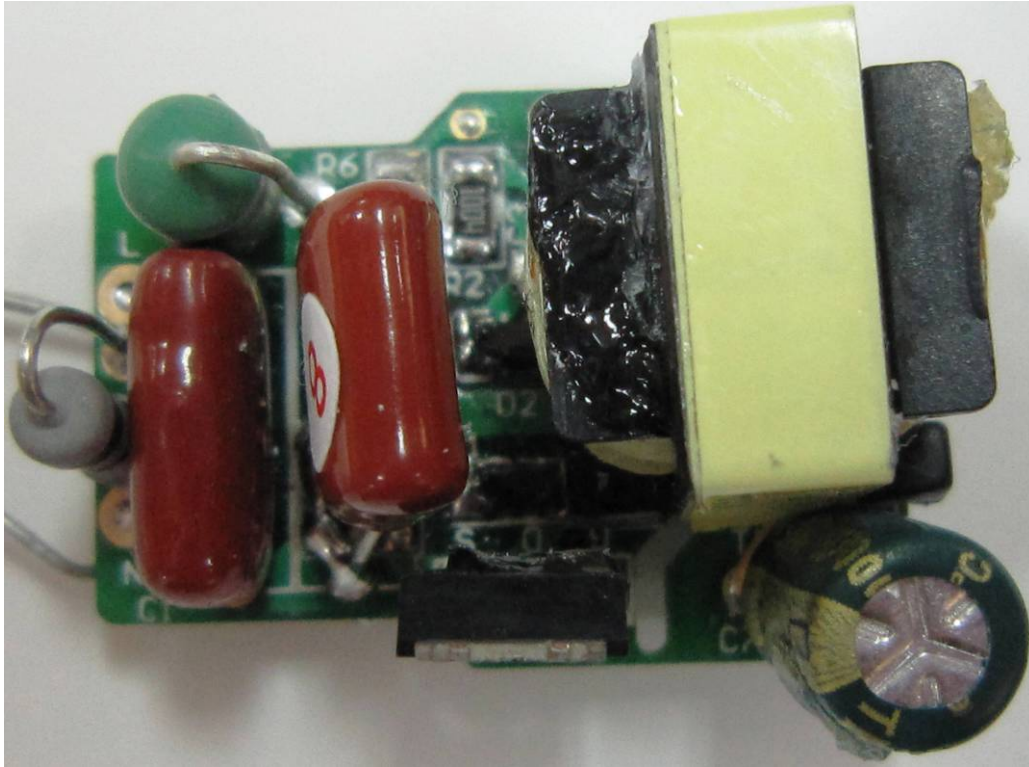
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1. Schematic Circuit

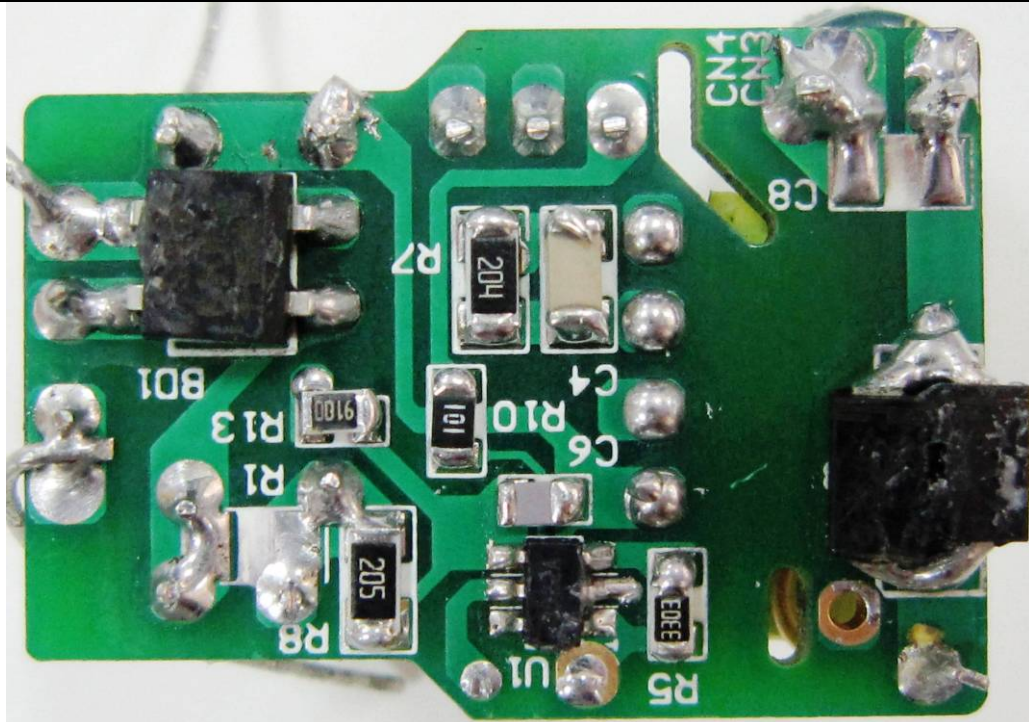


2.Circuit Board Photograph

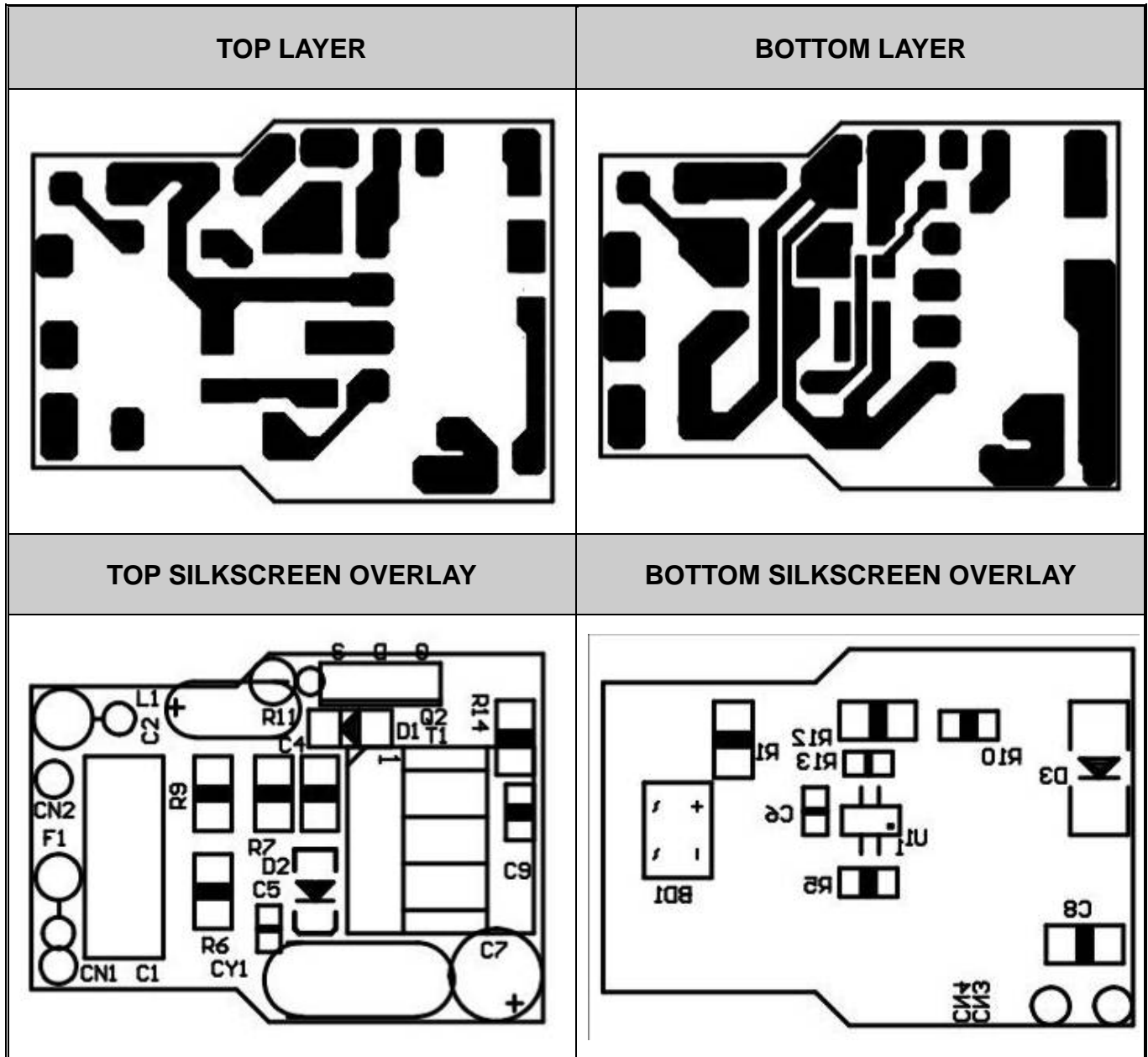
TOP



BOTTOM



3.PCB Layout



4. Bill of Material

NO	Location	Part Value	Specifications	Manufacturer
1	BD1	B6S	MDI-600V/0.8A Bridge	PANJIT
2	C1	0.015uF/450V	CM-11MM-MPP Capacitor	HJC
3	C2	0.047uF/450V	CM-7MM-MPP Capacitor	HJC
4	C3	1nF/16V	SMD-0603- Capacitor	KAMAYA
5	C4	2.2nF/1KV	SMD-1206- Capacitor	KAMAYA
6	C5	0.47uF/50V	SMD-1206- Capacitor	KAMAYA
7	C6	100pF/16V	SMD-0603- Capacitor	KAMAYA
8	C7	100uF/35V	CE-4x7MM Capacitor	TEAPO
9	C9	470pF/50V	SMD-0805- Capacitor	KAMAYA
10	D1	SS4007	1000V/1A-Surface Mount Silicon Rectifiers	LINPO
11	D2	SS4007	1000V/1A-Surface Mount Silicon Rectifiers	LINPO
12	D3	SR26	SMA-60V/2A-Schottky	PANJIT
13	D3A	SR26	SMA-60V/2A-Schottky	PANJIT
14	F1	1A250V	1A/250V -FUZE	BELFUSE
15	L1	2.2mH	R-1W	3L
16	Q2	SK2865	600V/2A-TO251-MOSFET	TOSHIBA
17	R2	1M	SMD-1206- Resistance 1%	KAMAYA
18	R4	910R	SMD-0603- Resistance 1%	KAMAYA
19	R5	330K	SMD-0603- Resistance	KAMAYA
20	R6	1.2M	SMD-1206- Resistance	KAMAYA
21	R7	200K	SMD-1206- Resistance	KAMAYA
22	R8	2M	SMD-1206- Resistance 1%	KAMAYA
23	R10	100R	SMD-0805- Resistance	KAMAYA
24	R11	1R	SMD-1206- Resistance	KAMAYA
25	R12	1R	SMD-1206- Resistance	KAMAYA
26	R13	910R	SMD-0603- Resistance	KAMAYA
27	R14	22R	SMD-1206- Resistance	KAMAYA
28	T1	EE-13	4.5mH-233:23:30	-----
29	U1	SMD302	Universal LED Driver	SMD

5. Transformer Drawing

BOBBIN :EE-13

CORE : 3C90 , PC40

感量 : PIN1-PIN2 = 4mH

N4 : FS - 2F	0.17mm X 1C X 75T 疏繞
N3 : 3S - 4F	0.15mm X 1C X 30T 密繞
N2 : AF - BF	0.4mm X 1C X 23T (三層絕緣線)
N1 : 1S - FF	0.17mm X 1C X 158T 密繞

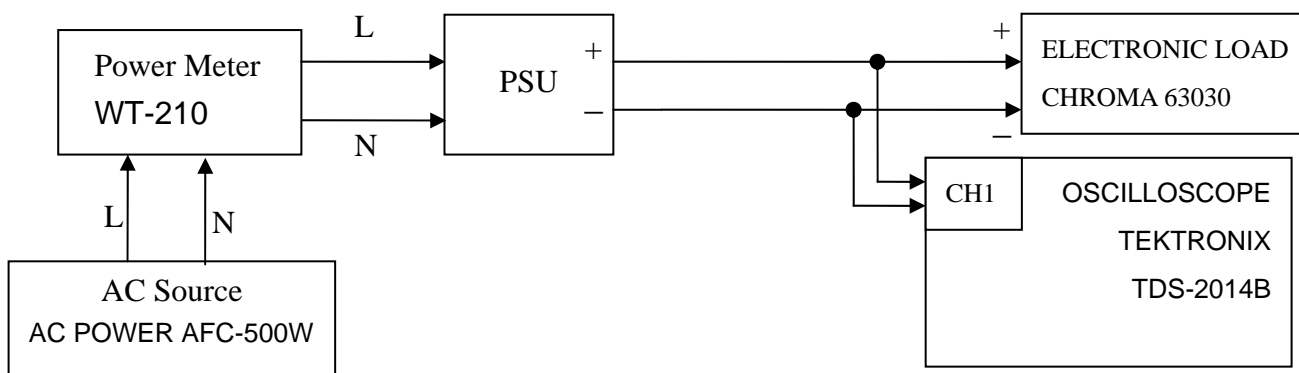
1. Line Regulation & Output Current

Test Condition:

TEST BY: LIVIAN TEST DATE: 2011/04/14

Input Voltage	198/220/242VAC
Input Frequency	50Hz
Output Load	9V/650mA
Ambient Temperature	25°C

Setup Diagram:



Test Result:

Input Voltage	Input Current (mA)	Test Specifications(mA)	Pass/Fail
198V/50Hz	34.61	≤ 40	Pass
220V/50Hz	34.30		Pass
242V/50Hz	32.32		Pass

Input Voltage	Output Voltage (V)	Output t Current (mA)	Test Specifications(mA)	Pass/Fail
198V/50Hz	9.25	622.3	$617.5 \leq I_{OUT} \leq 682.5$	Pass
220V/50Hz	9.27	674.2		Pass
242V/50Hz	9.27	672.5		Pass

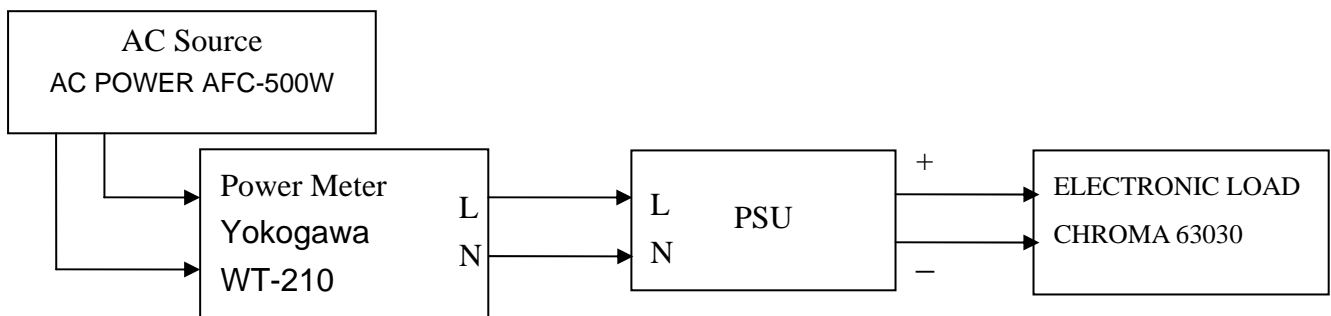
2. P.F (Power Factor)

Test Condition:

TEST BY: LIVIAN TEST DATE: 2011/04/14

Input Voltage	198/220/242VAC
Input Frequency	50Hz
Output Load	9V/650mA
Ambient Temperature	25°C

Setup Diagram:



Test Result:

Input Voltage	P.F (Power Factor)	Test Specifications	Pass/Fail
198V/50Hz	0.992	≥ 0.9	Pass
220V/50Hz	0.980		Pass
242V/50Hz	0.945		Pass

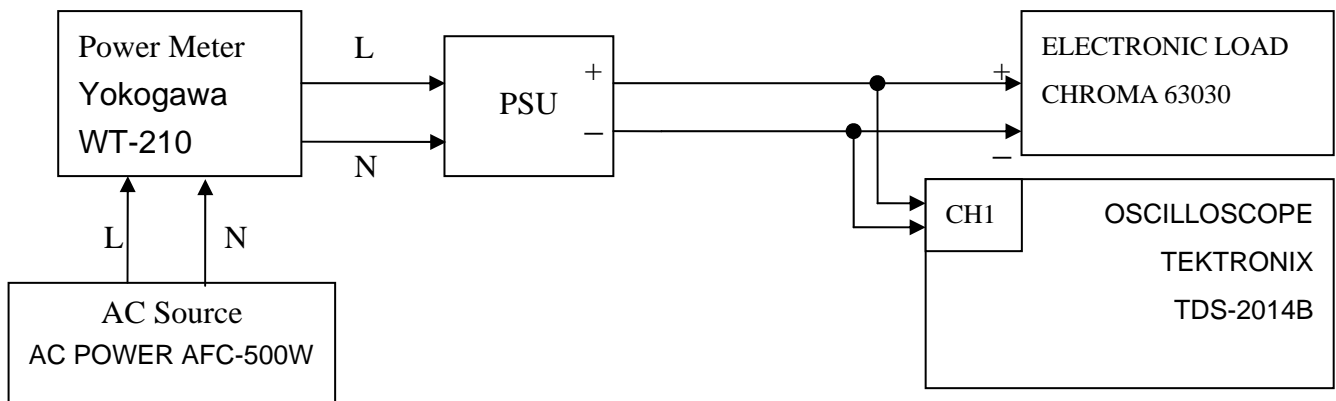
3. Efficiency

Test Condition:

TEST BY: LIVIAN TEST DATE: 2011/04/14

Input Voltage	198/220/242VAC
Input Frequency	50Hz
Output Load	9V/650mA
Ambient Temperature	25°C

Setup Diagram:



Test Result:

Input Voltage	Input(W)	Output(W)	Efficiency(%)	Test Specifications	Pass/Fail
198V/50Hz	6.82	5.76	84.40	≥ 80%	Pass
220V/50Hz	7.41	6.25	84.34		Pass
242V/50Hz	7.42	6.23	84.02		Pass

★Output watts=output voltage x output current

★Efficiency= output watts / Input watts

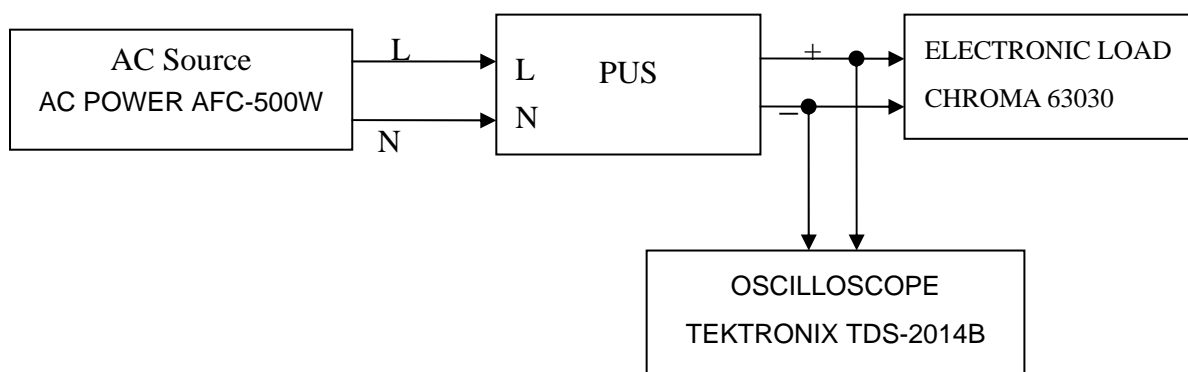
4. Ripple And Noise

Test Condition:

TEST BY: LIVIAN TEST DATE: 2011/04/14

Input Voltage	198/220/242VAC
Input Frequency	50Hz
Output Load	9V/650mA
Ambient Temperature	25°C

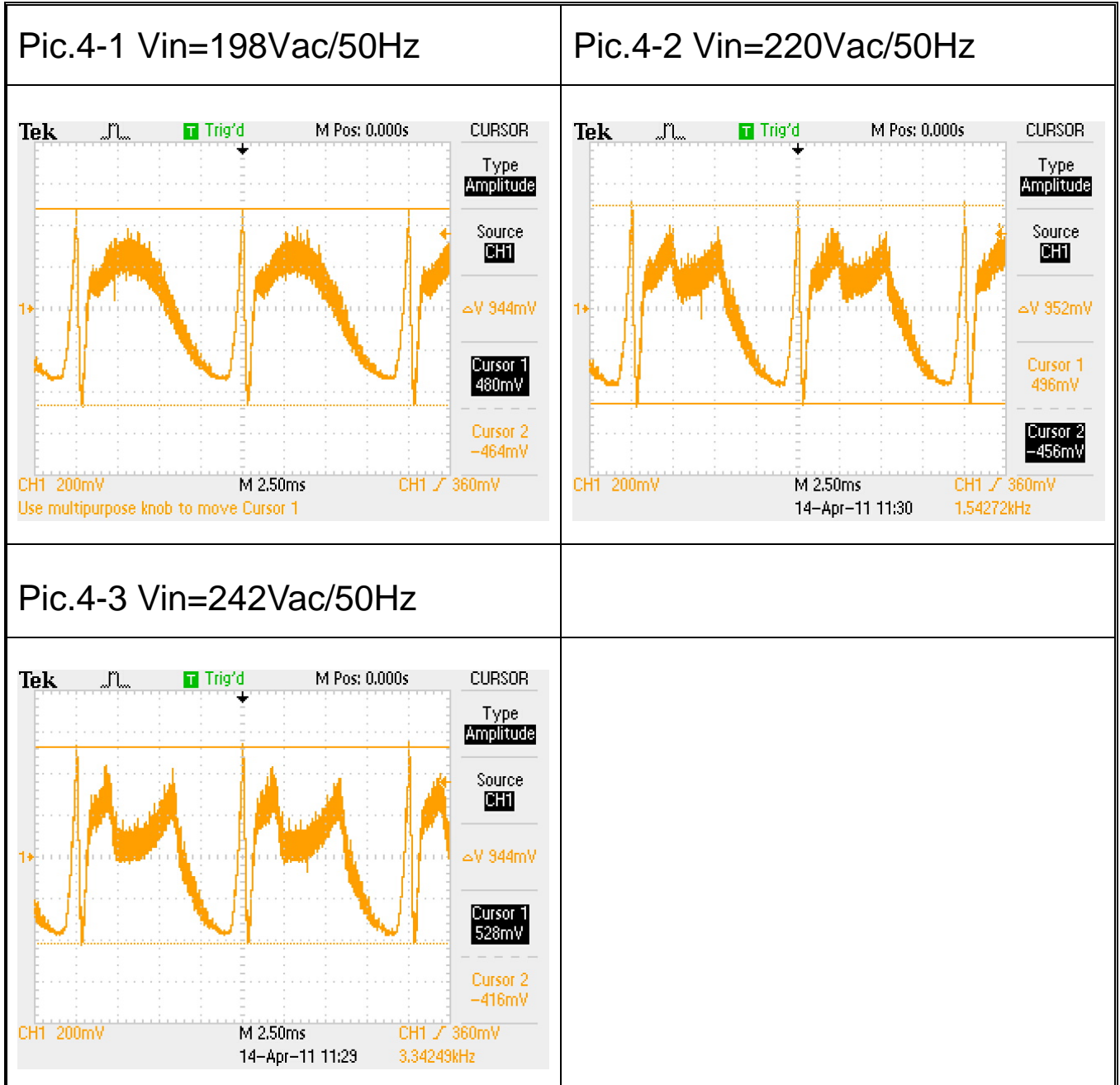
Setup Diagram:



Test Result:

Test Picture	Input Voltage	Measured (mVp-p)	Test Specifications	Pass/Fail
Pic.4-1	198V/50Hz	944	$\leq 1080\text{mV}$	Pass
Pic.4-2	220V/50Hz	952		Pass
Pic.4-3	242V/50Hz	944		Pass

Test Waveform:



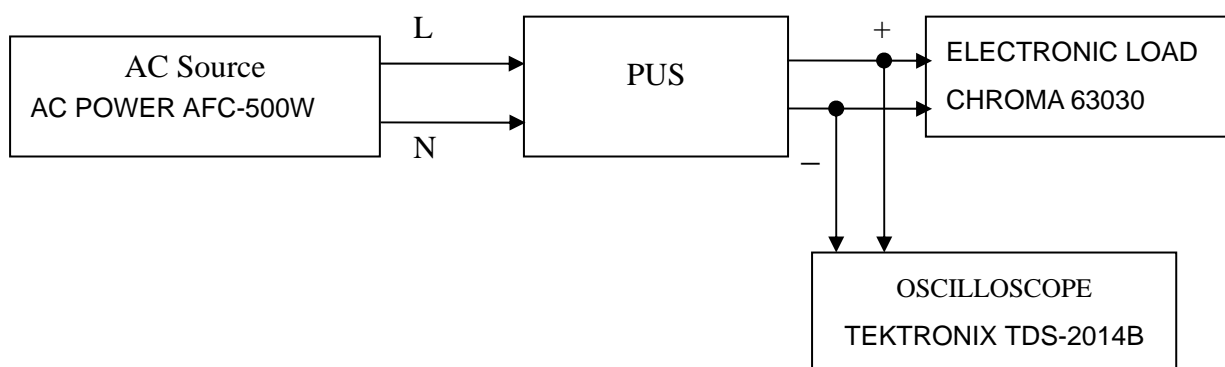
5. Over Shoot

Test Condition:

TEST BY: LIVIAN TEST DATE: 2011/04/14

Input Voltage	198/220/242VAC
Input Frequency	50Hz
Output Load	9V/650mA
Ambient Temperature	25°C

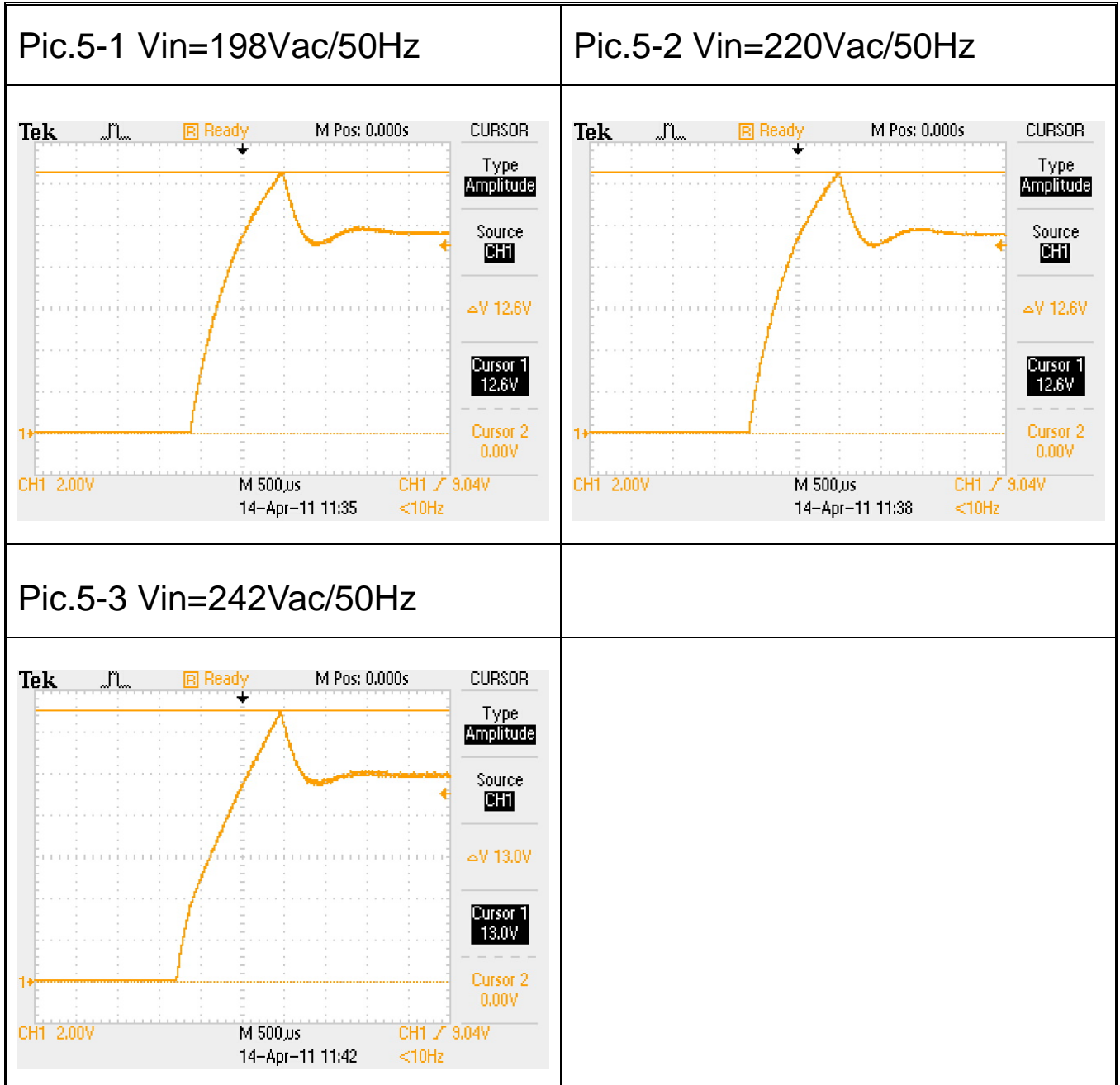
Setup Diagram:



Test Result:

Test Picture	Input Voltage	Max Vout (V)	Test Specifications	Pass/Fail
Pic.5-1	198V/50Hz	12.6	$\leq 13.5V$	Pass
Pic.5-2	220V/50Hz	12.6		Pass
Pic.5-3	242V/50Hz	13.0		Pass

Test Waveform:



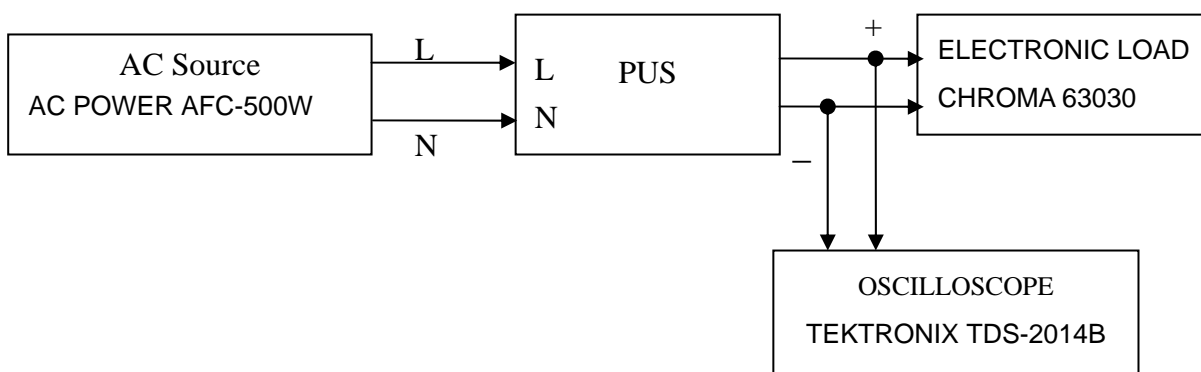
6. Rise Time

Test Condition:

TEST BY: LIVIAN TEST DATE: 2011/04/14

Input Voltage	198/220/242VAC
Input Frequency	50Hz
Output Load	9V/650mA
Ambient Temperature	25°C

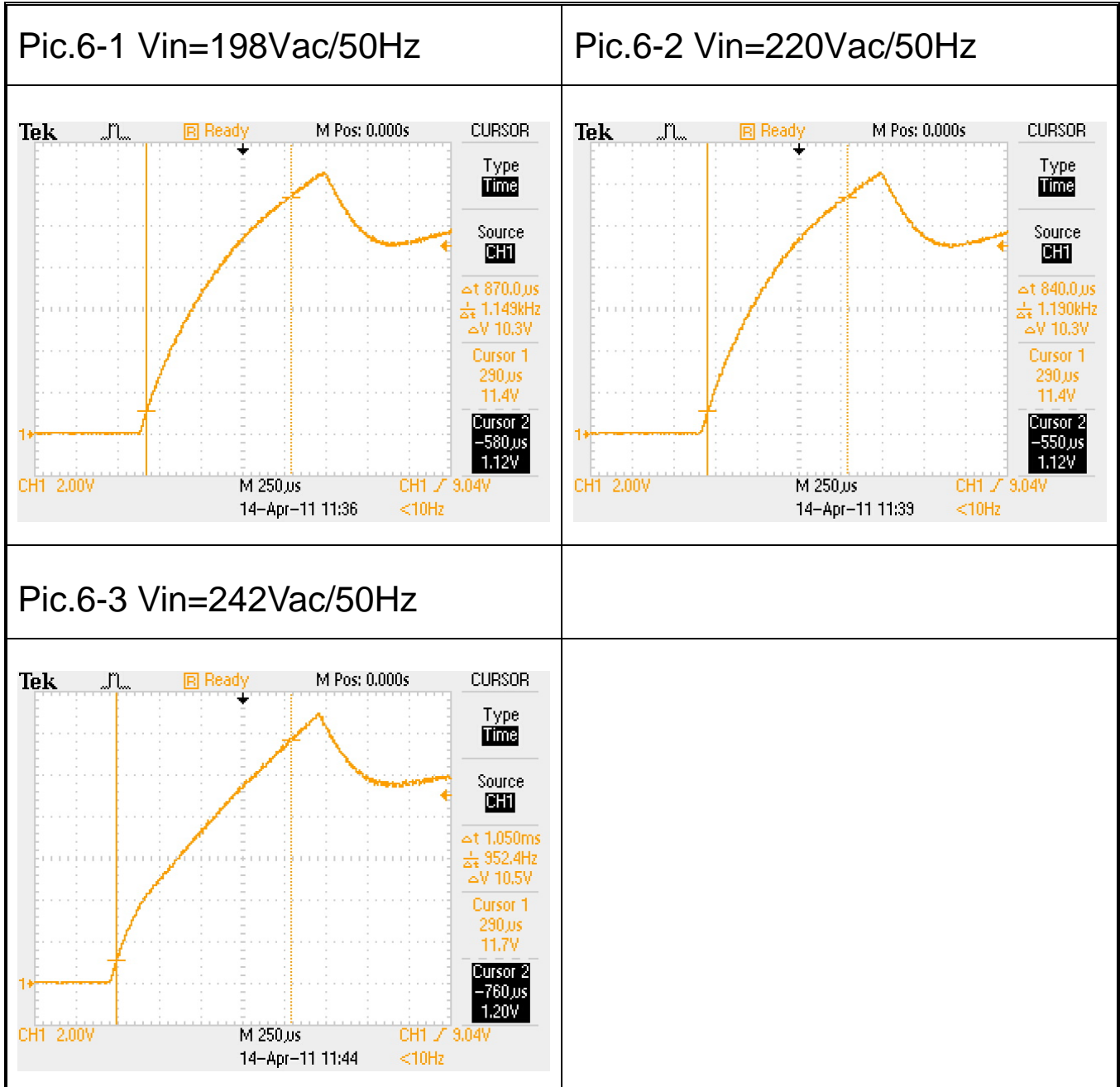
Setup Diagram:



Test Result:

Test Picture	Input Voltage	Measured (ms)	Test Specifications	Pass/Fail
Pic.6-1	198V/50Hz	0.87	$\leq 5\text{mS}$	Pass
Pic.6-2	220V/50Hz	0.84		Pass
Pic.6-3	242V/50Hz	1.05		Pass

Test Waveform:



7. Voltage Derating

Test Condition:

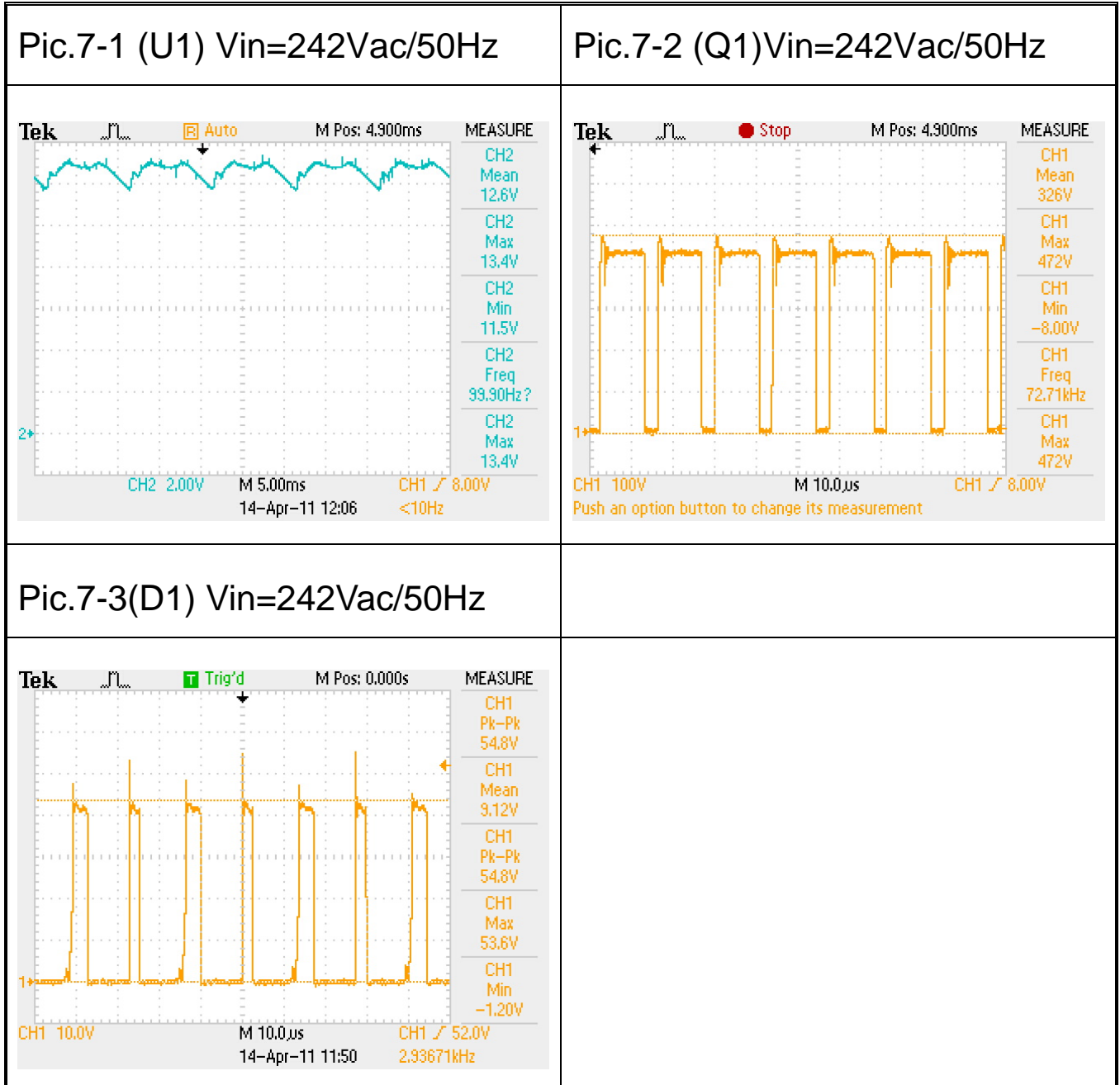
TEST BY: LIVIAN TEST DATE: 2011/04/14

Input Voltage	242V _{AC}
Input Frequency	50Hz
Output Load	9V/650mA
Ambient Temperature	25°C

Test Results:

Test Picture	Part No.	Rating	Measurement Value	Rating (%)	SPEC	Pass/Fail
Pic.7-1	U1	Max rating: 20V	12.6	63.00%	90%	PASS
Pic.7-2	Q1	Max rating: 600V	472	78.67%	90%	PASS
Pic.7-3	D1	Max rating: 60V	53.6	89.33%	95%	PASS

Test Waveform:



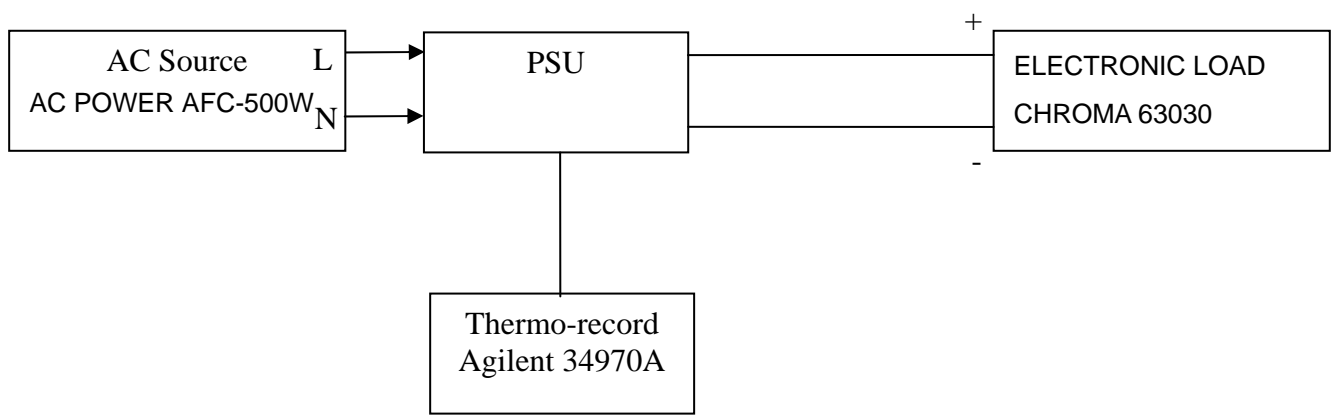
8. TEMPERATURE RISE TEST

Test Condition:

TEST BY: LIVIAN TEST DATE: 2011/04/14

Input Voltage	220V _{AC}
Input Frequency	50Hz
Output Load	9V/650mA
Ambient Temperature	25°C

Setup Diagram:



Test Results:

No	Location	Description	230V/50Hz (°C) 1hr	Spec(°C)	Pass/Fail
1	U1	SMD630	48.7	125	Pass
2	Q1	1N60	55.7	150	Pass
3	T-wire	EE13	52.3	110	Pass
4	T-core	EE13	53.9	110	Pass
5	L1	2.2mH	38.3	130	Pass
6	D3	SR26	62.6	150	Pass
7	BD1	B6S	37.1	150	Pass
8	C7	100uF/35V	46.1	105	Pass