Demo Board Test Report for LD7750R

--- 50W (12V, 4.2A) Adapter

Tested by	Reviewed by	Approved by
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Total pages	Revision	Date
31	01	2010/04/26

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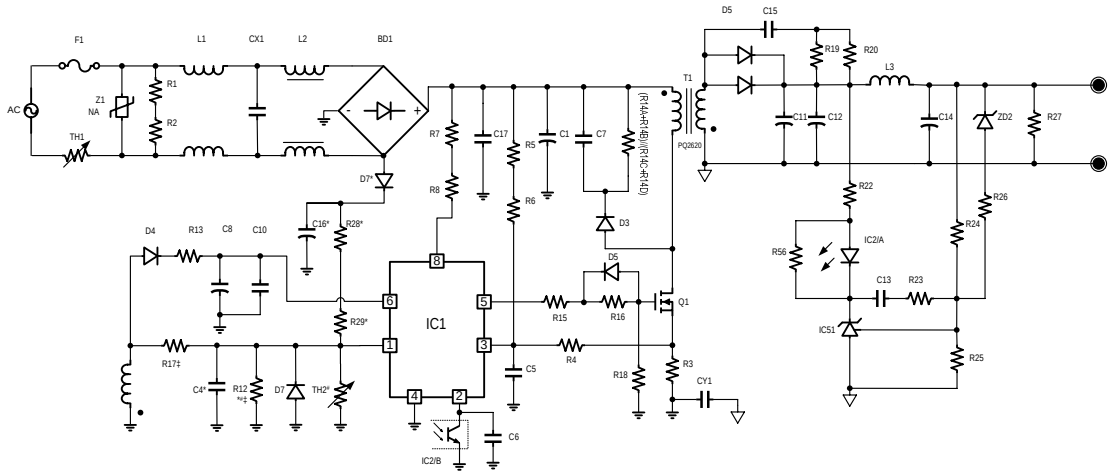
I. SCHEMATIC



*LD7577/J:D7、R28、R29、C16、R12、C4
#LD7578/J/LD7750:use TH2 or R12 to replace
‡LD7580:R17、R12

Leadtrend Technology			
MODEL NAME	LD7577/78/80/77J/78J/7750 Common circuit		
DOCUMENT NO.			
DESIGNED BY	CT Chen		
DRAWN BY	Jolin		
DATE	20090923	REV.	0.0B

Ⅱ. BOM

P/N	Component Value	Note
R1	2MΩ, 1206, 1%	
R2	2MΩ, 1206, 1%	
R3	0.336Ω, 2WS	
R4	200Ω, 0805, 1%	
R5	NA	
R6	NA	
R7	20KΩ, 1206, 1%	
R8	20KΩ, 1206, 1%	
R12	20KΩ, 1206, 1%	
R13	0Ω, 1206, 5%	
R14A	75KΩ, 1206, 1%	
R14B	NC	
R14C	NC	
R14D	75KΩ, 1206, 1%	
R15	0Ω, 1206, 5%	
R16	51Ω, 1206, 1%	
R17	NA	
R18	NA	
R19	33Ω, 1206, 1%	
R20	33Ω, 1206, 1%	
R22	330Ω, 0805, 1%	
R23	1KΩ, 0805, 1%	
R24	100KΩ, 0805, 1%	
R25	11.47KΩ, 0805, 1%	
R26	NA	
R27	NA	
R28	NA	
R29	NA	
R56	5.6KΩ, 0805, 1%	
TH1	NA	
TH1	NA	
L1	Leadtrend's Design	
L2	Leadtrend's Design	
T1	Leadtrend's Design	
L3	Leadtrend's Design	

P/N	Component Value	Note
C1	100uF, 400V	
C4	NA	
C5	270pF, 50V, 0805	
C6	1000pF, 50V, 0805	
C7	2200pF, 1000V, 1206	
C8	47uF, 50V	
C10	NA	
C11	1000uF, 16V	
C12	1000uF, 16V	
C13	0.1uF, 50V, 0805	
C14	220uF, 25V	
C15	1000pF, 1000V 1206	
C16	NA	
C17	0.01uF, 500V, 1206	
CX1	0.22uF,X-cap	
CY1	2200pF,Y1-cap,	
D3	PS1010R	
D4	1N4007	
D5	LL4148	
D6	20A, 100V	
D7	NA	
Q1	8A, 600V	
BD1	2A, 600V	
ZD2	NA	
IC1	LD7750RGS	Leadtrend
IC2	EL817C	EVERLIGHT
IC51	TL431(TI)	Vref=1.25V
F1	250V,T2A	Walter
Z1	NA	
JR1	0Ω, 1206, 5%	

III. EXECUTIVE SUMMARY

Office	Taipei
Model Name	LD7750R-DemoBoard#01
Version	01
IC	LD7750RGS(D/C:101306)

TEST	Result	Comments
3. Green Mode Power Consumption	**PASS**	
4. Line Regulation	**PASS**	
. Load Regulation	**PASS**	
5. Output Dynamic Response	**PASS**	
6. Peak to Peak Output Ripple and Noise	**PASS**	
7. Turn On Delay Time	**PASS**	
8. Holdup Time	**PASS**	
9. Over Current Protection	**PASS**	
10. Over Voltage Protection	**PASS**	
11. Output Short Protection	**PASS**	
12. Efficiency Test	**PASS**	
13. Stress Voltage Test	**PASS**	
14. EMI conduction	**PASS**	
15. Surge For System	**PASS**	
16. ESD For System	**PASS**	
17. Hi-pot Test	**PASS**	
18. Thermal Test	**PASS**	

1. Input Voltage & Frequency

The unit shall be capable of operating as a universal AC input power supply accepting AC inputs. The power supply shall operate between the following voltages (from 90V to 264V). The supply will be designed to operate for a Table 1.

	Minimum	Normal	Maximum
Input Voltage	90Vac	110Vac	264Vac
Frequency	47HZ	60HZ	63HZ

Table 1

2. Output Loads

The line and load regulation for each of the outputs are shown in Table. 2.

Parameter	Output Voltage			Output Current	
	Minimum	Typical	Maximum	Minimum	Maximum
+12V	10.8V	12V	13.2V	0A	4.2A
Line Regulation	/	/	±1%	/	4.2A
Load Regulation	/	/	±2%	0A	4.2A

Table 2

3. Green Mode Power Consumption

The input power of power supply shall remain **less than 90mW** under output at no load condition.

Test Condition:
Input: 90Vac/115 Vac/230Vac/264Vac (60Hz)
Output: No Load
Ambient Temperature: 25℃

Test Result: PASS

V_{in} (Vac)	I_{in} (mA_{rms})	Pin (mW)
90	7.812	40.21
115	9.593	56.44
230	18.837	60.55
264	21.668	63.86

Table 3

4. Total Regulation

Line regulation is defined to be the percent change in output voltage versus the nominal output voltage due to a change in AC input. The supply shall maintain the specified regulation throughout its specified operating range. Line regulation is measured at Min. Nominal and Max input voltages.

Load regulation is defined to be the percent change in output voltage versus the nominal output voltage due to a change in load. The supply shall maintain the specified regulation throughout its specified operating range. Load regulation to be measured at Min. and Max output voltages.

Test Conditions:
Input: 90Vac/264Vac(60Hz)
Output: Min/Max Load
Ambient Temperature : 25℃

AMB	Output	90Vac	264Vac
25 DEG.C	Max	12.003	11.997
	Min	12.078	12.077
Reading		0.62%	0.66%
SPEC		±2%	

Table 4

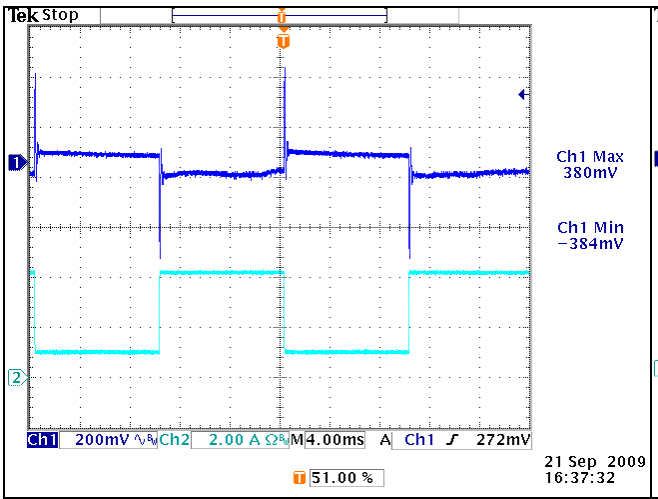
5. Output Dynamic Response

The dynamic of the output response refers to the change in output voltage to a step increase in the current of **25% to 100%** load shall maintain ±10% of specified regulation.

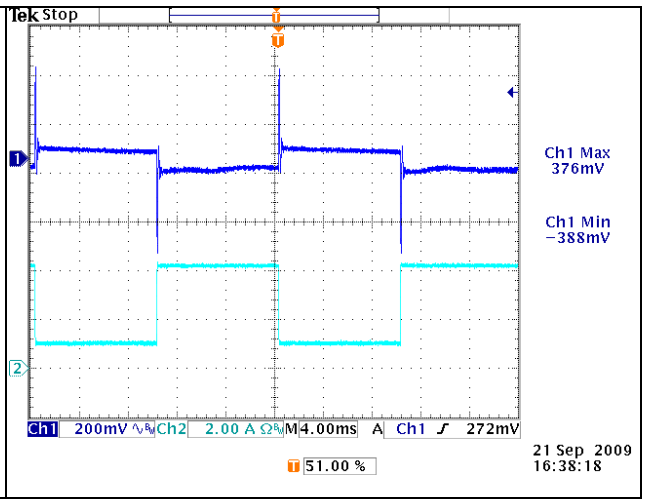
Test Condition:
Input: 90Vac/264Vac (60Hz)
Ambient Temperature: 25℃

Input	Output Dynamic	Reading		Derating	
		V_H	V_L	V_H	V_L
90Vac	1.05→4.2A	380mV	-384mV	31.7%	32.0%
264Vac	1.05→4.2A	376mV	-388mV	31.3%	32.3%
Reading	Max	380mV	-388mV	31.7%	32.3%
Reading	Min	376mV	-384mV	31.3%	32.0%
SPEC	Max/Min	±1.2V		100%	

Table 5



Output Load Dynamic Response Fig.1
Vin: 90Vac
O/P : +12V= 1.05A→4.2A
CH1: V_{O_+12V}
CH2: I_{O_+12V}
Reading: $+12V_{Max}$= **380m V(AC)**
$+12V_{Min}$= **-384mV(AC)**



Output Load Dynamic Response Fig.2
Vin: 264Vac
O/P : +12V= 1.05A→4.2A
CH1: V_{O_+12V}
CH2: I_{O_+12V}
Reading: $+12V_{Max}$= **376mV(AC)**
$+12V_{Min}$= **-388mV(AC)**

6. Peak to Peak Output Ripple and Noise

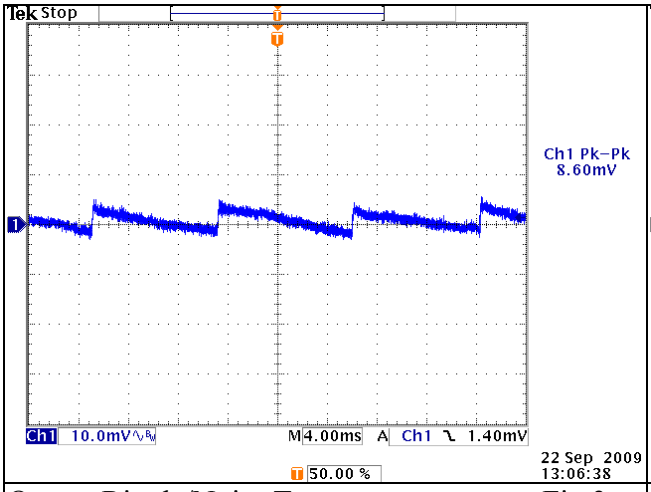
This refers to the peak-to-peak residual AC that remains on the DC power line after passing through all the filtering processes conducted within the power supply. The peak to peak output ripple and noise shall be considered to comprise of the complex envelope of the low frequency saw tooth voltage ripple and the high frequency switching noise. It shall be measured across output terminals using a single ended measurement with an oscilloscope (bandwidth limited to 20 MHz) and a high persistence display. Readings shall be made through the range of minimum to maximum load current and **within 120mV**.

Test Conditions:
Input: 90Vac/264Vac(60Hz)
Output: 0A/4.2A
Ambient Temperature : 25℃

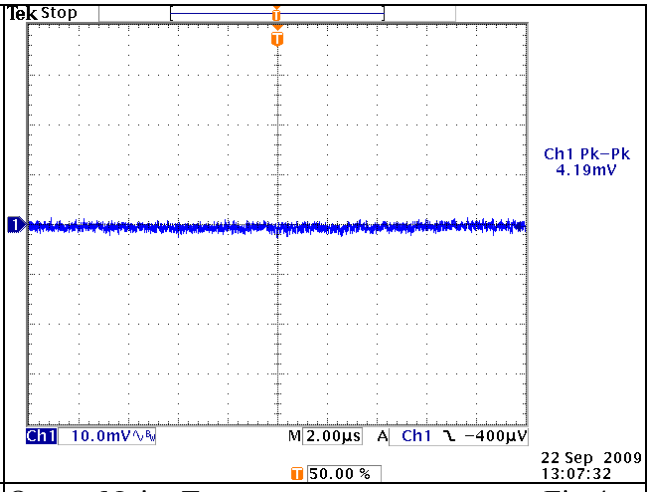
Test Result: PASS

Input	Output Load	Vout Voltage (VAC)	
		Vripple(mV)	Vnoise(mV)
90Vac	0A	8.60	4.19
	4.2A	39.20	23.80
264Vac	0A	10.80	4.40
	4.2A	25.40	23.60
Reading	Min	8.60	4.19
	Max	39.20	23.80
SPEC	Max	120mV	

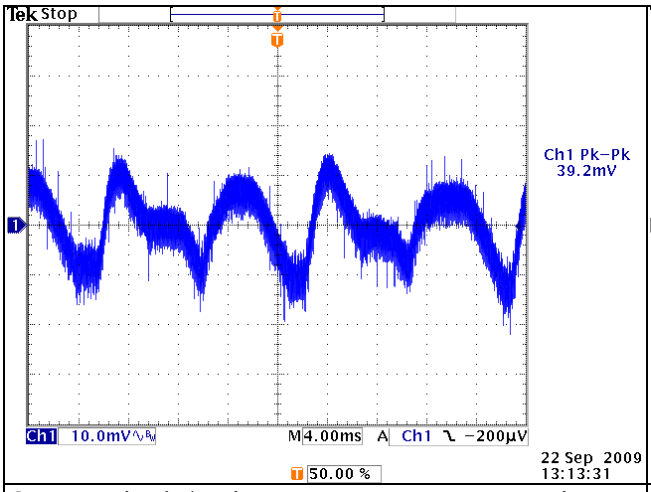
Table 6



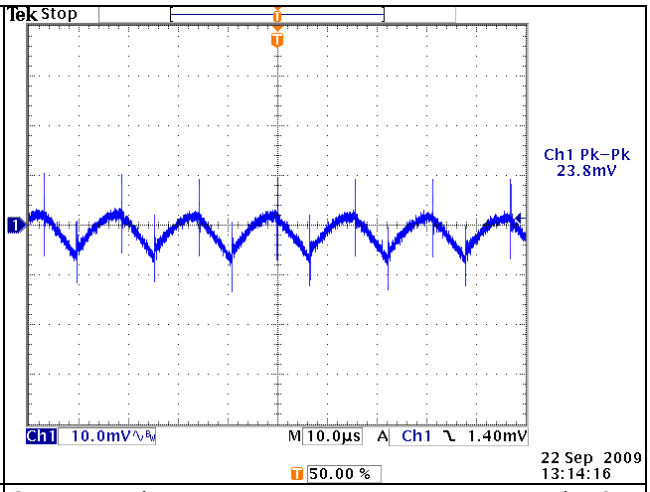
Output Ripple/Noise Test Fig.3
Vin: 90Vac
O/P: +12V=0A
CH1: V_{P-P_+12V}
Reading: **8.60mV(AC)**



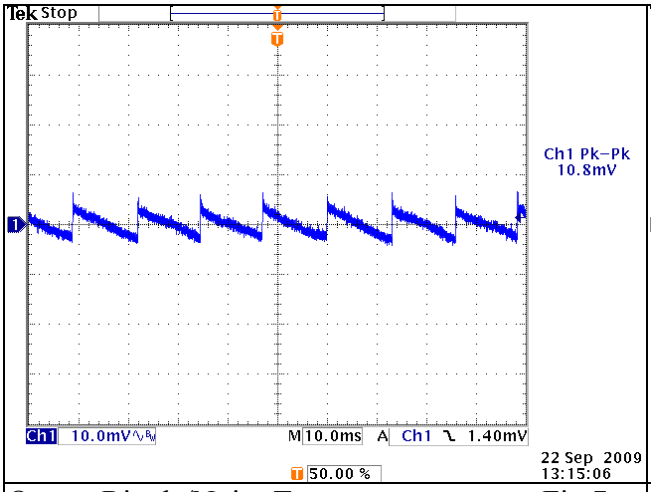
Output Noise Test Fig.4
Vin: 90Vac
O/P: +12V=0A
CH1: V_{P-P_+12V}
Reading: **4.19mV(AC)**



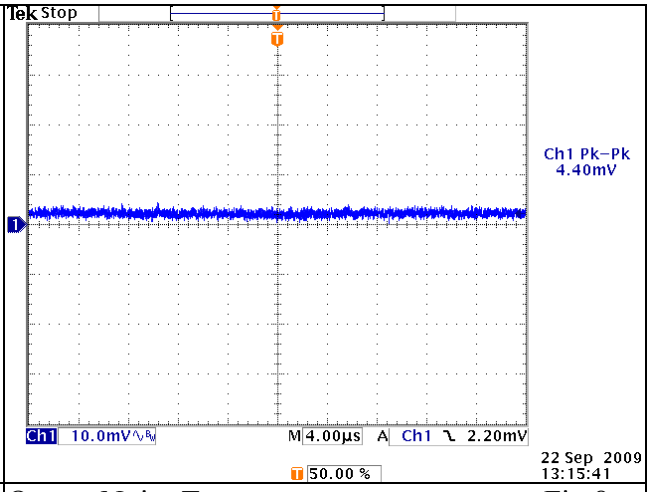
Output Ripple/Noise Test Fig.5
Vin: 90Vac
O/P: +12V=4.2A
CH1: V_{P-P_+12V}
Reading: **39.2mV(AC)**



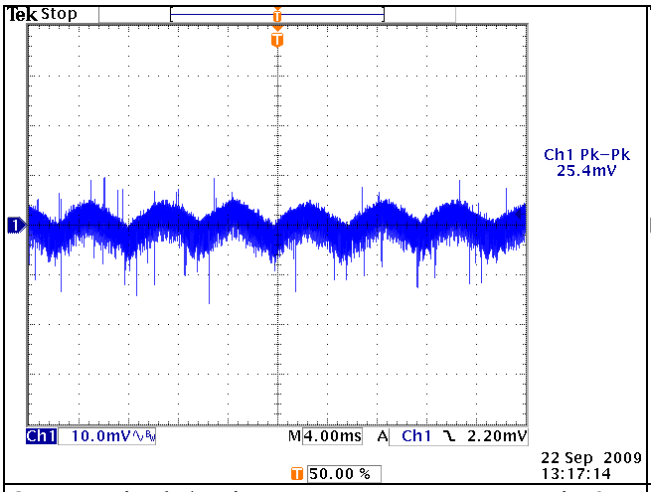
Output Noise Test Fig.6
Vin: 90Vac
O/P: +12V=4.2A
CH1: V_{P-P_+12V}
Reading: **23.8mV(AC)**



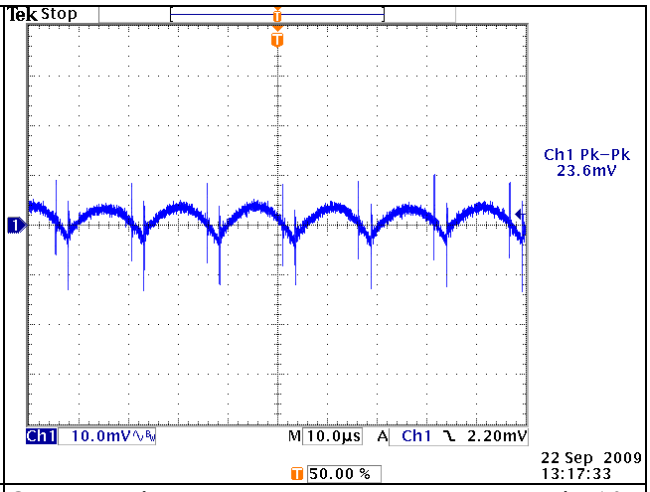
Output Ripple/Noise Test Fig.7
Vin: 264Vac
O/P: +12V=0A
CH1: V_{P-P_+12V}
Reading: **10.80mV(AC)**



Output Noise Test Fig.8
Vin: 264Vac
O/P: +12V=0A
CH1: V_{P-P_+12V}
Reading: **4.40mV(AC)**



Output Ripple/Noise Test Fig.9
Vin: 264Vac
O/P: +12V=4.2A
CH1: V_{P-P_+12V}
Reading: **25.4mV(AC)**



Output Noise Test Fig.10
Vin: 264Vac
O/P: +12V=4.2A
CH1: V_{P-P_+12V}
Reading: **23.6mV(AC)**

7. Turn On Delay Time

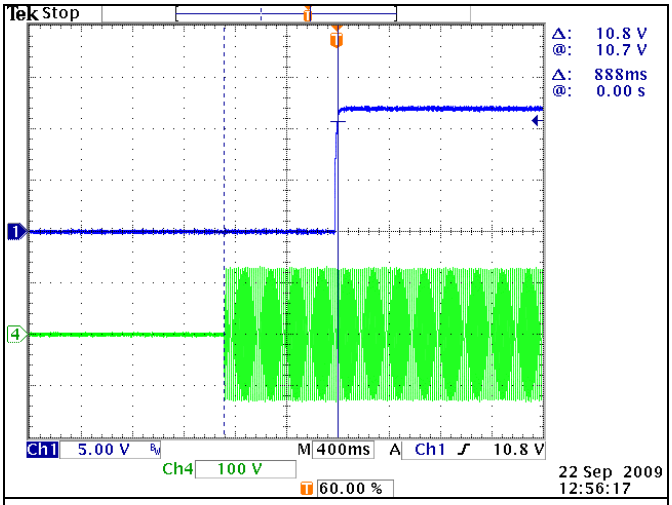
Turn on delay time will be **less than 2 seconds** at full load. Turn on delay time is measured as the delay between input voltage being applied at 0^o phase angle and when the outputs arrive within 10% of their operating value. Turn on delay time is measured using an input voltage of 90VAC(rms) and input frequency of 60Hz.

Test Conditions:
Input: 90Vac(60Hz)
Output: Max Load
Ambient Temperature : 25℃

Test Result: PASS

Input	$T_{turn\ on\ delay}$
90Vac	888ms

Table 7



Turn on Time Test Fig.11
Vin: 90Vac/60Hz
O/P: Max Load
CH1: V_{O_+12V}
CH4: AC Input Voltage
Reading:**888ms**

8. Holdup Time

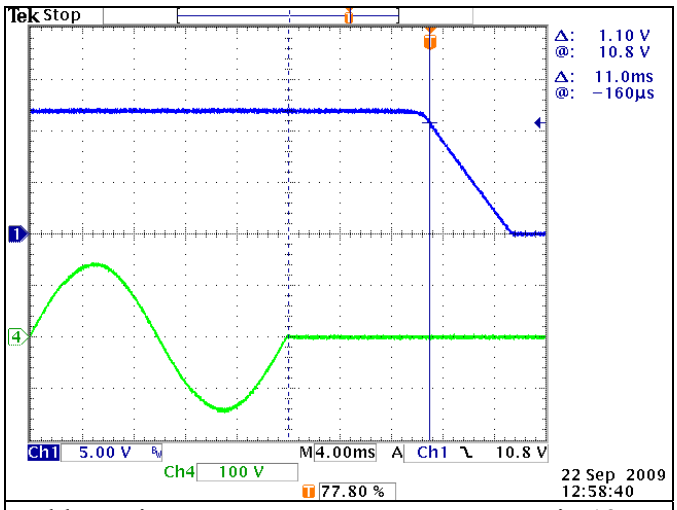
Holdup time refers to the time it takes for a loss of input voltage to propagate through the power supply and affect the output voltages. Holdup time spec must be met at 100Vac input line voltage and maintain minimum half AC cycle. Holdup time shall be measured by monitoring the output voltages and measuring the time it takes for the first affected output voltage to pass through the lower bound of the regulation threshold after input power to the converter is removed. The initial conditions of loading and input voltage are max load and minimum operational line input. The holdup time is measured by triggering an oscilloscope on the loss of input voltage while monitoring the conditions of the output voltages.

Test Conditions:
Input: 100Vac(50Hz)
Output: Max Load
Ambient Temperature : 25℃

Test Result: PASS

Input	$T_{hold\ on}$
100Vac	11.0ms

Table 8



Hold-up Time Test Fig.12
Vin: 100Vac/50HZ
O/P: Max Load
CH1: V_{O_+12V}
CH4: AC Input Voltage
Reading:**11.0ms**

9. Over Current Protection

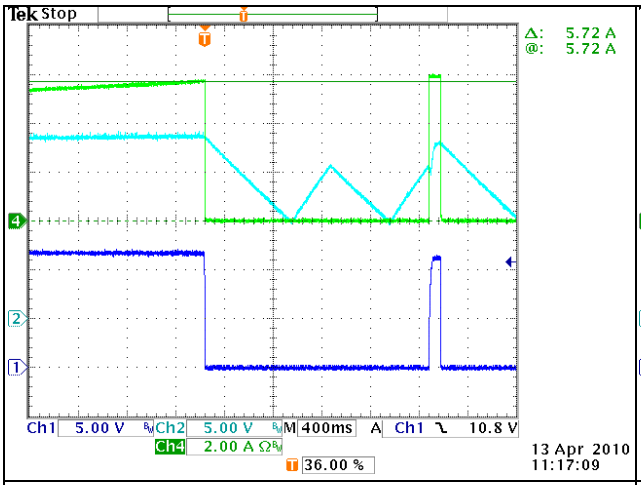
The supply shall be designed with appropriate output over current protection. This protection shall be activated in the event of a short or long-term condition during which one or more of the output current load increases such that the primary current exceeds a predetermined limit. The primary shall limit the total power without inflicting any damage to any internal supply components and shall be reversible pending removal of the cause of the condition and without any user intervention. This protection shall be activated **within 130% to 180%** of maximum load.

Test Condition:
Input: 90Vac/264Vac (60Hz)
Ambient Temperature: 25℃

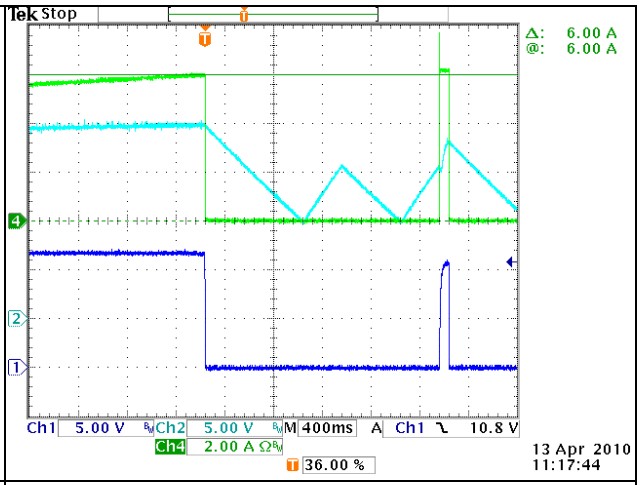
Test Result: PASS

Intput	OCP
90Vac	5.72A
264Vac	6.00A

Table 9



Over Current Protection Fig.13
Vin: 90Vac
O/P : +12V=Max→OCP
CH1: V_{O_+12V} CH2: I_{+12V}
CH3: Vcc



Over Current Protection Fig.14
Vin: 264Vac
O/P : +12V=Max→OCP
CH1: V_{O_+12V} CH2: I_{+12V}
CH3: Vcc

10. Over Voltage Protection

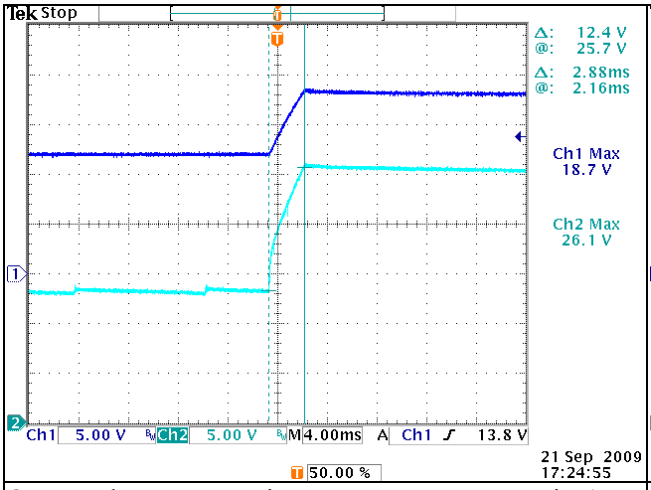
The supply shall be designed with appropriate output over voltage protection. This protection shall be activated in the event of a short or long-term condition during which one or more of the output open loop circuit happened. It shall limit the power supply without inflicting any damage to any internal supply components.

Test Condition:
Input: 90Vac/264Vac (60Hz)
Ambient Temperature: 25℃

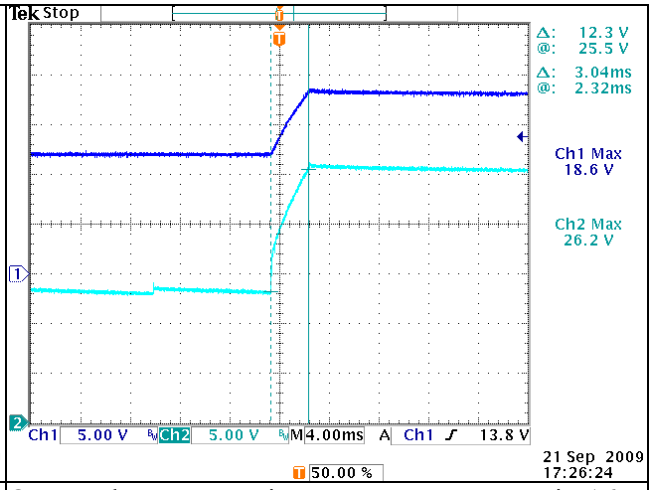
Test Result: PASS

	Primary-side	Second-side
Vin(Vac)	Vcc Voltage(V)	+12Vout(V)
Vac=90V	26.1	18.7
Vac=264V	26.2	18.6

Table 10



Over Voltage Protection Test Fig.15
Vin: 90Vac turn on
O/P: +12V=0A
CH1: V_{O_+12V} CH2: Vcc
Reading: Vcc=26.1V (OVP Protection)
$V_{O\ +12V}$ =18.7V



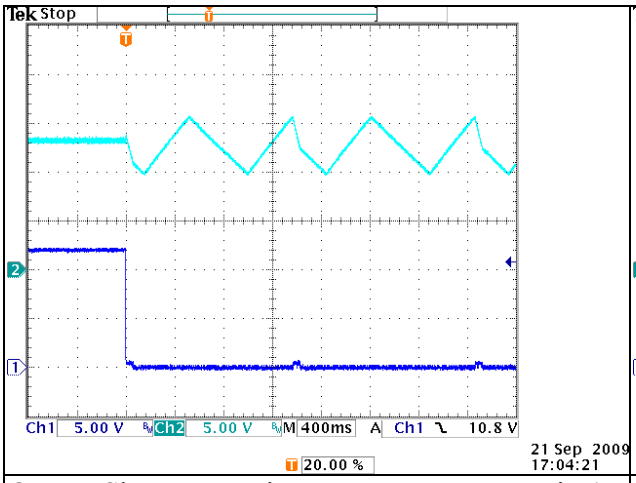
Over Voltage Protection Test Fig.16
Vin: 264Vac turn on
O/P: +12V=0A
CH1: V_{O_+12V} CH2: Vcc
Reading: Vcc=26.2V (OVP Protection)
$V_{O\ +12V}$ =18.6V

11. Output Short Protection

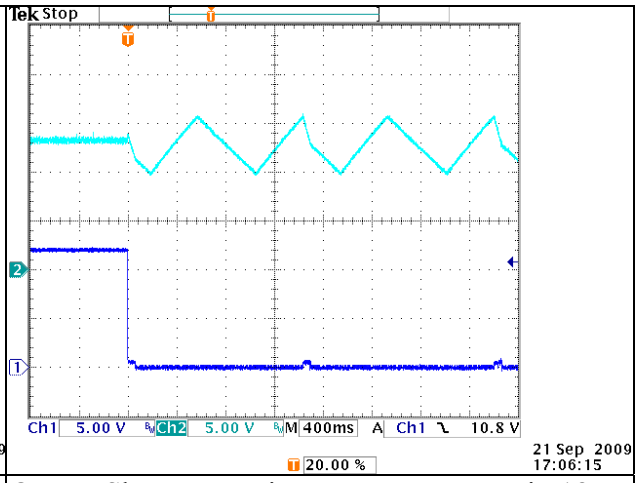
The supply shall be designed with appropriate output short circuit protection. This protection shall be activated in the event of a short or long-term condition happened. The primary shall limit the total power without inflicting any damage to any internal supply components and shall be reversible pending removal of the cause of the condition and without any user intervention.

Test Condition:
Input: 90Vac/264Vac (60Hz)
Ambient Temperature: 25℃

Test Result: PASS



Output Short Protection Fig.17
Vin: 90Vac
O/P : +12V=0A→Short
CH1: V_{O_+12V} CH2: Vcc



Output Short Protection Fig.18
Vin: 264Vac
O/P : +12V=0A→Short
CH1: V_{O_+12V} CH2: Vcc

12. Efficiency Test

The efficiency of power supply shall be measured throughout its specified operating input range and at output maximum load conditions. It should meet Energy Star V2.0 Efficiency Level V.

Test Condition:

Input: 115Vac/230Vac (60Hz)

Output: 25%、50%、75%、100% of Max Load(4.2A)

Ambient Temperature: 25℃

	115V		230V	
Po	Pin	Eff(%)	Pin	Eff(%)
12.53	14.11	88.80%	14.2	88.24%
24.89	28.17	88.36%	28.07	88.67%
37.09	42.25	87.79%	42.07	88.16%
49.19	56.58	86.94%	55.88	88.03%
Result		87.97%		88.28%

Table 11

13. Power Component Stress Voltage

Test Condition:
- Set the output loads at full load and ambient 25 ºC.
- The PSU test on everyone voltage and frequency.

Check:
- Under Steady state the derating shall be below **95%.**
- Under Transient state the derating shall be below **100%.**
- Input line bulk capacitors limits are **100%** (continuous).

Result:
Input Voltage: 90Vac/264Vac (47/63Hz)
Output Power: Max Load/Short

No.	Location	Max. Rating(V)	Steady State(90V / 47HZ)	
			Measurement	Derating(%)
			V	V
1	D3	1000	221	22.10%
2	IC1	30	19.4	64.67%
3	C1	400	131	32.75%
4	Q1	600	278	46.33%
5	D4	1000	75.6	7.56%
6	C12	16	12.8	80.00%
7	C14	25	12.7	50.80%

Table 12-1

No.	Location	Max. Rating(V)	Steady State(264V / 63HZ)	
			Measurement	Derating(%)
			V	V
1	D3	1000	472	47.20%
2	IC1	30	18.9	63.00%
3	C1	400	378	94.50%
4	Q1	600	544	90.67%
5	D4	1000	131	13.10%
6	C12	16	12.7	79.38%
7	C14	25	12.7	50.80%

Table 12-2

No.	Location	Max. Rating(V)	Transient State(90V / 47HZ)	
			Measurement	Derating(%)
			V	V
1	D3	1000	221	22.10%
2	IC1	30	19.6	65.33%
3	C1	400	131	32.75%
4	Q1	600	282	47.00%
5	D4	1000	99.2	9.92%
6	C12	16	12.9	80.63%
7	C14	25	12.7	50.80%

Table 13-1

No.	Location	Max. Rating(V)	Transient State(264V / 63HZ)	
			Measurement	Derating(%)
			V	V
1	D3	1000	474	47.40%
2	IC1	30	19.8	66.00%
3	C1	400	382	95.50%
4	Q1	600	546	91.00%
5	D4	1000	133	13.30%
6	C12	16	12.8	80.00%
7	C14	25	12.6	50.40%

Table 13-2

14. EMI

Test Condition:

The power supply should comply with FCC part15,EN 55022 and CISPR22 meeting Class B for conducted emissions with a 3dB margin. Tested unit should be connected to a pure resistor load (rated loding). The test condition shall be followed as:110 VAC(L and N),220VAC(L and N)

Test Result: PASS

Other detail please check the appendix.

15. Surge For System

Test Condition:
High Energy Transients are applied to the power supply once each 20 second period with 5 transients per test. The surge Test defines four levels of peak voltage.
Check:
Survival: No component shall be damage electrically during the tests. The PSU shall continue to operate in a safe manner during abnormal operation.

Result:
Input Voltage: 220V (60Hz)
Output Power: Max Load

Surge voltage	Coupling Mode	Test Level	Phase		Repetition	Test Result
1KV	Diff.	±1KV	0	L to N	5 pulses 20Sec	Pass
			90			Pass
			180			Pass
			270			Pass

Table 14

Surge voltage	Coupling Mode	Test Level	Phase		Repetition	Test Result
2KV	COM..	±2KV	0	L to Earth GND N to Earth GND	5 pulses 20Sec	Pass
			90			Pass
			180			Pass
			270			Pass

Table 15

16. ESD Test

Test Condition:

The voltage level is set initially at 2 kV, and increased to a maximum level of 4 kV for contact discharges and 8 kV for air discharges. Fifteen discharges for each polarity are made to each test point with a minimum time interval of 2 second between discharges.

Check:

Survival: No component shall be damage electrically during the tests. The PSU shall continue to operate in a safe manner during abnormal operation.

Polarity	Testing Mode	Test Level	Step Level	Repetition	Test Result
Positive & Negative	**Contact**	±2KV ↓ ±4KV	2KV	15 pulses	Pass
			2.5KV		Pass
			3KV		Pass
			4KV		Pass

Polarity	Testing Mode	Test Level	Step Level	Repetition	Test Result
Positive & Negative	**Air**	2KV ↓ 8KV	2KV	15 pulses	Pass
			4KV		Pass
			6KV		Pass
			8KV		Pass

Table 16

17. Dielectric Withstand Voltage

Test Condition:

- Test the PSU primary to secondary insulation capability.

Check:

- The PSU shall be meet specific（**3000Vac for 1minute / 10mA**）and no Component damage.

Result:

Test Item	Test Criteria			Pass/Fail
Hi-pot	Voltage(Vac)	Test Time (Second)	Leakage Current(mA)	Pass
	3000	60	<10mA	

Table 17

18. Thermal Test

Test Condition:

- Set the output loads at full load and ambient **25°C**.
- The PSU test on everyone voltage and frequency.
- Born-In 2 hours

Check:

- All of component and magnetic device (transformer, Filter choke) shall NOT exceed 100℃.

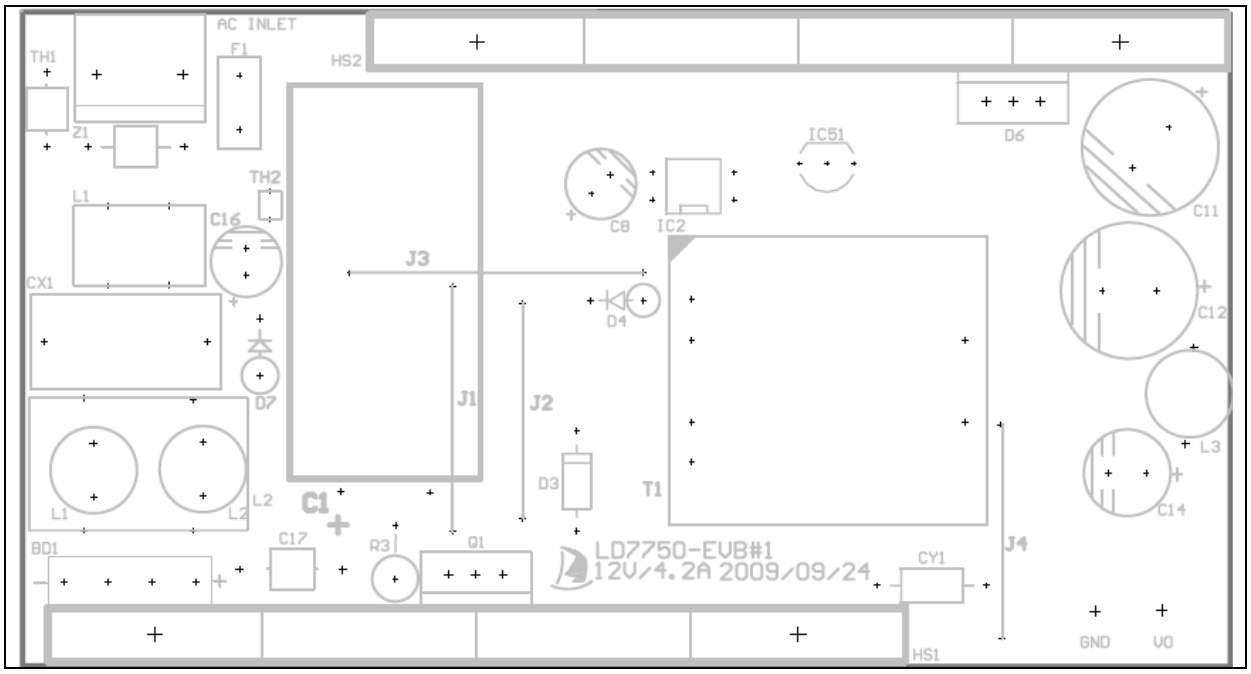
Result:

No.	Location	Max. Rating(℃.)	90V/47Hz(℃.)	264/63Hz(℃.)	Derating(%)	
					90V/47Hz	264/63Hz
1	L1	130	50.3	36.8	38.69%	28.31%
2	L2	130	54.2	38.1	41.69%	29.31%
3	BD1	150	69.7	46.4	46.47%	30.93%
4	C1	105	54	45.3	51.43%	43.14%
5	IC1	150	49.4	48.7	32.93%	32.47%
6	D4	150	54	50.8	36.00%	33.87%
7	R3	150	63.4	45.6	42.27%	30.40%
8	Q1 Body	150	63	51	42.00%	34.00%
9	R14A/B/C/D	125	53.5	54.7	42.80%	43.76%
10	T1 core	130	56.4	66.1	43.38%	50.85%
11	T1 winding	130	59.4	60	45.69%	46.15%
12	D3	150	62.5	53.5	41.67%	35.67%
13	C11	105	53.1	55.3	50.57%	52.67%
14	C12	105	46.6	50.4	44.38%	48.00%
15	L3	130	44.4	48.5	34.15%	37.31%
16	C14	105	37.9	39.5	36.10%	37.62%
17	HS1	100	28.3	28.4	28.30%	28.40%
18	HS2	100	27.4	27.1	27.40%	27.10%
19	D6	150	65.9	67.9	43.93%	45.27%
Ambient					--	--

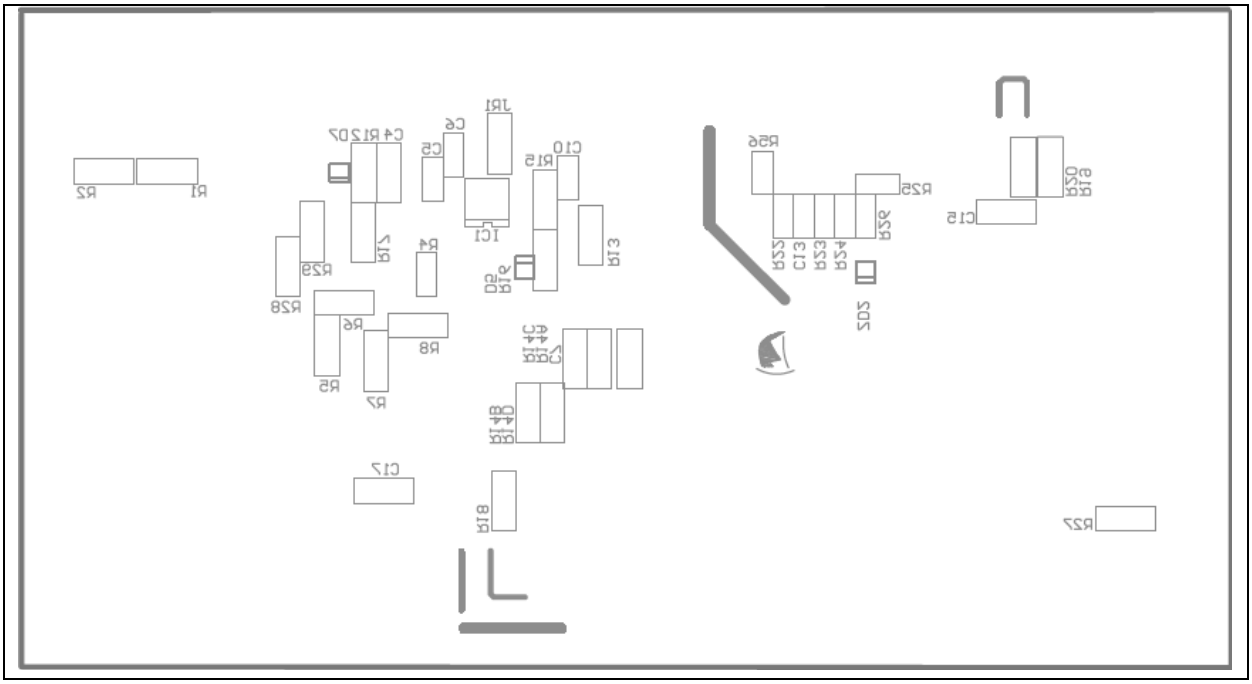
Table 18. Key Parts for Thermal Test

Ⅳ. Gerber File:

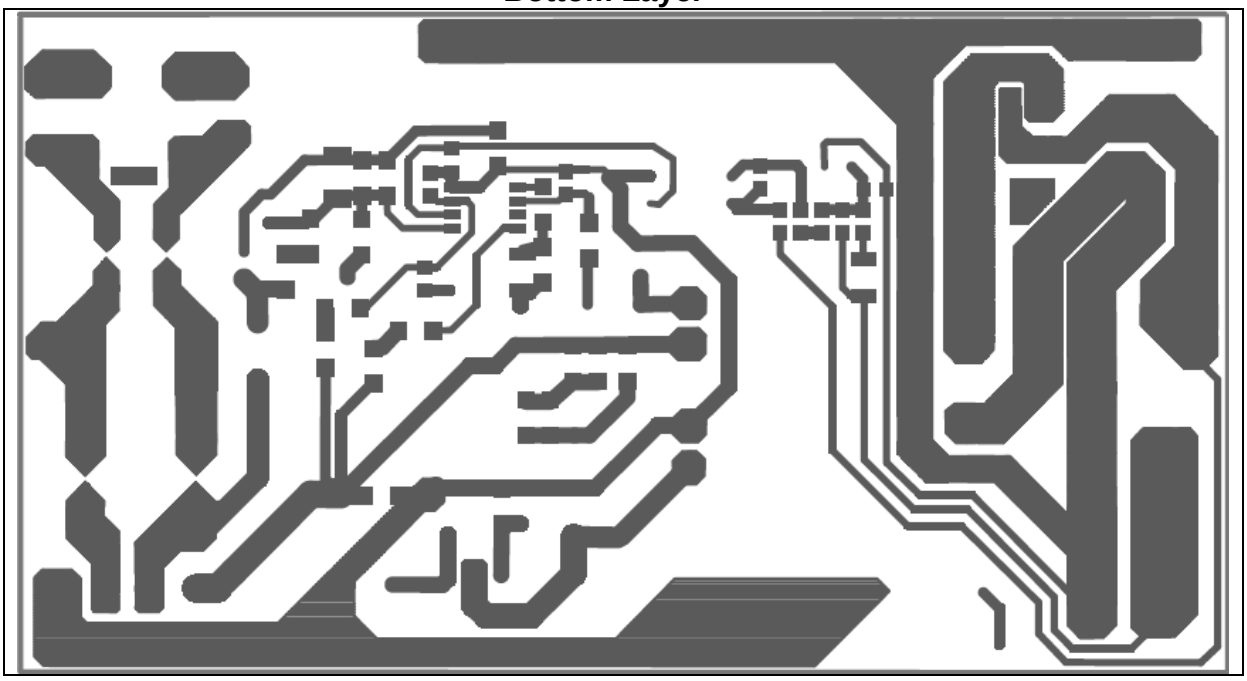
Silkscreen TOP



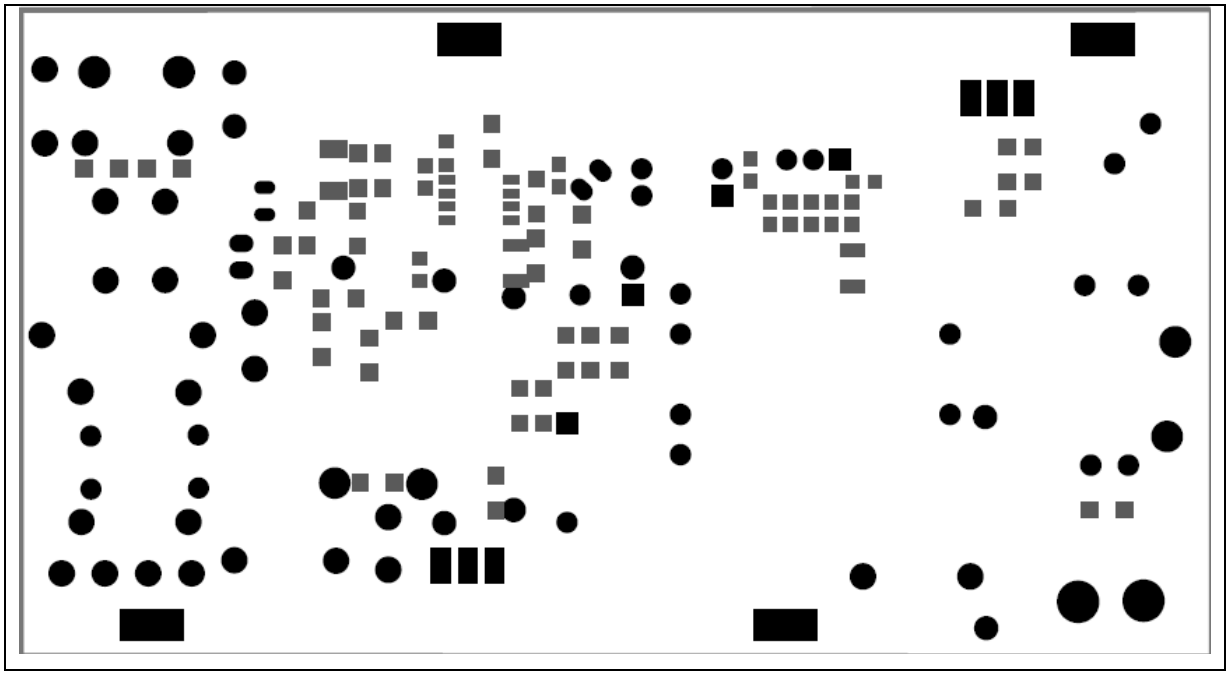
Silkscreen Bottom



Bottom Layer

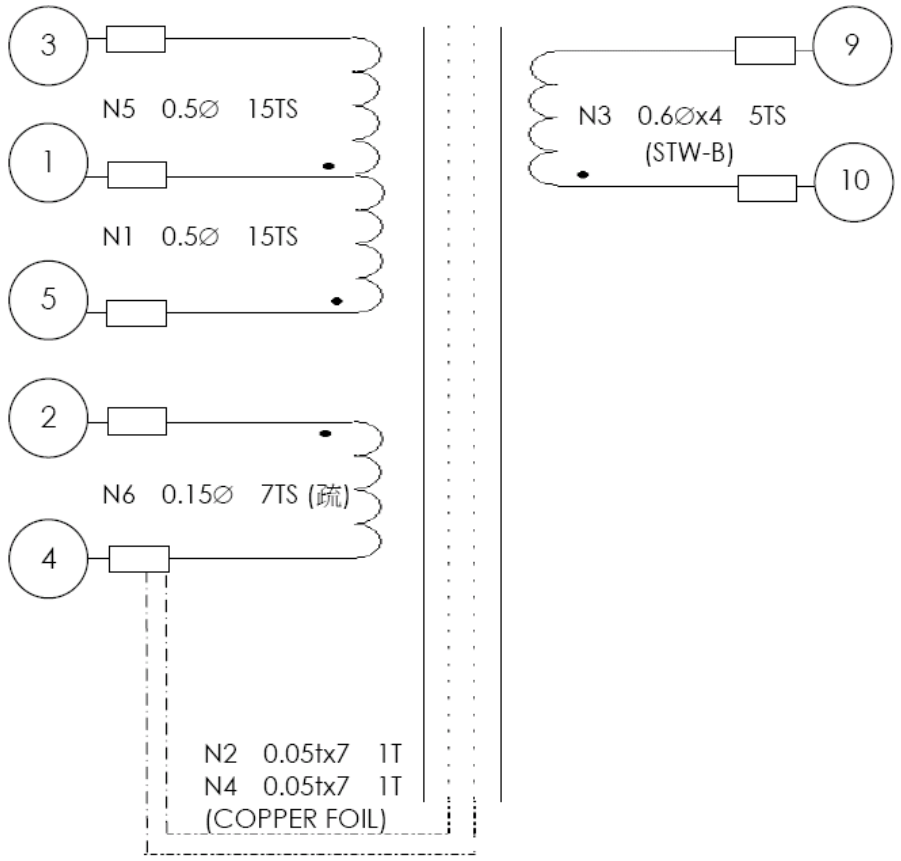


Soldermask Bottom



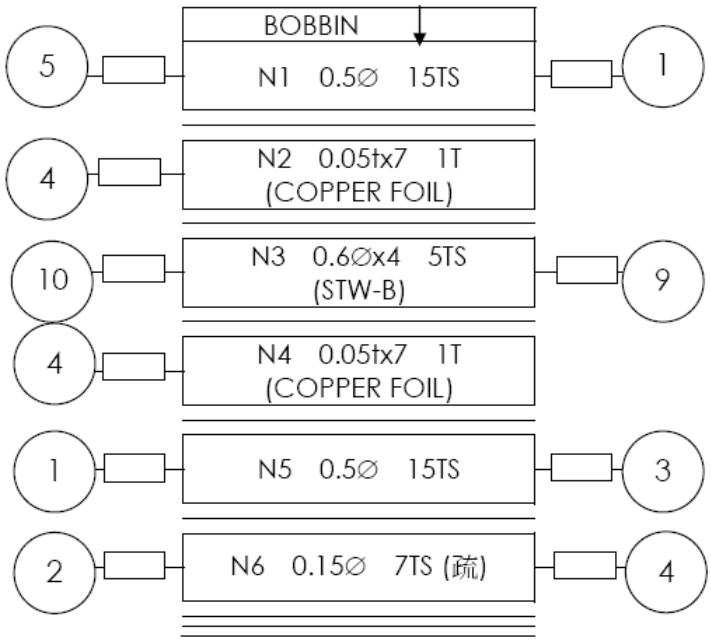
V. Transformer Specification:

1. SCHEMATICS.



CUSTOMER: 通嘉	PART NO: PQ2620-451K
DATE: 2008/9/30	育泉科技股份有限公司
REV NO: / PAGE: 1/4	FONTAINE TECHNOLOGIES CO.,LTD.

2. WINDING SEQUENCE.



CUSTOMER: 通嘉	PART NO: PQ2620-451K
DATE: 2008/9/30	育泉科技股份有限公司
REV NO: / PAGE: 2/4	FONTAINE TECHNOLOGIES CO.,LTD.

3. MATERIAL LIST.

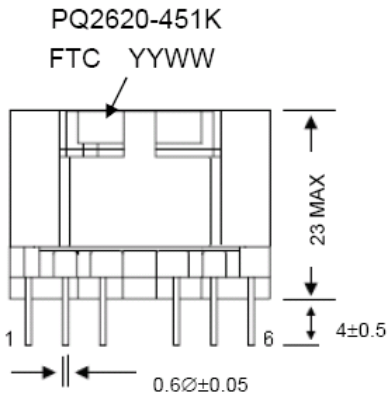
NO/ITEM	MATERIAL	MAKER
3-1. CORE	PQ-2620 FERRITE CORE	FERROXCUBE.FDK.KAWATETSU
	3C90.6H20.MB4	
3-2. BOBBIN	PQ-2620 V.TYPE W / 12PINS	CHANG CHUN PLASTICS CO.,LTD.
	PHENOLIC / T375J.	UL NO.E59481
	HY-2601	HSIN YUNG PLASTIC INDUSTRIAL CO.,LTD.
3-3. WIRE	2UEW / 130℃	JUNG SHING WIRE CO.,LTD. UL NO.E174837
	STW-B	YOUNG CHANG SILICONE CO.,LTD UL NO.E242198
3-4. TAPE	POLYESTER TAPE.	3M COMPANY.
	#1350F-1.	UL NO.E17385
3-5. VARNISH	BC-346A	JOHN C DOLPH CO.
		UL NO.E317427
3-6. TUBING	PTFE / TFL / 150V.	GREAT HOLDING IND CO.,LTD.
		UL NO.E156256.
3-7. COPPER FOIL	0.05tx7 (裸銅)	

4. ELECTRICAL SPECIFICATION.

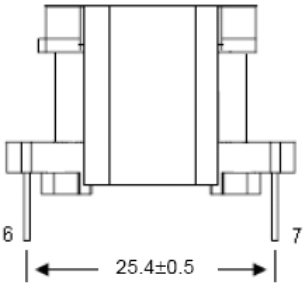
4-1.INDUCTANCE.P(5-3) 450uH±5% @1KHZ 0.25V HP-4284A.
4-2.D.C.RESISTANCE.P(5-3) 0.22Ω MAX.
4-3.INSULATION.WDG TO WDG AND WDG TO CORE BY 500VDC 100M OHM MIN.
4-4.HI-POT TEST. PRI TO SEC BY 3000VAC / 1MINUTE @5mA
PRI TO CORE BY 1000VAC / 1MINUTE @5mA
SEC TO CORE BY 1000VAC / 1MINUTE @5mA

CUSTOMER: 通嘉		PART NO: PQ2620-451K
DATE: 2008/9/30		育泉科技股份有限公司 FONTAINE TECHNOLOGIES CO.,LTD.
REV NO:	PAGE: 3/4	

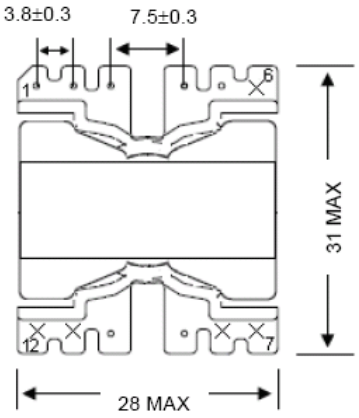
5. CONFIGURATION & DIMENSION. (UNIT:mm)



<FRONT VIRE>



<SIDE VIRE>



<BOTTOM VIEW>

- PIN 6.7.8.11.12 CUT OFF
- PIN 1 CUT 1/2
- MARKING: PQ2620-451K
  FTC YYWW

CUSTOMER: 通嘉	PART NO: PQ2620-451K
DATE: 2008/9/30	育泉科技股份有限公司
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Leadtrend Technology Corp.
通嘉科技股份有限公司

Site C

Customer Name: LD

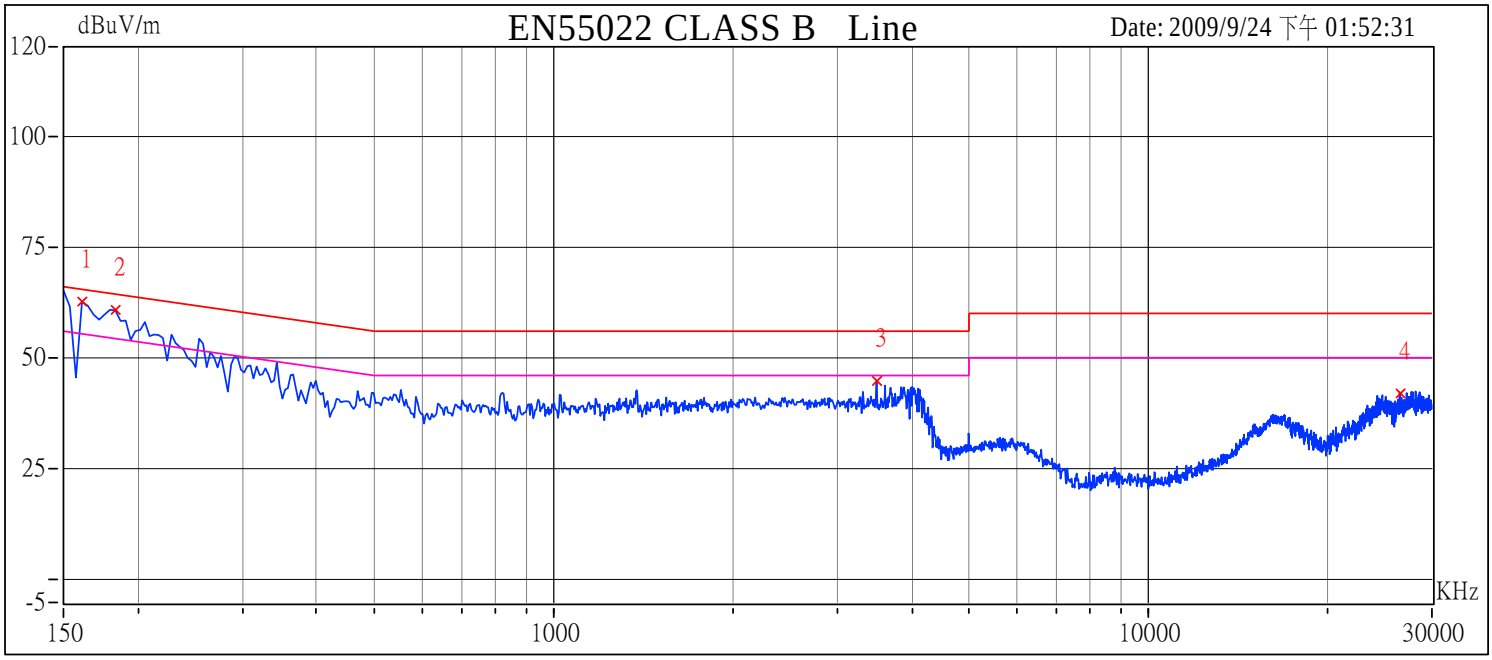
Project No.: LD7750

Model Name: 50W demo board

Engineer Name: jolin

Test Mode: 110V-L

Index: 33



	Freq(KHz)	Peak Amptd(dBuV)	QP Amptd(dBuV)	Avg Amptd(dBuV)	QP Limit(dBuV)	Avg Limit(dBuV)	Margin(dB)	Factor(dB)
1	161.1222	62.62	53.51	30.53	65.68	55.68	-12.18	10.38
2	183.3667	60.67	50.42	29.59	65.05	55.05	-14.63	10.37
3	3490.9820	44.66	33.82	22.46	56.00	46.00	-22.18	10.60
4	26537.0741	41.80	33.70	26.20	60.00	50.00	-23.80	13.01

Leadtrend Technology Corp.
通嘉科技股份有限公司

Site C

Customer Name: LD

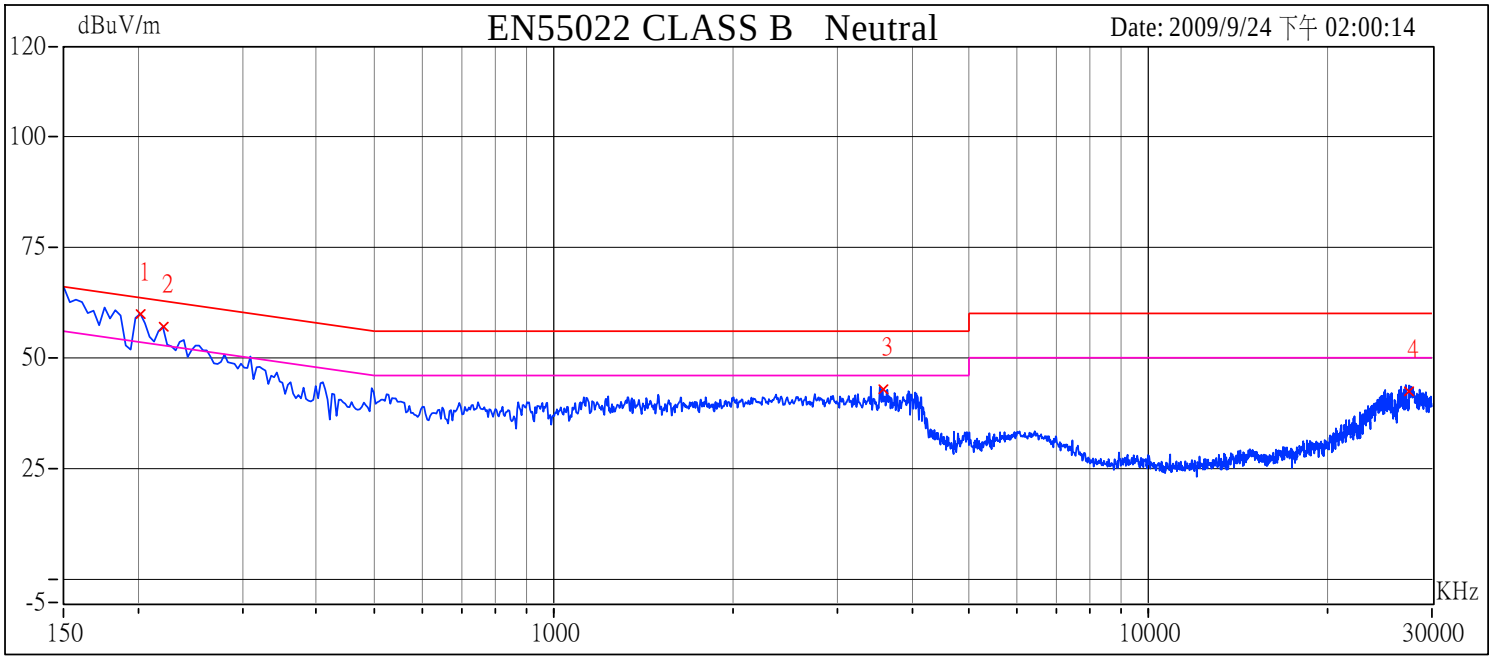
Project No.: LD7750

Model Name: 50W demo board

Engineer Name: jolin

Test Mode: 110V-N

Index: 34



	Freq(KHz)	Peak Amptd(dBuV)	QP Amptd(dBuV)	Avg Amptd(dBuV)	QP Limit(dBuV)	Avg Limit(dBuV)	Margin(dB)	Factor(dB)
1	201.9038	59.91	50.44	36.97	64.52	54.52	-14.08	10.39
2	220.4409	56.99	46.51	30.05	63.99	53.99	-17.48	10.39
3	3579.1583	42.87	33.69	22.79	56.00	46.00	-22.31	10.61
4	27515.0301	42.29	35.78	28.72	60.00	50.00	-21.28	13.65

Leadtrend Technology Corp.
通嘉科技股份有限公司

Site C

Customer Name: LD

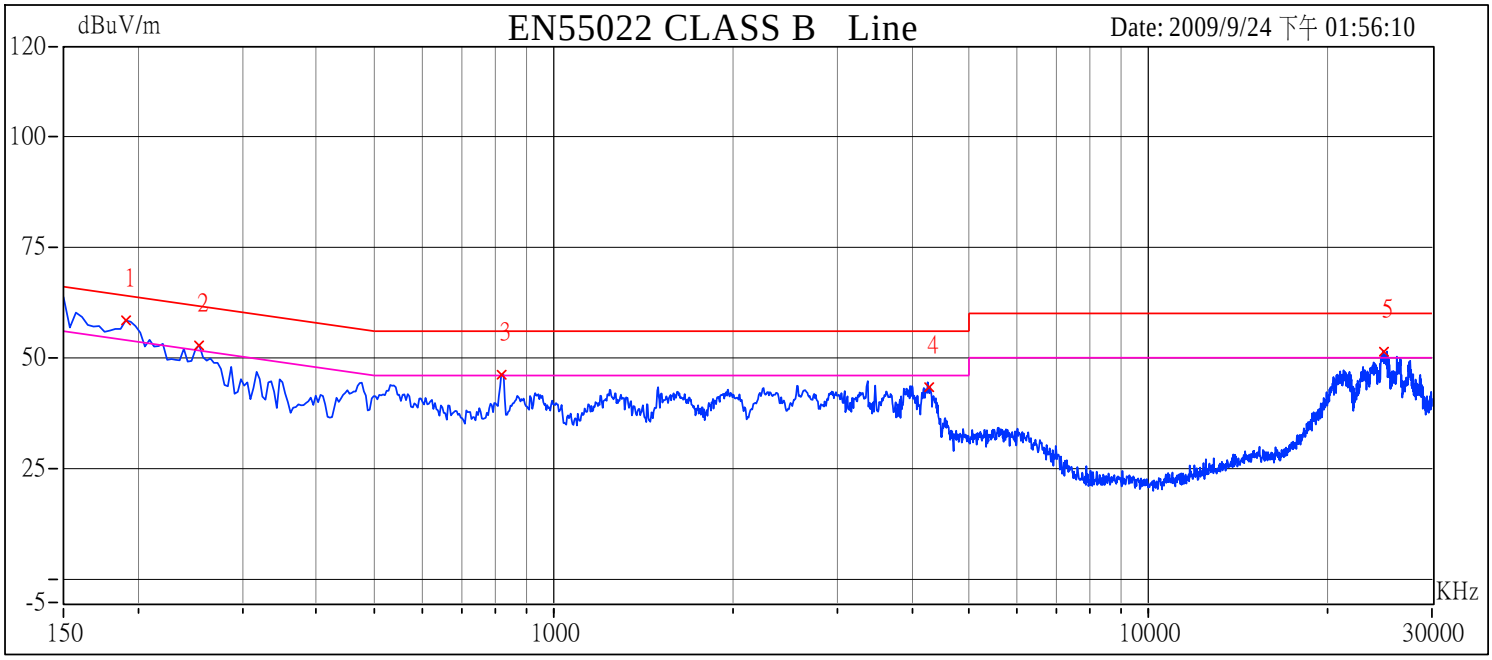
Project No.: LD7750

Model Name: 50W demo board

Engineer Name: jolin

Test Mode: 220V-L

Index: 34



	Freq(KHz)	Peak Amptd(dBuV)	QP Amptd(dBuV)	Avg Amptd(dBuV)	QP Limit(dBuV)	Avg Limit(dBuV)	Margin(dB)	Factor(dB)
1	190.7816	58.38	53.22	38.11	64.83	54.83	-11.61	10.36
2	253.8076	52.89	45.95	32.51	63.03	53.03	-17.08	10.38
3	821.0421	46.27	41.25	36.46	56.00	46.00	-9.54	10.42
4	4276.5531	43.36	36.54	19.57	56.00	46.00	-19.46	10.66
5	24853.7074	51.56	42.30	32.62	60.00	50.00	-17.38	12.82

Leadtrend Technology Corp.
通嘉科技股份有限公司

Site C

Customer Name: LD

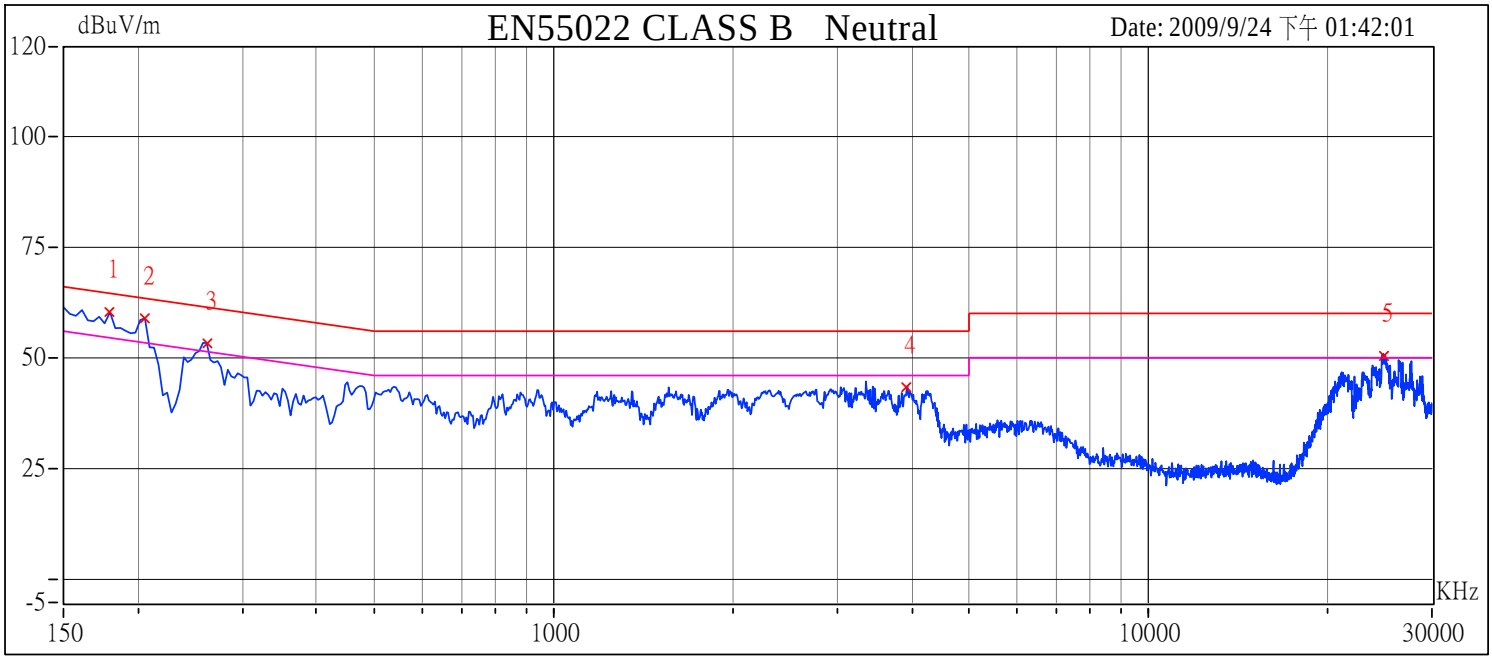
Project No.: LD7750

Model Name: 50W demo board

Engineer Name: jolin

Test Mode: 220V-N

Index: 31



	Freq(KHz)	Peak Amptd(dBuV)	QP Amptd(dBuV)	Avg Amptd(dBuV)	QP Limit(dBuV)	Avg Limit(dBuV)	Margin(dB)	Factor(dB)
1	179.6593	60.25	49.07	29.19	65.15	55.15	-16.08	10.40
2	205.6112	58.87	47.39	31.14	64.41	54.41	-17.02	10.39
3	261.2224	53.32	46.02	32.89	62.82	52.82	-16.81	10.40
4	3931.8637	43.53	34.98	20.46	56.00	46.00	-21.02	10.64
5	24997.9960	50.43	42.17	32.60	60.00	50.00	-17.40	13.30