Test Report： ELG-150-C1400

150W Single Output Switching Power Supply

■ DESIGN VERIFY TEST

Output Function Test
Input Function Test
Protection Function Test
Component Stress Test

■ SAFETY & E.M.C. TEST

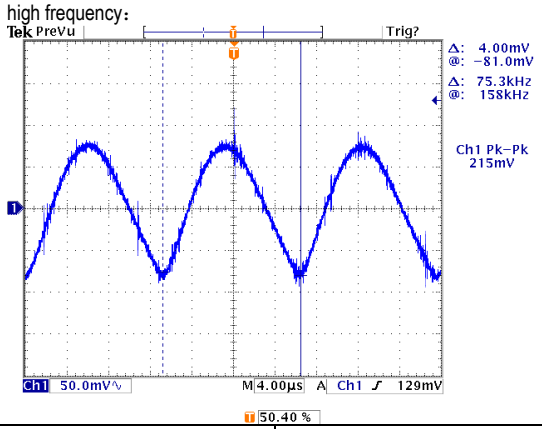
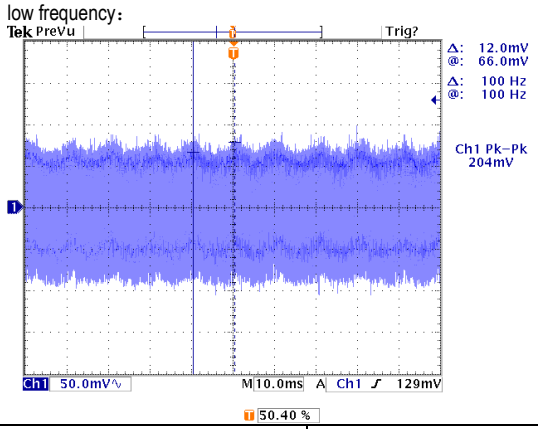
Safety Test
E.M.C. Test

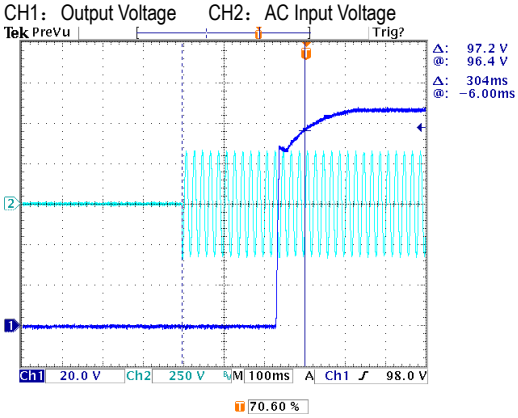
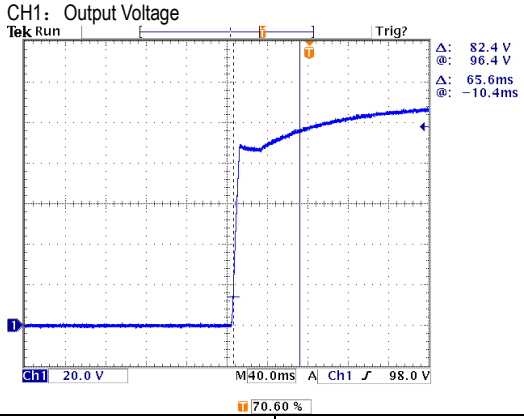
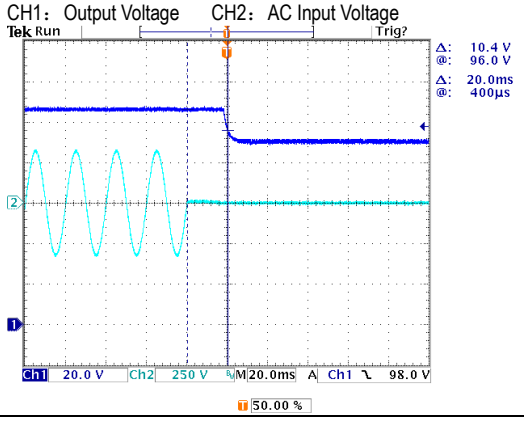
■ RELIABILITY TEST

Environment Test

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT CURRENT ADJUST RANGE	700mA~1400mA	I/P： 230VAC O/P：LED MODE Ta：25℃	0.5146A~1.5917A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P： 230VAC O/P：FULL/ MIN LOAD Ta：25℃	±1.07 %
3	RIPPLE CURRENT	±5%	I/P： 230VAC O/P：LED MODE Ta：25℃	4.29%
4	CONSTANT CURRENT REGION	54V~107V	I/P： 230VAC O/P：LED MODE Ta：25℃	24V~108V
5	NO LOAD OUTPUT VOLTAGE (Max)	115V	I/P： 230VAC O/P：NO LOAD Ta：25℃	109V
6	OVER/UNDERSHOOT TEST	<±5 %	I/P： 230VAC O/P：FULL LOAD Ta：25℃	<5 %
7	RIPPLE & NOISE (Max)	1Vp-p	I/P： 230VAC O/P：FULL LOAD Ta：25℃	0.215Vp-p
	high frequency：  		low frequency：  	
8	SET UP TIME(Max)	230VAC/ 500ms	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 304ms

	INPUT=230VAC/50HZ @ FULL LOAD CH1：Output Voltage CH2：AC Input Voltage 			
9	RISE TIME (Max)	230VAC/ 85ms	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/65.6ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1：Output Voltage 			
10	HOLD UP TIME(Typ)	230VAC/ 10ms	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/20ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1：Output Voltage CH2：AC Input Voltage 			

11 DIMMING TEST (For B-Type only)

SPEC:

※ Built-in 3 in 1 dimming function, IP67 rated.Output constant current level can be adjusted through output cable by connecting a resistance or 0 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.

※ Please DO NOT connect "DIM-" to "-V".

※ Reference resistance value for output current adjustment (Typical)

Resistance value	Single driver	Short	10K Ω	20K Ω	30K Ω	40K Ω	50K Ω	60K Ω	70K Ω	80K Ω	90K Ω	100K Ω	OPEN
	Multiple drivers （N=driver quantity for synchronized dimming operation）	Short	10K Ω /N	20K Ω /N	30K Ω /N	40K Ω /N	50K Ω /N	60K Ω /N	70K Ω /N	80K Ω /N	90K Ω /N	100K Ω /N	……
Percentage of rated current		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

※ 0 ~ 10V dimming function for output current adjustment (Typical)

Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Percentage of rated current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

※ 10V PWM signal for output current adjustment (Typical)：Frequency range：100Hz~3KHz

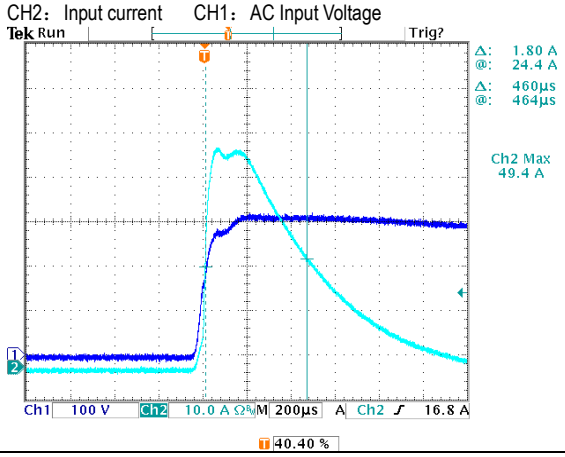
Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
Percentage of rated current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

TEST RESULT：

I/P： 230 VAC；Ta：25℃

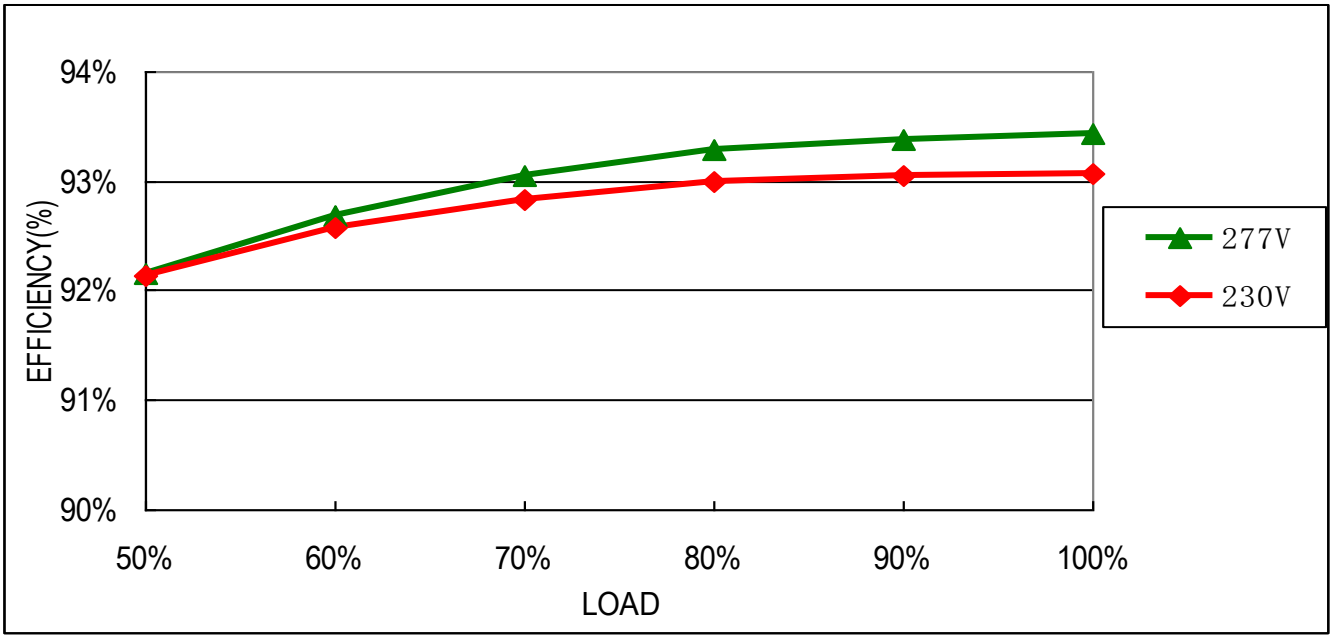
1	Resistance value	Short	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN
	Output Current	0	0.156A	0.297A	0.438A	0.580A	0.722A	0.865A	1.009A	1.155A	1.301A	1.408A	1.421A
	Percentage of rated current	0%	11.14%	21.21%	31.29%	41.43%	51.57%	61.79%	72.07%	82.50%	92.93%	100.57%	101.50%
2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
	Output Current	0	0.158A	0.298A	0.432A	0.573A	0.710A	0.853A	0.991A	1.127A	1.266A	1.401A	1.421A
	Percentage of rated current	0%	11.29%	21.29%	30.86%	40.93%	50.71%	60.93%	70.79%	80.50%	90.43%	100.07%	101.50%
3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
	Output Current	0	0.166A	0.303A	0.441A	0.578A	0.716A	0.853A	0.989A	1.127A	1.263A	1.386A	1.421A
	Percentage of rated current	0%	11.86%	21.64%	31.50%	41.29%	51.14%	60.93%	70.64%	80.50%	90.21%	99.00%	101.50%

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	180VAC~295VAC	I/P：TESTING O/P：FULL LOAD Ta：25℃	177V~305V
			I/P： (1)LOW-LINE-3V=177 V HIGH-LINE+10V=305 V O/P：FULL/MIN LOAD ON： 30 Sec OFF： 30 Sec 10MIN (2)230VAC ON： 0.5 Sec OFF： 0.5 Sec 20MIN (3)230VAC ON：3Sec OFF：3Sec 12HOURS (POWER ON/OFF NO DAMAGE)	TEST：OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P： 180 VAC ~295 VAC O/P：FULL~MIN LOAD Ta：25℃	TEST：OK
3	AC CURRENT	0.7A/277VAC 0.9A/230VAC	I/P： 277 VAC I/P： 230 VAC O/P：FULL LOAD Ta：25℃	I =0.586A/ 277VAC I =0.702A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P： 277 VAC O/P：NO LOAD Ta：25℃	L-FG： 0.406 mA N-FG： 0.368 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P：230VAC O/P：NO LOAD Ta：25℃	0.206W/ 230VAC
6	TOTAL HARMONIC DISTORTION	Total harmonic distortion will be lower than 20% when output loading is 50% or higher at 230VAC	I/P： 230VAC O/P：50% LOAD	THD： 9.27 %
		Total harmonic distortion will be lower than 20% when output loading is 75% or higher at 277VAC	I/P： 277VAC O/P：75% LOAD	THD： 8.02 %
7	INRUSH CURRENT(Typ)	230V/ 65A Twidth =485 us measured at 50% Ipeak COLD START	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	I =49.4A/ 230VAC Twidth =460us
	INPUT=230VAC/50HZ @ FULL LOAD CH2：Input current CH1：AC Input Voltage 			

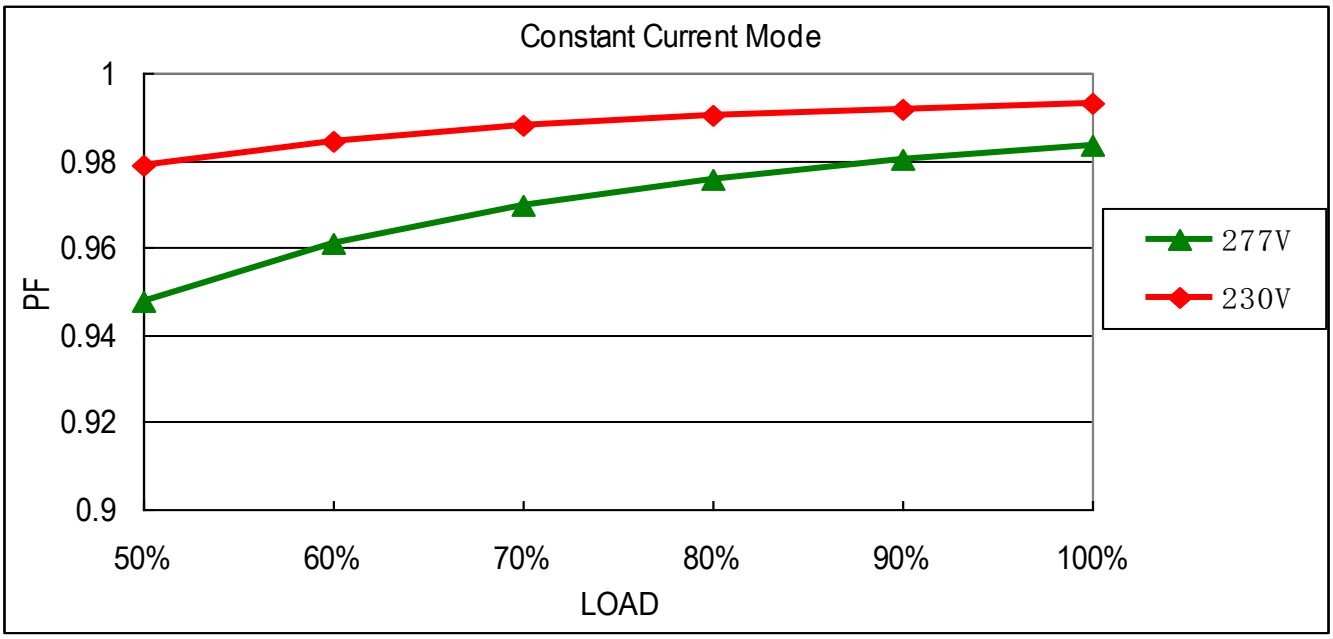
8	EFFICIENCY(Typ)	91%	I/P： 230VAC O/P：FULL LOAD Ta：25℃	93.06%

EFFICIENCY vs LOAD



9	POWER FACTOR	0.92/ 277VAC 0.95/ 230VAC	I/P： 277 VAC I/P： 230 VAC O/P：FULL LOAD Ta：25℃	PF=0.983/ 277VAC PF=0.993/ 230VAC

P.F vs LOAD



PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	128V~150V	I/P： 230VAC O/P：NO LOAD Ta：25℃	140.51V/ 230VAC Shut down o/p voltage，re-power on to recover
2	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P： 230 VAC O/P：FULL LOAD	O.T.P. Active Shut down o/p voltage，re-power on to recover
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P： 295VAC O/P：FULL LOAD Ta：25℃	NO DAMAGE Hiccup mode，recovers automatically after fault condition is removed

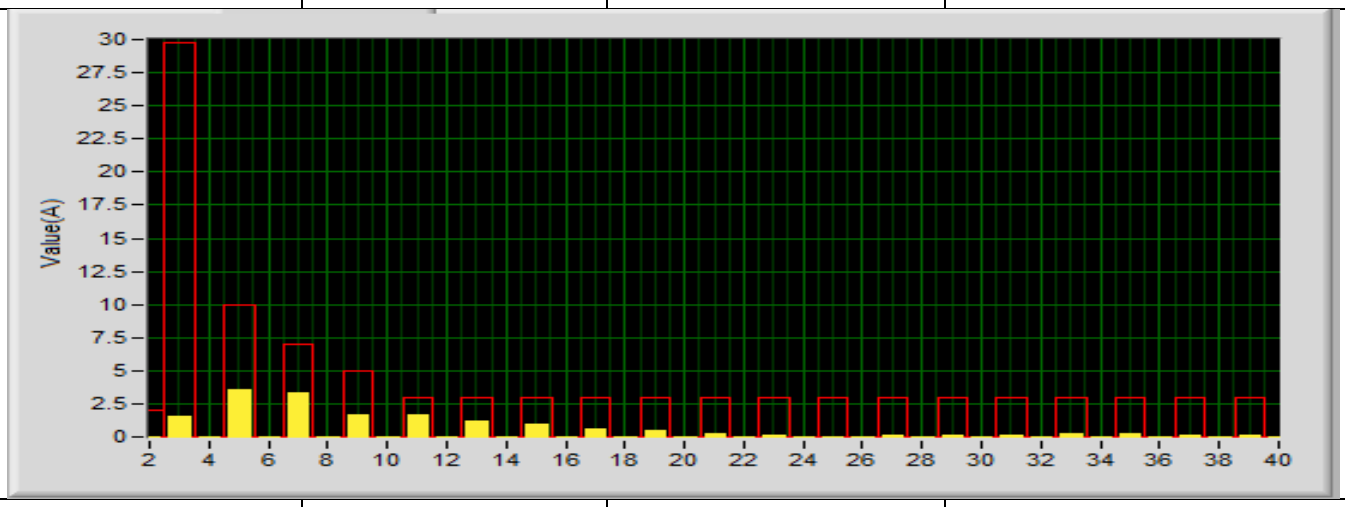
COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) **Peak Voltage**	Q 2 Rated 800V/9A	I/P：High-Line +3V =298V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	(1) 718V (2) 512V (3) 718V
2	**Diode Peak Voltage**	D100 Rated 400V/10A	I/P：High-Line +3V =298V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	(1) 319V (2) 212V (3) 317V
3	**Input Capacitor Voltage**	C5 Rated 100u/ 450V	I/P：High-Line +3V =298 V O/P：(1) Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change Ta：25℃	(1) 448V (2) 446V (3) 448V
4	**Control IC Voltage Test**	U1 Rated 28V (MAX.)	I/P：High-Line +3V =298 V O/P：(1) Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change Ta：25℃	(1) 17.4V (2) 15.9V (3) 17.4V
5	PFC Transistor (D to S) or (C to E) **Peak Voltage**	Q 1 Rated 600V/10A	I/P：High-Line +3V =298V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	(1) 470V (2) 438V (3) 468V

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P：3.75KVAC/min I/P-FG ：2.0KVAC/min O/P-FG：1.5KVAC/min	I/P-O/P：4.2 KVAC/min I/P-FG： 2.4 KVAC/min O/P-FG：1.8 KVAC/min Ta：25℃	I/P-O/P：1.580mA I/P-FG： 2.284mA O/P-FG：1.620mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P：500VDC>100MΩ I/P-FG： 500VDC>100MΩ O/P-FG：500VDC>100MΩ	I/P-O/P： 500 VDC I/P-FG： 500 VDC O/P-FG： 500 VDC Ta：25℃	I/P-O/P： ＞9999MΩ I/P-FG： ＞9999MΩ O/P-FG： ＞9999MΩ

E.M.C TEST

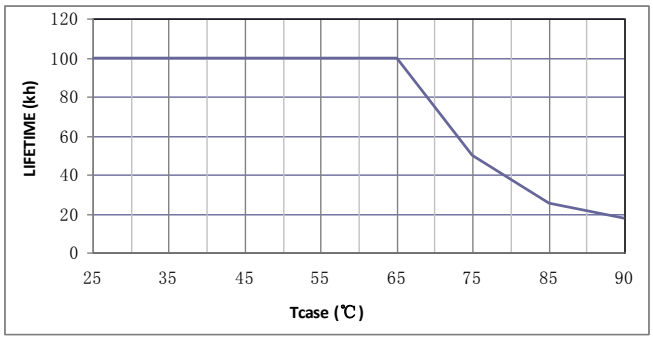
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS C	I/P：230 VAC/50HZ O/P：FULL/50% LOAD Ta：25℃	PASS
				
2	CONDUCTION	EN55015	I/P：230 VAC (50HZ) O/P：FULL LOAD Ta：25℃	PASS Test by certified Lab
3	RADIATION	EN55015	I/P：230 VAC (50HZ) O/P：FULL LOAD Ta：25℃	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR：8KV Contact：4KV	I/P：230 VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT：1KV	I/P： 230VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A
6	SURGE	EN61000-4-5 INDUSTRY L-N：3KV L,N-PE：6KV	I/P： 230VAC/50HZ O/P：FULL LOAD L-N：4KV L,N-PE：8KV Ta：25℃	CRITERIA A
7	Test by certified Lab ＆ Test Report Prepare			

■ RELIABILITY TEST

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST CONDITION</th><th>RESULT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL： ELG-150-C1400
1. ROOM AMBIENT BURN-IN：2 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 31.2℃
2. HIGH AMBIENT BURN-IN： 2 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 63.2℃
<table>
<tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 31.2 ℃</th><th>HIGH AMBIENT Ta=63.2 ℃</th></tr>
<tr><td>1</td><td>C11</td><td>66.2℃</td><td>96.5℃</td></tr>
<tr><td>2</td><td>L3</td><td>65.1℃</td><td>93.5℃</td></tr>
<tr><td>3</td><td>RTH1</td><td>75.1℃</td><td>101.5℃</td></tr>
<tr><td>4</td><td>D6</td><td>71.3℃</td><td>102.6℃</td></tr>
<tr><td>5</td><td>Q1</td><td>69.2℃</td><td>101.3℃</td></tr>
<tr><td>6</td><td>Q2</td><td>72.3℃</td><td>106.5℃</td></tr>
<tr><td>7</td><td>D10</td><td>76.3℃</td><td>107.6℃</td></tr>
<tr><td>8</td><td>C5</td><td>67.5℃</td><td>96.8℃</td></tr>
<tr><td>9</td><td>C45</td><td>64.6℃</td><td>93.3℃</td></tr>
<tr><td>10</td><td>U1</td><td>63.8℃</td><td>92.8℃</td></tr>
<tr><td>11</td><td>T1</td><td>75.2℃</td><td>104.9℃</td></tr>
<tr><td>12</td><td>D100</td><td>74.2℃</td><td>102.6℃</td></tr>
<tr><td>13</td><td>C102</td><td>57.3℃</td><td>85.3℃</td></tr>
<tr><td>14</td><td>C104</td><td>69.3℃</td><td>97.3℃</td></tr>
<tr><td>15</td><td>RTH2</td><td>63.5℃</td><td>92.1℃</td></tr>
<tr><td>16</td><td>TC</td><td>56.1℃</td><td>84.8℃</td></tr>
</table></td></tr>
<tr><td>2</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P： 295VAC/200VAC
O/P：FULL LOAD
Ta= -45℃</td><td>TEST：OK</td></tr>
<tr><td>3</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 60 ℃
NO DAMAGE</td><td>I/P： 305VAC
O/P：FULL LOAD
Ta=60 ℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td></tr>
<tr><td>4</td><td>TEMPERATURE
COEFFICIENT</td><td>±0.03 %/℃(0~50℃)</td><td>I/P： 230 VAC
O/P：FULL LOAD</td><td>±0.003%/℃(0~50℃)</td></tr>
<tr><td>5</td><td>STORAGE TEMPERATURE TEST</td><td colspan="2">1. Thermal shock Temperature： -45℃~ +90℃
2. Temperature change rate ： 25℃ / MIN
3. Dwell time low and high temperature ： 30 MIN/EACH
4. Total test cycle：5 CYCLE
5. Input/Output condition： STATIC</td><td>TEST：OK</td></tr>
<tr><td>6</td><td>THERMAL SHOCK TEST</td><td colspan="2">1. Thermal shock Temperature： -45℃~ +65℃
2. Temperature change rate ： 25℃ / MIN
3. Dwell time low and high temperature ： 30 MIN/EACH
4. Total test cycle：10 CYCLE
5. Input/Output condition： 230VAC/Full Load AC ON/OFF TEST
turn on 58 sec； turn off 2 sec</td><td>TEST：OK</td></tr>
</table>

7	VIBRATION TEST	1 Carton & 1 Set (1) Waveform： Sine Wave (2) Frequency： 10~500Hz (3) Sweep Time： 12min/sweep cycle (4) Acceleration： 5G (5) Test Time： 72min in each axis (X.Y.Z) (6) Ta： 25℃	TEST： OK
8	CAPACITOR LIFE CYCLE	ELG-150-C1400： SUPPOSE C102 IS THE MOST CRITICAL COMPONENT (1) I/P： 230VAC O/P： FULL LOAD Ta= 25 ℃ LIFE TIME (2) I/P： 230VAC O/P： FULL LOAD Ta= 60 ℃ LIFE TIME (3) I/P： 230VAC O/P： 75% LOAD Ta= 60 ℃ LIFE TIME (4) I/P： 230VAC O/P： 50% LOAD Ta= 60 ℃ LIFE TIME	(1) 405043 HRS (2) 47237 HRS (3) 62041 HRS (4) 80670 HRS
9	MTBF	MIL-HDBK-217F TOTAL FAILURE RATE： 308.5K HRS	
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life)： Above 50000 hours @ Tc 75℃	



TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	ZHANGZJ/ZHUOKB	SKY	LIUWY