Test Report： ELG-100-C1400

100W 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

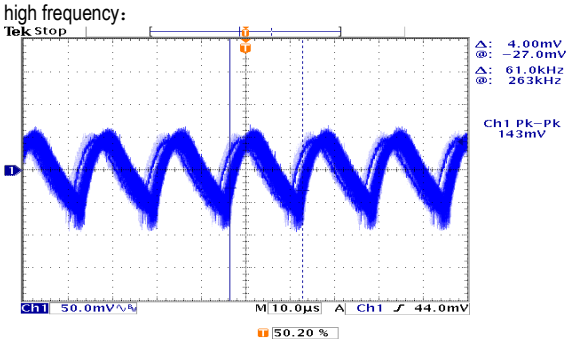
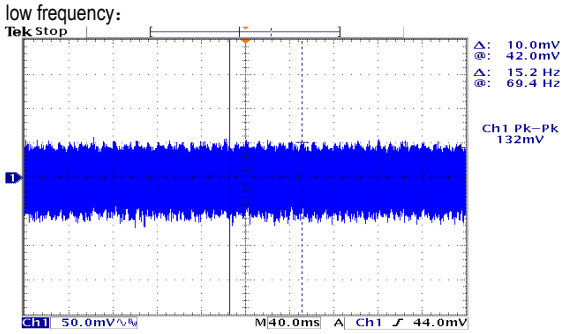
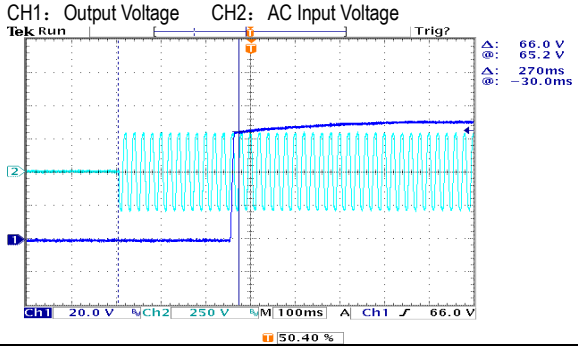
Safety Test
E.M.C. Test

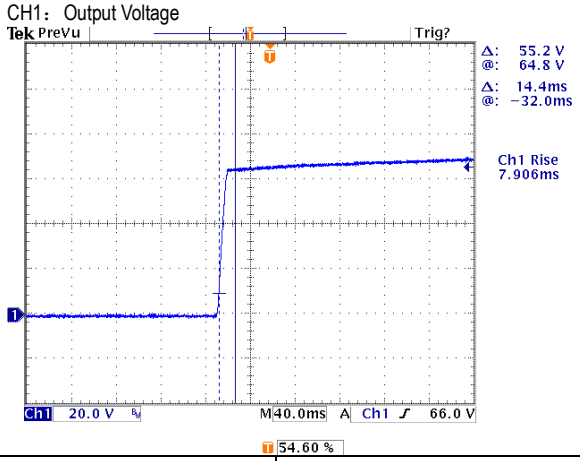
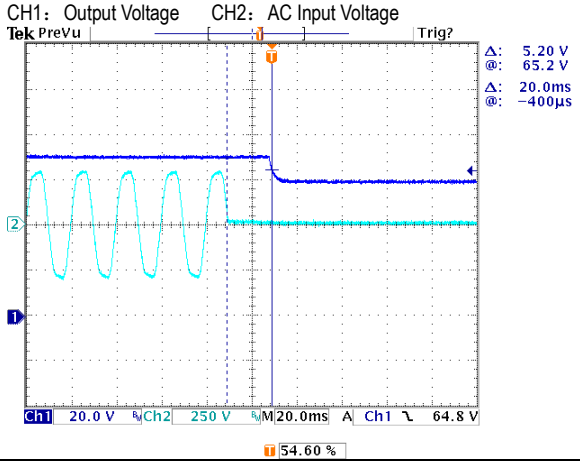
■ RELIABILITY TEST

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℃	0.632A~1.489A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P： 230VAC O/P：FULL/ MIN LOAD Ta：25℃	±0.97%
3	CONSTANT CURRENT REGION	35V~72V	I/P： 230VAC O/P：LED MODE Ta：25℃	28.5V~72.5V
4	NO LOAD OUTPUT VOLTAGE (Max)	75V	I/P： 230VAC O/P：NO LOAD Ta：25℃	73V
5	OVER/UNDERSHOOT TEST	<±5 %	I/P： 230VAC O/P：FULL LOAD Ta：25℃	<5 %
6	RIPPLE & NOISE (Max)	1.0Vp-p	I/P： 230VAC O/P：FULL LOAD Ta：25℃	0.143Vp-p
	high frequency：  low frequency： 			
7	SET UP TIME(Max)	230VAC/ 500ms	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 270ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1： Output Voltage CH2： AC Input Voltage 			

8	RISE TIME (Max)	230VAC/ 100ms	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/7.9ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1：Output Voltage 			
9	HOLD UP TIME(Typ)	230VAC/ 10ms	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/20.0ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1：Output Voltage CH2：AC Input Voltage 			

10 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

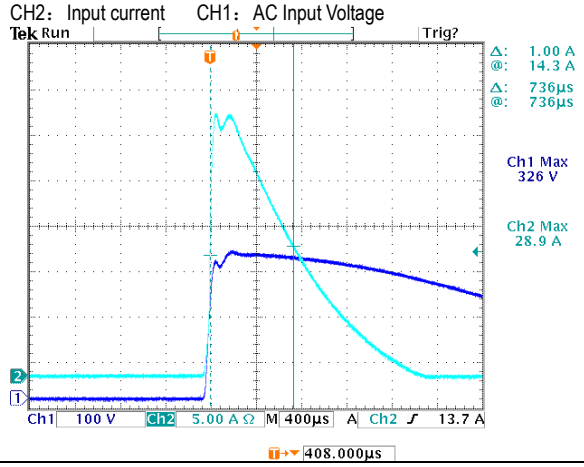
Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
Percentage of rated current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

TEST RESULT：

I/P：230 VAC；Ta：25℃

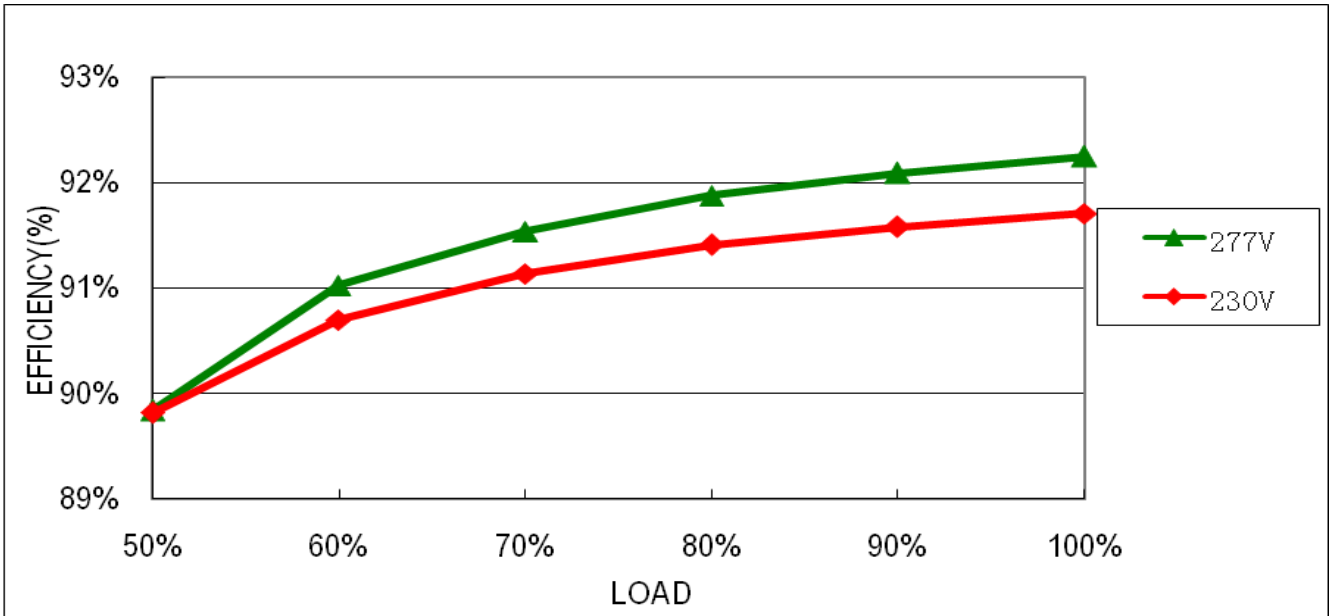
1	Resistance value	Short	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN
	Output Current	0	0.132	0.280	0.429	0.578	0.725	0.873	1.023	1.172	1.321	1.415	1.416
	Percentage of rated current	0%	9.43%	20.00%	30.64%	41.29%	51.79%	62.36%	73.07%	83.71%	94.36%	101.07%	101.14%
2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
	Output Current	0	0.137	0.286	0.428	0.579	0.725	0.877	1.026	1.168	1.316	1.417	1.418
	Percentage of rated current	0%	9.79%	20.43%	30.57%	41.36%	51.79%	62.64%	73.29%	83.43%	94.00%	101.21%	101.29%
3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
	Output Current	0	0.147	0.291	0.439	0.583	0.729	0.873	1.018	1.165	1.308	1.415	1.417
	Percentage of rated current	0%	10.50%	20.79%	31.36%	41.64%	52.07%	62.36%	72.71%	83.21%	93.43%	101.07%	101.21%

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	100VAC~305VAC	I/P：TESTING O/P：FULL LOAD Ta：25℃	97V~305V
			I/P： LOW-LINE-3V=97 V HIGH-LINE+10V=315 V O/P：FULL/MIN LOAD ON： 30 Sec OFF： 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	TEST：OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P： 100 VAC ~305 VAC O/P：FULL~MIN LOAD Ta：25℃	TEST：OK
3	AC CURRENT	0.5A/277VAC 0.6A/230VAC	I/P： 277 VAC I/P： 230 VAC O/P：FULL LOAD Ta：25℃	I =0.405A/ 277VAC I =0.482A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P： 277 VAC O/P：NO LOAD Ta：25℃	L-FG： 0.373 mA N-FG： 0.359 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P：230VAC O/P：NO LOAD Ta：25℃	0.196W/ 230VAC
6	TOTAL HARMONIC DISTORTION	Total harmonic distortion will be lower than 20% when output loading is 60% or higher at 230VAC	I/P： 230VAC O/P：60% LOAD	THD： 9.63 %
		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： 10.21 %
7	INRUSH CURRENT(Typ)	230V/ 40A Twidth =760 us measured at 50% Ipeak COLD START	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	I =28.9A/ 230VAC Twidth =736us
	INPUT=230VAC/50HZ @ FULL LOAD CH2：Input current CH1：AC Input Voltage 			

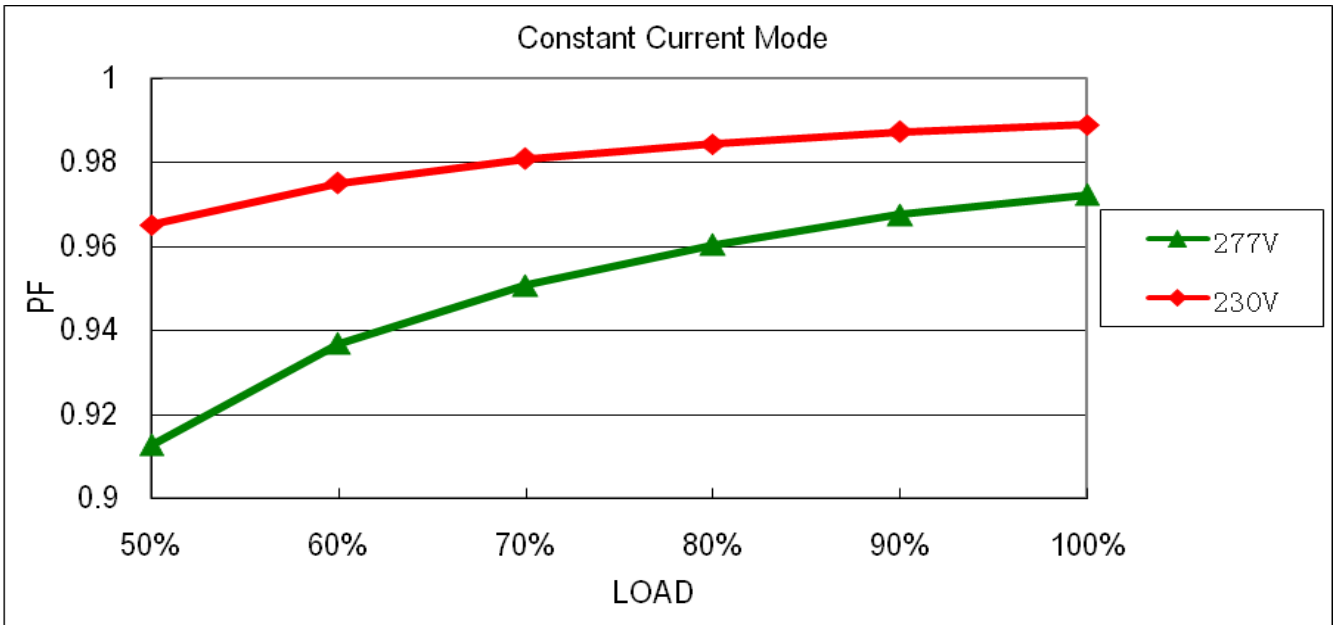
8	EFFICIENCY(Typ)	90%	I/P： 230VAC O/P：FULL LOAD Ta：25℃	91.71%

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=0.972/ 277VAC PF=0.989/ 230VAC

P.F vs LOAD



PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	79V~95V	I/P： 100VAC I/P： 230VAC I/P： 305VAC O/P：NO LOAD Ta：25℃	87.6V/ 100VAC 87.5V/ 230VAC 87.5V/ 305VAC Shut down o/p voltage，re-power on to recover
2	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P： 200 VAC I/P： 230VAC I/P： 305VAC 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： 200VAC I/P： 305VAC 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 Power Transistor	Q 2 Rated 800V/9A	I/P：High-Line +3V =308V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	(1) 724V (2) 584V (3) 706V
2	O/P Diode (MOSFET)	D100 Rated 400V/10A	I/P：High-Line +3V =308V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	(1) 223V (2) 173V (3) 217V
3	Input Capacitor	C5 Rated 100u/ 450V	I/P：High-Line +3V =308V O/P：(1) Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change Ta：25℃	(1) 446V (2) 442V (3) 446V
4	Control IC	U1 Rated 28V (MAX.)	I/P：High-Line +3V =308V O/P：(1) FULL LOAD (2) Output Short (3) O.V.P (4) Low Line No Load Vo(min) Ta：25℃	(1) 17.2V (2) 11.2V (3) 15.1V (4) 12.7V
5	PFC Power Transistor	Q 1 Rated 600V/10A	I/P：High-Line +3V =308V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	(1) 506V (2) 454V (3) 466V
6	Clamp Diode	D 10 Rated 800V/2A	I/P：High-Line +3V = 308V O/P: (1) Full Load input on/off (2) Output Short Ta：25℃	(1) 686V (2) 538V

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：1.566mA I/P-FG： 2.045mA O/P-FG：1.602mA 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/60% 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：4KV 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-100-C1400
1. ROOM AMBIENT BURN-IN：2 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 30.0℃
2. HIGH AMBIENT BURN-IN： 2 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 62.8℃
<table>
<tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 30.0 ℃</th><th>HIGH AMBIENT Ta=62.8 ℃</th></tr>
<tr><td>1</td><td>C11</td><td>64.5℃</td><td>99.6℃</td></tr>
<tr><td>2</td><td>L1</td><td>60.9℃</td><td>95.8℃</td></tr>
<tr><td>3</td><td>L2</td><td>59.7℃</td><td>91.6℃</td></tr>
<tr><td>4</td><td>Q1</td><td>67.6℃</td><td>104.8℃</td></tr>
<tr><td>5</td><td>Q2</td><td>66.6℃</td><td>103.2℃</td></tr>
<tr><td>6</td><td>D6</td><td>66.7℃</td><td>103.9℃</td></tr>
<tr><td>7</td><td>D10</td><td>72.1℃</td><td>110.5℃</td></tr>
<tr><td>8</td><td>R15</td><td>64.5℃</td><td>99.9℃</td></tr>
<tr><td>9</td><td>C5</td><td>59.7℃</td><td>94.1℃</td></tr>
<tr><td>10</td><td>R7</td><td>69.7℃</td><td>106.2℃</td></tr>
<tr><td>11</td><td>C45</td><td>59.7℃</td><td>93.9℃</td></tr>
<tr><td>12</td><td>T1</td><td>68.4℃</td><td>104.7℃</td></tr>
<tr><td>13</td><td>U1</td><td>59.4℃</td><td>92.7℃</td></tr>
<tr><td>14</td><td>D100</td><td>71.9℃</td><td>105.5℃</td></tr>
<tr><td>15</td><td>Q100</td><td>60.1℃</td><td>96.5℃</td></tr>
<tr><td>16</td><td>C205</td><td>61.2℃</td><td>95.9℃</td></tr>
<tr><td>17</td><td>C102</td><td>65.1℃</td><td>99.3℃</td></tr>
<tr><td>18</td><td>C104</td><td>70.0℃</td><td>99.1℃</td></tr>
<tr><td>19</td><td>RTH2</td><td>57.9℃</td><td>91.8℃</td></tr>
<tr><td>20</td><td>TC</td><td>52.7℃</td><td>85.1℃</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： 305VAC/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>±0.002%/℃(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>
</table>

6	THERMAL SHOCK TEST	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： 16 CYCLE 5. Input/Output condition： 230VAC/Full Load AC ON/OFF TEST AC on 3 sec/AC off 1 sec TEST	TEST： OK
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-100-C1400： SUPPOSE C102 IS THE MOST CRITICAL COMPONENT (1) I/P： 230VAC O/P： FULL LOAD Tc= 80 ℃ LIFE TIME (2) I/P： 230VAC O/P： 75% LOAD Tc= 80 ℃ LIFE TIME (3) I/P： 230VAC O/P： 50% LOAD Tc= 80 ℃ LIFE TIME	(1) 50334 HRS (2) 55694 HRS (3) 57560 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 3070.8K hrs min. Telcordia SR-332 (Bellcore) ; 300.7K hrs min. MIL-HDBK-217F (25℃)	
10	Ongoing Reliability Test	I/P： 230VAC O/P： FULL LOAD TA=50℃ Demonstration Mean Time Between Failure : 50,000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	ZHANGZJ/ZHUOKB	SKY	LIUWY