



# Test Report: ELG-150-48

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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

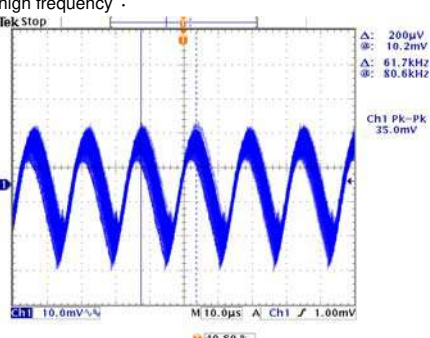
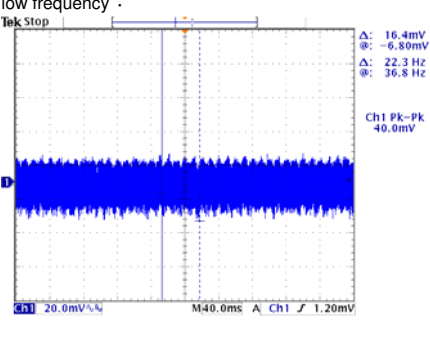
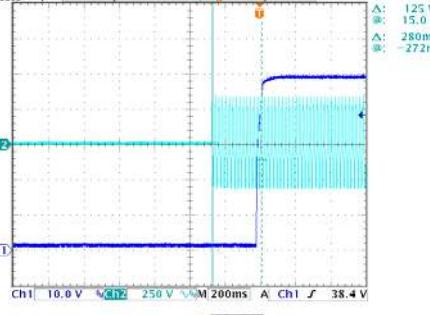
E.M.C. Test

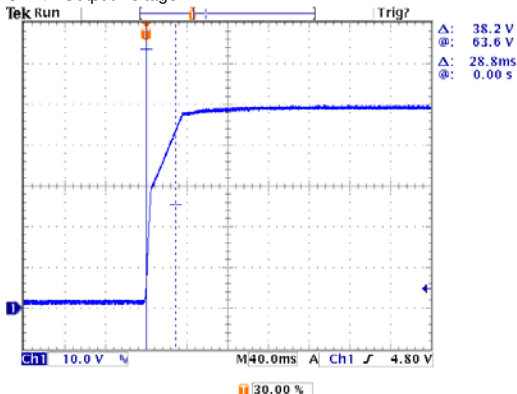
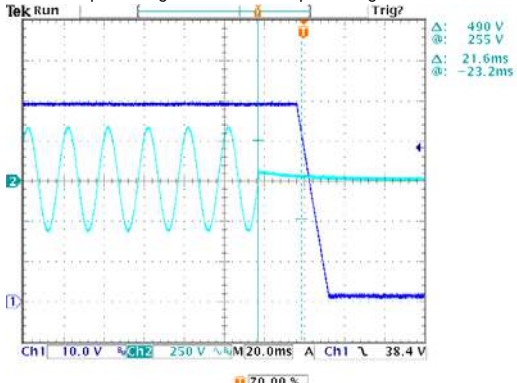
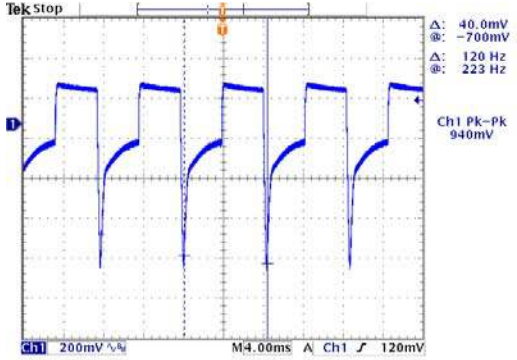
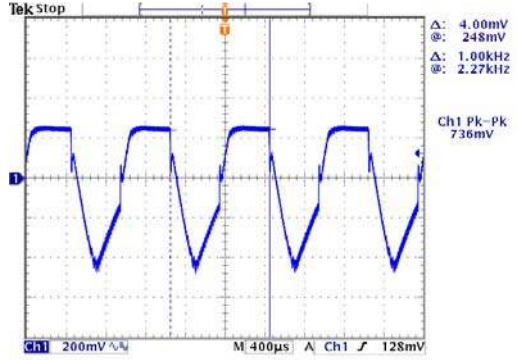
## ■ RELIABILITY TEST

Environment Test

## DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

| NO                                                                                                                                                                                                                                                                                                                                                                                                                                   | TEST ITEM                   | SPECIFICATION | TEST CONDITION                                         | RESULT           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------|--------------------------------------------------------|------------------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                    | CONSTANT CURRENT REGION     | 24V~48V       | I/P: 230VAC<br>O/P: LED MODE<br>Ta: 25°C               | 9.01 V~ 48.03 V  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                    | OUTPUT VOLTAGE ADJUST RANGE | 43.2V~52.8V   | I/P: 230VAC<br>O/P: NO LOAD<br>Ta: 25°C                | 40.14 V~ 54.56 V |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                    | OUTPUT CURRENT ADJUST RANGE | 1.56A~3.13A   | I/P: 230VAC<br>O/P: SETTING<br>Ta: 25°C                | 1.229 A~ 3.535 A |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                    | OUTPUT VOLTAGE TOLERANCE    | -2%~+2%       | I/P: 100VAC / 305VAC<br>O/P: FULL/ NO LOAD<br>Ta: 25°C | -0.21%~ 0.35%    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                    | LINE REGULATION             | -0.5%~+0.5%   | I/P: 200VAC ~ 305VAC<br>O/P: FULL LOAD<br>Ta: 25°C     | -0.02%~ 0.02%    |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                    | LOAD REGULATION             | -0.5%~+0.5%   | I/P: 230VAC<br>O/P: FULL ~NO LOAD<br>Ta: 25°C          | -0.04%~ 0.02%    |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                    | OVER/UNDERSHOOT TEST        | <± 5 %        | I/P: 230VAC<br>O/P: FULL LOAD<br>Ta: 25°C              | ±2.092%          |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                    | RIPPLE & NOISE (Max)        | 250mVp-p      | I/P: 230VAC<br>O/P: FULL LOAD<br>Ta: 25°C              | 40.0 mVp-p       |
| <div> <div> <p>high frequency :</p>  <p>Δ: 200μV<br/>@: 10.2mV<br/>Δ: 61.7kHz<br/>@: 80.6kHz<br/>Ch1 Pk-Pk: 35.0mV</p> </div> <div> <p>low frequency :</p>  <p>Δ: 16.4mV<br/>@: -6.80mV<br/>Δ: 22.3 Hz<br/>@: 36.8 Hz<br/>Ch1 Pk-Pk: 40.0mV</p> </div> </div> |                             |               |                                                        |                  |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                    | SET UP TIME(Max)            | 230VAC/ 500ms | I/P: 230 VAC<br>O/P: 95% LOAD<br>Ta: 25°C              | 230VAC/ 280 ms   |
| <div> <p>INPUT=230VAC/50HZ @ 95% LOAD</p> <p>CH1: Output Voltage CH2: AC Input Voltage</p>  <p>Δ: 125 V<br/>@: 15.0 V<br/>Δ: 280ms<br/>@: -272ms</p> </div>                                                                                                                                                                                       |                             |               |                                                        |                  |

|                                                                                                                                                                                                                                                                                                            |                    |                |                                                                                                            |                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|------------------------------------------------------------------------------------------------------------|------------------------------|
| 10                                                                                                                                                                                                                                                                                                         | RISE TIME (Max)    | 230VAC/ 100ms  | I/P: 230 VAC<br>O/P: 95% LOAD<br>Ta: 25°C                                                                  | 230VAC/ 28.8 ms              |
| INPUT=230VAC/50HZ @ 95% LOAD<br>CH1: Output Voltage<br>                                                                                                                                                                   |                    |                |                                                                                                            |                              |
| 11                                                                                                                                                                                                                                                                                                         | HOLD UP TIME(Typ ) | 230VAC/ 10ms   | I/P: 230 VAC<br>O/P: 95% LOAD<br>Ta: 25°C                                                                  | 230VAC/ 21.6 ms              |
| INPUT=230VAC/50HZ @ 95% LOAD<br>CH1: Output Voltage CH2: AC Input Voltage<br>                                                                                                                                            |                    |                |                                                                                                            |                              |
| 12                                                                                                                                                                                                                                                                                                         | DYNAMIC LOAD       | V1: 4800 mVp-p | I/P: 230VAC<br>O/P:<br>(1) FULL /50% LOAD 50%DUTY / 120HZ<br>(2) FULL /50% LOAD 50%DUTY / 1KHZ<br>Ta: 25°C | (1) 940mVp-p<br>(2) 736mVp-p |
| <div> <div>           FULL /50% LOAD 50%DUTY / 120HZ<br/>  </div> <div>           FULL /50% LOAD 50%DUTY / 1KHZ<br/>  </div> </div> |                    |                |                                                                                                            |                              |

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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<br>( 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℃

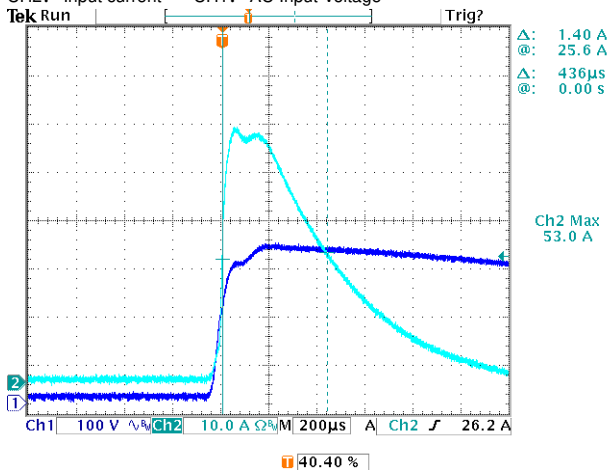
|   |                             |       |        |        |        |        |        |        |        |        |        |         |         |
|---|-----------------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 1 | Resistance value            | Short | 10K    | 20K    | 30K    | 40K    | 50K    | 60K    | 70K    | 80K    | 90K    | 100K    | OPEN    |
|   | Output Current              | 0     | 0.289  | 0.601  | 0.910  | 1.220  | 1.530  | 1.837  | 2.145  | 2.457  | 2.763  | 3.073   | 3.137   |
|   | Percentage of rated current | 0%    | 9.23%  | 19.20% | 29.07% | 38.98% | 48.88% | 58.69% | 68.53% | 78.50% | 88.27% | 98.18%  | 100.22% |
| 2 | Dimming value               | 0V    | 1V     | 2V     | 3V     | 4V     | 5V     | 6V     | 7V     | 8V     | 9V     | 10V     | OPEN    |
|   | Output Current              | 0     | 0.306  | 0.624  | 0.927  | 1.249  | 1.563  | 1.891  | 2.212  | 2.518  | 2.836  | 3.134   | 3.140   |
|   | Percentage of rated current | 0%    | 9.78%  | 19.94% | 29.62% | 39.90% | 49.94% | 60.42% | 70.67% | 80.45% | 90.61% | 100.13% | 100.32% |
| 3 | Duty value                  | 0%    | 10%    | 20%    | 30%    | 40%    | 50%    | 60%    | 70%    | 80%    | 90%    | 100%    | OPEN    |
|   | Output Current              | 0     | 0.320  | 0.631  | 0.944  | 1.254  | 1.569  | 1.880  | 2.191  | 2.508  | 2.817  | 3.099   | 3.135   |
|   | Percentage of rated current | 0%    | 10.22% | 20.16% | 30.16% | 40.06% | 50.13% | 60.06% | 70.00% | 80.13% | 90.00% | 99.01%  | 100.16% |

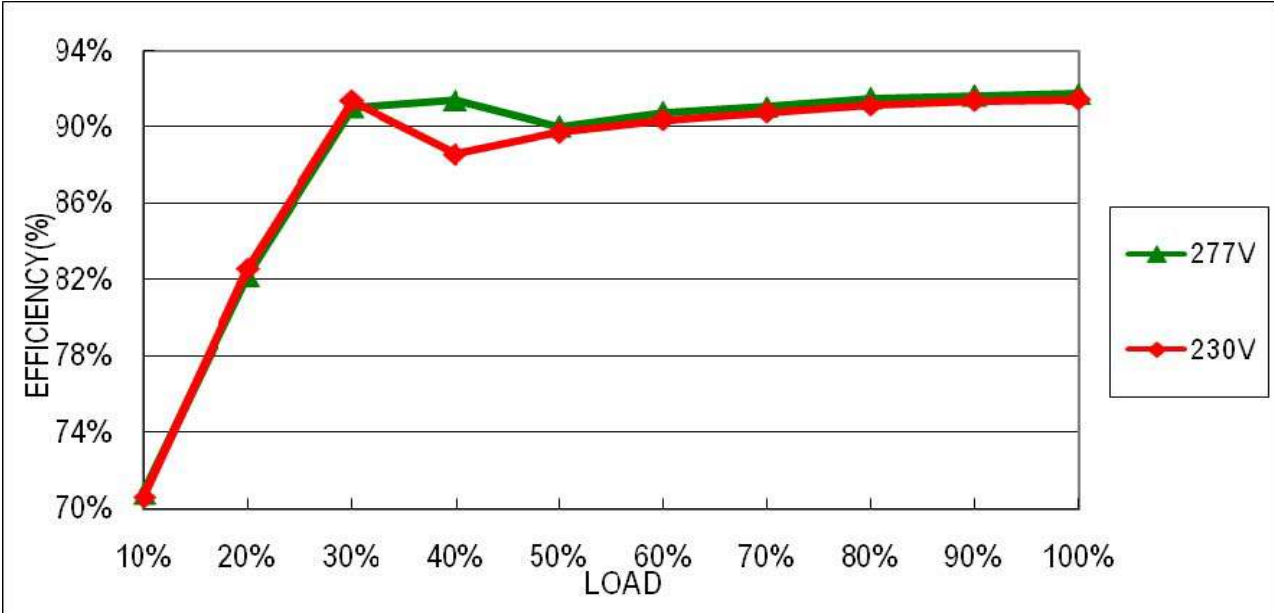
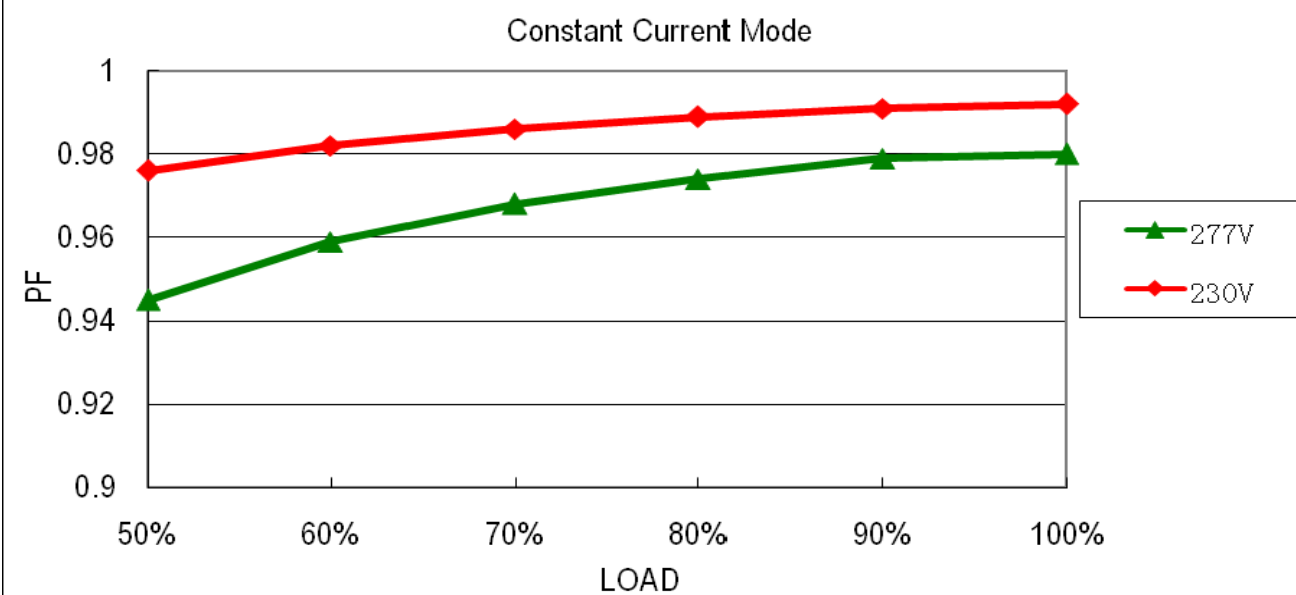
### INPUT FUNCTION TEST

| NO | TEST ITEM                 | SPECIFICATION                                                                                   | TEST CONDITION                                                                                                                  | RESULT                                   |
|----|---------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| 1  | INPUT VOLTAGE RANGE       | 100VAC~305VAC                                                                                   | I/P: TESTING<br>O/P: FULL LOAD<br>Ta: 25°C                                                                                      | 97 V~ 305 V                              |
|    |                           |                                                                                                 | I/P: LOW-LINE-3V=97 V<br>HIGH-LINE+10V=315 V<br>O/P: FULL/NO LOAD<br>ON: 30 Sec OFF: 30 Sec 10MIN<br>( POWER ON/OFF NO DAMAGE ) | TEST: OK                                 |
| 2  | INPUT FREQUENCY RANGE     | 47HZ ~63 HZ<br>NO DAMAGE                                                                        | I/P: 100 VAC ~305 VAC<br>O/P: FULL~NO LOAD<br>Ta: 25°C                                                                          | TEST: OK                                 |
| 3  | AC CURRENT                | 0.7A/277VAC<br>0.9A/230VAC                                                                      | I/P: 277 VAC<br>I/P: 230 VAC<br>O/P: FULL LOAD<br>Ta: 25°C                                                                      | I = 0.57 A/ 277VAC<br>I = 0.68 A/ 230VAC |
| 4  | LEAKAGE CURRENT           | < 0.75mA / 277VAC                                                                               | I/P: 277 VAC<br>O/P: NO LOAD<br>Ta: 25°C                                                                                        | L-FG: 0.339 mA<br>N-FG: 0.307 mA         |
| 5  | NO LOAD POWER CONSUMPTION | < 0.5W                                                                                          | I/P: 230VAC<br>O/P: NO LOAD<br>Ta: 25°C                                                                                         | 0.338 W/ 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<br>O/P: 50% LOAD                                                                                                    | THD: 12.28 %                             |
|    |                           | Total harmonic distortion will be lower than 20% when output loading is 75% or higher at 277VAC | I/P: 277VAC<br>O/P: 75% LOAD                                                                                                    | THD: 9.82 %                              |
| 7  | INRUSH CURRENT(Typ)       | 230V/ 65A<br>Twidth =550us measured at 50% Ipeak<br>COLD START                                  | I/P: 230 VAC<br>O/P: FULL LOAD<br>Ta: 25°C                                                                                      | I = 53.0 A/ 230VAC<br>Twidth =436 us     |

INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage



| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EFFICIENCY(Typ) | 90%                          | I/P: 230VAC<br>O/P: FULL LOAD<br>Ta: 25°C                  | 91.43 %                                  |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------|------------------------------------------------------------|------------------------------------------|------|------|------|-----|-------|-------|-----|------|-------|-----|-------|-------|-----|-------|-------|-----|-------|------|------|-------|-------|-----|-------|-------|-----|-------|-----|-----|-------|-------|------|--------|--------|
| <div>EFFICIENCY vs LOAD</div> <div><table border="1"><thead><tr><th>LOAD</th><th>277V</th><th>230V</th></tr></thead><tbody><tr><td>10%</td><td>70%</td><td>70%</td></tr><tr><td>20%</td><td>82%</td><td>82%</td></tr><tr><td>30%</td><td>91%</td><td>91%</td></tr><tr><td>40%</td><td>91.5%</td><td>90%</td></tr><tr><td>50%</td><td>91%</td><td>90%</td></tr><tr><td>60%</td><td>91.2%</td><td>90.5%</td></tr><tr><td>70%</td><td>91.3%</td><td>90.8%</td></tr><tr><td>80%</td><td>91.4%</td><td>91%</td></tr><tr><td>90%</td><td>91.4%</td><td>91.2%</td></tr><tr><td>100%</td><td>91.43%</td><td>91.43%</td></tr></tbody></table></div> |                 |                              |                                                            |                                          | LOAD | 277V | 230V | 10% | 70%   | 70%   | 20% | 82%  | 82%   | 30% | 91%   | 91%   | 40% | 91.5% | 90%   | 50% | 91%   | 90%  | 60%  | 91.2% | 90.5% | 70% | 91.3% | 90.8% | 80% | 91.4% | 91% | 90% | 91.4% | 91.2% | 100% | 91.43% | 91.43% |
| LOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 277V            | 230V                         |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70%             | 70%                          |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 20%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 82%             | 82%                          |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 30%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 91%             | 91%                          |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 40%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 91.5%           | 90%                          |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 50%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 91%             | 90%                          |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 60%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 91.2%           | 90.5%                        |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 70%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 91.3%           | 90.8%                        |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 80%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 91.4%           | 91%                          |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 90%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 91.4%           | 91.2%                        |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 91.43%          | 91.43%                       |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | POWER FACTOR    | 0.92/ 277VAC<br>0.95/ 230VAC | I/P: 277 VAC<br>I/P: 230 VAC<br>O/P: FULL LOAD<br>Ta: 25°C | PF= 0.980 / 277VAC<br>PF= 0.992 / 230VAC |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| <div>P.F vs LOAD</div> <div><div>Constant Current Mode</div><table border="1"><thead><tr><th>LOAD</th><th>277V</th><th>230V</th></tr></thead><tbody><tr><td>50%</td><td>0.945</td><td>0.975</td></tr><tr><td>60%</td><td>0.96</td><td>0.982</td></tr><tr><td>70%</td><td>0.968</td><td>0.985</td></tr><tr><td>80%</td><td>0.975</td><td>0.988</td></tr><tr><td>90%</td><td>0.978</td><td>0.99</td></tr><tr><td>100%</td><td>0.98</td><td>0.992</td></tr></tbody></table></div>                                                                                                                                                            |                 |                              |                                                            |                                          | LOAD | 277V | 230V | 50% | 0.945 | 0.975 | 60% | 0.96 | 0.982 | 70% | 0.968 | 0.985 | 80% | 0.975 | 0.988 | 90% | 0.978 | 0.99 | 100% | 0.98  | 0.992 |     |       |       |     |       |     |     |       |       |      |        |        |
| LOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 277V            | 230V                         |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 50%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.945           | 0.975                        |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 60%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.96            | 0.982                        |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 70%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.968           | 0.985                        |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 80%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.975           | 0.988                        |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 90%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.978           | 0.99                         |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |
| 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.98            | 0.992                        |                                                            |                                          |      |      |      |     |       |       |     |      |       |     |       |       |     |       |       |     |       |      |      |       |       |     |       |       |     |       |     |     |       |       |      |        |        |

### PROTECTION FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION                             | TEST CONDITION                                                        | RESULT                                                                                                                                         |
|----|-----------------------------|-------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | OVER LOAD PROTECTION        | 95%~108%                                  | I/P: 200VAC<br>I/P: 230VAC<br>I/P: 305VAC<br>O/P: TESTING<br>Ta: 25°C | 101.56 %/ 200VAC<br>101.68 %/ 230VAC<br>101.68 %/ 305VAC<br>Constant Current Limiting, recovers automatically after fault condition is removed |
| 2  | OVER VOLTAGE PROTECTION     | 54V~62V                                   | I/P: 100VAC<br>I/P: 230VAC<br>I/P: 305VAC<br>O/P: NO LOAD<br>Ta: 25°C | 57.32 V/ 100VAC<br>57.29 V/ 230VAC<br>57.30 V/ 305VAC<br>Shut down o/p voltage, re-power on to recovery                                        |
| 3  | OVER TEMPERATURE PROTECTION | NO DAMAGE                                 | I/P: 200VAC<br>I/P: 230VAC<br>I/P: 305VAC<br>O/P: FULL LOAD           | O.T.P. Active<br>Shut down o/p voltage, re-power on to recovery                                                                                |
| 4  | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR<br>NO DAMAGE | I/P: 200VAC<br>I/P: 305VAC<br>O/P: FULL LOAD<br>Ta: 25°C              | NO DAMAGE<br>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<br>730V/10A  | I/P: High-Line +3V =308V<br>O/P: (1) Full Load Turn on<br>(2) Output Short<br>(3) Full load continue<br>Ta: 25°C                           | (1) 670 V<br>(2) 544 V<br>(3) 666 V                                |
| 2  | O/P Diode (MOSFET)   | Q101 Rated<br>300V/20A | I/P: High-Line +3V =308V<br>O/P: (1) Full Load Turn on<br>(2) Output Short<br>(3) Full load continue<br>Ta: 25°C                           | (1) 204 V<br>(2) 154 V<br>(3) 204 V                                |
| 3  | Input Capacitor      | C5 Rated<br>100u/ 450V | I/P: High-Line +3V =308 V<br>O/P: (1) Full Load input on/off<br>(2) NO LOAD input on /Off<br>(3) Full Load /NO LOAD Change<br>Ta: 25°C     | (1) 448 V<br>(2) 442 V<br>(3) 446 V                                |
| 4  | Control IC           | U1 Rated<br>28V (MAX.) | I/P: High-Line +3V =308 V<br>O/P: ((1) FULL LOAD<br>(2) Output Short<br>(3) O.L.P<br>(4) O.V.P<br>(5) Low Line No Load Vo(min)<br>Ta: 25°C | (1) 17.7 V<br>(2) 15.0 V<br>(3) 11.0 V<br>(4) 14.9 V<br>(5) 17.4 V |
| 5  | PFC Power Transistor | Q 1 Rated<br>600V/10A  | I/P: High-Line +3V =308V<br>O/P: (1) Full Load Turn on<br>(2) Output Short<br>(3) Full load continue<br>Ta: 25°C                           | (1) 528 V<br>(2) 492 V<br>(3) 490 V                                |



|   |             |                       |                                                                                              |                        |
|---|-------------|-----------------------|----------------------------------------------------------------------------------------------|------------------------|
| 6 | Clamp Diode | D 10 Rated<br>800V/2A | I/P: High-Line +3V = 308V<br>O/P: (1) Full Load input on/off<br>(2) Output Short<br>Ta: 25°C | (1) 652 V<br>(2) 480 V |
|---|-------------|-----------------------|----------------------------------------------------------------------------------------------|------------------------|

## SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION                                                         | TEST CONDITION                                                                   | RESULT                                                                 |
|----|----------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P: 3.75KVAC/min<br>I/P-FG: 2.0KVAC/min<br>O/P-FG: 1.5KVAC/min   | I/P-O/P: 4.2KVAC/min<br>I/P-FG: 2.4 KVAC/min<br>O/P-FG: 1.8 KVAC/min<br>Ta: 25°C | I/P-O/P: 1.415 mA<br>I/P-FG: 2.070 mA<br>O/P-FG: 1.403 mA<br>NO DAMAGE |
| 2  | ISOLATION RESISTANCE | I/P-O/P: 500VDC>100MΩ<br>I/P-FG: 500VDC>100MΩ<br>O/P-FG: 500VDC>100MΩ | I/P-O/P: 500 VDC<br>I/P-FG: 500 VDC<br>O/P-FG: 500 VDC<br>Ta: 25°C               | I/P-O/P: >9999 MΩ<br>I/P-FG: >9999 MΩ<br>O/P-FG: >9999 MΩ              |

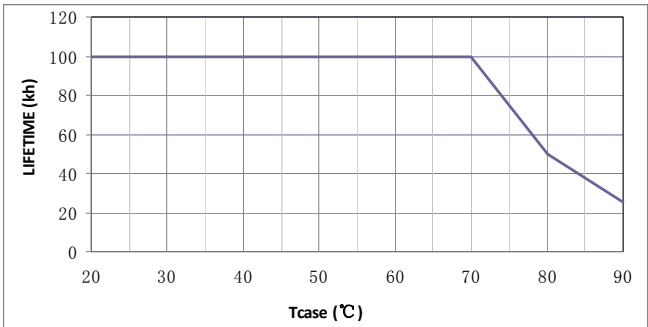
## E.M.C TEST

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

## ■ RELIABILITY TEST

### ENVIRONMENT TEST

| NO | TEST ITEM                                                         | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | TEST CONDITION                                                | RESULT               |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
|----|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------|----|----------|-------------------------|-------------------------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|------|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|---------|---|----|--------|---------|---|-----|--------|---------|----|----|--------|--------|----|----|--------|---------|----|------|--------|--------|----|----|--------|---------|----|----|--------|--------|----|-----|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|----|--------|--------|
| 1  | TEMPERATURE RISE TEST                                             | <div>MODEL: ELG-150-48</div> <div>1. ROOM AMBIENT BURN-IN: 2 HRS</div> <div>I/P: 230VAC O/P: FULL LOAD Ta=32.8 °C</div> <div>2. HIGH AMBIENT BURN-IN: 2 HRS</div> <div>I/P: 230VAC O/P: FULL LOAD Ta=62.2 °C</div> <table><thead><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta=32.8 °C</th><th>HIGH AMBIENT Ta=62.2 °C</th></tr></thead><tbody><tr><td>1</td><td>LF2</td><td>65.6°C</td><td>91.1°C</td></tr><tr><td>2</td><td>L1</td><td>69.1°C</td><td>94.1°C</td></tr><tr><td>3</td><td>L3</td><td>68.2°C</td><td>93.2°C</td></tr><tr><td>4</td><td>ZNR2</td><td>68.9°C</td><td>93.8°C</td></tr><tr><td>5</td><td>C11</td><td>70.8°C</td><td>96.2°C</td></tr><tr><td>6</td><td>Q1</td><td>73.6°C</td><td>99.7°C</td></tr><tr><td>7</td><td>Q2</td><td>76.5°C</td><td>103.3°C</td></tr><tr><td>8</td><td>D6</td><td>75.5°C</td><td>102.0°C</td></tr><tr><td>9</td><td>D10</td><td>80.4°C</td><td>108.5°C</td></tr><tr><td>10</td><td>U1</td><td>66.7°C</td><td>93.1°C</td></tr><tr><td>11</td><td>R7</td><td>79.2°C</td><td>106.4°C</td></tr><tr><td>12</td><td>U100</td><td>70.7°C</td><td>96.5°C</td></tr><tr><td>13</td><td>C5</td><td>76.4°C</td><td>103.8°C</td></tr><tr><td>14</td><td>T1</td><td>69.1°C</td><td>95.7°C</td></tr><tr><td>15</td><td>C45</td><td>60.9°C</td><td>87.4°C</td></tr><tr><td>16</td><td>Q101</td><td>71.5°C</td><td>97.5°C</td></tr><tr><td>17</td><td>Q102</td><td>71.9°C</td><td>98.1°C</td></tr><tr><td>18</td><td>Q105</td><td>60.9°C</td><td>87.7°C</td></tr><tr><td>19</td><td>C205</td><td>68.0°C</td><td>94.2°C</td></tr><tr><td>20</td><td>C105</td><td>61.4°C</td><td>87.6°C</td></tr><tr><td>21</td><td>C106</td><td>66.7°C</td><td>93.0°C</td></tr><tr><td>22</td><td>C108</td><td>63.6°C</td><td>89.5°C</td></tr><tr><td>23</td><td>RTH2</td><td>66.7°C</td><td>92.9°C</td></tr><tr><td>24</td><td>U500</td><td>57.7°C</td><td>84.3°C</td></tr><tr><td>25</td><td>TC</td><td>59.3°C</td><td>86.7°C</td></tr></tbody></table> |                                                               |                      | NO | Position | ROOM AMBIENT Ta=32.8 °C | HIGH AMBIENT Ta=62.2 °C | 1 | LF2 | 65.6°C | 91.1°C | 2 | L1 | 69.1°C | 94.1°C | 3 | L3 | 68.2°C | 93.2°C | 4 | ZNR2 | 68.9°C | 93.8°C | 5 | C11 | 70.8°C | 96.2°C | 6 | Q1 | 73.6°C | 99.7°C | 7 | Q2 | 76.5°C | 103.3°C | 8 | D6 | 75.5°C | 102.0°C | 9 | D10 | 80.4°C | 108.5°C | 10 | U1 | 66.7°C | 93.1°C | 11 | R7 | 79.2°C | 106.4°C | 12 | U100 | 70.7°C | 96.5°C | 13 | C5 | 76.4°C | 103.8°C | 14 | T1 | 69.1°C | 95.7°C | 15 | C45 | 60.9°C | 87.4°C | 16 | Q101 | 71.5°C | 97.5°C | 17 | Q102 | 71.9°C | 98.1°C | 18 | Q105 | 60.9°C | 87.7°C | 19 | C205 | 68.0°C | 94.2°C | 20 | C105 | 61.4°C | 87.6°C | 21 | C106 | 66.7°C | 93.0°C | 22 | C108 | 63.6°C | 89.5°C | 23 | RTH2 | 66.7°C | 92.9°C | 24 | U500 | 57.7°C | 84.3°C | 25 | TC | 59.3°C | 86.7°C |
| NO | Position                                                          | ROOM AMBIENT Ta=32.8 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HIGH AMBIENT Ta=62.2 °C                                       |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 1  | LF2                                                               | 65.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 91.1°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 2  | L1                                                                | 69.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 94.1°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 3  | L3                                                                | 68.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 93.2°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 4  | ZNR2                                                              | 68.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 93.8°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 5  | C11                                                               | 70.8°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 96.2°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 6  | Q1                                                                | 73.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 99.7°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 7  | Q2                                                                | 76.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 103.3°C                                                       |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 8  | D6                                                                | 75.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 102.0°C                                                       |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 9  | D10                                                               | 80.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 108.5°C                                                       |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 10 | U1                                                                | 66.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 93.1°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 11 | R7                                                                | 79.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 106.4°C                                                       |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 12 | U100                                                              | 70.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 96.5°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 13 | C5                                                                | 76.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 103.8°C                                                       |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 14 | T1                                                                | 69.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 95.7°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 15 | C45                                                               | 60.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 87.4°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 16 | Q101                                                              | 71.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 97.5°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 17 | Q102                                                              | 71.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 98.1°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 18 | Q105                                                              | 60.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 87.7°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 19 | C205                                                              | 68.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 94.2°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 20 | C105                                                              | 61.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 87.6°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 21 | C106                                                              | 66.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 93.0°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 22 | C108                                                              | 63.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 89.5°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 23 | RTH2                                                              | 66.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 92.9°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 24 | U500                                                              | 57.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 84.3°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 25 | TC                                                                | 59.3°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 86.7°C                                                        |                      |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 2  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | I/P: 305VAC/200VAC<br>O/P: FULL LOAD<br>Ta= -45°C             | TEST: OK             |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 3  | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 60°C<br>NO DAMAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | I/P: 305VAC<br>O/P: FULL LOAD<br>Ta=60°C<br>HUMIDITY= 95 %R.H | TEST: OK             |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 4  | TEMPERATURE<br>COEFFICIENT                                        | ±0.03 %/°C (0~50°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | I/P: 230 VAC<br>O/P: FULL LOAD                                | ±0.009 %/°C (0~50°C) |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |
| 5  | STORAGE TEMPERATURE TEST                                          | 1. Thermal shock Temperature: -45°C ~ +90°C<br>2. Temperature change rate : 25°C / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle: 5 CYCLE<br>5. Input/Output condition: STATIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                               | TEST: OK             |    |          |                         |                         |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |     |        |         |    |    |        |        |    |    |        |         |    |      |        |        |    |    |        |         |    |    |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |    |        |        |

|    |                             |                                                                                                                                                                                                                                                                                                                                           |                                                                   |
|----|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 6  | THERMAL SHOCK TEST          | 1. Thermal shock Temperature: $-45^{\circ}\text{C} \sim +65^{\circ}\text{C}$<br>2. Temperature change rate : $25^{\circ}\text{C} / \text{MIN}$<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle: 10 CYCLE<br>5. Input/Output condition: 230VAC/Full Load AC ON/OFF TEST<br>AC on 3 sec/AC off 1 sec TEST    | TEST: OK                                                          |
| 7  | VIBRATION TEST              | 1 Carton & 1 Set<br>(1) Waveform: Sine Wave<br>(2) Frequency: 10~500Hz<br>(3) Sweep Time: 12min/sweep cycle<br>(4) Acceleration: 5G<br>(5) Test Time: 72min in each axis (X.Y.Z)<br>(6) Ta: $25^{\circ}\text{C}$                                                                                                                          | TEST: OK                                                          |
| 8  | CAPACITOR LIFE CYCLE        | ELG-150-48: SUPPOSE C106 IS THE MOST CRITICAL COMPONENT<br>(1) I/P: 230VAC O/P: FULL LOAD Ta= $25^{\circ}\text{C}$ LIFE TIME<br>(2) I/P: 230VAC O/P: FULL LOAD Ta= $60^{\circ}\text{C}$ LIFE TIME<br>(3) I/P: 230VAC O/P: 75% LOAD Ta= $60^{\circ}\text{C}$ LIFE TIME<br>(4) I/P: 230VAC O/P: 50% LOAD Ta= $60^{\circ}\text{C}$ LIFE TIME | (1) 263305 HRS<br>(2) 32009 HRS<br>(3) 39901 HRS<br>(4) 64509 HRS |
| 9  | MTBF                        | MIL-HDBK-217F<br>TOTAL FAILURE RATE: 313.66K HRS                                                                                                                                                                                                                                                                                          |                                                                   |
| 10 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure (Expected Life):<br>Above 50000 hours @ Tc $80^{\circ}\text{C}$<br>                                                                                                                                           |                                                                   |

| TEST RESULT | TESTER         | REVIEW | APPROVAL |
|-------------|----------------|--------|----------|
| PASS        | ZHANGZJ/ZHUOKB | SKY    | LIUWY    |