



# Test Report: HLG-120H-C1050

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150W Constant Current Mode LED Driver

## ■ 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<br>CURRENT REGION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 74V~148V                                        | I/P : 230VAC<br>O/P : CV MODE : 74V~147V<br>Ta : 25°C              | TEST : OK                                                 |                  |        |        |        |        |        |           |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| 2                | CURRENT TOLERANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ± 5%                                            | I/P : 230VAC<br>O/P : CV MODE : 74V~147V<br>Ta : 25°C              | ± 1.1 %                                                   |                  |        |        |        |        |        |           |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| 3                | CURRENT RIPPLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ± 5%                                            | I/P : 230VAC<br>O/P : LED : 74V~147V<br>Ta : 25°C                  | LED=74V 5.7 %<br>LED=147V 2.9 %                           |                  |        |        |        |        |        |           |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| 4                | OUTPUT CURRENT<br>ADJUST RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CH1 : 525mA~ 1050mA                             | I/P : 230VAC<br>I/P : 115 VAC<br>O/P : CV MODE : 146V<br>Ta : 25°C | 0.4697 A~ 1.1466 A/ 230VAC<br>0.4697 A~ 1.1467 A/ 115 VAC |                  |        |        |        |        |        |           |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| 5                | SET UP TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 115 VAC : 1000 ms (Max)<br>230VAC : 500 ms(Max) | I/P : 115 VAC<br>I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C     | 115 VAC/ 712 ms<br>230VAC/ 359 ms                         |                  |        |        |        |        |        |           |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| 6                | OVER/UNDERSHOOT<br>TEST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | < ±5%                                           | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                      | TEST : <5 %                                               |                  |        |        |        |        |        |           |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| 7                | <div>DIMMING TEST</div> <div>※Built-in 3 in 1 dimming function, IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 1 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.</div> <div>※ Please DO NOT connect "DIM-" to "-V".</div> <div>※Reference resistance value for output current adjustment (Typical)</div> <table><tr><td>Resistance value</td><td>10K</td><td>20K</td><td>30K</td><td>40K</td><td>50K</td><td>60K</td><td>70K</td><td>80K</td><td>90K</td><td>100K</td><td>OPEN</td></tr><tr><td>Output current</td><td>10%</td><td>20%</td><td>30%</td><td>40%</td><td>50%</td><td>60%</td><td>70%</td><td>80%</td><td>90%</td><td>100%</td><td>102%~108%</td></tr></table> <div>*1 ~ 10V dimming function for output current adjustment (Typical)</div> <table><tr><td>Dimming value</td><td>1V</td><td>2V</td><td>3V</td><td>4V</td><td>5V</td><td>6V</td><td>7V</td><td>8V</td><td>9V</td><td>10V</td><td>OPEN</td></tr><tr><td>Output current</td><td>10%</td><td>20%</td><td>30%</td><td>40%</td><td>50%</td><td>60%</td><td>70%</td><td>80%</td><td>90%</td><td>100%</td><td>102%~108%</td></tr></table> <div>*10V PWM signal for output current adjustment (Typical)</div> <table><tr><td>Duty value</td><td>10%</td><td>20%</td><td>30%</td><td>40%</td><td>50%</td><td>60%</td><td>70%</td><td>80%</td><td>90%</td><td>100%</td><td>OPEN</td></tr><tr><td>Output current</td><td>10%</td><td>20%</td><td>30%</td><td>40%</td><td>50%</td><td>60%</td><td>70%</td><td>80%</td><td>90%</td><td>100%</td><td>102%~108%</td></tr></table> <div>TEST RESULT: I/P : 230 VAC ;Ta : 25°C</div> <table><tr><td rowspan="3">1</td><td>Resistance value</td><td>10K</td><td>20K</td><td>30K</td><td>40K</td><td>50K</td><td>60K</td><td>70K</td><td>80K</td><td>90K</td><td>100K</td><td>OPEN</td></tr><tr><td>Output current</td><td>0.135A</td><td>0.243A</td><td>0.342A</td><td>0.442A</td><td>0.551A</td><td>0.653A</td><td>0.762A</td><td>0.857A</td><td>0.974A</td><td>1.080A</td><td>1.091A</td></tr><tr><td>Percentage of rated current</td><td>12.82%</td><td>23.14%</td><td>32.56%</td><td>42.12%</td><td>52.49%</td><td>62.18%</td><td>72.52%</td><td>81.57%</td><td>92.77%</td><td>102.83%</td><td>103.94%</td></tr><tr><td rowspan="2">2</td><td>Dimming value</td><td>1V</td><td>2V</td><td>3V</td><td>4V</td><td>5V</td><td>6V</td><td>7V</td><td>8V</td><td>9V</td><td>10V</td><td>OPEN</td></tr><tr><td>Output current</td><td>0.135A</td><td>0.238A</td><td>0.340A</td><td>0.441A</td><td>0.545A</td><td>0.644A</td><td>0.747A</td><td>0.848A</td><td>0.949A</td><td>1.051A</td><td>1.091A</td></tr></table> |                                                 |                                                                    |                                                           | Resistance value | 10K    | 20K    | 30K    | 40K    | 50K    | 60K       | 70K     | 80K | 90K | 100K | OPEN | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 102%~108% | Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | OPEN | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 102%~108% | Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | OPEN | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 102%~108% | 1 | Resistance value | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K | OPEN | Output current | 0.135A | 0.243A | 0.342A | 0.442A | 0.551A | 0.653A | 0.762A | 0.857A | 0.974A | 1.080A | 1.091A | Percentage of rated current | 12.82% | 23.14% | 32.56% | 42.12% | 52.49% | 62.18% | 72.52% | 81.57% | 92.77% | 102.83% | 103.94% | 2 | Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | OPEN | Output current | 0.135A | 0.238A | 0.340A | 0.441A | 0.545A | 0.644A | 0.747A | 0.848A | 0.949A | 1.051A | 1.091A |
| Resistance value | 10K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20K                                             | 30K                                                                | 40K                                                       | 50K              | 60K    | 70K    | 80K    | 90K    | 100K   | OPEN      |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| Output current   | 10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20%                                             | 30%                                                                | 40%                                                       | 50%              | 60%    | 70%    | 80%    | 90%    | 100%   | 102%~108% |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| Dimming value    | 1V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2V                                              | 3V                                                                 | 4V                                                        | 5V               | 6V     | 7V     | 8V     | 9V     | 10V    | OPEN      |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| Output current   | 10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20%                                             | 30%                                                                | 40%                                                       | 50%              | 60%    | 70%    | 80%    | 90%    | 100%   | 102%~108% |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| Duty value       | 10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20%                                             | 30%                                                                | 40%                                                       | 50%              | 60%    | 70%    | 80%    | 90%    | 100%   | OPEN      |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| Output current   | 10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20%                                             | 30%                                                                | 40%                                                       | 50%              | 60%    | 70%    | 80%    | 90%    | 100%   | 102%~108% |         |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| 1                | Resistance value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10K                                             | 20K                                                                | 30K                                                       | 40K              | 50K    | 60K    | 70K    | 80K    | 90K    | 100K      | OPEN    |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
|                  | Output current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.135A                                          | 0.243A                                                             | 0.342A                                                    | 0.442A           | 0.551A | 0.653A | 0.762A | 0.857A | 0.974A | 1.080A    | 1.091A  |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
|                  | Percentage of rated current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 12.82%                                          | 23.14%                                                             | 32.56%                                                    | 42.12%           | 52.49% | 62.18% | 72.52% | 81.57% | 92.77% | 102.83%   | 103.94% |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
| 2                | Dimming value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1V                                              | 2V                                                                 | 3V                                                        | 4V               | 5V     | 6V     | 7V     | 8V     | 9V     | 10V       | OPEN    |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |
|                  | Output current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.135A                                          | 0.238A                                                             | 0.340A                                                    | 0.441A           | 0.545A | 0.644A | 0.747A | 0.848A | 0.949A | 1.051A    | 1.091A  |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |               |    |    |    |    |    |    |    |    |    |     |      |                |     |     |     |     |     |     |     |     |     |      |           |            |     |     |     |     |     |     |     |     |     |      |      |                |     |     |     |     |     |     |     |     |     |      |           |   |                  |     |     |     |     |     |     |     |     |     |      |      |                |        |        |        |        |        |        |        |        |        |        |        |                             |        |        |        |        |        |        |        |        |        |         |         |   |               |    |    |    |    |    |    |    |    |    |     |      |                |        |        |        |        |        |        |        |        |        |        |        |

|   |                             |        |        |        |        |        |        |        |        |        |         |         |
|---|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 3 | Percentage of rated current | 12.89% | 22.63% | 32.35% | 41.97% | 51.88% | 61.37% | 71.18% | 80.80% | 90.42% | 100.11% | 103.94% |
|   | Duty value                  | 10%    | 20%    | 30%    | 40%    | 50%    | 60%    | 70%    | 80%    | 90%    | 100%    | OPEN    |
|   | Output current              | 0.145A | 0.246A | 0.347A | 0.449A | 0.551A | 0.652A | 0.753A | 0.855A | 0.957A | 1.057A  | 1.091A  |
|   | Percentage of rated current | 13.81% | 23.44% | 33.09% | 42.73% | 52.43% | 62.10% | 71.75% | 81.41% | 91.10% | 100.70% | 103.94% |

## INPUT FUNCTION TEST

| NO | TEST ITEM                 | SPECIFICATION                                                                                      | TEST CONDITION                                                                                                                                                                                  | RESULT                                                                |
|----|---------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 1  | INPUT VOLTAGE RANGE       | 90VAC~305 VAC                                                                                      | I/P : TESTING<br>O/P : FULL LOAD<br>Ta : 25°C<br><br>I/P :<br>LOW-LINE-3V=87V<br>HIGH-LINE+10V=315V<br>O/P : FULL/MIN LOAD<br>ON : 30 Sec . OFF : 30 Sec 10MIN<br>( AC POWER ON/OFF NO DAMAGE ) | 67.5 V~305V<br><br>TEST : OK                                          |
| 2  | INPUT FREQUENCY RANGE     | 47HZ ~63 HZ<br>NO DAMAGE                                                                           | I/P : 90VAC ~ 305VAC<br>O/P : FULL~MIN LOAD<br>Ta : 25°C                                                                                                                                        | TEST : OK                                                             |
| 3  | POWER FACTOR              | 0.98 / 115VAC(TYP)<br>0.96 /230 VAC(TYP)<br>0.93 /277 VAC(TYP)                                     | I/P : 115VAC<br>I/P : 230VAC<br>I/P : 277VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                    | PF= 0.996 / 115VAC<br>PF= 0.969 / 230VAC<br>PF= 0.945 / 277VAC        |
| 4  | EFFICIENCY                | 94 % (TYP)                                                                                         | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                   | 94.02 %                                                               |
| 5  | INPUT CURRENT             | 277V/ 0.7 A (TYP)<br>230V/ 0.8 A (TYP)<br>115V/ 1.6 A (TYP)                                        | I/P : 277 VAC<br>I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                 | I = 0.63 A/ 277 VAC<br>I = 0.73 A/ 230 VAC<br>I = 1.44 A/ 115 VAC     |
| 6  | INRUSH CURRENT            | 230V/ 50 A (TYP)<br>(twidth=600us measured at 50% Ipeak)<br>COLD START                             | I/P : 230VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                    | I = 42 A/ 230VAC<br>T50= 480 us                                       |
| 7  | LEAKAGE CURRENT           | < 0.75 mA / 277 VAC                                                                                | I/P : 277 VAC<br>O/P : Min LOAD<br>Ta : 25°C                                                                                                                                                    | L-FG : 0.28 mA<br>N-FG : 0.28 mA                                      |
| 8  | TOTAL HARMONIC DISTORTION | THD< 20% when output loading ≥ 50% at 115VAC/230VAC input and output loading ≥ 75% at 277VAC input | I/P : 115 VAC<br>I/P : 230 VAC<br>O/P : 50% LOAD<br><br>I/P : 277 VAC<br>O/P : 75%LOAD<br>Ta : 25°C                                                                                             | THD : 11.51 /115VAC<br>THD : 18.16 /230VAC<br><br>THD : 17.63 /277VAC |

## PROTECTION FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION                          | TEST CONDITION                                                | RESULT                                                                                                       |
|----|-----------------------------|----------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 1  | OVER VOLTAGE PROTECTION     | CH1 : 165V ~ 175 V                     | I/P : 115 VAC<br>I/P : 230 VAC<br>O/P : MIN LOAD<br>Ta : 25°C | 172.14 V/ 115VAC<br>172.28 V/ 230 VAC<br>Shut down o/p voltage with auto-recovery or re-power on to recovery |
| 2  | OVER TEMPERATURE PROTECTION | NO DAMAGE                              | I/P : 230 VAC<br>O/P : FULL LOAD                              | O.T.P. Active<br><br>Shut down o/p voltage , recovers automatically after temperature goes down              |
| 3  | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P : 305 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                 | NO DAMAGE<br>Constant Current Limiting                                                                       |

## COMPONENT STRESS TEST

| NO | TEST ITEM                                              | SPECIFICATION            | TEST CONDITION                                                                                                                              | RESULT                                 |
|----|--------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| 1  | Power Transistor<br>( D to S) or (C to E) Peak Voltage | Q5 Rated<br>11A/600V     | 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) 484 V<br>(2) 458 V<br>(3) 460 V    |
| 2  | Diode Peak Voltage                                     | D103 Rated<br>3A/400V    | I/P : High-Line +3V = 308 V<br>O/P : (1)Full Load Turn on<br>(2)Output Short<br>(3)Full load continue<br>Ta : 25°C                          | (1) 330 V<br>(2) 16 V<br>(3) 320 V     |
| 3  | Input Capacitor Voltage                                | C5 Rated:<br>100u/450V   | I/P : High-Line +3V = 308V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load<br>Change<br>Ta : 25°C | (1) 452 V<br>(2) 460 V<br>(3) 464 V    |
| 4  | Control IC Voltage Test                                | U 900 Rated<br>8.85V~16V | I/P : High-Line +3V = 308V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load<br>Change<br>Ta : 25°C | (1) 14.1 V<br>(2) 13.8 V<br>(3) 13.8 V |
| 5  | P.F.C Transistor<br>( D to S) or (C to E) Peak Voltage | Q1 Rated<br>20A/600V     | I/P : High-Line +3V = 308 V<br>O/P : (1)Full Load Turn on<br>(2)Output Short<br>(3)Full load continue<br>Ta : 25°C                          | (1) 572 V<br>(2) 466 V<br>(3) 504 V    |

## SAFETY & E.M.C. TEST

### SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION                                                                 | TEST CONDITION                                                                      | RESULT                                                                   |
|----|----------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P : 3.75 KVAC/min<br>I/P-FG : 2 KVAC/min<4.5mA<br>O/P-FG : 1.5 KVAC/min | I/P-O/P : 4 KVAC/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 : 3.46 mA<br>I/P-FG : 2.792 mA<br>O/P-FG : 2.007 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 /70%RH       | I/P-O/P : 30 GΩ<br>I/P-FG : 22.2 GΩ<br>O/P-FG : 30 GΩ<br>NO DAMAGE       |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                                        | 40 A / 2min<br>Ta : 25°C / 70%RH                                                    | 19 mΩ                                                                    |

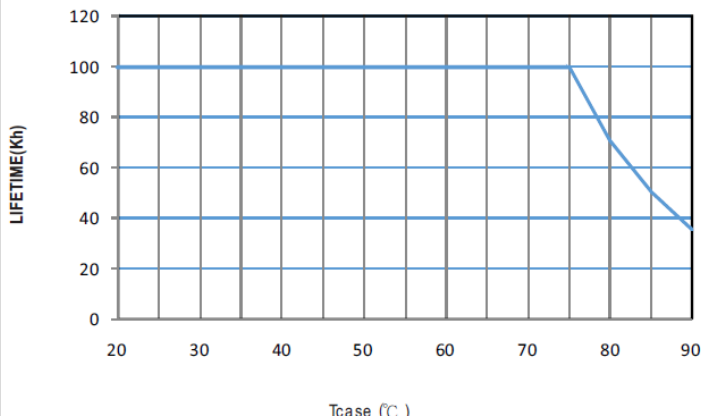
### E.M.C TEST

| NO | TEST ITEM  | SPECIFICATION                                      | TEST CONDITION                                                                     | RESULT                        |
|----|------------|----------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|
| 1  | HARMONIC   | EN61000-3-2<br>CLASS C                             | I/P: 230/347VAC/60HZ<br>O/P:100/60%ELECTRONIC LOAD<br>O/P:100% LED LOAD<br>Ta:25°C | PASS                          |
| 2  | CONDUCTION | EN55015<br>CLASS B                                 | I/P: 230VAC (50HZ)<br>O/P:FULL/50% LOAD<br>Ta:25°C                                 | PASS<br>Test by certified Lab |
| 3  | RADIATION  | EN55015<br>CLASS B                                 | I/P: 230/230 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>INDUSTRY<br>AIR:8KV / Contact:4KV   | I/P:230/230 VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C                                   | CRITERIA A                    |
| 5  | E.F.T      | EN61000-4-4<br>INDUSTRY<br>INPUT: 2KV              | I/P: 230/230 VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C                                  | CRITERIA A                    |
| 6  | SURGE      | IEC61000-4-5<br>INDUSTRY<br>L-N :2KV<br>L,N-PE:4KV | I/P: 230/230 VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C                                  | CRITERIA A                    |

## RELIABILITY TEST

### ENVIRONMENT TEST

| NO | TEST ITEM                                                         | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TEST CONDITION                                                     | RESULT             |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
|----|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------|----|----------|---------------------------|----------------------------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|------|--------|--------|---|----|--------|--------|----|-------|--------|--------|----|------|--------|--------|----|----|--------|--------|----|------|--------|--------|----|----|--------|--------|
| 1  | TEMPERATURE RISE TEST                                             | <div>MODEL : HLG-120H-C1050</div> <div>1. ROOM AMBIENT BURN-IN : 4 HRS</div> <div>I/P : 230VAC O/P : FULL LOAD Ta= 34.8 °C</div> <div>2. HIGH AMBIENT BURN-IN : 2 HRS</div> <div>I/P : 230VAC O/P : FULL LOAD Ta= 59.2°C</div> <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT<br/>Ta=34.8°C</th><th>HIGH AMBIENT<br/>Ta= 59.2°C</th></tr><tr><td>1</td><td>BD1</td><td>58.5°C</td><td>81.9°C</td></tr><tr><td>2</td><td>L1</td><td>56.4°C</td><td>80.2°C</td></tr><tr><td>3</td><td>D3</td><td>60.9°C</td><td>84.1°C</td></tr><tr><td>4</td><td>Q1</td><td>57.0°C</td><td>81.0°C</td></tr><tr><td>5</td><td>C5</td><td>62.4°C</td><td>85.9°C</td></tr><tr><td>6</td><td>D2</td><td>59.6°C</td><td>83.7°C</td></tr><tr><td>7</td><td>Q5</td><td>57.6°C</td><td>81.9°C</td></tr><tr><td>8</td><td>RTH2</td><td>63.4°C</td><td>88.3°C</td></tr><tr><td>9</td><td>T1</td><td>59.6°C</td><td>83.6°C</td></tr><tr><td>10</td><td>LF100</td><td>54.4°C</td><td>78.6°C</td></tr><tr><td>11</td><td>C110</td><td>55.9°C</td><td>80.2°C</td></tr><tr><td>12</td><td>U1</td><td>57.0°C</td><td>81.2°C</td></tr><tr><td>13</td><td>U900</td><td>57.0°C</td><td>81.3°C</td></tr><tr><td>14</td><td>L2</td><td>59.3°C</td><td>83.3°C</td></tr></table> |                                                                    |                    | NO | Position | ROOM AMBIENT<br>Ta=34.8°C | HIGH AMBIENT<br>Ta= 59.2°C | 1 | BD1 | 58.5°C | 81.9°C | 2 | L1 | 56.4°C | 80.2°C | 3 | D3 | 60.9°C | 84.1°C | 4 | Q1 | 57.0°C | 81.0°C | 5 | C5 | 62.4°C | 85.9°C | 6 | D2 | 59.6°C | 83.7°C | 7 | Q5 | 57.6°C | 81.9°C | 8 | RTH2 | 63.4°C | 88.3°C | 9 | T1 | 59.6°C | 83.6°C | 10 | LF100 | 54.4°C | 78.6°C | 11 | C110 | 55.9°C | 80.2°C | 12 | U1 | 57.0°C | 81.2°C | 13 | U900 | 57.0°C | 81.3°C | 14 | L2 | 59.3°C | 83.3°C |
| NO | Position                                                          | ROOM AMBIENT<br>Ta=34.8°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HIGH AMBIENT<br>Ta= 59.2°C                                         |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 1  | BD1                                                               | 58.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 81.9°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 2  | L1                                                                | 56.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 80.2°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 3  | D3                                                                | 60.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 84.1°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 4  | Q1                                                                | 57.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 81.0°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 5  | C5                                                                | 62.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 85.9°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 6  | D2                                                                | 59.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 83.7°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 7  | Q5                                                                | 57.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 81.9°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 8  | RTH2                                                              | 63.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 88.3°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 9  | T1                                                                | 59.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 83.6°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 10 | LF100                                                             | 54.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 78.6°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 11 | C110                                                              | 55.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 80.2°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 12 | U1                                                                | 57.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 81.2°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 13 | U900                                                              | 57.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 81.3°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 14 | L2                                                                | 59.3°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 83.3°C                                                             |                    |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 2  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | I/P : 305VAC/100VAC<br>O/P : 100 % LOAD<br>Ta= -25°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 : 305 VAC<br>O/P : FULL LOAD<br>Ta= 60 °C<br>HUMIDITY= 95 %R.H | TEST : OK          |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 4  | TEMPERATURE<br>COEFFICIENT                                        | ± 0.03%(0~50°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P : 230 VAC<br>O/P : FULL LOAD                                   | ± 0.0026 %(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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                    | OK                 |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |
| 6. | THERMAL SHOCK TEST                                                | 1. Thermal shock Temperature : -30°C~ +65°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 : 10 CYCLE<br>5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST<br>turn on 58sec ; turn off 2sec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                    | OK                 |    |          |                           |                            |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |    |        |        |    |       |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |

|    |                             |                                                                                                                                                                                                                                                                                          |                                                                     |
|----|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| 8  | 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°C                                                                                   | TEST : OK                                                           |
| 9  | CAPACITOR LIFE CYCLE        | HLG-120H-C1050:SUPPOSE C110 IS THE MOST CRITICAL COMPONENT<br>(1) I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME<br>(2) I/P : 230VAC O/P : FULL LOAD Ta= 60 °C LIFE TIME<br>(3) I/P : 230VAC O/P : 75% LOAD Ta= 60 °C LIFE TIME<br>(4) I/P : 230VAC O/P : 50% LOAD Ta= 60 °C LIFE TIME | (1) 105456 HRS<br>(2) 93709 HRS<br>(3) 120397 HRS<br>(4) 121450 HRS |
| 10 | MTBF                        | Conducted by Parts Stress Analysis Prediction<br>652.2K hrs min. Telcordia SR-332 (Bellcore) ; 191.1K hrs min. MIL-HDBK-217F (25°C)                                                                                                                                                      |                                                                     |
| 11 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure (Expected Life): Above 62,000 hours @ Tcase 80°C<br>                                                                                                          |                                                                     |

| TEST RESULT | TESTER     | REVIEW     | APPROVAL      |
|-------------|------------|------------|---------------|
| PASS        | DANIEL GAO | SANFORD SU | VINCENT TSENG |

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