



# Test Report: HVGC-240-2100

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240W Single Output LED Power Supply

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

## ■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

## ■ RELIABILITY TEST

ENVIRONMENT TEST

## DESIGN VERIFY TEST

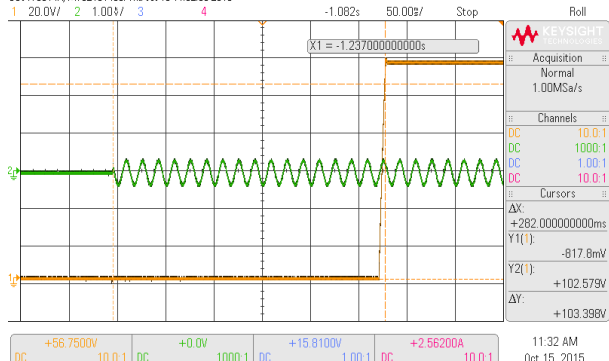
### OUTPUT FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION                                                           | TEST CONDITION                                                          | RESULT                                                                                                                                                 |
|----|-----------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | CURRENT ACCURACY            | ±5%                                                                     | I/P: 347VAC<br>I/P: 480VAC<br>O/P: FULL LOAD<br>Ta: 25°C                | 1.0492A / 347VAC @ CV MAX-1V<br>1.0316A / 347VAC @ CV MIN<br>1.0492A / 480VAC @ CV MAX-1V<br>1.0312A / 480VAC @ CV MIN<br>1.74%                        |
| 2  | CONSTANT CURRENT REGION     | CH1: 57.2V ~ 114.3V                                                     | I/P: 347VAC<br>O/P: FULL LOAD<br>Ta: 25°C                               | 0.336V ~ 114.3V / 347VAC                                                                                                                               |
| 3  | CURRENT ADJ. RANGE          | CH1: 1050mA ~ 2100mA                                                    | I/P: 347VAC<br>I/P: 480VAC<br>O/P: CV MIN & CV MAX-1V<br>Ta: 25°C       | 0.902A ~ 2.227A / 347VAC @ CV MAX-1V<br>0.889A ~ 2.196A / 347VAC @ CV MIN<br>0.903A ~ 2.226A / 480VAC @ CV MAX-1V<br>0.888A ~ 2.196A / 480VAC @ CV MIN |
| 4  | OPEN CIRCUIT VOLTAGE (max.) | 117V                                                                    | I/P: 347VAC<br>O/P: NO LOAD<br>Ta: 25°C                                 | 115.7 V                                                                                                                                                |
| 5  | CURRENT RIPPLE              | 5.0% max. @ rated current                                               | I/P: 347VAC<br>O/P: FULL LOAD<br>Ta: 25°C                               | 2.14%                                                                                                                                                  |
| 6  | OVER/UNDERSHOOT TEST        | < ±5%                                                                   | I/P: 347 VAC<br>O/P: FULL LOAD<br>Ta: 25°C                              | TEST: <5%                                                                                                                                              |
| 7  | SET UP TIME                 | 230VAC / 500 ms (Max)<br>347VAC / 500 ms (Max)<br>480VAC / 500 ms (Max) | I/P: 230VAC<br>I/P: 347VAC<br>I/P: 480VAC<br>O/P: FULL LOAD<br>Ta: 25°C | 230VAC / 282ms<br>347VAC / 259.8 ms<br>480VAC / 261.6ms                                                                                                |

INPUT=230VAC/50HZ @ FULL LOAD

CH1 : Output Voltage CH2 : AC Input Voltage

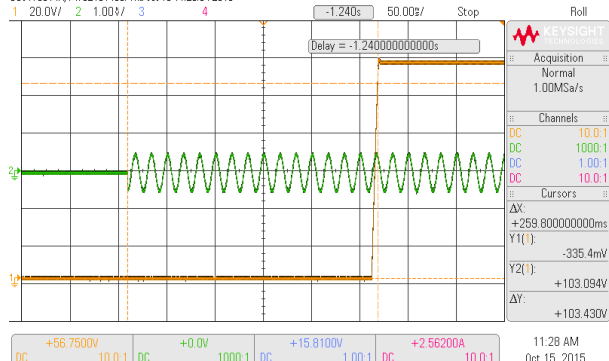
DSO-X 3014A, MY52161480 Thu Oct 15 11:32:56 2015



INPUT=347VAC/60HZ @ FULL LOAD

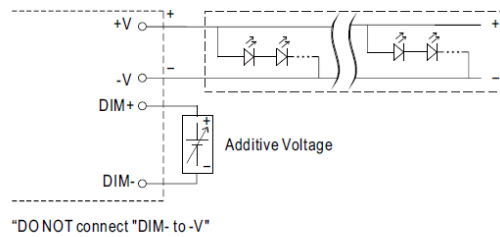
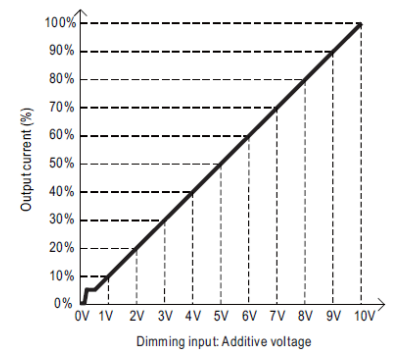
CH1 : Output Voltage CH2 : AC Input Voltage

DSO-X 3014A, MY52161480 Thu Oct 15 11:29:54 2015

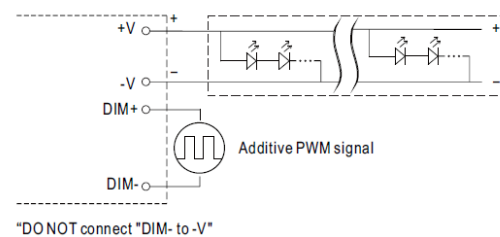
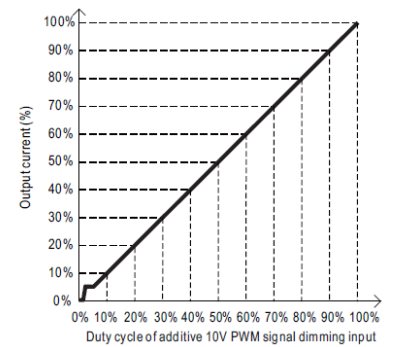


|   |                                |                                                                                                                                                                                                                                                                                                                                                                            |  |  |
|---|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| 8 | DIMMING OPERATION (for B-Type) | <p>※3 in 1 dimming function</p> <p>※Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.</p> <p>※Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.</p> <p>※Dimming source current from power supply: 100μ A (typ.)</p> |  |  |
|---|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

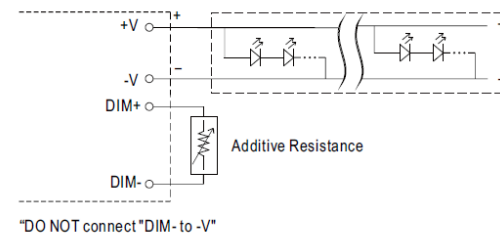
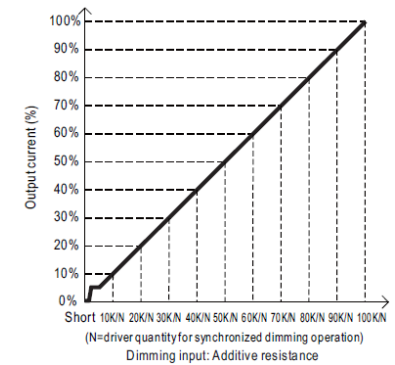
◎ Applying additive 0 ~ 10VDC



◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



◎ Applying additive resistance:



Note : 1. Min. dimming level is about 5% and the output current is not defined when  $0\% < I_{out} < 5\%$ .  
 2. The output current could drop down to 0% when dimming input is about 0kΩ or 0Vdc, or 10V PWM signal with 0% duty cycle.

I/P : 347VAC

O/P : DIMMING TEST

TA : 25°C

| R           | SHORT    | 10K    | 20K    | 30K    | 40K    | 50K    | 60K    | 70K    | 80K    | 90K    | 100K    | OPEN    |
|-------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| O/P CURRENT | 0.00000A | 0.211A | 0.413A | 0.613A | 0.813A | 1.011A | 1.208A | 1.410A | 1.602A | 1.800A | 2.049A  | 2.164A  |
| %           | 0.00%    | 10.03% | 19.64% | 29.19% | 38.72% | 48.14% | 57.54% | 67.12% | 76.30% | 85.70% | 97.57%  | 103.05% |
| V           | 0V       | 1V     | 2V     | 3V     | 4V     | 5V     | 6V     | 7V     | 8V     | 9V     | 10V     | OPEN    |
| O/P CURRENT | 0.00000A | 0.242A | 0.432A | 0.664A | 0.833A | 1.061A | 1.285A | 1.491A | 1.695A | 1.895A | 2.102A  | 2.164A  |
| %           | 0.00%    | 11.54% | 20.55% | 31.61% | 39.64% | 50.52% | 61.19% | 71.00% | 80.71% | 90.24% | 100.07% | 103.02% |
| PWM (100HZ) | 0%       | 10%    | 20%    | 30%    | 40%    | 50%    | 60%    | 70%    | 80%    | 90%    | 100%    | OPEN    |
| O/P CURRENT | 0.00000A | 0.260A | 0.471A | 0.676A | 0.904A | 1.090A | 1.290A | 1.470A | 1.660A | 1.850A | 2.050A  | 2.100A  |
| %           | 0.00%    | 12.38% | 22.43% | 32.19% | 43.05% | 51.90% | 61.43% | 70.00% | 79.05% | 88.10% | 97.62%  | 100.00% |

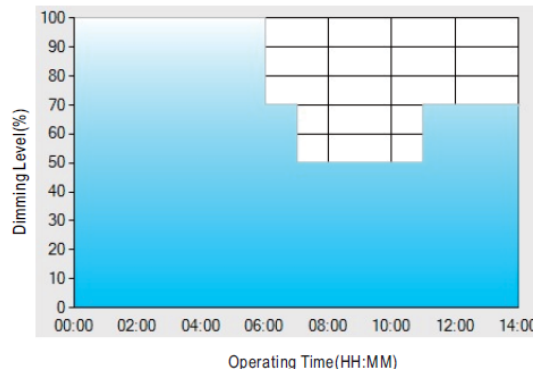
TEST RESULT : OK

## 9 DIMMING OPERATION (for Dxx-Type by User definition)

### ※Smart timer dimming function (for Dxx-Type by User definition)

MEAN WELL Smart timer dimming primarily provides the adaptive proportion dimming profile for the output constant current level to perform up to 14 consecutive hours. 3 dimming profiles hereunder are defined accounting for the most frequently seen applications. If other options may be needed, please contact MEAN WELL for details.

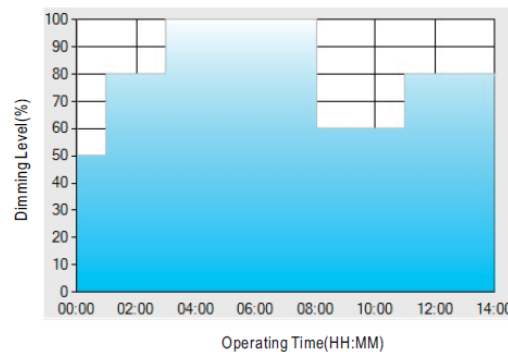
Ex : Ⓒ D01-Type: the profile recommended for residential lighting



Set up for D01-Type in Smart timer dimming software program:

|         | T1    | T2    | T3    | T4  |
|---------|-------|-------|-------|-----|
| TIME**  | 06:00 | 07:00 | 11:00 | --- |
| LEVEL** | 100%  | 70%   | 50%   | 70% |

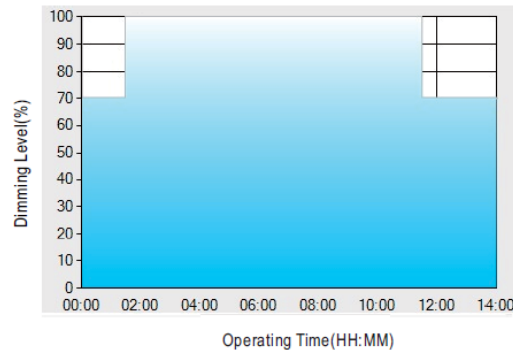
Ex : Ⓒ D02-Type: the profile recommended for street lighting



Set up for D02-Type in Smart timer dimming software program:

|         | T1    | T2    | T3   | T4    | T5  |
|---------|-------|-------|------|-------|-----|
| TIME**  | 01:00 | 03:00 | 8:00 | 11:00 | --- |
| LEVEL** | 50%   | 80%   | 100% | 60%   | 80% |

Ex : Ⓒ D03-Type: the profile recommended for tunnel lighting



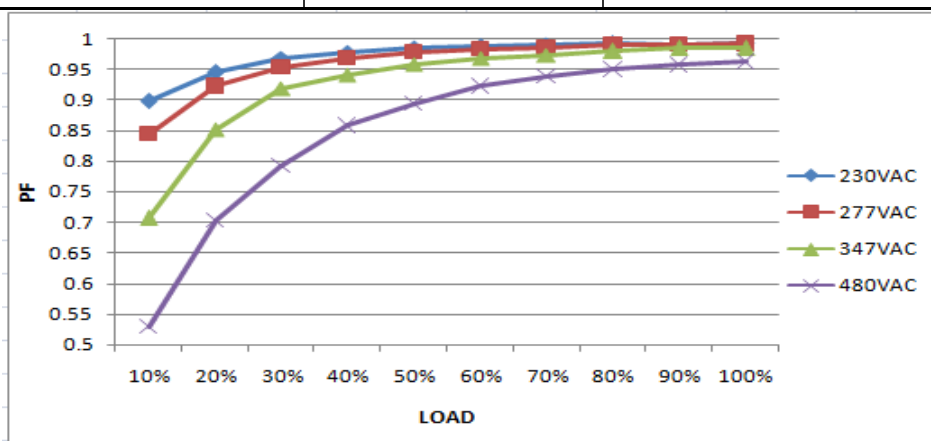
Set up for D03-Type in Smart timer dimming software program:

|         | T1    | T2    | T3  |
|---------|-------|-------|-----|
| TIME**  | 01:30 | 11:00 | --- |
| LEVEL** | 70%   | 100%  | 70% |

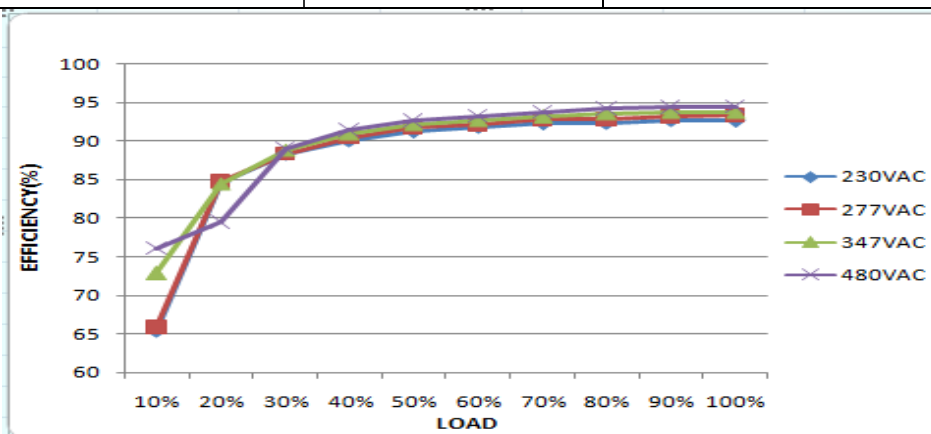
I/P : 347VAC  
O/P : DIMMING TEST  
TA : 25°C  
TEST RESULT : OK

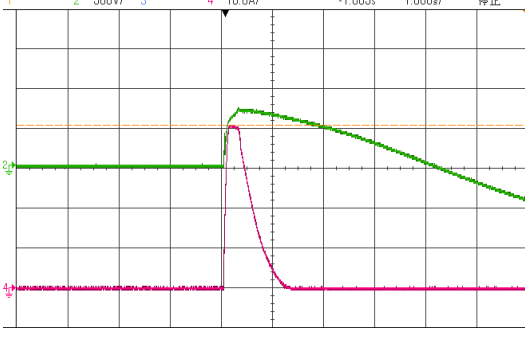
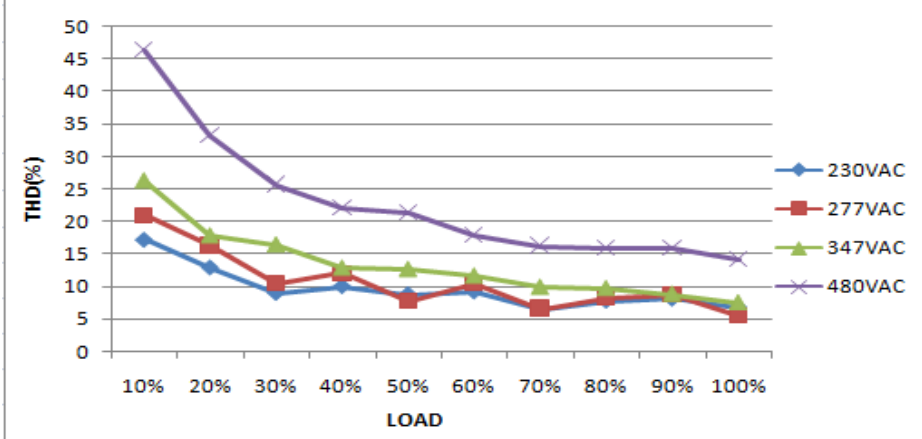
## INPUT FUNCTION TEST

| NO | TEST ITEM             | SPECIFICATION                                                                                      | TEST CONDITION                                                                                                                                                       | RESULT                                                                                                       |
|----|-----------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 1  | INPUT VOLTAGE RANGE   | 180VAC~528 VAC                                                                                     | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                              | 137V~528V                                                                                                    |
|    |                       |                                                                                                    | I/P:<br>LOW-LINE-3V=177 V<br>HIGH-LINE+10V=538 V<br>O/P:FULL/MIN LOAD<br>(PLEASE CHECK DERATING CURVE)<br>ON: 30 Sec OFF: 30 Sec 10MIN<br>( POWER ON/OFF NO DAMAGE ) | (1).TEST:OK<br>(2).TEST:OK                                                                                   |
| 2  | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE                                                                           | I/P: 180 VAC ~528VAC<br>O/P:FULL~MIN LOAD<br>Ta:25°C                                                                                                                 | OK                                                                                                           |
| 3  | INPUT CURRENT (TYP)   | 347VAC/ 0.76 A<br>480VAC/ 0.56 A                                                                   | I/P: 347VAC/480VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                       | I = 0.756A/ 347VAC<br>I = 0.548A/ 480VAC                                                                     |
| 4  | POWER FACTOR(TYP)     | 0.95/347VAC FULL LOAD<br>0.93/480VAC FULL LOAD<br>0.97/277 VAC FULL LOAD<br>0.98/230 VAC FULL LOAD | I/P: 347VAC/480VAC/277VAC/230VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                         | PF= 0.987 /347V/100%LOAD<br>PF= 0.967 /480V/100%LOAD<br>PF= 0.994 /277V/100%LOAD<br>PF= 0.995 /230V/100%LOAD |



|   |                  |       |                                         |        |
|---|------------------|-------|-----------------------------------------|--------|
| 5 | EFFICIENCY (TYP) | 92.5% | I/P: 347VAC<br>O/P:FULL LOAD<br>Ta:25°C | 93.55% |
|---|------------------|-------|-----------------------------------------|--------|



|   |                                                                                                                                                                                                                                |                                                                                                              |                                                                                                  |                                                                                                                                                                                                      |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | INRUSH CURRENT (TYP)                                                                                                                                                                                                           | 480VV/ 50 A<br>COLD START<br><br>(twidth= 532 us measured at 50%<br>Ipeak) COLD START                        | I/P: 480VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                          | I = 40.9A/ 480VAC<br><br>T50= 520 us                                                                                                                                                                 |
|   | INPUT=480VAC/ 60HZ @ FULL LOAD<br>CH2 : AC Input Voltage CH4 : Input current (1V=1A)<br>DSO-X 3014A, M752161480, Wed Sep 09 11:38:24 2015<br> |                                                                                                              |                                                                                                  |                                                                                                                                                                                                      |
| 7 | TOTAL HARMONIC DISTORTION                                                                                                                                                                                                      | Total harmonic distortion will be lower than 20% when output loading is 50% or higher at 230V/277V/347V/480V | I/P : 230V/277V/347V<br>O/P : 100% LOAD<br>50% LOAD<br>I/P : 480V<br>O/P : 60% LOAD<br>Ta : 25°C | THD : 12.48%/230V 50%<br>THD : 8.22%/230V 100%<br>THD : 13.51%/277V 50%<br>THD : 9.98%/277V 100%<br>THD : 16.44%/347V 50%<br>THD : 9.89%/347V 100%<br>THD : 16.3%/480V 60%<br>THD : 13.13%/480V 100% |
|   |                                                                                                                                            |                                                                                                              |                                                                                                  |                                                                                                                                                                                                      |

## ROTECTION FUNCTION TEST

| NO | TEST ITEM               | SPECIFICATION      | TEST CONDITION                                                       | RESULT                                                                                                                           |
|----|-------------------------|--------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 1  | OVER VOLTAGE PROTECTION | V1: 120 V~ 131.4 V | I/P: 528VAC<br>I/P: 347VAC<br>I/P: 180VAC<br>O/P:MIN LOAD<br>Ta:25°C | 124.06V/ 528VAC<br>124.35V/ 347VAC<br>124.31V/ 180VAC<br>PROTECTION TYPE :<br>Shut down o/p voltage with re-power on to recovery |

|   |                             |                                                                                  |                                                          |                                                                                                                      |
|---|-----------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 2 | OVER TEMPERATURE PROTECTION | PROTECTION TYPE :<br>Shut down and latch off o/p voltage, re-power on to recover | I/P: 528 VAC<br>I/P: 180 VAC<br>O/P: FULL LOAD           | O.T.P. Active<br>PROTECTION TYPE :<br>Shut down and latch off o/p voltage, re-power on to recover                    |
| 4 | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE                                           | I/P: 528VAC<br>I/P: 180 VAC<br>O/P: FULL LOAD<br>Ta:25°C | NO DAMAGE<br>PROTECTION TYPE :<br>Constant current limiting, recovers automatically after fault condition is removed |

## COMPONENT STRESS TEST

| NO | TEST ITEM                                                     | SPECIFICATION                  | TEST CONDITION                                                                                                                                                   | RESULT                                                    |
|----|---------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 1  | PWM Transistor<br>( D to S) or (C to E) <b>Peak Voltage</b>   | Q901 Rated<br>9A/ 950V         | I/P: High-Line +3V =531V<br>AC ON/OFF<br>VDS:<br>O/P: (1) Full Load<br>(2) Output Short<br>(3) Full Load continue<br>Ta:25°C                                     | VDS:<br>(1) 809V/6.1A<br>(2) 801V/7.36A<br>(3) 777V/1.65A |
| 2  | P.F.C Transistor<br>( D to S) or (C to E) <b>Peak Voltage</b> | Q 1 Rated<br>6A/1050V          | I/P: High-Line +3V =531V<br>AC ON/OFF<br>VDS:<br>O/P: (1) Full Load<br>(2) Output Short<br>(3) Full Load continue<br>Ta:25°C                                     | VDS<br>(1) 871V/3.45A<br>(2) 831V/3.45A<br>(3) 863V/3.13  |
| 3  | Diode <b>Peak Voltage</b>                                     | D101 Rated<br>10A/400V         | I/P: High-Line +3V =531 V<br>D101 :<br>AC ON/OFF<br>O/P: (1) Full Load<br>(2) Output Short<br>(3) Full Load continue<br>Ta:25°C                                  | VDS:<br>(1) 260 V<br>(2) 256V<br>(3) 252V                 |
| 4  | Input Capacitor Voltage                                       | C6 Rated:<br>82u/450V 105°C    | I/P: High-Line +3V =531V<br>O/P: (1) Full Load input on/off<br>(2) Min load input on /Off<br>(3) Full Load /Min load Change<br>(4) Full load continue<br>Ta:25°C | (1) 419V<br>(2) 427V<br>(3) 375V<br>(4) 363V              |
| 5  | Control IC Voltage Test                                       | PWM IC U901 Rated<br>8.85V~16V | I/P: High-Line +3V =531 V<br>AC ON/OFF<br>O/P: (1) FULL LOAD<br>(2) Output Short<br>(3) O.L.P<br>(4) O.V.P.<br>Ta:25°C                                           | (1) 15.1V<br>(2) 14.9V<br>(3) 15.7V<br>(4) 14.7V          |

## SAFETY & EMC TEST

### SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION                                                                         | TEST CONDITION                                                                    | RESULT                                                                 |
|----|----------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 1  | WITHSTAND VOLTAGE    | IEC60950-1<br>I/P-O/P: 3.75KVAC/min<br>I/P-FG: 2 KVAC/min<4.5mA<br>O/P-FG:1.5KVAC/min | I/P-O/P: 4.125 KVAC/min<br>I/P-FG: 2.4KVAC/min<br>O/P-FG: 1.8 KVAC/min<br>Ta:25°C | I/P-O/P: 1.64 mA<br>I/P-FG: 1.03 mA<br>O/P-FG: 0.68mA<br>NO DAMAGE     |
| 2  | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ<br>I/P-FG: 500VDC>100MΩ<br>O/P-FG:500VDC>100MΩ                   | I/P-O/P: 500 VDC<br>I/P-FG: 500 VDC<br>O/P-FG: 500 VDC<br>Ta:25°C                 | I/P-O/P: 26.1GΩ<br>I/P-FG: 8.9G Ω<br>O/P-FG: 30G Ω<br>NO DAMAGE        |
| 3  | GROUNDING CONTINUITY | IEC60950-1<br>FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                                  | 40A / 2min<br>Ta:25°C                                                             | 21mΩ                                                                   |
| 4  | LEAKAGE CURRENT      | IEC60950-1<br>< 0.75mA /480VAC                                                        | I/P: 480 VAC<br>O/P:Min LOAD<br>Ta:25°C                                           | L-FG: 0.13 mA<br>N-FG: 0.12mA<br>L,N -V(+): 0.15mA<br>L,N-V(-): 0.14mA |

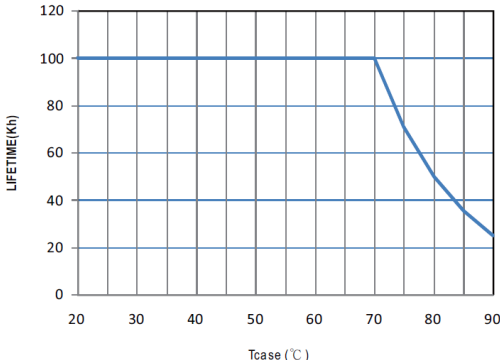
### E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                          | TEST CONDITION                                         | RESULT                        |
|----|---------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|-------------------------------|
| 1  | CONDUCTION                                  | FCC PART 15                                            | I/P: 230/347VAC (50HZ)<br>O/P:FULL/50% LOAD<br>Ta:25°C | PASS<br>Test by certified Lab |
| 2  | RADIATION                                   | FCC PART 15                                            | I/P: 230/347VAC (50HZ)<br>O/P:FULL LOAD<br>Ta:25°C     | PASS<br>Test by certified Lab |
| 3  | E.S.D                                       | EN61000-4-2<br>LIGHT INDUSTRY<br>AIR:8KV / Contact:4KV | I/P: 230/347VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C       | CRITERIA A                    |
| 4  | E.F.T                                       | EN61000-4-4<br>LIGHT INDUSTRY<br>INPUT: 1KV            | I/P: 230/347VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C       | CRITERIA A                    |
| 5  | SURGE                                       | IEC61000-4-5<br>INDUSTRY<br>L-N :2KV<br>L,N-PE:4KV     | I/P: 230/347VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C       | CRITERIA A                    |
| 6  | Test by certified Lab & Test Report Prepare |                                                        |                                                        |                               |

## ■ RELIABILITY TEST

### ENVIRONMENT TEST

| NO  | TEST ITEM                                                         | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TEST CONDITION                                                    | RESULT           |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
|-----|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------------|-----|----------|-----------------------------|-----------------------------|---|----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|------|--------|---------|---|------|--------|--------|---|----|--------|--------|----|----|--------|--------|----|----|--------|--------|----|------|--------|--------|----|-----|--------|--------|----|-----|--------|--------|----|-----|--------|--------|----|------|--------|--------|----|------|--------|--------|----|----|--------|---------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|-------|--------|--------|
| 1   | TEMPERATURE RISE TEST                                             | <div>MODEL : HVGC-240-3500</div> <div>1. ROOM AMBIENT BURN-IN : 15 HRS</div> <div>I/P : 347VAC O/P : FULL LOAD Ta= 25.5 °C</div> <div>2. HIGH AMBIENT BURN-IN : 3.5 HRS</div> <div>I/P : 347VAC O/P : FULL LOAD Ta= 56.3 °C</div> <table><tr><th>CH.</th><th>Position</th><th>ROOM AMBIENT<br/>Ta= 25.5 °C</th><th>HIGH AMBIENT<br/>Ta= 56.3 °C</th></tr><tr><td>1</td><td>C1</td><td>58.5°C</td><td>91.3°C</td></tr><tr><td>2</td><td>BD1</td><td>61.1°C</td><td>94.2°C</td></tr><tr><td>3</td><td>L2</td><td>59.8°C</td><td>93.0°C</td></tr><tr><td>4</td><td>C10</td><td>60.3°C</td><td>93.2°C</td></tr><tr><td>5</td><td>C11</td><td>62.1°C</td><td>93.9°C</td></tr><tr><td>6</td><td>Q2</td><td>63.0°C</td><td>97.0°C</td></tr><tr><td>7</td><td>RTH2</td><td>73.6°C</td><td>103.8°C</td></tr><tr><td>8</td><td>Q901</td><td>61.7°C</td><td>97.6°C</td></tr><tr><td>9</td><td>T2</td><td>63.1°C</td><td>97.5°C</td></tr><tr><td>10</td><td>L1</td><td>60.9°C</td><td>94.4°C</td></tr><tr><td>11</td><td>C5</td><td>61.0°C</td><td>94.5°C</td></tr><tr><td>12</td><td>ZNR1</td><td>55.5°C</td><td>87.7°C</td></tr><tr><td>13</td><td>Q35</td><td>61.2°C</td><td>95.2°C</td></tr><tr><td>14</td><td>C46</td><td>60.8°C</td><td>94.7°C</td></tr><tr><td>15</td><td>C54</td><td>59.2°C</td><td>92.3°C</td></tr><tr><td>16</td><td>RTH3</td><td>59.2°C</td><td>92.7°C</td></tr><tr><td>17</td><td>U901</td><td>58.7°C</td><td>92.0°C</td></tr><tr><td>18</td><td>T1</td><td>71.9°C</td><td>104.3°C</td></tr><tr><td>19</td><td>D100</td><td>64.2°C</td><td>96.4°C</td></tr><tr><td>20</td><td>C106</td><td>60.7°C</td><td>93.3°C</td></tr><tr><td>21</td><td>C201</td><td>52.5°C</td><td>86.2°C</td></tr><tr><td>22</td><td>LF100</td><td>57.7°C</td><td>90.2°C</td></tr></table> |                                                                   |                  | CH. | Position | ROOM AMBIENT<br>Ta= 25.5 °C | HIGH AMBIENT<br>Ta= 56.3 °C | 1 | C1 | 58.5°C | 91.3°C | 2 | BD1 | 61.1°C | 94.2°C | 3 | L2 | 59.8°C | 93.0°C | 4 | C10 | 60.3°C | 93.2°C | 5 | C11 | 62.1°C | 93.9°C | 6 | Q2 | 63.0°C | 97.0°C | 7 | RTH2 | 73.6°C | 103.8°C | 8 | Q901 | 61.7°C | 97.6°C | 9 | T2 | 63.1°C | 97.5°C | 10 | L1 | 60.9°C | 94.4°C | 11 | C5 | 61.0°C | 94.5°C | 12 | ZNR1 | 55.5°C | 87.7°C | 13 | Q35 | 61.2°C | 95.2°C | 14 | C46 | 60.8°C | 94.7°C | 15 | C54 | 59.2°C | 92.3°C | 16 | RTH3 | 59.2°C | 92.7°C | 17 | U901 | 58.7°C | 92.0°C | 18 | T1 | 71.9°C | 104.3°C | 19 | D100 | 64.2°C | 96.4°C | 20 | C106 | 60.7°C | 93.3°C | 21 | C201 | 52.5°C | 86.2°C | 22 | LF100 | 57.7°C | 90.2°C |
| CH. | Position                                                          | ROOM AMBIENT<br>Ta= 25.5 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HIGH AMBIENT<br>Ta= 56.3 °C                                       |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 1   | C1                                                                | 58.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 91.3°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 2   | BD1                                                               | 61.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 94.2°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 3   | L2                                                                | 59.8°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 93.0°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 4   | C10                                                               | 60.3°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 93.2°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 5   | C11                                                               | 62.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 93.9°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 6   | Q2                                                                | 63.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 97.0°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 7   | RTH2                                                              | 73.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 103.8°C                                                           |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 8   | Q901                                                              | 61.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 97.6°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 9   | T2                                                                | 63.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 97.5°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 10  | L1                                                                | 60.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 94.4°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 11  | C5                                                                | 61.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 94.5°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 12  | ZNR1                                                              | 55.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 87.7°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 13  | Q35                                                               | 61.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 95.2°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 14  | C46                                                               | 60.8°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 94.7°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 15  | C54                                                               | 59.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 92.3°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 16  | RTH3                                                              | 59.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 92.7°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 17  | U901                                                              | 58.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 92.0°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 18  | T1                                                                | 71.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 104.3°C                                                           |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 19  | D100                                                              | 64.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 96.4°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 20  | C106                                                              | 60.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 93.3°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 21  | C201                                                              | 52.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 86.2°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 22  | LF100                                                             | 57.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 90.2°C                                                            |                  |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 2   | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | I/P : 528VAC/180VAC<br>O/P : 100 % LOAD<br>Ta= -45°C              | TEST : OK        |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 3   | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 60 °C<br>NO DAMAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | I/P : 538VAC<br>O/P : FULL LOAD<br>Ta= 60 °C<br>HUMIDITY= 95 %R.H | TEST : OK        |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 4   | TEMPERATURE<br>COEFFICIENT                                        | ± 0.03%/°C (0~60°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | I/P : 347 VAC<br>O/P : FULL LOAD                                  | ± 0%/°C (0~60°C) |     |          |                             |                             |   |    |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |      |        |         |   |      |        |        |   |    |        |        |    |    |        |        |    |    |        |        |    |      |        |        |    |     |        |        |    |     |        |        |    |     |        |        |    |      |        |        |    |      |        |        |    |    |        |         |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |
| 5   | STORAGE TEMPERATURE TEST                                          | 1. Thermal shock Temperature : -50°C~ +125°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 : $-45^{\circ}\text{C} \sim +65^{\circ}\text{C}$<br>2. Temperature change rate : $25^{\circ}\text{C} / \text{MIN}$<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 16 CYCLE<br>5. Input/Output condition :<br>15cycle:230V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST<br>1cycle:230V/ FULL LOAD Burn In Test | OK                                                              |
| 7  | VIBRATION TEST              | 1 Carton & 1 Set<br>(1) Waveform : Sine Wave<br>(2) Frequency : 10~500Hz<br>(3) Sweep Time : 12min/sweep cycle<br>(4) Acceleration : 5G<br>(5) Test Time : 70min in each axis (X.Y.Z)<br>(6) Ta : $25^{\circ}\text{C}$                                                                                                                                                 | TEST : OK                                                       |
| 8  | CAPACITOR LIFE CYCLE        | SUPPOSE C106 IS THE MOST CRITICAL COMPONENT<br>(1) I/P : 347VAC O/P : FULL LOAD Ta= $25^{\circ}\text{C}$ LIFE TIME<br>(2) I/P : 347VAC O/P : FULL LOAD Ta= $60^{\circ}\text{C}$ LIFE TIME<br>(3) I/P : 347VAC O/P : 75% LOAD Ta= $60^{\circ}\text{C}$ LIFE TIME<br>(4) I/P : 347VAC O/P : 50% LOAD Ta= $60^{\circ}\text{C}$ LIFE TIME                                  | (1) 221268 HRS<br>(2) 19976 HRS<br>(3) 37783HRS<br>(4) 43303HRS |
| 9  | MTBF                        | Conducted by Parts Stress Analysis Prediction<br>143.6K hrs min. MIL-HDBK-217F ( $25^{\circ}\text{C}$ )                                                                                                                                                                                                                                                                |                                                                 |
| 10 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure(Expected Life) :<br>50,000 hours @ Tcase $80^{\circ}\text{C}$<br>                                                                                                                                                                            |                                                                 |

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

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