



Test Report: HLG-480H-C1400

480W 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

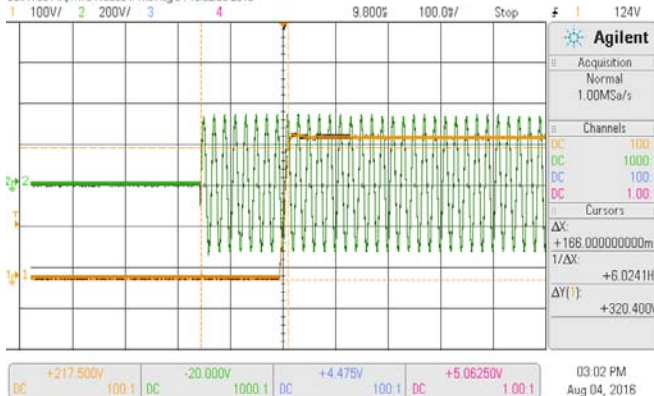
OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|-----------------------------|---|---|--|
| 1 | CURRENT TOLERANCE | ±5% | I/P: 230 VAC I/P:115VAC O/P:FULL LOAD Ta:25°C | 1.4008 A /230VAC@CV MAX-1V 1.4024A /230VAC@CV MIN 1.4000A/115VAC@CV MAX-1V 1.4028A/115VAC@CV MIN 0.17% |
| 2 | CONSTANT CURRENT REGION | CH1: 171 V~ 343V | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | 1V~343V /230VAC |
| 3 | OPEN CIRCUIT VOLTAGE (max.) | 420V | I/P: 230 VAC O/P:NO LOAD Ta:25°C | 349.2V |
| 4 | CURRENT ADJ. RANGE | CH1:700mA~ 1400mA | I/P: 230 VAC I/P:115VAC O/P:CV MIN & CV MAX-1V Ta:25°C | 598mA~1490mA/230VAC@CVMAX-1V 598mA~1490mA /230VAC@CV MIN 598mA~1490mA /115VAC@CV MAX-1V 598mA~1490mA /115VAC@CV MIN |
| 5 | CURRENT RIPPLE | 5% max. @rated current | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | 2.84% |
| 6 | SET UP TIME (Max) | 230VAC/ 500 ms (Max) 115VAC/ 500ms (Max) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | 230VAC/ 166 ms 115 VAC/ 194 ms |

INPUT=230VAC/50HZ @ FULL LOAD

CH1 : Output Voltage CH2 : AC Input Voltage

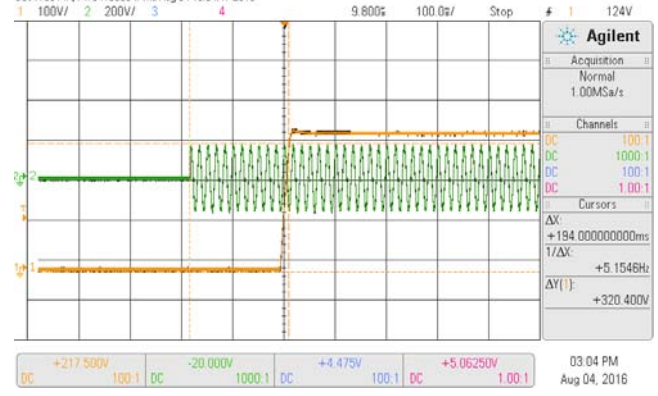
030-X:3014A, M154100664, Thu Aug 04 15:02:35 2016



INPUT=115VAC/60HZ @ FULL LOAD

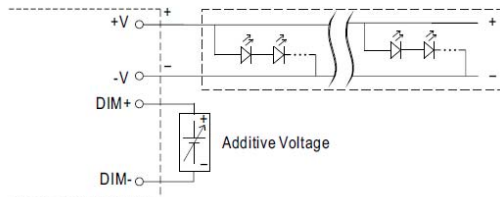
CH1 : Output Voltage CH2 : AC Input Voltage

030-X:3014A, M154100664, Thu Aug 04 15:04:47 2016



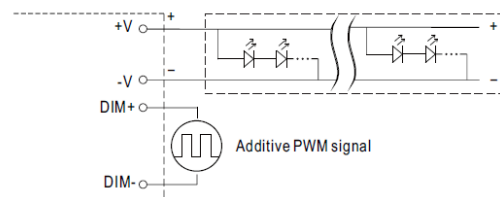
| | | |
|---|--------------------------------|---|
| 7 | DIMMING OPERATION (for B-Type) | <p>※3 in 1 dimming function</p> <p>※Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.</p> <p>※Direct connecting 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



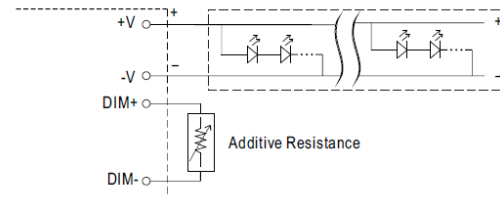
"DO NOT connect "DIM- to -V"

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

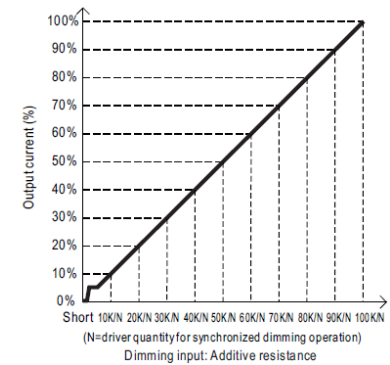
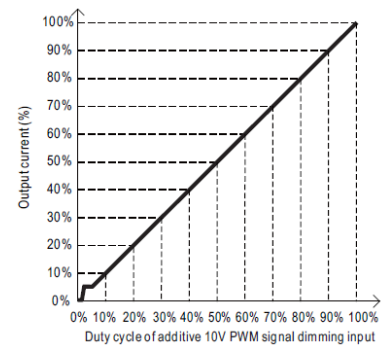
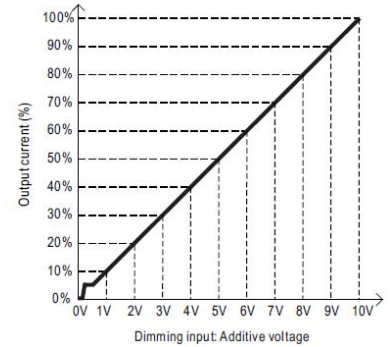


"DO NOT connect "DIM- to -V"

◎ Applying additive resistance:



"DO NOT connect "DIM- to -V"



Note : 1. Min. dimming level is about 6% and the output current is not defined when 0% < I_{out} < 6%.

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.

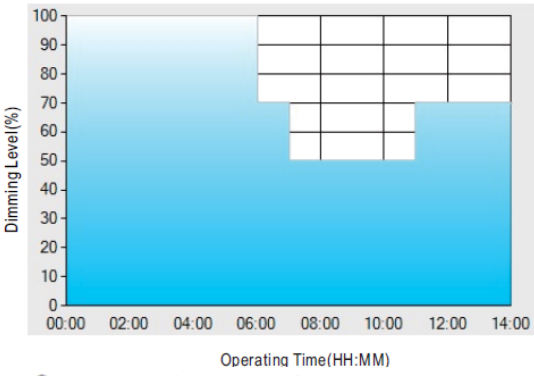
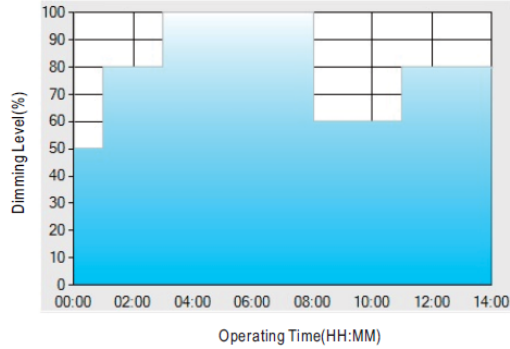
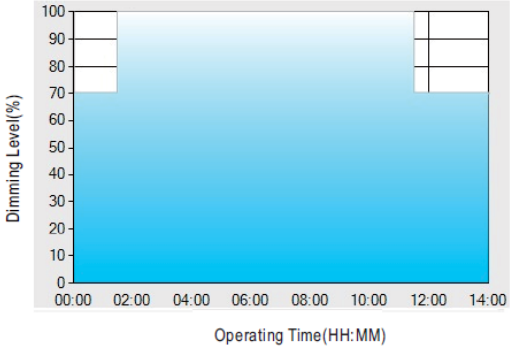
I/P : 230VAC

O/P : DIMMING TEST

TA : 25°C

| R | SHORT | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K | OPEN |
|-------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| O/P CURRENT | 0A | 0.118A | 0.264A | 0.411A | 0.554A | 0.693A | 0.837A | 0.975A | 1.112A | 1.262A | 1.400A | 1.400A |
| % | 0% | 8.43% | 18.86% | 29.36% | 39.57% | 49.50% | 59.79% | 69.64% | 79.43% | 90.14% | 100.00% | 100.00% |
| V | 0V | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | OPEN |
| O/P CURRENT | 0A | 0.131A | 0.240A | 0.399A | 0.553A | 0.701A | 0.853A | 0.980A | 1.139A | 1.276A | 1.400A | 1.400A |
| % | 0% | 9.36% | 17.14% | 28.50% | 39.50% | 50.07% | 60.93% | 70.00% | 81.36% | 91.14% | 100.00% | 100.00% |
| PWM (100HZ) | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | OPEN |
| O/P CURRENT | 0A | 0.098A | 0.252A | 0.404A | 0.558A | 0.710A | 0.860A | 1.008A | 1.131A | 1.278A | 1.400A | 1.400A |
| % | 0% | 7.00% | 18.00% | 28.86% | 39.86% | 50.71% | 61.43% | 72.00% | 80.79% | 91.29% | 100.00% | 100.00% |

TEST RESULT : OK

| 8 | <p>DIMMING OPERATION (for Dxx-Type by User definition)</p> | <p>※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</p>  <p>Set up for D01-Type in Smart timer dimming software program:</p> <table border="1" data-bbox="1050 593 1484 721"> <thead> <tr> <th></th> <th>T1</th> <th>T2</th> <th>T3</th> <th>T4</th> </tr> </thead> <tbody> <tr> <td>TIME**</td> <td>06:00</td> <td>07:00</td> <td>11:00</td> <td>--</td> </tr> <tr> <td>LEVEL**</td> <td>100%</td> <td>70%</td> <td>50%</td> <td>70%</td> </tr> </tbody> </table> <p>Ex: Ⓒ D02-Type: the profile recommended for street lighting</p>  <p>Set up for D02-Type in Smart timer dimming software program:</p> <table border="1" data-bbox="997 990 1497 1117"> <thead> <tr> <th></th> <th>T1</th> <th>T2</th> <th>T3</th> <th>T4</th> <th>T5</th> </tr> </thead> <tbody> <tr> <td>TIME**</td> <td>01:00</td> <td>03:00</td> <td>8:00</td> <td>11:00</td> <td>--</td> </tr> <tr> <td>LEVEL**</td> <td>50%</td> <td>80%</td> <td>100%</td> <td>60%</td> <td>80%</td> </tr> </tbody> </table> <p>Ex: Ⓒ D03-Type: the profile recommended for tunnel lighting</p>  <p>Set up for D03-Type in Smart timer dimming software program:</p> <table border="1" data-bbox="1066 1384 1417 1518"> <thead> <tr> <th></th> <th>T1</th> <th>T2</th> <th>T3</th> </tr> </thead> <tbody> <tr> <td>TIME**</td> <td>01:30</td> <td>11:00</td> <td>---</td> </tr> <tr> <td>LEVEL**</td> <td>70%</td> <td>100%</td> <td>70%</td> </tr> </tbody> </table> <p>I/P : 230VAC O/P : DIMMING TEST TA : 25°C TEST RESULT : OK</p> | | T1 | T2 | T3 | T4 | TIME** | 06:00 | 07:00 | 11:00 | -- | LEVEL** | 100% | 70% | 50% | 70% | | T1 | T2 | T3 | T4 | T5 | TIME** | 01:00 | 03:00 | 8:00 | 11:00 | -- | LEVEL** | 50% | 80% | 100% | 60% | 80% | | T1 | T2 | T3 | TIME** | 01:30 | 11:00 | --- | LEVEL** | 70% | 100% | 70% |
|---------|--|--|-------|-------|-----|----|----|--------|-------|-------|-------|----|---------|------|-----|-----|-----|--|----|----|----|----|----|--------|-------|-------|------|-------|----|---------|-----|-----|------|-----|-----|--|----|----|----|--------|-------|-------|-----|---------|-----|------|-----|
| | T1 | T2 | T3 | T4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TIME** | 06:00 | 07:00 | 11:00 | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEVEL** | 100% | 70% | 50% | 70% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | T1 | T2 | T3 | T4 | T5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TIME** | 01:00 | 03:00 | 8:00 | 11:00 | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEVEL** | 50% | 80% | 100% | 60% | 80% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | T1 | T2 | T3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TIME** | 01:30 | 11:00 | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEVEL** | 70% | 100% | 70% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|---------------------|---------------|---|-----------|
| 1 | INPUT VOLTAGE RANGE | 90VAC~305 VAC | I/P:TESTING O/P:FULL LOAD Ta:25°C | 74V~305 V |



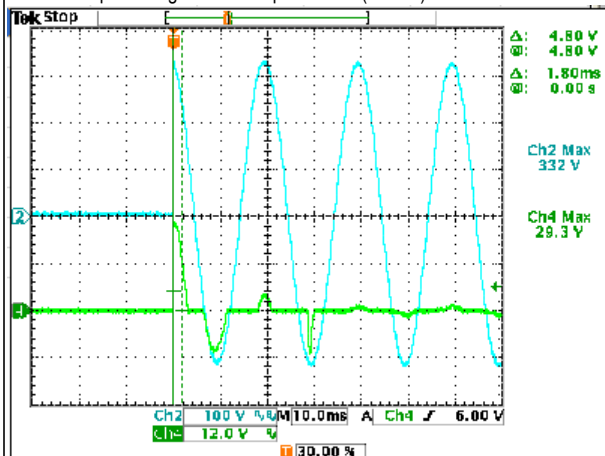
480W Single Output LED Power Supply

HLG-480H-C series

| | | | | |
|---|-----------------------|--|---|--|
| | | | I/P: LOW-LINE-3V=87 V HIGH-LINE+10V=315 V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE) | TEST:OK |
| 2 | INPUT FREQUENCY RANGE | 47HZ ~63 HZ NO DAMAGE | I/P: 100 VAC ~305VAC O/P:FULL~MIN LOAD Ta:25°C | OK |
| 3 | INPUT CURRENT (TYP) | 277VAC/ 2A 230 VAC/ 2.45 A 115 VAC/ 5 A | I/P: 277VAC/230 VAC/115 VAC O/P:FULL LOAD Ta:25°C | I= 1.918 A/277VAC I = 2.27 A/ 230VAC I = 4.594 A/ 115VAC |
| 4 | LEAKAGE CURRENT | < 0.75 mA / 277 VAC | I/P : 277 VAC O/P : Min LOAD Ta : 25°C | L-FG: 0.26mA N-FG:0.26 mA |
| 5 | INRUSH CURRENT (TYP) | 230 V/ 35A COLD START (twidth=1800us measured at 50% Ipeak) COLD START | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | I= 29.3 A/ 230VAC T50= 1320 μS |

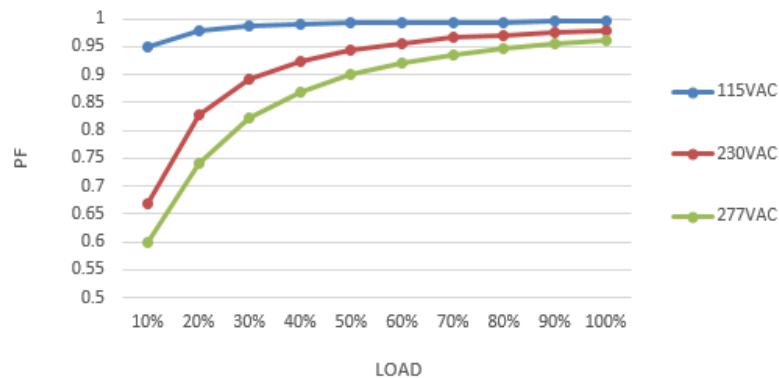
INPUT=230VAC/50HZ @ FULL LOAD

CH2 : AC Input Voltage CH4 : Input current (1V=1A)



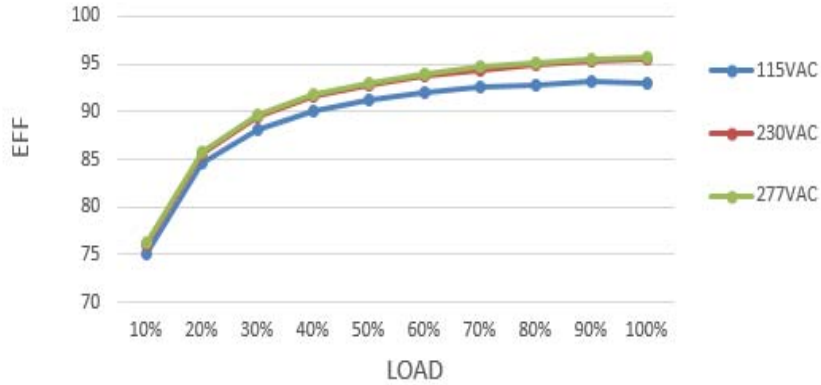
| | | | | |
|---|-------------------|--|--|---|
| 6 | POWER FACTOR(TYP) | 0.97/230 VAC FULL LOAD 0.98/115 VAC FULL LOAD 0.96/277 VAC FULL LOAD | I/P: 230 VAC/115VAC/277VAC O/P:FULL LOAD Ta:25°C | PF=0.983 /230V/100%LOAD PF=0.998 /115V/100%LOAD PF=0.962 /277V/100%LOAD |
|---|-------------------|--|--|---|

P.F vs LOAD



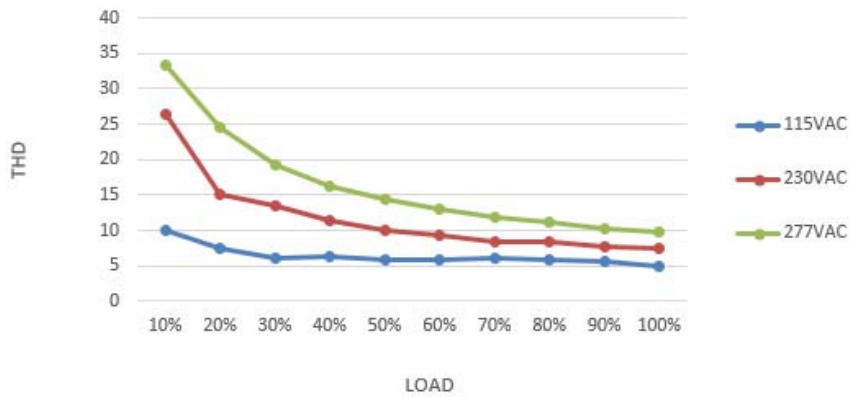
| | | | | |
|---|------------------|-----|--|-------|
| 7 | EFFICIENCY (TYP) | 95% | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | 95.4% |
|---|------------------|-----|--|-------|

EFFICIENCY vs LOAD



| | | | | |
|---|---------------------------|---|--|------------------------------|
| 8 | TOTAL HARMONIC DISTORTION | THD < 20% @ output load ≥ 40% at 115VAC/230VAC/277VAC input | I/P : 115VAC O/P : 100% LOAD 40% LOAD Ta : 25°C | THD : 5.8 % THD : 6.33 % |
| | | | I/P : 230VAC O/P : 100% LOAD 40% LOAD Ta : 25°C | THD : 5.24 % THD : 7.33 % |
| | | | I/P : 277VAC O/P : 100% LOAD 40% LOAD Ta : 25°C | THD : 8.16 % THD : 9.41 % |

THD&LOAD



PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|-------------------------|---|---|---|
| 1 | OVER VOLTAGE PROTECTION | V1: 432 V~ 473 V PROTECTION TYPE : Shut down output voltage, re-power on to recovery | I/P: 305VAC I/P: 230VAC I/P: 90VAC O/P: MIN LOAD Ta: 25°C | 445V/ 305VAC 445V/ 230VAC 445V/ 90VAC PROTECTION TYPE : Shut down output voltage, re-power on to recovery |

| | | | | |
|---|-----------------------------|--|---|---|
| 2 | OVER TEMPERATURE PROTECTION | PROTECTION TYPE : Shut down output voltage, re-power on to recovery | I/P: 305 VAC I/P: 90 VAC O/P: FULL LOAD | O.T.P Active PROTECTION TYPE : Shut down output voltage, re-power on to recovery |
| 3 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE PROTECTION TYPE : Constant current, recovers automatically after fault condition is removed | I/P: 305VAC I/P: 90 VAC O/P: FULL LOAD Ta:25°C | NO DAMAGE PROTECTION TYPE : Constant current, recovers automatically after fault condition is removed |

COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|--|--|---|--|
| 1 | PWM Transistor (D to S) or (C to E) Peak Voltage | Q 10 Rated 13 A/ 600 V Q 13 Rated 13 A/ 600 V | I/P: High-Line +3V = 308V AC ON/OFF VDS: O/P: (1) Full Load (2) Output Short (3) Full Load continue (4) NO LOAD I/P: Low-Line -3V = 97V VDS: O/P: (1) Full Load (2) Output Short (3) Full Load continue (4) NO LOAD Ta: 25°C | Q10 Q13 VDS: (1) 486V (2) 490V (3) 474V (4) 466V VDS: (1) 482V (2) 482V (3) 470V (4) 482V VDS: (1) 514V (2) 490V (3) 462V (4) 466V VDS: (1) 510V (2) 482V (3) 470V (4) 490V |
| 2 | P.F.C Transistor (D to S) or (C to E) Peak Voltage | Q1 Rated 13 A/ 600 V | I/P: High-Line +3V = 308V AC ON/OFF VDS: O/P: (1) Full Load (2) Output Short (3) Full Load continue (4) NO LOAD I/P: Low-Line -3V = 97V VDS: O/P: (1) Full Load (2) Output Short (3) Full Load continue (4) NO LOAD Ta: 25°C | Q1 VDS: (1) 514V (2) 458V (3) 502V (4) 458V VDS: (1) 509V (2) 462V (3) 546V (4) 458V |
| 3 | P.F.C DIODE | D8 Rated 12A/ 600V | I/P: High-Line +3V = 308 V AC ON/OFF O/P: (1) Full Load (2) Output Short (3) Full Load continue (4) NO LOAD I/P: Low-Line -3V = 97V AC ON/OFF O/P: (1) Full Load (2) Output Short (3) Full Load continue (4) NO LOAD | 308V (1) 440V (2) 448V (3) 440V (4) 448V 97V (1) 520V (2) 428V (3) 520V (4) 428V |

| | | | | |
|---|-------------------------|---|--|---|
| | | | Ta:25°C | |
| 4 | Diode Peak Voltage | D102 Rated 20 A/600 V D103 Rated 70 A/600 V | I/P:High-Line +3V =308 V AC ON/OFF O/P: (1)Full Load (2)Output Short (3) Full Load continue (4)NO LOAD Ta:25°C | D102 VDS: (1)335V (2)6V (3)335V (4)347V D103 VDS: (1)339V (2)10V (3)339V (4)347V |
| 5 | Input Capacitor Voltage | C5 Rated: 150µ/ 450V 105 °C | I/P:High-Line +3V =308V O/P: (1)Full Load input on/off (2) Min load input on /Off (3)Full load continue Ta:25°C | (1)442V (2)446V (3)446V |
| 6 | Control IC Voltage Test | PWM IC U2 Rated 16V~ 8.85V(MIN.) PFC IC U1 Rated 20V~10.5V(MIN.) | I/P:High-Line +3V =308 V AC ON/OFF O/P:(1)FULL LOAD (2) Output Short (3)O.V.P. Ta:25°C | (1) 14.4V (2) 14.6V (3) 12.8V (1)14.6V (2)15V (3)13.6V |

SAFETY & EMC TEST REPORT

SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|----------------------|--|---|--|
| 1 | WITHSTAND VOLTAGE | IEC60950-1 I/P-O/P: 3.75KVAC/min I/P-FG:2 KVAC/min<4.5mA O/P-FG:1.5KVAC/min | I/P-O/P: 4.125 KVAC/min I/P-FG: 2.4KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C | I/P-O/P: 4.82 mA I/P-FG: 4.13mA O/P-FG:5.89mA NO DAMAGE |
| 2 | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ | I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C | I/P-O/P:26.1GΩ I/P-FG:7.87 G Ω O/P-FG:30 G Ω NO DAMAGE |
| 3 | GROUNDING CONTINUITY | IEC60950-1 FG(PE) TO CHASSIS OR TRACE < 100 mΩ | 40A / 2min Ta:25°C | 25 mΩ |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|------------|------------------------|--|-------------------------------|
| 1 | HARMONIC | EN61000-3-2 CLASS C | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | PASS |
| 2 | CONDUCTION | EN55015 CLASS B | I/P: 230 VAC /50HZ O/P:FULL/50% LOAD Ta:25°C | PASS Test by certified Lab |
| 3 | RADIATION | EN55015 CLASS B | I/P: 230 VAC /50HZ O/P:FULL LOAD Ta:25°C | PASS Test by certified Lab |

| | | | | |
|---|---|--|---|------------|
| 4 | E.S.D | EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A |
| 5 | E.F.T | EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A |
| 6 | SURGE | IEC61000-4-5 LIGHT INDUSTRY L-N :2KV L,N-PE:4KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A |
| 7 | Test by certified Lab & Test Report Prepare. Any contradictions of the test results, please refer to the latest EMC test report. | | | |

RELIABILITY TEST

ENVIRONMENT TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|-----------------------|--|-----------------------|---|----|----------|--------------------------|-----------------------|---|-----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|------|--------|--------|----|----|--------|--------|----|----|--------|--------|----|----|--------|--------|----|----|--------|--------|----|----|--------|--------|----|----|--------|--------|----|----|--------|---------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|-------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|-----|--------|--------|----|------|--------|--------|
| 1 | TEMPERATURE RISE TEST | MODEL : HLG-480H-C1400 1. ROOM AMBIENT BURN-IN : 3 HRS I/P : 230VAC O/P : FULL LOAD Ta= 31.2°C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 60°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 31.2 °C</th> <th>HIGH AMBIENT Ta= 60°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>BD2</td><td>70.0°C</td><td>96.9°C</td></tr> <tr><td>2</td><td>C10</td><td>65.3°C</td><td>93.0°C</td></tr> <tr><td>3</td><td>Q1</td><td>65.1°C</td><td>92.2°C</td></tr> <tr><td>4</td><td>D8</td><td>69.7°C</td><td>97.6°C</td></tr> <tr><td>5</td><td>Q10</td><td>68.6°C</td><td>96.4°C</td></tr> <tr><td>6</td><td>Q12</td><td>69.6°C</td><td>97.1°C</td></tr> <tr><td>7</td><td>RY1</td><td>67.5°C</td><td>94.4°C</td></tr> <tr><td>8</td><td>LF2</td><td>61.3°C</td><td>87.3°C</td></tr> <tr><td>9</td><td>ZNR2</td><td>60.9°C</td><td>86.6°C</td></tr> <tr><td>10</td><td>C1</td><td>60.1°C</td><td>85.8°C</td></tr> <tr><td>11</td><td>C5</td><td>61.2°C</td><td>87.3°C</td></tr> <tr><td>12</td><td>L3</td><td>68.6°C</td><td>96.3°C</td></tr> <tr><td>13</td><td>U1</td><td>60.5°C</td><td>86.1°C</td></tr> <tr><td>14</td><td>U2</td><td>61.2°C</td><td>86.6°C</td></tr> <tr><td>15</td><td>T1</td><td>75.2°C</td><td>98.6°C</td></tr> <tr><td>16</td><td>T2</td><td>78.6°C</td><td>102.6°C</td></tr> <tr><td>17</td><td>D102</td><td>67.0°C</td><td>92.2°C</td></tr> <tr><td>18</td><td>D114</td><td>66.1°C</td><td>91.0°C</td></tr> <tr><td>19</td><td>C105</td><td>62.0°C</td><td>86.3°C</td></tr> <tr><td>20</td><td>LF100</td><td>60.5°C</td><td>84.8°C</td></tr> <tr><td>21</td><td>T500</td><td>63.0°C</td><td>87.8°C</td></tr> <tr><td>22</td><td>C511</td><td>63.0°C</td><td>88.5°C</td></tr> <tr><td>23</td><td>U501</td><td>60.8°C</td><td>85.9°C</td></tr> <tr><td>24</td><td>J101</td><td>62.0°C</td><td>86.9°C</td></tr> <tr><td>25</td><td>C93</td><td>63.4°C</td><td>89.0°C</td></tr> <tr><td>26</td><td>RTH2</td><td>62.5°C</td><td>87.3°C</td></tr> </tbody> </table> | NO | Position | ROOM AMBIENT Ta= 31.2 °C | HIGH AMBIENT Ta= 60°C | 1 | BD2 | 70.0°C | 96.9°C | 2 | C10 | 65.3°C | 93.0°C | 3 | Q1 | 65.1°C | 92.2°C | 4 | D8 | 69.7°C | 97.6°C | 5 | Q10 | 68.6°C | 96.4°C | 6 | Q12 | 69.6°C | 97.1°C | 7 | RY1 | 67.5°C | 94.4°C | 8 | LF2 | 61.3°C | 87.3°C | 9 | ZNR2 | 60.9°C | 86.6°C | 10 | C1 | 60.1°C | 85.8°C | 11 | C5 | 61.2°C | 87.3°C | 12 | L3 | 68.6°C | 96.3°C | 13 | U1 | 60.5°C | 86.1°C | 14 | U2 | 61.2°C | 86.6°C | 15 | T1 | 75.2°C | 98.6°C | 16 | T2 | 78.6°C | 102.6°C | 17 | D102 | 67.0°C | 92.2°C | 18 | D114 | 66.1°C | 91.0°C | 19 | C105 | 62.0°C | 86.3°C | 20 | LF100 | 60.5°C | 84.8°C | 21 | T500 | 63.0°C | 87.8°C | 22 | C511 | 63.0°C | 88.5°C | 23 | U501 | 60.8°C | 85.9°C | 24 | J101 | 62.0°C | 86.9°C | 25 | C93 | 63.4°C | 89.0°C | 26 | RTH2 | 62.5°C | 87.3°C |
| NO | Position | ROOM AMBIENT Ta= 31.2 °C | HIGH AMBIENT Ta= 60°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | BD2 | 70.0°C | 96.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | C10 | 65.3°C | 93.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Q1 | 65.1°C | 92.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | D8 | 69.7°C | 97.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Q10 | 68.6°C | 96.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Q12 | 69.6°C | 97.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | RY1 | 67.5°C | 94.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | LF2 | 61.3°C | 87.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | ZNR2 | 60.9°C | 86.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | C1 | 60.1°C | 85.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | C5 | 61.2°C | 87.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | L3 | 68.6°C | 96.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | U1 | 60.5°C | 86.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | U2 | 61.2°C | 86.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | T1 | 75.2°C | 98.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | T2 | 78.6°C | 102.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | D102 | 67.0°C | 92.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | D114 | 66.1°C | 91.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | C105 | 62.0°C | 86.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | LF100 | 60.5°C | 84.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | T500 | 63.0°C | 87.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | C511 | 63.0°C | 88.5°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | U501 | 60.8°C | 85.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | J101 | 62.0°C | 86.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | C93 | 63.4°C | 89.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | RTH2 | 62.5°C | 87.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



480W Single Output LED Power Supply

HLG-480H-C series

| | | | | |
|----|---|---|--|---|
| 2 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P : 305VAC/100VAC O/P : 100 % LOAD Ta= -45°C | TEST : OK |
| 3 | HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST | AFTER 12 HOURS IN CHAMBER ON CONTROL 60 °C NO DAMAGE | I/P : 315 VAC O/P : FULL LOAD Ta= 60 °C HUMIDITY= 95 %R.H | TEST : OK |
| 4 | TEMPERATURE COEFFICIENT | ± 0.03%/°C (0~60°C) | I/P : 230 VAC O/P : FULL LOAD | ± 0.007 %/°C (0~60°C) |
| 5 | STORAGE TEMPERATURE TEST | 1. Thermal shock Temperature : -45°C~ +90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC | | OK |
| 6 | THERMAL SHOCK TEST | 1. Thermal shock Temperature : -45°C~ +65°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : 15cycle:230V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST 1cycle:230V/ FULL LOAD Burn In Test | | OK |
| 7 | VIBRATION TEST | 1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 5G (5) Test Time : 60min in each axis (X.Y.Z) (6) Ta : 25°C | | TEST : OK |
| 8 | CAPACITOR LIFE CYCLE | SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Tc= 75°C LIFE TIME (2) I/P : 230VAC O/P : 75% LOAD Tc= 75°C LIFE TIME (3) I/P : 230VAC O/P : 50% LOAD Tc= 75°C LIFE TIME | | (1) 94807 HRS (2) 95921 HRS (3) 96707 HRS |
| 9 | MTBF | Conducted by Parts Stress Analysis Prediction 421.1K hrs min. Telcordia SR-332 (Bellcore) ; 110.5K hrs min. MIL-HDBK-217F (25°C) | | |
| 10 | Ongoing Reliability Test | I/P : 230VAC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 62,000 hours | | |

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

12.10.30 A50-F031