



# Test Report: LCM-25

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25W Multiple-Stage Output Current LED Power Supply

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control 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                                                                                                                                                                      | VERDICT |
|----|----------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1  | RIPPLE & NOISE       | V1 : 400 mVp-p (Max )                                                                                                       | I/P : 230VAC<br>O/P : FULL LOAD<br>Ta : 25°C  | 350mA : 58.0 mVp-p (Max )<br>500mA : 62.4 mVp-p (Max )<br>600mA : 70.4 mVp-p (Max )<br>700mA : 62.0 mVp-p (Max )<br>900mA : 77.2 mVp-p (Max )<br>1050mA : 86.8 mVp-p (Max ) | PASS    |
| 2  | NO LOAD O/P VOLTAGE  | 350mA : 59V (Max)<br>500mA : 59V (Max)<br>600mA : 59V (Max)<br>700mA : 41V (Max)<br>900mA : 41V (Max)<br>1050mA : 41V (Max) | I/P : 230 VAC<br>O/P : NO LOAD<br>Ta : 25°C   | 350mA : 56.30 V<br>500mA : 56.30 V<br>600mA : 56.30 V<br>700mA : 39.59 V<br>900mA : 39.59 V<br>1050mA : 39.59 V                                                             | PASS    |
| 3  | RIPPLE CURRENT       | ±5%                                                                                                                         | I/P : 230VAC<br>O/P : LED LOAD<br>Ta : 25°C   | 350mA : ± 4.57 %<br>500mA : ± 4.40 %<br>600mA : ± 4.00 %<br>700mA : ± 4.86 %<br>900mA : ± 4.00 %<br>1050mA : ± 4.95 %                                                       | PASS    |
| 4  | CURRENT ACCURACY     | ±5%                                                                                                                         | I/P : 230VAC<br>O/P : MIN-MAX<br>Ta : 25°C    | 350mA : ± 2.66 %<br>500mA : ± 2.30 %<br>600mA : ± 2.68 %<br>700mA : ± 2.69 %<br>900mA : ± 2.87 %<br>1050mA : ± 1.19 %                                                       | PASS    |
| 5  | SET UP TIME          | 230VAC : 500 ms (Max)                                                                                                       | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | 230VAC/ 358 ms                                                                                                                                                              | PASS    |
| 6  | RISE TIME            | 230VAC : 50 ms (Max)                                                                                                        | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | 230VAC/ 16 ms                                                                                                                                                               | PASS    |
| 7  | HOLD UP TIME         | 230VAC : 30 ms (TYP)                                                                                                        | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | 230VAC/ 40 ms                                                                                                                                                               | PASS    |
| 8  | OVER/UNDERSHOOT TEST | < ± 5%                                                                                                                      | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | TEST : <5 %                                                                                                                                                                 | PASS    |

### INPUT FUNCTION TEST

| NO | TEST ITEM                 | SPECIFICATION                                                                         | TEST CONDITION                                                                                                                                                                                                                                     | RESULT                                       | VERDICT |
|----|---------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------|
| 1  | INPUT VOLTAGE RANGE       | 180VAC~277 VAC                                                                        | I/P : TESTING<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                                                      | 180 V~277V                                   | PASS    |
|    |                           |                                                                                       | I/P :<br>(1)LOW-LINE-3V=177 V<br>HIGH-LINE+10V=287 V<br>O/P:FULL/MIN LOAD<br>ON: 30 Sec OFF: 30 Sec 10MIN<br>(2)I/P:230Vac<br>ON: 0.5 Sec OFF: 0.5 Sec 20MIN<br>(3)I/P:230Vac<br>ON: 0.3 Sec OFF: 0.3 Sec 12HOURS<br>( AC POWER ON/OFF NO DAMAGE ) | TEST:<br>(1) OK<br>(2) OK<br>(3) OK          |         |
| 2  | INPUT FREQUENCY RANGE     | 47HZ ~63 HZ<br>NO DAMAGE                                                              | I/P : 180 VAC ~ 295 VAC<br>O/P : FULL~MIN LOAD<br>Ta : 25°C                                                                                                                                                                                        | TEST : OK                                    | PASS    |
| 3  | POWER FACTOR              | 0.94 / 230 VAC(TYP)<br>0.91 / 277 VAC(TYP)                                            | I/P : 230 VAC<br>I/P : 277 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                                     | PF= 0.978 / 230 VAC<br>PF= 0.957 / 277 VAC   | PASS    |
|    |                           |                                                                                       |                                                                                                                                                                                                                                                    |                                              |         |
| 4  | EFFICIENCY                | 86 % (TYP)                                                                            | I/P : 230 VAC<br>O/P : LED:50V @500mA<br>Ta : 25°C                                                                                                                                                                                                 | 86.21 %                                      | PASS    |
| 5  | INPUT CURRENT             | 230V/ 0.17 A (TYP)<br>277V/ 0.15 A (TYP)                                              | I/P : 230 VAC<br>I/P : 277 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                                     | I = 0.136 A/ 230 VAC<br>I = 0.116 A/ 277 VAC | PASS    |
|    |                           |                                                                                       |                                                                                                                                                                                                                                                    |                                              |         |
| 6  | INRUSH CURRENT            | 230V/ 20 A (TYP)<br>(twidth=260us measured at 50% I <sub>peak</sub> )<br>COLD START   | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                                                      | I = 15.3 A/ 230 VAC<br>T50= 160 us           | PASS    |
| 7  | LEAKAGE CURRENT           | < 0.5 mA / 240 VAC                                                                    | I/P : 240 VAC<br>O/P : Min LOAD<br>Ta : 25°C                                                                                                                                                                                                       | L-FG : 0.0025 mA<br>N-FG : 0.0025 mA         | PASS    |
| 8  | NO LOAD CONSUMPTION       | < 0.5 W                                                                               | I/P : 230VAC<br>O/P : NO LOAD<br>Ta : 25°C                                                                                                                                                                                                         | 0.452 W                                      | PASS    |
| 9  | TOTAL HARMONIC DISTORTION | Total harmonic distortion will be lower than 20% when output loading is 75% or higher | I/P : 230 VAC<br>O/P : 50% LOAD<br>I/P : 277 VAC<br>O/P : 75%LOAD<br>Ta : 25°C                                                                                                                                                                     | THD : 15.19% /230VAC<br>THD : 14.46% /277VAC | PASS    |

### PROTECTION FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION                          | TEST CONDITION                                | RESULT                                                                                          | VERDICT |
|----|-----------------------------|----------------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------|---------|
| 1  | OVER TEMPERATURE PROTECTION | Shut down Re-power ON                  | I/P : 230 VAC<br>O/P : FULL LOAD              | O.T.P. Active<br>Shut down o/p voltage, recovers automatically after temperature goes down      | PASS    |
| 2  | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P : 295 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | NO DAMAGE<br>Constant current limiting, recovers automatically after fault condition is removed | PASS    |

## CONTROL FUNCTION TEST

| NO                     | TEST ITEM                 | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | TEST CONDITION | RESULT  | VERDICT |         |         |         |         |         |          |          |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
|------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|---------|---------|---------|----------|----------|------|------|------|-------|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|--------|------|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|---------|------|-----|--------|-----|-----|-----|-----|-----|-----|-----|------|------|-------|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|--------|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|--|--|------|
| 1                      | DIP Switch Table          | <div>LCM-25 is a multiple-stage output current supply, selection of output current through DIP switch as table below</div> <table><tr><th>Io \ DIP S.W.</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th></tr><tr><td>350mA</td><td>----</td><td>----</td><td>----</td><td>----</td><td>----</td><td>----</td></tr><tr><td>500mA</td><td>ON</td><td>----</td><td>----</td><td>----</td><td>----</td><td>----</td></tr><tr><td>600mA</td><td>ON</td><td>ON</td><td>----</td><td>----</td><td>----</td><td>----</td></tr><tr><td>700mA(Factory Setting)</td><td>ON</td><td>ON</td><td>ON</td><td>----</td><td>----</td><td>ON</td></tr><tr><td>900mA</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>----</td><td>ON</td></tr><tr><td>1050mA</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td></tr></table> <div>TEST : OK</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Io \ DIP S.W.  | 1       | 2       | 3       | 4       | 5       | 6       | 350mA   | ----     | ----     | ---- | ---- | ---- | ----  | 500mA | ON      | ----    | ----    | ----    | ----    | ----    | 600mA   | ON      | ON      | ----    | ----     | ----   | ---- | 700mA(Factory Setting) | ON      | ON      | ON      | ----    | ----    | ON      | 900mA   | ON      | ON       | ON       | ON      | ---- | ON  | 1050mA | ON  | ON  | ON  | ON  | ON  | ON  |     |      | PASS |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| Io \ DIP S.W.          | 1                         | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3              | 4       | 5       | 6       |         |         |         |         |          |          |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 350mA                  | ----                      | ----                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ----           | ----    | ----    | ----    |         |         |         |         |          |          |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 500mA                  | ON                        | ----                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ----           | ----    | ----    | ----    |         |         |         |         |          |          |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 600mA                  | ON                        | ON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ----           | ----    | ----    | ----    |         |         |         |         |          |          |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 700mA(Factory Setting) | ON                        | ON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ON             | ----    | ----    | ON      |         |         |         |         |          |          |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 900mA                  | ON                        | ON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ON             | ON      | ----    | ON      |         |         |         |         |          |          |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 1050mA                 | ON                        | ON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ON             | ON      | ON      | ON      |         |         |         |         |          |          |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 2                      | Dimming function          | <div>Built-in 2 in 1 dimming function, output constant current level can be adjusted through output terminal by 0 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.</div> <div>Please DO NOT connect "DIM-" to "-Vo".</div> <div>0 ~ 10V dimming function for output current adjustment (Typical)</div> <table><tr><th>Current</th><th>0V</th><th>1V</th><th>2V</th><th>3V</th><th>4V</th><th>5V</th><th>6V</th><th>7V</th><th>8V</th><th>9V</th><th>10V</th><th>OPEN</th></tr><tr><td>350mA</td><td>0%</td><td>10.46 %</td><td>20.60 %</td><td>30.06 %</td><td>40.34 %</td><td>50.06 %</td><td>59.49 %</td><td>70.14 %</td><td>79.86 %</td><td>89.60 %</td><td>98.69 %</td><td>102.66 %</td></tr><tr><td>1050mA</td><td>0%</td><td>11.55 %</td><td>21.27 %</td><td>31.17 %</td><td>41.59 %</td><td>50.95 %</td><td>61.42 %</td><td>71.76 %</td><td>81.49 %</td><td>90.86 %</td><td>100.09 %</td><td>101.19 %</td></tr></table> <div>10V PWM signal for output current adjustment (Typical): Frequency range :100Hz ~ 3KHz</div> <table><tr><th>Current</th><th>0V</th><th>10%</th><th>20%</th><th>30%</th><th>40%</th><th>50%</th><th>60%</th><th>70%</th><th>80%</th><th>90%</th><th>100%</th><th>OPEN</th></tr><tr><td>350mA</td><td>0%</td><td>10.51 %</td><td>20.31 %</td><td>30.11 %</td><td>39.97 %</td><td>49.77 %</td><td>59.60 %</td><td>69.40 %</td><td>79.20 %</td><td>88.97 %</td><td>98.69 %</td><td>102.66 %</td></tr><tr><td>1050mA</td><td>0%</td><td>11.15 %</td><td>20.96 %</td><td>30.78 %</td><td>40.59 %</td><td>50.43 %</td><td>60.26 %</td><td>70.11 %</td><td>79.97 %</td><td>89.85 %</td><td>99.70 %</td><td>101.19 %</td></tr></table> | Current        | 0V      | 1V      | 2V      | 3V      | 4V      | 5V      | 6V      | 7V       | 8V       | 9V   | 10V  | OPEN | 350mA | 0%    | 10.46 % | 20.60 % | 30.06 % | 40.34 % | 50.06 % | 59.49 % | 70.14 % | 79.86 % | 89.60 % | 98.69 % | 102.66 % | 1050mA | 0%   | 11.55 %                | 21.27 % | 31.17 % | 41.59 % | 50.95 % | 61.42 % | 71.76 % | 81.49 % | 90.86 % | 100.09 % | 101.19 % | Current | 0V   | 10% | 20%    | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | OPEN | 350mA | 0% | 10.51 % | 20.31 % | 30.11 % | 39.97 % | 49.77 % | 59.60 % | 69.40 % | 79.20 % | 88.97 % | 98.69 % | 102.66 % | 1050mA | 0% | 11.15 % | 20.96 % | 30.78 % | 40.59 % | 50.43 % | 60.26 % | 70.11 % | 79.97 % | 89.85 % | 99.70 % | 101.19 % |  |  | PASS |
| Current                | 0V                        | 1V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2V             | 3V      | 4V      | 5V      | 6V      | 7V      | 8V      | 9V      | 10V      | OPEN     |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 350mA                  | 0%                        | 10.46 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20.60 %        | 30.06 % | 40.34 % | 50.06 % | 59.49 % | 70.14 % | 79.86 % | 89.60 % | 98.69 %  | 102.66 % |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 1050mA                 | 0%                        | 11.55 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 21.27 %        | 31.17 % | 41.59 % | 50.95 % | 61.42 % | 71.76 % | 81.49 % | 90.86 % | 100.09 % | 101.19 % |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| Current                | 0V                        | 10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 20%            | 30%     | 40%     | 50%     | 60%     | 70%     | 80%     | 90%     | 100%     | OPEN     |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 350mA                  | 0%                        | 10.51 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20.31 %        | 30.11 % | 39.97 % | 49.77 % | 59.60 % | 69.40 % | 79.20 % | 88.97 % | 98.69 %  | 102.66 % |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 1050mA                 | 0%                        | 11.15 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20.96 %        | 30.78 % | 40.59 % | 50.43 % | 60.26 % | 70.11 % | 79.97 % | 89.85 % | 99.70 %  | 101.19 % |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |
| 3                      | SYNCHRONIZATION OPERATION | <div>SPECIFICATION:</div> <div><ul style="list-style-type: none"><li>• 10 drivers(max.) synchronization (1 master + 9 slaves).</li><li>• Maximum cable length between each units : 20 meters.</li><li>• Maximum cable length from the master unit to each end of the last slave units : 120 meters.</li><li>• The lighting units driven by LCM units(Slaves) can be dimmed synchronously through a LCM unit(the master) directly controlled via 0~10Vdc or 10V PWM dimming function.</li></ul></div> <div>The wiring is shown as follows.</div> <div><div>• CN100, CN101 : used to synchronously control the LCM units in parallel.</div></div> <div>TEST CONDITION : I/P : 230 VAC FULL LOAD</div> <div>RESULT : OK</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |         | PASS    |         |         |         |         |         |          |          |      |      |      |       |       |         |         |         |         |         |         |         |         |         |         |          |        |      |                        |         |         |         |         |         |         |         |         |          |          |         |      |     |        |     |     |     |     |     |     |     |      |      |       |    |         |         |         |         |         |         |         |         |         |         |          |        |    |         |         |         |         |         |         |         |         |         |         |          |  |  |      |

## COMPONENT STRESS TEST

| NO | TEST ITEM                                              | SPECIFICATION                            | TEST CONDITION                                                                                                                               | RESULT                                                                                           | VERDICT |
|----|--------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------|
| 1  | Power Transistor<br>( D to S) or (C to E) Peak Voltage | Q2 Rated<br>950V/2A                      | I/P : High-Line +3V = 298 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>(3)Full load continue<br>Ta : 25°C                          | (1) 808 V<br>(2) 442 V<br>(3) 800 V                                                              | PASS    |
| 2  | Diode Peak Voltage                                     | D101 Rated<br>200V/4A                    | I/P : High-Line +3V = 298 V<br>O/P : (1)Full Load Turn on<br>(2)Output Short<br>(3)Full load continue<br>Ta : 25°C                           | (1) 166 V<br>(2) 149 V<br>(3) 136 V                                                              | PASS    |
| 3  | Input Capacitor Voltage                                | C5 Rated<br>10u/450V                     | I/P : High-Line +3V = 298 V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load<br>Change<br>Ta : 25°C | (1) 436 V<br>(2) 436 V<br>(3) 436 V                                                              | PASS    |
| 4  | Control IC Voltage Test                                | U2 Rated<br>26V<br><br>U1 Rated<br>22.5V | I/P : High-Line +3V = 298 V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load<br>Change<br>Ta : 25°C | U2<br>(1) 17.9 V<br>(2) 18.0 V<br>(3) 17.9 V<br><br>U1<br>(1) 19.5 V<br>(2) 19.6 V<br>(3) 19.5 V | PASS    |
| 5  | Power Transistor<br>( D to S) or (C to E) Peak Voltage | Q1 Rated<br>600V/4A                      | I/P : High-Line +3V = 298 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>(3)Full load continue<br>Ta : 25°C                          | (1) 488 V<br>(2) 416 V<br>(3) 426 V                                                              | PASS    |

## ■ SAFETY & E.M.C. TEST

### SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION                                                     | TEST CONDITION                                                               | RESULT                                                                   | VERDICT |
|----|----------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P: 3.75KVAC/min<br>I/P-DA±: 1.875KVAC<br>O/P-DA±: 1.875KVAC | I/P-O/P: 4.2 KVAC/min<br>I/P-DA±: 2.25KVAC<br>O/P-DA±: 2.25KVAC<br>Ta : 25°C | I/P-O/P: 0.978 mA<br>I/P-DA±: 0.032 mA<br>O/P-DA±: 0.031 mA<br>NO DAMAGE | PASS    |
| 2  | ISOLATION RESISTANCE | I/P-O/P: 500VDC>100MΩ                                             | I/P-O/P: 500 VDC<br>Ta: 25°C /70%RH                                          | I/P-O/P : >9999 MΩ<br>NO DAMAGE                                          | PASS    |

### E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                              | TEST CONDITION                                              | RESULT                        | VERDICT |
|----|---------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------|-------------------------------|---------|
| 1  | HARMONIC                                    | EN61000-3-2<br>CLASS C                                     | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD/50% LOAD<br>Ta : 25°C | PASS                          | PASS    |
| 2  | CONDUCTION                                  | EN55015<br>CLASS B                                         | I/P : 230 VAC (50HZ)<br>O/P : FULL LOAD<br>Ta : 25°C        | PASS<br>Test by certified Lab | PASS    |
| 3  | RADIATION                                   | EN55015<br>CLASS B                                         | I/P : 230 VAC (50HZ)<br>O/P : FULL LOAD<br>Ta : 25°C        | PASS<br>Test by certified Lab | PASS    |
| 4  | E.S.D                                       | EN61000-4-2<br>LIGHT INDUSTRY<br>AIR : 8KV / Contact : 4KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C          | CRITERIA A                    | PASS    |
| 5  | E.F.T                                       | EN61000-4-4<br>LIGHT INDUSTRY<br>INPUT : 1KV               | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C          | CRITERIA A                    | PASS    |
| 6  | SURGE                                       | IEC61000-4-5<br>LIGHT INDUSTRY<br>L-N : 2KV                | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C          | CRITERIA A                    | PASS    |
| 7  | Test by certified Lab & Test Report Prepare |                                                            |                                                             |                               |         |

## RELIABILITY TEST

### ENVIRONMENT TEST

| NO | TEST ITEM                                                         | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | TEST CONDITION                                                     | RESULT               | VERDICT |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
|----|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------|---------|----------|-----------------------------|-----------------------------|---|----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|---------|---|----|--------|---------|---|----|--------|--------|----|------|--------|--------|----|----|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|-----|--------|--------|----|----|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|---------|---------|----|----|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|------|
| 1  | TEMPERATURE RISE TEST                                             | <div>MODEL : LCM-25      DIP switch : 1050mA</div> <div>1. ROOM AMBIENT    BURN-IN : 2 HRS</div> <div>I/P : 230VAC    O/P : FULL LOAD    Ta=28.2 °C</div> <div>2. HIGH AMBIENT    BURN-IN : 2 HRS</div> <div>I/P : 230VAC    O/P : FULL LOAD    Ta= 42.1 °C</div> <table><thead><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT<br/>Ta= 28.2 °C</th><th>HIGH AMBIENT<br/>Ta= 42.1 °C</th></tr></thead><tbody><tr><td>1</td><td>C5</td><td>76.1°C</td><td>85.5°C</td></tr><tr><td>2</td><td>C61</td><td>70.8°C</td><td>80.2°C</td></tr><tr><td>3</td><td>C11</td><td>71.2°C</td><td>80.5°C</td></tr><tr><td>4</td><td>C42</td><td>82.2°C</td><td>91.6°C</td></tr><tr><td>5</td><td>LF1</td><td>55.1°C</td><td>64.9°C</td></tr><tr><td>6</td><td>Q1</td><td>81.1°C</td><td>90.2°C</td></tr><tr><td>7</td><td>Q2</td><td>98.9°C</td><td>108.9°C</td></tr><tr><td>8</td><td>T1</td><td>91.2°C</td><td>100.6°C</td></tr><tr><td>9</td><td>L1</td><td>64.0°C</td><td>73.5°C</td></tr><tr><td>10</td><td>RTH1</td><td>83.6°C</td><td>92.6°C</td></tr><tr><td>11</td><td>C2</td><td>62.0°C</td><td>71.8°C</td></tr><tr><td>12</td><td>C105</td><td>87.8°C</td><td>96.8°C</td></tr><tr><td>13</td><td>C106</td><td>72.9°C</td><td>82.3°C</td></tr><tr><td>14</td><td>C203</td><td>77.7°C</td><td>87.0°C</td></tr><tr><td>15</td><td>BD1</td><td>68.0°C</td><td>77.4°C</td></tr><tr><td>16</td><td>U1</td><td>77.7°C</td><td>87.2°C</td></tr><tr><td>17</td><td>U100</td><td>71.1°C</td><td>80.5°C</td></tr><tr><td>18</td><td>ZNR1</td><td>52.1°C</td><td>62.5°C</td></tr><tr><td>19</td><td>D101</td><td>102.5°C</td><td>111.4°C</td></tr><tr><td>20</td><td>L3</td><td>71.3°C</td><td>80.6°C</td></tr><tr><td>21</td><td>RTH2</td><td>78.8°C</td><td>88.4°C</td></tr><tr><td>22</td><td>U301</td><td>66.1°C</td><td>75.7°C</td></tr><tr><td>23</td><td>U905</td><td>73.3°C</td><td>83.0°C</td></tr><tr><td>24</td><td>CASE</td><td>68.6°C</td><td>79.5°C</td></tr></tbody></table> |                                                                    |                      | NO      | Position | ROOM AMBIENT<br>Ta= 28.2 °C | HIGH AMBIENT<br>Ta= 42.1 °C | 1 | C5 | 76.1°C | 85.5°C | 2 | C61 | 70.8°C | 80.2°C | 3 | C11 | 71.2°C | 80.5°C | 4 | C42 | 82.2°C | 91.6°C | 5 | LF1 | 55.1°C | 64.9°C | 6 | Q1 | 81.1°C | 90.2°C | 7 | Q2 | 98.9°C | 108.9°C | 8 | T1 | 91.2°C | 100.6°C | 9 | L1 | 64.0°C | 73.5°C | 10 | RTH1 | 83.6°C | 92.6°C | 11 | C2 | 62.0°C | 71.8°C | 12 | C105 | 87.8°C | 96.8°C | 13 | C106 | 72.9°C | 82.3°C | 14 | C203 | 77.7°C | 87.0°C | 15 | BD1 | 68.0°C | 77.4°C | 16 | U1 | 77.7°C | 87.2°C | 17 | U100 | 71.1°C | 80.5°C | 18 | ZNR1 | 52.1°C | 62.5°C | 19 | D101 | 102.5°C | 111.4°C | 20 | L3 | 71.3°C | 80.6°C | 21 | RTH2 | 78.8°C | 88.4°C | 22 | U301 | 66.1°C | 75.7°C | 23 | U905 | 73.3°C | 83.0°C | 24 | CASE | 68.6°C | 79.5°C | PASS |
| NO | Position                                                          | ROOM AMBIENT<br>Ta= 28.2 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HIGH AMBIENT<br>Ta= 42.1 °C                                        |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 1  | C5                                                                | 76.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 85.5°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 2  | C61                                                               | 70.8°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 80.2°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 3  | C11                                                               | 71.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 80.5°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 4  | C42                                                               | 82.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 91.6°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 5  | LF1                                                               | 55.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 64.9°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 6  | Q1                                                                | 81.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 90.2°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 7  | Q2                                                                | 98.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 108.9°C                                                            |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 8  | T1                                                                | 91.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 100.6°C                                                            |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 9  | L1                                                                | 64.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 73.5°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 10 | RTH1                                                              | 83.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 92.6°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 11 | C2                                                                | 62.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 71.8°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 12 | C105                                                              | 87.8°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 96.8°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 13 | C106                                                              | 72.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 82.3°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 14 | C203                                                              | 77.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 87.0°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 15 | BD1                                                               | 68.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 77.4°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 16 | U1                                                                | 77.7°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 87.2°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 17 | U100                                                              | 71.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 80.5°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 18 | ZNR1                                                              | 52.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 62.5°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 19 | D101                                                              | 102.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 111.4°C                                                            |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 20 | L3                                                                | 71.3°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 80.6°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 21 | RTH2                                                              | 78.8°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 88.4°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 22 | U301                                                              | 66.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75.7°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 23 | U905                                                              | 73.3°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 83.0°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 24 | CASE                                                              | 68.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 79.5°C                                                             |                      |         |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 2  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | I/P : 277VAC/200VAC<br>O/P : 100% LOAD<br>Ta= -30 °C               | TEST : OK            | PASS    |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 3  | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 40 °C<br>NO DAMAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | I/P : 285 VAC<br>O/P : FULL LOAD<br>Ta= 40 °C<br>HUMIDITY= 95 %R.H | TEST : OK            | PASS    |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |
| 4  | TEMPERATURE<br>COEFFICIENT                                        | ±0.03 %/°C(0~50°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | I/P : 230 VAC<br>O/P : FULL LOAD                                   | ±0.003 %/°C (0~50°C) | PASS    |          |                             |                             |   |    |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |         |   |    |        |         |   |    |        |        |    |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |     |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |         |         |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |      |        |        |      |

|    |                             |                                                                                                                                                                                                                                                                                |                                                                  |      |
|----|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------|
| 5  | STORAGE TEMPERATURE TEST    | 1. Thermal shock Temperature : -45℃~+85℃<br>2. Temperature change rate : 25℃ / 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                                                               | PASS |
| 6  | THERMAL SHOCK TEST          | 1. Thermal shock Temperature : -35℃~+45℃<br>2. Temperature change rate : 25℃ / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 10 CYCLE<br>5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST<br>turn on 58sec; turn off 2sec    | OK                                                               | PASS |
| 7  | VIBRATION TEST              | 1 Carton & 1 Set<br>(1) Waveform : Sine Wave<br>(2) Frequency : 10~500Hz<br>(3) Sweep Time : 10min/sweep cycle<br>(4) Acceleration : 3G<br>(5) Test Time : 90min in each axis (X.Y.Z)<br>(6) Ta : 25℃                                                                          | TEST : OK                                                        | PASS |
| 8  | CAPACITOR LIFE CYCLE        | LCM-25 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT<br>(1) I/P : 230VAC O/P : FULL LOAD Ta= 25 ℃ LIFE TIME<br>(2) I/P : 230VAC O/P : FULL LOAD Ta= 40 ℃ LIFE TIME<br>(3) I/P : 230VAC O/P : 75% LOAD Ta= 40 ℃ LIFE TIME<br>(4) I/P : 230VAC O/P : 50% LOAD Ta= 40 ℃ LIFE TIME | (1) 44646 HRS<br>(2) 22160 HRS<br>(3) 28026 HRS<br>(4) 42583 HRS | PASS |
| 9  | MTBF                        | MIL-HDBK-217F NOTICE S2 PARTS COUNT<br>TOTAL FAILURE RATE : 298.6 KHRS                                                                                                                                                                                                         |                                                                  | PASS |
| 10 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure(Expected Life) :<br>30,000 hours @ Tcase 85℃                                                                                                                                                                                           |                                                                  | PASS |

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

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