



# Test Report: GST40A07-P1J

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40W AC-DC High Reliability Industrial Adaptor

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

## ■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

## ■ RELIABILITY TEST

ENVIRONMENT TEST

## DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

| NO | TEST ITEM                        | SPECIFICATION                  | TEST CONDITION                                                                                                                                                                             | RESULT                                                   | VERDICT |
|----|----------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------|
| 1  | RIPPLE & NOISE(Max )             | V1: 150mVp-p                   | I/P:230VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                                                     | V1: 50mVp-p                                              | P       |
| 2  | OUTPUT VOLTAGE(Max)<br>TOLERANCE | V1: -5%~ 5%                    | I/P: 100VAC /264VAC<br>O/P:FULL/ MIN. LOAD<br>Ta:25°C                                                                                                                                      | V1: -1.34 %~ 1.34 %                                      | P       |
| 3  | LINE REGULATION (Max)            | V1: -1%~ 1%                    | I/P: 100VAC~ 264VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                                            | V1: -0.08 %~ 0 %                                         | P       |
| 4  | LOAD REGULATION(Max)             | V1: -5%~ 5%                    | I/P: 230VAC<br>O/P:FULL ~MIN LOAD<br>Ta:25°C                                                                                                                                               | V1: -1.34 %~ 1.34 %                                      | P       |
| 5  | SET UP TIME(Max)                 | 230VAC/1000ms<br>115VAC/1000ms | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                             | 230VAC/ 118.303 ms<br>115VAC/216.460 ms                  | P       |
| 6  | RISE TIME (Max)                  | 230VAC/50ms<br>115VAC/50ms     | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                             | 230VAC/ 9.623 ms<br>115VAC/ 7.549 ms                     | P       |
| 7  | HOLD UP TIME(Typ )               | 230VAC/50ms<br>115VAC/15ms     | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                             | 230VAC/ 132.006 ms<br>115VAC/ 26.632 ms                  | P       |
| 8  | OVER/UNDERSHOOT TEST             | < +5%                          | I/P: 230VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                                                    | < +5%                                                    | P       |
| 9  | DYNAMIC LOAD                     | V1: 1500mVp-p                  | I/P: 230VAC<br>O/P(1)FULL /Min LOAD<br>90%DUTY / 1KHZ<br>(2) (1)FULL /Min LOAD<br>90%DUTY / 3KHZ<br>(3)FULL /Min LOAD<br>90%DUTY / 5KHZ<br>(4)FULL /Min LOAD<br>50%DUTY / 120HZ<br>Ta:25°C | (1)428mVp-p<br>(2)487mVp-p<br>(3)500mVp-p<br>(4)848mVp-p | P       |

### INPUT FUNCTION TEST

| NO | TEST ITEM             | SPECIFICATION            | TEST CONDITION                                                                                                                                                                                                              | RESULT                                   | VERDICT |
|----|-----------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------|
| 1  | INPUT VOLTAGE RANGE   | 90VAC~264VAC             | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                                                                                     | 64.237 V~264V                            | P       |
|    |                       |                          | I/P:<br>(1)LOW-LINE-3V=87 V<br>HIGH-LINE+15%=300 V<br>O/P:FULL/MIN LOAD<br>ON: 30 Sec OFF: 30 Sec 10MIN<br>(2)230Vac<br>ON: 0.5 Sec OFF: 0.5 Sec 20MIN<br>(3)230Vac<br>ON:3Sec OFF:3Sec 12HOURS<br>(POWER ON/OFF NO DAMAGE) | TEST:OK                                  |         |
| 2  | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE | I/P:100 VAC ~264 VAC<br>O/P:FULL~MIN LOAD<br>Ta:25°C                                                                                                                                                                        | TEST: OK                                 | P       |
| 4  | EFFICIENCY(TYP)       | 87.5%                    | I/P:230 VAC<br>O/P:FULL LOAD<br>Ta:25°C                                                                                                                                                                                     | 89.01%                                   | P       |
| 5  | INPUT CURRENT (Typ)   | 230V/ 0.5 A<br>115V/ 1 A | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                              | I = 0.338A/ 230VAC<br>I = 0.655A/ 115VAC | P       |
| 6  | INRUSH CURRENT(Typ)   | 230V/65A<br>COLD START   | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                              | I =43.320A/ 230VAC                       | P       |
| 7  | LEAKAGE CURRENT       | < 0.75 mA / 240 VAC      | I/P : 240 VAC<br>O/P : Min LOAD<br>Ta : 25°C                                                                                                                                                                                | L-FG : 0.385 mA<br>N-FG : 0.385 mA       | P       |
| 8  | NO LOAD CONSUMPTION   | < 0.075 W                | I/P : 115VAC<br>I/P : 230VAC<br>O/P : NO LOAD<br>Ta : 25°C                                                                                                                                                                  | < 0.0734 W<br>< 0.0734 W                 | P       |

### PROTECTION FUNCTION TEST

| NO | TEST ITEM               | SPECIFICATION                          | TEST CONDITION                                          | RESULT                                                     | VERDICT |
|----|-------------------------|----------------------------------------|---------------------------------------------------------|------------------------------------------------------------|---------|
| 1  | OVER LOAD PROTECTION    | 105%~ 150%                             | I/P: 230VAC<br>I/P: 115VAC<br>O/P: TESTING<br>Ta: 25°C  | 128.09% / 230VAC<br>132.39% / 115VAC<br>Hiccup Mode        | P       |
| 2  | OVER VOLTAGE PROTECTION | CH: 7.88V~10.13V                       | I/P: 230VAC<br>I/P: 115VAC<br>O/P: MIN LOAD<br>Ta: 25°C | 8.80V / 230VAC<br>8.80V / 115VAC<br>Shut down Re- power ON | P       |
| 3  | SHORT PROTECTION        | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P: 264VAC<br>O/P: FULL LOAD<br>Ta: 25°C               | NO DAMAGE<br>Hiccup Mode                                   | P       |

### COMPONENT STRESS TEST

| NO | TEST ITEM                                                  | SPECIFICATION                                     | TEST CONDITION                                                                                                                                                                    | RESULT                                                        | VERDICT |
|----|------------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------|
| 1  | PWM Transistor<br>(D to S) or (C to E) <b>Peak Voltage</b> | Q1 Rated<br>: 6A / 800 V                          | I/P: High-Line +3V = 267V<br>AC ON/OFF<br>VDS:<br>O/P: (1) Full Load<br>(2) Output Short<br>(3) Full Load Continue<br>Ta: 25°C                                                    | VDS<br>(1) 690V<br>(2) 506V<br>(3) 668V                       | P       |
| 2  | Diode <b>Peak Voltage</b>                                  | Q100 Rated<br>: 120A / 40 V                       | I/P: High-Line +3V = 267 V<br>AC ON/OFF<br>O/P: (1) Full Load<br>(2) Output Short<br>(3) Dynamic Load 100% Load/<br>Min. Load 50% Duty / 120Hz<br>(4) 0% → 400% Load.<br>Ta: 25°C | Q100:<br>(1) 30.7V<br>(2) 28.3V<br>(3) 30.7V<br>(4) 30.8V     | P       |
| 3  | Input Capacitor Voltage                                    | C5 Rated:<br>: 120 $\mu$ / 400V<br>105°C / Series | I/P: High-Line +3V = 267 V<br>O/P: (1) Full Load input on/off<br>(2) Min load input on /Off<br>(3) Full Load /Min load Change<br>Ta: 25°C                                         | (1) 360V<br>(2) 362V<br>(3) 360V                              | P       |
| 4  | Control IC Voltage Test                                    | PWM IC U1 Rated<br>: 30V<br>-0.4V (MIN.)          | I/P: High-Line +3V = 267 V<br>AC ON/OFF<br>O/P: (1) FULL LOAD<br>(2) Output Short<br>(3) O.L.P<br>(4) O.V.P.<br>(5) NO LOAD VR MIN LOW<br>LINE<br>Ta: 25°C                        | (1) 27.6V<br>(2) 27.3V<br>(3) 27.3V<br>(4) 14.9V<br>(5) 27.4V | P       |

|   |                          |                     |                                                                                                                           |                        |   |
|---|--------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------|---|
| 5 | Clamp Diode Peak Voltage | D1 Rated : 1000V 1A | I/P : High-Line +3V = 267 V<br>AC ON/OFF<br>O/P : (1) Dynamic Load<br>90%Duty/1KHz<br>(2) Full load continue<br>Ta : 25°C | (1) 584 V<br>(2) 548 V | P |
|---|--------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------|---|

### SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION                                                               | TEST CONDITION                                                                    | RESULT                                                              | VERDICT |
|----|----------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P: 3KVAC/min<br>I/P-FG: 2KVAC/min<br>O/P-FG: 0.5KVAC/min              | I/P-O/P: 3.6 KVAC/min<br>I/P-FG: 2.4 KVAC/min<br>O/P-FG: 0.6 KVAC/min<br>Ta: 25°C | I/P-O/P: 1.401mA<br>I/P-FG: 3.453mA<br>O/P-FG: 0.468mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P: 500VDC > 100MΩ<br>I/P-FG: 500VDC > 100MΩ<br>O/P-FG: 500VDC > 100MΩ | I/P-O/P: 500 VDC<br>I/P-FG: 500 VDC<br>O/P-FG: 500 VDC<br>Ta: 25°C                | I/P-O/P: 9999MΩ<br>I/P-FG: 9999MΩ<br>O/P-FG: 9999MΩ<br>NO DAMAGE    | P       |

### E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                               | TEST CONDITION                                           | RESULT                        | VERDICT |
|----|---------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------|-------------------------------|---------|
| 1  | HARMONIC                                    | EN61000-3-2<br>CLASS A                                      | I/P: 230VAC/50HZ<br>O/P: 100%, 75%, 50% OAD<br>Ta: 25°C  | PASS                          | P       |
| 2  | CONDUCTION                                  | EN55022<br>CLASS B                                          | I/P : 230 VAC (50HZ)<br>O/P : FULL/50% LOAD<br>Ta : 25°C | PASS<br>Test by certified Lab | P       |
| 3  | RADIATION                                   | EN55022<br>CLASS B                                          | I/P : 230 VAC (50HZ)<br>O/P : FULL LOAD<br>Ta : 25°C     | PASS<br>Test by certified Lab | P       |
| 4  | E.S.D                                       | EN61000-4-2<br>LIGHT INDUSTRY                               | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 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                    | P       |
| 6  | SURGE                                       | IEC61000-4-5<br>LIGHT INDUSTRY<br>L-N : 1KV<br>L,N-PE : 2KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 7  | Test by certified Lab & Test Report Prepare |                                                             |                                                          |                               |         |

## RELIABILITY TEST

### ENVIRONMENT TEST

#### ENVIRONMENT TEST

| NO | TEST ITEM                                                         | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | TEST CONDITION                                                     | RESULT            | VERDICT |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
|----|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------|---------|----------|-----------------------------|-----------------------------|---|-----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|------|--------|--------|---|------|--------|--------|----|----|--------|--------|----|------|--------|--------|----|----|--------|--------|----|----|--------|--------|---|
| 1  | TEMPERATURE RISE TEST                                             | <div>MODEL : GST40A07-P1J</div> <div>1. ROOM AMBIENT BURN-IN : 1 HRS</div> <div>I/P : 230VAC O/P : FULL LOAD Ta= 17.0 °C</div> <div>2. HIGH AMBIENT BURN-IN : 1 HRS</div> <div>I/P : 230VAC O/P : FULL LOAD Ta=48.5°C</div> <table><thead><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT<br/>Ta= 17.0 °C</th><th>HIGH AMBIENT<br/>Ta= 48.5 °C</th></tr></thead><tbody><tr><td>1</td><td>LF1</td><td>40.1°C</td><td>70.0°C</td></tr><tr><td>2</td><td>BD1</td><td>47.9°C</td><td>77.1°C</td></tr><tr><td>3</td><td>C5</td><td>43.2°C</td><td>73.6°C</td></tr><tr><td>4</td><td>C15</td><td>48.4°C</td><td>78.9°C</td></tr><tr><td>5</td><td>R22</td><td>44.1°C</td><td>74.8°C</td></tr><tr><td>6</td><td>T1</td><td>53.0°C</td><td>83.0°C</td></tr><tr><td>7</td><td>Q1</td><td>45.1°C</td><td>77.1°C</td></tr><tr><td>8</td><td>Q100</td><td>45.9°C</td><td>77.1°C</td></tr><tr><td>9</td><td>C104</td><td>43.6°C</td><td>74.2°C</td></tr><tr><td>10</td><td>U1</td><td>44.9°C</td><td>76.3°C</td></tr><tr><td>11</td><td>C106</td><td>49.5°C</td><td>80.1°C</td></tr><tr><td>12</td><td>D1</td><td>58.5°C</td><td>90.6°C</td></tr><tr><td>13</td><td>R6</td><td>65.6°C</td><td>95.1°C</td></tr></tbody></table> |                                                                    |                   | NO      | Position | ROOM AMBIENT<br>Ta= 17.0 °C | HIGH AMBIENT<br>Ta= 48.5 °C | 1 | LF1 | 40.1°C | 70.0°C | 2 | BD1 | 47.9°C | 77.1°C | 3 | C5 | 43.2°C | 73.6°C | 4 | C15 | 48.4°C | 78.9°C | 5 | R22 | 44.1°C | 74.8°C | 6 | T1 | 53.0°C | 83.0°C | 7 | Q1 | 45.1°C | 77.1°C | 8 | Q100 | 45.9°C | 77.1°C | 9 | C104 | 43.6°C | 74.2°C | 10 | U1 | 44.9°C | 76.3°C | 11 | C106 | 49.5°C | 80.1°C | 12 | D1 | 58.5°C | 90.6°C | 13 | R6 | 65.6°C | 95.1°C | P |
| NO | Position                                                          | ROOM AMBIENT<br>Ta= 17.0 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HIGH AMBIENT<br>Ta= 48.5 °C                                        |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 1  | LF1                                                               | 40.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 70.0°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 2  | BD1                                                               | 47.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 77.1°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 3  | C5                                                                | 43.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 73.6°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 4  | C15                                                               | 48.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 78.9°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 5  | R22                                                               | 44.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 74.8°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 6  | T1                                                                | 53.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 83.0°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 7  | Q1                                                                | 45.1°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 77.1°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 8  | Q100                                                              | 45.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 77.1°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 9  | C104                                                              | 43.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 74.2°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 10 | U1                                                                | 44.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 76.3°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 11 | C106                                                              | 49.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 80.1°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 12 | D1                                                                | 58.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 90.6°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 13 | R6                                                                | 65.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 95.1°C                                                             |                   |         |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 2  | OVER LOAD BURN-IN TEST                                            | NO DAMAGE<br>1 HOUR ( MIN )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | I/P : 230 VAC<br>O/P : 107 % LOAD<br>Ta : 25°C                     | TEST : OK         | P       |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 3  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | I/P : 264VAC/100VAC<br>O/P : 100 % LOAD<br>Ta= -35 °C              | TEST : OK         | P       |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 4  | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 50 °C<br>NO DAMAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P : 272 VAC<br>O/P : FULL LOAD<br>Ta= 50 °C<br>HUMIDITY= 95 %R.H | TEST : OK         | P       |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 5  | TEMPERATURE<br>COEFFICIENT                                        | ± 0.03 %/°C (0~50°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | I/P : 230 VAC<br>O/P : FULL LOAD                                   | ± 0 %/°C (0~50°C) | P       |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 6  | STORAGE TEMPERATURE TEST                                          | 1. Thermal shock Temperature : -40°C ~ +85°C<br>2. Temperature change rate : 25°C / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 5 CYCLE<br>5. Input/Output condition : STATIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                    | OK                | P       |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |
| 7  | THERMAL SHOCK TEST                                                | 1. Thermal shock Temperature : -30°C ~ +70°C<br>2. Temperature change rate : 25°C / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 10 CYCLE<br>5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST<br>turn on 58sec : turn off 2sec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                    | OK                | P       |          |                             |                             |   |     |        |        |   |     |        |        |   |    |        |        |   |     |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |      |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |    |        |        |    |    |        |        |   |

|    |                             |                                                                                                                                                                                                                                                                           |                                                                 |   |
|----|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---|
| 8  | 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 : 2G<br>(5) Test Time : 60min in each axis (X.Y.Z)<br>(6) Ta : 25°C                                                                    | TEST : OK                                                       | P |
| 9  | CAPACITOR LIFE CYCLE        | SUPPOSE C104 IS THE MOST CRITICAL COMPONENT<br>(1) I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME<br>(2) I/P : 230VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME<br>(3) I/P : 230VAC O/P : 75% LOAD Ta= 50 °C LIFE TIME<br>(4) I/P : 230VAC O/P : 50% LOAD Ta= 50 °C LIFE TIME | (1) 497745HRS<br>(2) 96353HRS<br>(3) 168864HRS<br>(4) 184718HRS | P |
| 10 | MTBF                        | MIL-HDBK-217F<br>TOTAL FAILURE RATE : 736.4 KHRS                                                                                                                                                                                                                          |                                                                 | P |
| 11 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure (Expected Life): Above 50,000 hours @ TA 50°C                                                                                                                                                                                     |                                                                 | P |

| TEST RESULT | TESTER | REVIEW | APPROVAL |
|-------------|--------|--------|----------|
| PASS        | FRANK  | GESG   | WANGDZ   |

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