



# Test Report: GST280A24-C6P

---

280W 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           | V1 : 200mVp-p                      | I/P : 230VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                    | V1 : 25.6mVp-p (Max )                                        | P       |
| 2  | OUTPUT VOLTAGE TOLERANCE | V1 : 3%~ -3 %                      | I/P : 100 VAC / 264 VAC<br>O/P : FULL/ MIN LOAD<br>Ta : 25°C                                                                                                                                                    | V1 : 1.1%~-1.1%                                              | P       |
| 3  | LINE REGULATION          | V1 : 1 %~ -1 %                     | I/P : 100VAC ~ 264 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                          | V1 : 0.03%~-0.03%                                            | P       |
| 4  | LOAD REGULATION          | V1 : 3 %~ -3 %                     | I/P : 230 VAC<br>O/P : FULL ~MIN LOAD<br>Ta : 25°C                                                                                                                                                              | V1 : 1.1%~-1.1%                                              | P       |
| 5  | SET UP TIME              | 230VAC : 2000ms<br>115VAC : 2000ms | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                  | 230VAC/ 418ms<br>115VAC/ 980ms                               | P       |
| 6  | RISE TIME                | 230VAC : 20ms<br>115VAC : 20ms     | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                  | 230VAC/ 13ms<br>115VAC/ 14ms                                 | P       |
| 7  | HOLD UP TIME             | 230VAC : 16ms<br>115VAC : 16ms     | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                  | 230VAC/ 19ms<br>115VAC/ 19ms                                 | P       |
| 8  | OVER/UNDERSHOOT TEST     | < ±5%                              | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                   | TEST : <5%                                                   | P       |
| 9  | DYNAMIC LOAD             | V1 : 2400mVp-p                     | I/P : 230 VAC<br>(1).O/P : FULL /Min LOAD 90%DUTY/<br>1KHZ<br>(2).O/P : FULL /Min LOAD 90%DUTY/<br>3KHZ<br>(3).O/P : FULL /Min LOAD 90%DUTY/<br>5KHZ<br>(4).O/P : FULL /Min LOAD 50%DUTY/<br>120HZ<br>Ta : 25°C | (1)732 mVp-p<br>(2)708 mVp-p<br>(3)668 mVp-p<br>(4)1060mVp-p | P       |

### INPUT FUNCTION TEST

| NO | TEST ITEM             | SPECIFICATION                             | TEST CONDITION                                                                                                                                                                                   | RESULT                                 | VERDICT |
|----|-----------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------|
| 1  | INPUT VOLTAGE RANGE   | 100VAC~264 VAC                            | I/P : TESTING<br>O/P : FULL LOAD<br>Ta : 25℃<br><br>I/P :<br>LOW-LINE-3V= 97V<br>HIGH-LINE+15%=300 V<br>O/P : FULL/MIN LOAD<br>ON : 30 Sec . OFF : 30 Sec 10MIN<br>( AC POWER ON/OFF NO DAMAGE ) | 68V~264V<br><br>TEST : OK              | P       |
| 2  | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE OSC              | I/P : 100VAC ~ 264 VAC<br>O/P : FULL~MIN LOAD<br>Ta : 25℃                                                                                                                                        | TEST : OK                              | P       |
| 3  | POWER FACTOR          | 0.95/ 230 VAC<br>0.98/ 115 VAC            | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25℃                                                                                                                                    | PF=0.972/ 230 VAC<br>PF=0.997/ 115 VAC | P       |
| 4  | EFFICIENCY            | 93%                                       | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25℃                                                                                                                                                     | 93.21%                                 | P       |
| 5  | INPUT CURRENT         | 230V/ 1.5A<br>115V/ 3A                    | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25℃                                                                                                                                    | I=1.32A/ 230 VAC<br>I=2.65A/ 115 VAC   | P       |
| 6  | INRUSH CURRENT        | 230VAC/ 120A<br>230VAC/ 60A<br>COLD START | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25℃                                                                                                                                    | I=110A/ 230 VAC<br>I=56A/ 115 VAC      | P       |
| 7  | LEAKAGE CURRENT       | <1.5mA / 240 VAC                          | I/P : 264 VAC<br>O/P : Min LOAD<br>Ta : 25℃                                                                                                                                                      | L-FG : 0.86mA<br>N-FG : 0.80mA         | P       |
| 8  | NO LOAD CONSUMPTION   | <0.5W                                     | I/P : 115VAC<br>I/P : 230VAC<br>O/P : NO LOAD<br>Ta : 25℃                                                                                                                                        | < 0.45 W<br>< 0.42W                    | P       |

### PROTECTION FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION                             | TEST CONDITION                                                | RESULT                                                                                                        | VERDICT |
|----|-----------------------------|-------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------|
| 1  | OVER LOAD PROTECTION        | 105% ~ 135 %                              | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : TESTING<br>Ta : 25°C  | 118.8 %/ 230 VAC<br>118.8 %/ 115 VAC<br>Hiccup mode, recovers automatically after fault condition is removed. | P       |
| 2  | OVER VOLTAGE PROTECTION     | CH1 : 25.2V~32.4V<br>rated output voltage | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : MIN LOAD<br>Ta : 25°C | 28.8V/ 230 VAC<br>28.8V/ 115 VAC<br>Shunt down o/p voltage,re-power on to recovers                            | P       |
| 3  | OVER TEMPERATURE PROTECTION | NO DAMAGE                                 | I/P : 230 VAC<br>O/P : FULL LOAD                              | O.T.P. Active<br>Shunt down o/p voltage,re-power on to recovers                                               | P       |
| 4  | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE    | I/P : 264 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                 | NO DAMAGE<br>Hiccup mode, recovers automatically after fault condition is removed.                            | P       |

### COMPONENT STRESS TEST

| NO | TEST ITEM                                              | SPECIFICATION                     | TEST CONDITION                                                                                                                               | RESULT                           | VERDICT |
|----|--------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------|
| 1  | Power Transistor<br>( D to S) or (C to E) Peak Voltage | Q 5 Rated :<br>16A/600V           | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>(3)Full load continue<br>Ta : 25°C                          | (1)436V<br>(2)442V<br>(3)432V    | P       |
| 2  | Diode Peak Voltage                                     | Q102 Rated :<br>80A/75V           | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2)Output Short<br>(3)Full load continue<br>Ta : 25°C                           | (1)70V<br>(2)19.2V<br>(3)67.2V   | P       |
| 4  | Input Capacitor Voltage                                | C 5 Rated :<br>220u/450V 105°C    | I/P : High-Line +3V = 267 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)424V<br>(2)434V<br>(3)436V    | P       |
| 5  | Control IC Voltage Test                                | U900 Rated :<br>8.85V<br>16V(MIN) | I/P : High-Line +3V = 267 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)15.3V<br>(2)15.3V<br>(3)14.4V | P       |
| 6  | Power Transistor<br>( D to S) or (C to E) Peak Voltage | Q2 Rated :<br>20A/600V            | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>(3)Full load continue<br>Ta : 25°C                          | (1)448V<br>(2)452V<br>(3)440V    | P       |

## ■ SAFETY & E.M.C. TEST

### 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 | I/P-O/P: 3.6 KVAC/min<br>I/P-FG:2.4KVAC/min<br>Ta:25℃ | I/P-O/P : 7.88 mA<br>I/P-FG : 3.61mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ                 | I/P-O/P : 500 VDC<br>Ta : 25℃ /70%RH                  | I/P-O/P : 18.1 GΩ<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:FULL LOAD<br>Ta:25℃              | PASS                          | P       |
| 2  | CONDUCTION                                  | EN55022<br>CLASS B                        | I/P : 230 VAC (50HZ)<br>O/P : FULL/50% LOAD<br>Ta : 25℃ | 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℃     | PASS<br>Test by certified Lab | P       |
| 4  | E.S.D                                       | EN61000-4-2<br>AIR : 15KV / Contact : 8KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25℃       | CRITERIA A                    | P       |
| 5  | E.F.T                                       | EN61000-4-4<br>INPUT : 1KV                | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25℃       | CRITERIA A                    | P       |
| 6  | SURGE                                       | IEC61000-4-5<br>L-N : 1KV<br>L,N-PE : 2KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25℃       | CRITERIA A                    | P       |
| 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 : GST280A20-C6P</div> <div>1. ROOM AMBIENT BURN-IN : 1HRS</div> <div>I/P : 230VAC O/P : FULL LOAD Ta=25.7 °C</div> <div>2. HIGH AMBIENT BURN-IN : 1HRS</div> <div>I/P : 230VAC O/P : FULL LOAD Ta=40.3 °C</div> <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT<br/>Ta=25.7 °C</th><th>HIGH AMBIENT<br/>Ta= 40.3 °C</th></tr><tr><td>1</td><td>LF2</td><td>72.2°C</td><td>76.3°C</td></tr><tr><td>2</td><td>L2</td><td>78.5°C</td><td>82.3°C</td></tr><tr><td>3</td><td>Q2</td><td>81.0°C</td><td>86.3°C</td></tr><tr><td>4</td><td>BD1</td><td>78.6°C</td><td>84.5°C</td></tr><tr><td>5</td><td>Q5</td><td>82.5°C</td><td>87.6°C</td></tr><tr><td>6</td><td>Q6</td><td>81.9°C</td><td>87.1°C</td></tr><tr><td>7</td><td>T1</td><td>89.6°C</td><td>93.1°C</td></tr><tr><td>8</td><td>C5</td><td>83.3°C</td><td>86.4°C</td></tr><tr><td>9</td><td>RTH2</td><td>73.2°C</td><td>79.0°C</td></tr><tr><td>10</td><td>L1</td><td>83.4°C</td><td>87.4°C</td></tr><tr><td>11</td><td>Q101</td><td>86.4°C</td><td>91.7°C</td></tr><tr><td>12</td><td>Q102</td><td>84.9°C</td><td>90.5°C</td></tr><tr><td>13</td><td>C101</td><td>85.6°C</td><td>90.8°C</td></tr><tr><td>14</td><td>LF101</td><td>89.8°C</td><td>95.6°C</td></tr><tr><td>15</td><td>U1</td><td>77.6°C</td><td>82.2°C</td></tr><tr><td>16</td><td>U900</td><td>81.8°C</td><td>86.1°C</td></tr><tr><td>17</td><td>U201</td><td>89.5°C</td><td>94.0°C</td></tr></table> |                                                                      |                       | NO      | Position | ROOM AMBIENT<br>Ta=25.7 °C | HIGH AMBIENT<br>Ta= 40.3 °C | 1 | LF2 | 72.2°C | 76.3°C | 2 | L2 | 78.5°C | 82.3°C | 3 | Q2 | 81.0°C | 86.3°C | 4 | BD1 | 78.6°C | 84.5°C | 5 | Q5 | 82.5°C | 87.6°C | 6 | Q6 | 81.9°C | 87.1°C | 7 | T1 | 89.6°C | 93.1°C | 8 | C5 | 83.3°C | 86.4°C | 9 | RTH2 | 73.2°C | 79.0°C | 10 | L1 | 83.4°C | 87.4°C | 11 | Q101 | 86.4°C | 91.7°C | 12 | Q102 | 84.9°C | 90.5°C | 13 | C101 | 85.6°C | 90.8°C | 14 | LF101 | 89.8°C | 95.6°C | 15 | U1 | 77.6°C | 82.2°C | 16 | U900 | 81.8°C | 86.1°C | 17 | U201 | 89.5°C | 94.0°C |  | P |
| NO | Position                                                          | ROOM AMBIENT<br>Ta=25.7 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HIGH AMBIENT<br>Ta= 40.3 °C                                          |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 1  | LF2                                                               | 72.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 76.3°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 2  | L2                                                                | 78.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 82.3°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 3  | Q2                                                                | 81.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 86.3°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 4  | BD1                                                               | 78.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 84.5°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 5  | Q5                                                                | 82.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 87.6°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 6  | Q6                                                                | 81.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 87.1°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 7  | T1                                                                | 89.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 93.1°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 8  | C5                                                                | 83.3°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 86.4°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 9  | RTH2                                                              | 73.2°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 79.0°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 10 | L1                                                                | 83.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 87.4°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 11 | Q101                                                              | 86.4°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 91.7°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 12 | Q102                                                              | 84.9°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 90.5°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 13 | C101                                                              | 85.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 90.8°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 14 | LF101                                                             | 89.8°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 95.6°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 15 | U1                                                                | 77.6°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 82.2°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 16 | U900                                                              | 81.8°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 86.1°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 17 | U201                                                              | 89.5°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 94.0°C                                                               |                       |         |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 2  | OVER LOAD BURN-IN TEST                                            | NO DAMAGE<br>1 HOUR ( MIN )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P : 230 VAC<br>O/P : 120 % 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 40 °C<br>NO DAMAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | I/P : 272 VAC<br>O/P : FULL LOAD<br>Ta= 40.6 °C<br>HUMIDITY= 95 %R.H | TEST : OK             | P       |          |                            |                             |   |     |        |        |   |    |        |        |   |    |        |        |   |     |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |    |        |        |   |      |        |        |    |    |        |        |    |      |        |        |    |      |        |        |    |      |        |        |    |       |        |        |    |    |        |        |    |      |        |        |    |      |        |        |  |   |
| 5  | TEMPERATURE<br>COEFFICIENT                                        | ± 0.03 %/°C (0~40°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | I/P : 230 VAC<br>O/P : FULL LOAD                                     | ± 0.013 %/°C (0~40°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℃~ +70℃<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 | TEST : OK                                                             | P |
| 8  | VIBRATION TEST              | 1 Carton & 1 Set<br>(1) Waveform : Sine Wave<br>(2) Frequency : 10~500Hz<br>(3) Sweep Time : 12min/sweep cycle<br>(4) Acceleration : 2G<br>(5) Test Time : 60min in each axis (X.Y.Z)<br>(6) Ta : 25℃                                                                         | TEST : OK                                                             | P |
| 9  | CAPACITOR LIFE CYCLE        | SUPPOSE C 101 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) 59395.4HRS<br>(2) 40288.1HRS<br>(3) 71355.1HRS<br>(4) 207975.8HRS | P |
| 10 | MTBF                        | MIL-HDBK-217F<br>TOTAL FAILURE RATE : 181.24 KHS                                                                                                                                                                                                                              |                                                                       | P |
| 11 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure (Expected Life): Above 30,000 hours @ TA 40℃                                                                                                                                                                                          |                                                                       | P |

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