



# Test Report: RST-5000-24

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5000W Single Output Switching Power Supply

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

Component Stress Test

## ■ SAFETY & E.M.C. TEST

Safety Test

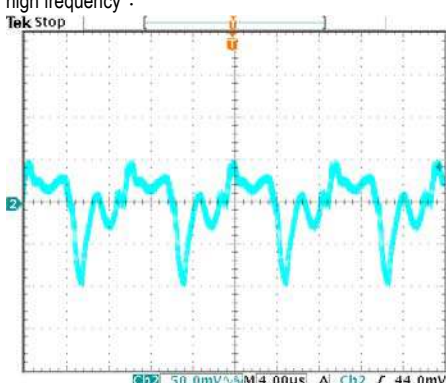
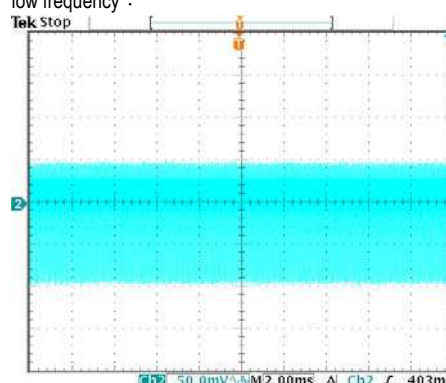
E.M.C. Test

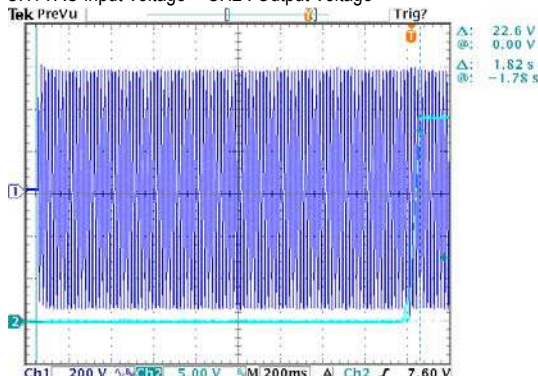
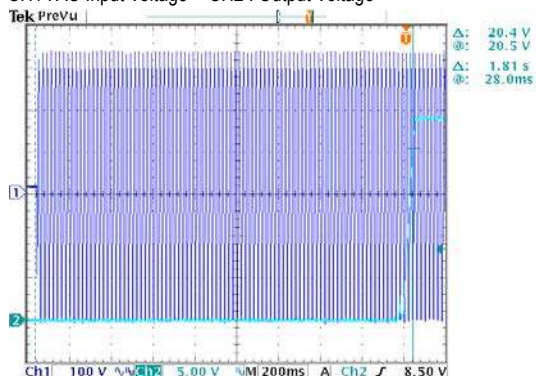
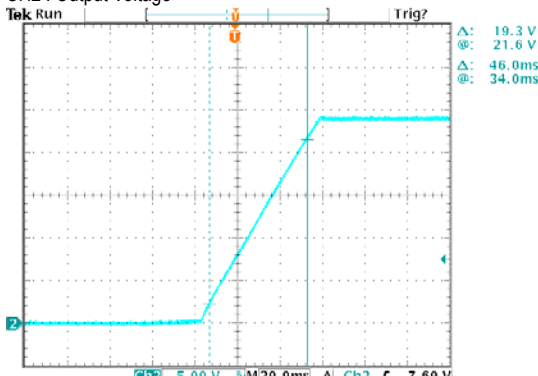
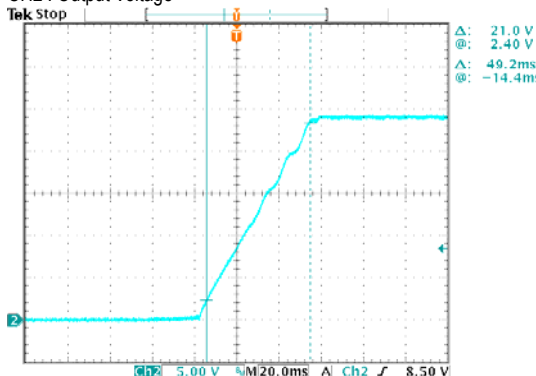
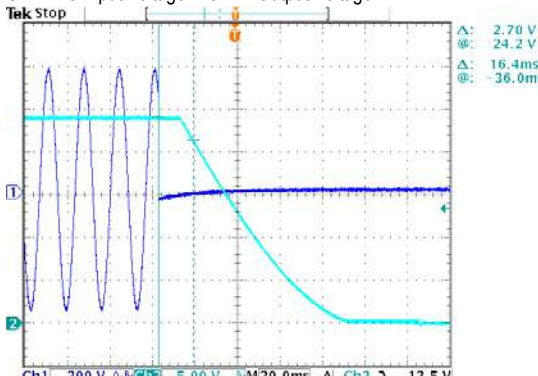
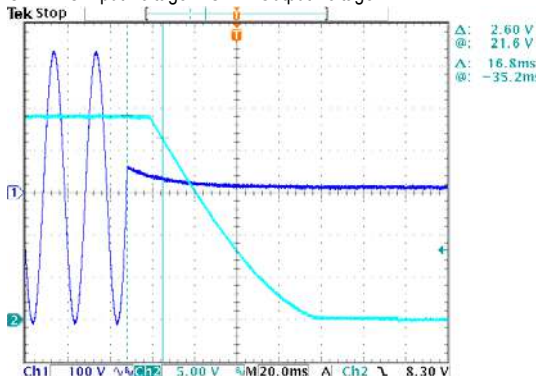
## ■ RELIABILITY TEST

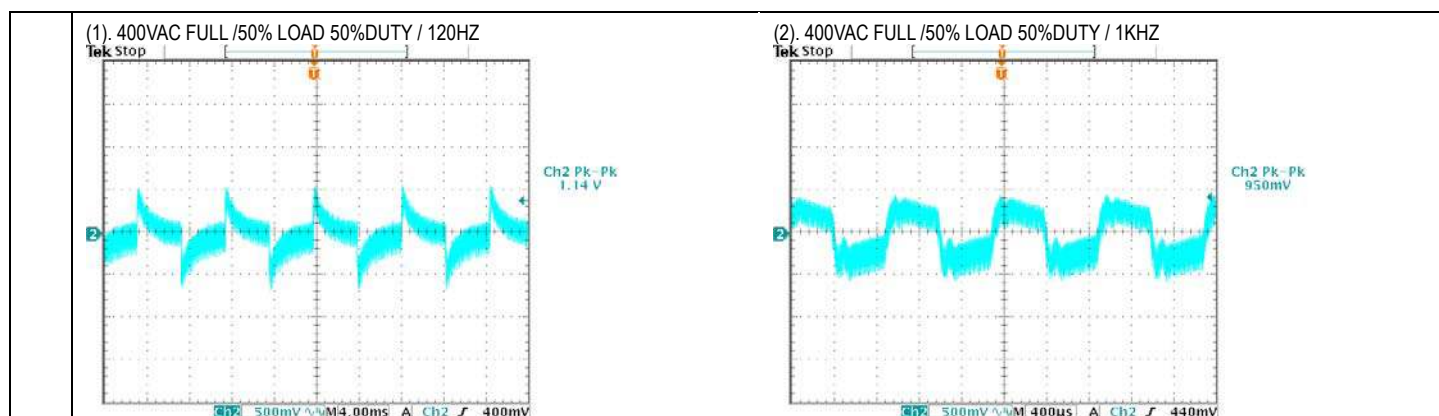
ENVIRONMENT TEST

## DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

| NO                                                                                                                                                                                                                                                                                                                                                                                                                                                      | TEST ITEM                      | SPECIFICATION                                | TEST CONDITION                                                                    | RESULT                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                       | OUTPUT VOLTAGE<br>ADJUST RANGE | CH1:23.5 V~28.8 V                            | I/P:230VAC(△)<br>I/P:400VAC( Y)<br>O/P:MIN. LOAD<br>Ta:25°C                       | 29.69V~22.98V /230VAC(△)<br>29.69V~22.98V/400VAC(Y) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                       | OUTPUT VOLTAGE<br>TOLERANCE    | V1: -1%~ 1 % (Max)                           | I/P: 196VAC /305VAC(△)<br>I/P:340VAC /530VAC(Y)<br>O/P:FULL/ MIN. LOAD<br>Ta:25°C | V1:0 %~-0.26%(△)<br>V1:0 %~-0.27%(Y)                |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                       | LINE REGULATION                | V1: -0.5%~ 0.5 % (Max)                       | I/P: 196VAC~ 305VAC(△)<br>I/P: 340VAC~ 530VAC(Y)<br>O/P:FULL LOAD<br>Ta:25°C      | V1: 0 %~ 0%(△)<br>V1:0 %~ 0%(Y)                     |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                       | LOAD REGULATION                | V1: -0.5%~ 0.5 % (Max)                       | I/P: 230VAC(△)<br>I/P:400VAC(Y)<br>O/P:FULL ~MIN LOAD<br>Ta:25°C                  | V1:-0.02%~0.25%(△)<br>V1:-0.01 %~0.25%(Y)           |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                       | OVER/UNDERSHOOT TEST           | < ±5%                                        | I/P: 230VAC(△)<br>I/P:400VAC(Y)<br>O/P:FULL LOAD<br>Ta:25°C                       | <1.25% /230VAC(△)<br><1.25% /400VAC(Y)              |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                       | RIPPLE & NOISE                 | V1: 150mVp-p (Max )                          | I/P:230VAC(△)<br>I/P:400VAC( Y)<br>O/P:FULL LOAD<br>Ta:25°C                       | V1: 147 mVp-p(△)<br>V1: 146 mVp-p(Y)                |
| <div> <div> <p>INPUT=400VAC @ FULL LOAD</p> <p>high frequency :</p>  <p>Ch2 Pk-Pk: 146mV</p> <p>50.0mV/V, 4.00μs, Ch2, 44.0mV</p> </div> <div> <p>INPUT=400VAC @ FULL LOAD</p> <p>low frequency :</p>  <p>Ch2 Pk-Pk: 146mV</p> <p>50.0mV/V, 2.00ms, Ch2, 403mV</p> </div> </div> |                                |                                              |                                                                                   |                                                     |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SET UP TIME                    | 230VAC/ 2200ms (Max)<br>400VAC/ 2200ms (Max) | I/P: 230VAC(△)<br>I/P:400VAC(Y)<br>O/P:FULL LOAD<br>Ta:25°C                       | 230VAC(△) /1810ms<br>400VAC (Y) /1820ms             |

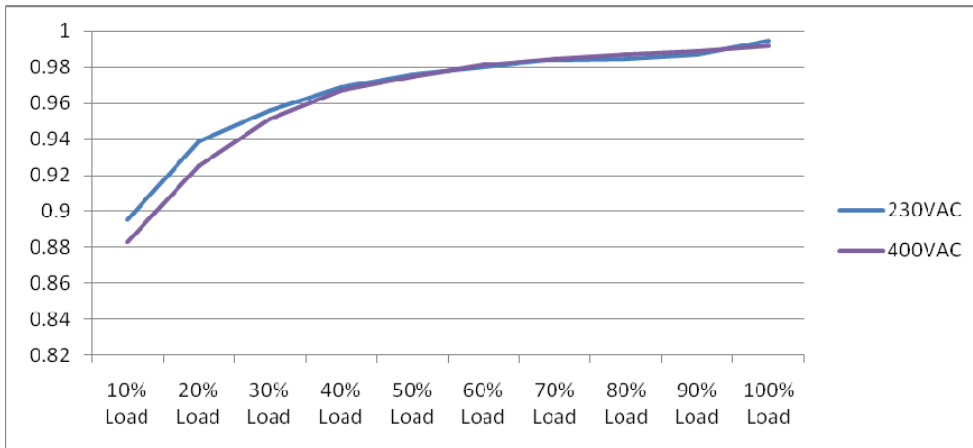
|                                                                                                                                                                |              |                                                                                                                                                                 |                                                                                                                         |                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| INPUT=400VAC @ FULL LOAD<br>CH1 : AC Input Voltage CH2 : Output Voltage<br>   |              | INPUT=230VAC @ FULL LOAD<br>CH1 : AC Input Voltage CH2 : Output Voltage<br>   |                                                                                                                         |                                                                                            |
| 8                                                                                                                                                              | RISE TIME    | 230VAC/ 80ms (Max)<br>400VAC/ 80ms (Max)                                                                                                                        | I/P: 230VAC(Δ)<br>I/P:400VAC(Y)<br>O/P:FULL LOAD<br>Ta:25°C                                                             | 230VAC(Δ)/49.2 ms<br>400VAC(Y)/46ms                                                        |
| INPUT=400VAC @ FULL LOAD<br>CH2 : Output Voltage<br>                         |              | INPUT=230VAC @ FULL LOAD<br>CH2 : Output Voltage<br>                         |                                                                                                                         |                                                                                            |
| 9                                                                                                                                                              | HOLD UP TIME | 230VAC/ 14ms (Typ.)<br>400VAC/ 14ms (Typ.)<br><br>230VAC/ 20ms (Typ.)<br>400VAC/ 20ms (Typ.)                                                                    | I/P: 230VAC(Δ) FULL LOAD<br>I/P:400VAC(Y) FULL LOAD<br><br>I/P: 230VAC(Δ) 75% LOAD<br>I/P:400VAC(Y) 75% LOAD<br>Ta:25°C | 230VAC(Δ)/16.8ms<br>400VAC(Y)/16.4ms<br><br>230VAC(Δ)/27ms<br>400VAC(Y)/27ms               |
| INPUT=400VAC @ FULL LOAD<br>CH1 : AC Input Voltage CH2 : Output Voltage<br> |              | INPUT=230VAC @ FULL LOAD<br>CH1 : AC Input Voltage CH2 : Output Voltage<br> |                                                                                                                         |                                                                                            |
| 10                                                                                                                                                             | DYNAMIC LOAD | V1:2400 mVp-p                                                                                                                                                   | I/P: 400VAC(Y) /230VAC(Δ)<br>O/P:<br>(1)FULL /50% LOAD 50%DUTY / 120HZ<br>(2)FULL /50% LOAD 50%DUTY / 1KHZ              | (1).1140 mVp-p @400VAC<br>1120 mVp-p @230VAC<br>(2).950 mVp-p @400VAC<br>950 mVp-p @230VAC |



## INPUT FUNCTION TEST

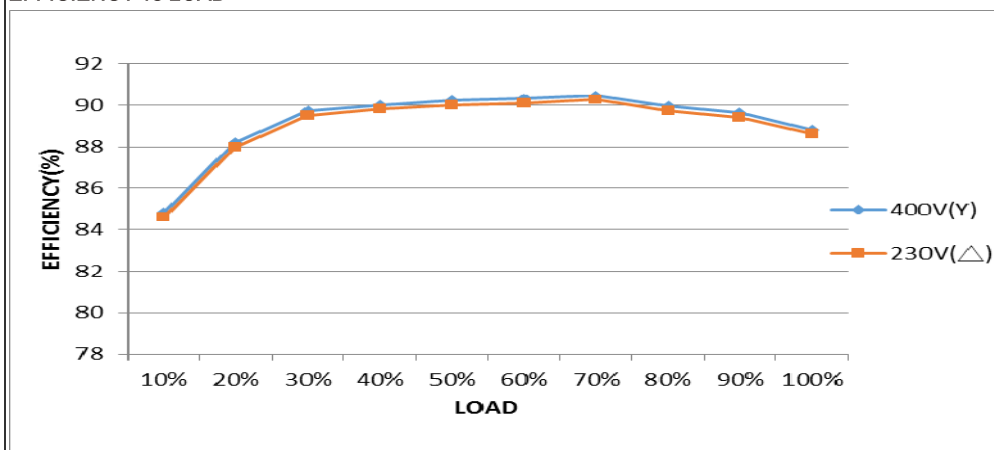
| NO | TEST ITEM             | SPECIFICATION                                              | TEST CONDITION                                                                                                                                                                                                                                                                 | RESULT                                                                                    |
|----|-----------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 1  | INPUT VOLTAGE RANGE   | 3Phase 3 Wire 196VAC~305VAC<br>3Phase 4 Wire 340VAC~530VAC | I/P: TESTING<br>O/P: FULL LOAD<br>Ta: 25°C                                                                                                                                                                                                                                     | 193.9V~305 V(△)<br>330.8V~530V(Y)                                                         |
|    |                       |                                                            | I/P:<br>(1) LOW-LINE-3V=193(△) / 337V(Y)<br>HIGH-LINE+5V=305(△) / 536V(Y)<br>O/P: FULL/MIN LOAD<br>ON: 30 Sec OFF: 30 Sec 10MIN<br>(2) 230(△)/400Vac(Y)<br>ON: 0.5 Sec OFF: 0.5 Sec 20MIN<br>(3) 230(△)/400Vac(Y)<br>ON: 3Sec OFF: 3Sec 12HOURS<br>(AC POWER ON/OFF NO DAMAGE) | TEST: OK                                                                                  |
| 2  | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE                                   | I/P: 196 VAC ~305 VAC(△)/340~530VAC(Y)<br>O/P: FULL-MIN LOAD<br>Ta: 25°C                                                                                                                                                                                                       | TEST: OK                                                                                  |
| 3  | INPUT CURRENT (Typ.)  | 230V (3Φ △) / 15A<br>400V (3Φ Y) / 9A                      | I/P: 230 VAC(△)<br>I/P: 400VAC(Y)<br>O/P: FULL LOAD<br>Ta: 25°C                                                                                                                                                                                                                | I = 13.78A / 230VAC(△)<br>I = 8.007A / 400VAC(Y)                                          |
| 4  | LEAKAGE CURRENT       | <3.5mA / 305V (△)                                          | I/P: 305VAC(△)<br>O/P: NO LOAD<br>Ta: 25°C                                                                                                                                                                                                                                     | R-FG: 1.18mA<br>S-FG: 1.18mA<br>T-FG: 1.18mA<br>R,S,T, -V(+): 0.8mA<br>R,S,T-V(-): 0.8 mA |
| 5  | POWER FACTOR (Typ.)   | 0.95 / 230VAC(△)<br>0.95 / 400VAC(Y)                       | I/P: 230 VAC(△)<br>I/P: 400VAC(Y)<br>O/P: FULL LOAD<br>Ta: 25°C                                                                                                                                                                                                                | PF=0.995 / 230VAC(△)<br>PF=0.992/400VAC(Y)                                                |

P.F vs LOAD



|   |                   |       |                                                             |                                       |
|---|-------------------|-------|-------------------------------------------------------------|---------------------------------------|
| 6 | EFFICIENCY (Typ.) | 88.5% | I/P:230 VAC(△)<br>I/P:400VAC(Y)<br>O/P:FULL LOAD<br>Ta:25°C | 88.54%/230VAC (△)<br>88.62%/400VAC(Y) |
|---|-------------------|-------|-------------------------------------------------------------|---------------------------------------|

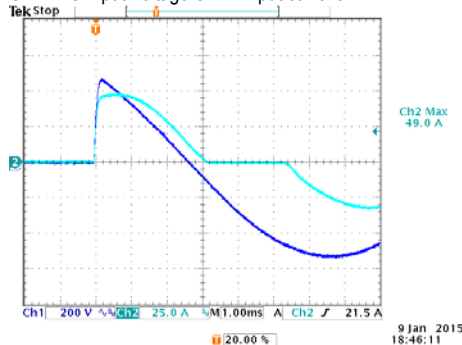
EFFICIENCY vs LOAD



|   |                       |                                    |                                                             |                                            |
|---|-----------------------|------------------------------------|-------------------------------------------------------------|--------------------------------------------|
| 7 | INRUSH CURRENT (Typ.) | 230V/75A<br>400V/50A<br>COLD START | I/P:230VAC(△)<br>I/P:400VAC (Y)<br>O/P:FULL LOAD<br>Ta:25°C | I =59.5A/230VAC (△)<br>I =49 A/ 400VAC (Y) |
|---|-----------------------|------------------------------------|-------------------------------------------------------------|--------------------------------------------|

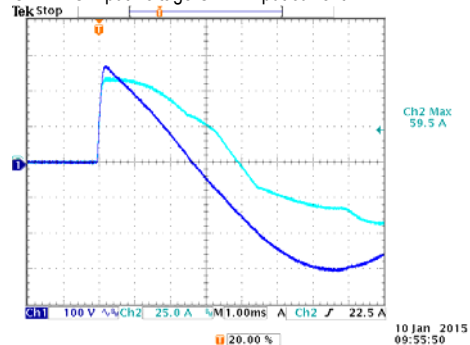
INPUT=400VAC @ FULL LOAD

CH1 : AC Input Voltage CH2 : Input current



INPUT=230VAC @ FULL LOAD

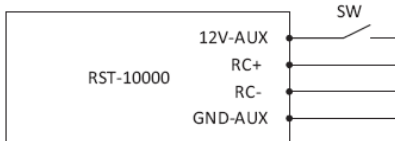
CH1 : AC Input Voltage CH2 : Input current



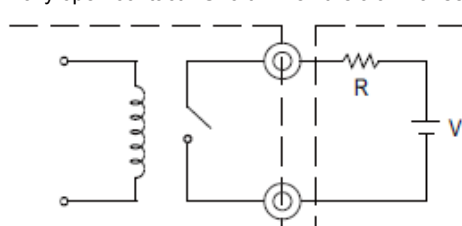
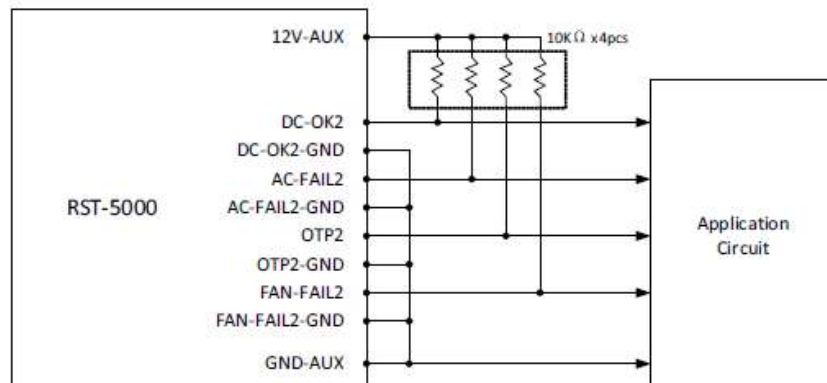
## PROTECTION FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION                                                              | TEST CONDITION                                                 | RESULT                                                                                                                                                                                  |
|----|-----------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | OVER LOAD PROTECTION        | 100%~112%                                                                  | I/P: 230VAC(△)<br>I/P: 400VAC(Y)<br>O/P: TESTING<br>Ta: 25°C   | 104.67%/230VAC(△)<br>104.92%/400VAC(Y)<br>User adjustable continuous constant current limiting or constant current limiting with delay shutdown after 5 seconds, re-power on to recover |
| 2  | OVER VOLTAGE PROTECTION     | 30V~33.6V                                                                  | I/P: 230VAC(△)<br>I/P: 400VAC(Y)<br>O/P: MIN LOAD<br>Ta: 25°C  | 31.3V/ 230VAC(△)<br>31.3V/400VAC(Y)<br>Shut down Re- power ON                                                                                                                           |
| 3  | OVER TEMPERATURE PROTECTION | Shut down o/p voltage , recovers automatically after temperature goes down | I/P: 230 VAC(△)<br>I/P: 400VAC(Y)<br>O/P: FULL LOAD            | Shut down o/p voltage , recovers automatically after temperature goes down                                                                                                              |
| 4  | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE                                     | I/P: 305VAC(△)<br>I/P: 530VAC(Y)<br>O/P: FULL LOAD<br>Ta: 25°C | NO DAMAGE<br>User adjustable continuous constant current limiting or constant current limiting with delay shutdown after 5 seconds, re-power on to recover                              |

## CONTROL FUNCTION TEST

| NO | TEST ITEM             | SPECIFICATION                                                                                                                                                                        | TEST CONDITION                                               | RESULT                                                  |
|----|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------|
| 1  | AUXILIARY POWER (AUX) | 12V@0.1A<br>Only for Remote ON/OFF Control                                                                                                                                           | I/P: 230 VAC(△)<br>I/P: 400VAC(Y)<br>O/P:FULL LOAD<br>Ta:25℃ | 230 VAC(△): 11.874V /0.1 A<br>400VAC(Y): 11.874V /0.1 A |
| 2  | Remote ON/OFF Control | The PSU can be turned ON/OFF by using the "Remote ON/OFF" function.                                                                                                                  |                                                              |                                                         |
|    |                       | Between ON/OFF(CN313 or CN314 pin10) and 12V-AUX(CN315 pin1)                                                                                                                         |                                                              | Output Status                                           |
|    |                       | SW close (Short)                                                                                                                                                                     |                                                              | PSU ON                                                  |
|    |                       | SW open (Open)                                                                                                                                                                       |                                                              | PSU OFF                                                 |
|    |                       | <div></div> <p>Fig 1.1</p> <p>I/P: 230 VAC(△)<br/>I/P: 400VAC(Y)<br/>O/P:FULL LOAD<br/>Ta:25℃</p> |                                                              |                                                         |
| 3  | REMOTE SENSE          | S+ / S-<br><br>>0.3V                                                                                                                                                                 | I/P: 400VAC(Y)<br>O/P:FULL LOAD<br>Ta:25℃                    | > 0.3 V                                                 |

| 4                 | OUTPUT VOLTAGE PROGRAMMABLE                        | <div>I/P: 400VAC(Y)</div> <div><div><div>ON</div><div>OFF</div></div><div><div>1</div><div>2</div><div>3</div></div></div> <div>DIP SW3 ON</div> <div>CN313 PV+ Connect to external V+</div> <div>CN313 PV- Connect to external V-</div> <table><tr><th>EXT.DC(V)</th><th>Vout</th><th>LOAD</th></tr><tr><td>DC=1V±0.5%</td><td>20%±3%</td><td>0~100%</td></tr><tr><td>DC=2V±0.5%</td><td>40%±3%</td><td>0~100%</td></tr><tr><td>DC=3V±0.5%</td><td>60%±3%</td><td>0~100%</td></tr><tr><td>DC=4V±0.5%</td><td>80%±3%</td><td>0~100%</td></tr><tr><td>DC=5V±0.5%</td><td>100%±3%</td><td>0~100%</td></tr><tr><td>DC=6V±0.5%</td><td>120%±3%</td><td>0~83.3%</td></tr></table> | EXT.DC(V)                                                                                                                                                                                          | Vout          | LOAD          | DC=1V±0.5%                                         | 20%±3%         | 0~100%                            | DC=2V±0.5%        | 40%±3%      | 0~100% | DC=3V±0.5%                                                                                                                                                                                              | 60%±3%         | 0~100%        | DC=4V±0.5% | 80%±3%   | 0~100% | DC=5V±0.5% | 100%±3%           | 0~100% | DC=6V±0.5%                                                                                                                                                                                                                                                                                                                                     | 120%±3%   | 0~83.3% | <table><tr><th>EXT.DC(V)</th><th>Vout</th><th>LOAD</th></tr><tr><td>DC=1V</td><td>20.51%</td><td>0~100%</td></tr><tr><td>DC=2V</td><td>40.37%</td><td>0~100%</td></tr><tr><td>DC=3V</td><td>60.66%</td><td>0~100%</td></tr><tr><td>DC=4V</td><td>80.87%</td><td>0~100%</td></tr><tr><td>DC=5V</td><td>100.44%</td><td>0~100%</td></tr><tr><td>DC=6V</td><td>119.78%</td><td>0~83.3%</td></tr></table> | EXT.DC(V) | Vout   | LOAD   | DC=1V | 20.51% | 0~100% | DC=2V | 40.37% | 0~100% | DC=3V | 60.66% | 0~100% | DC=4V | 80.87%  | 0~100% | DC=5V | 100.44% | 0~100% | DC=6V | 119.78% | 0~83.3% |
|-------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|----------------------------------------------------|----------------|-----------------------------------|-------------------|-------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|------------|----------|--------|------------|-------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------|--------|-------|--------|--------|-------|--------|--------|-------|--------|--------|-------|---------|--------|-------|---------|--------|-------|---------|---------|
| EXT.DC(V)         | Vout                                               | LOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=1V±0.5%        | 20%±3%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=2V±0.5%        | 40%±3%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=3V±0.5%        | 60%±3%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=4V±0.5%        | 80%±3%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=5V±0.5%        | 100%±3%                                            | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=6V±0.5%        | 120%±3%                                            | 0~83.3%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| EXT.DC(V)         | Vout                                               | LOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=1V             | 20.51%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=2V             | 40.37%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=3V             | 60.66%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=4V             | 80.87%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=5V             | 100.44%                                            | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=6V             | 119.78%                                            | 0~83.3%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| 5                 | OUTPUT CURRENT PROGRAMMABLE                        | <div>I/P: 400VAC(Y)</div> <div><div><div>ON</div><div>OFF</div></div><div><div>1</div><div>2</div><div>3</div></div></div> <div>DIP SW2 ON</div> <div>CN313 PC+ Connect to external V+</div> <div>CN313 PC- Connect to external V-</div> <table><tr><th>EXT.DC(V)</th><th>Io limit</th><th>LOAD</th></tr><tr><td>DC=1V±0.5%</td><td>20%±10%</td><td>0~100%</td></tr><tr><td>DC=2V±0.5%</td><td>40%±10%</td><td>0~100%</td></tr><tr><td>DC=3V±0.5%</td><td>60%±10%</td><td>0~100%</td></tr><tr><td>DC=4V±0.5%</td><td>80%±10%</td><td>0~100%</td></tr><tr><td>DC=5V±0.5%</td><td>100%±10%</td><td>0~100%</td></tr></table>                                                    | EXT.DC(V)                                                                                                                                                                                          | Io limit      | LOAD          | DC=1V±0.5%                                         | 20%±10%        | 0~100%                            | DC=2V±0.5%        | 40%±10%     | 0~100% | DC=3V±0.5%                                                                                                                                                                                              | 60%±10%        | 0~100%        | DC=4V±0.5% | 80%±10%  | 0~100% | DC=5V±0.5% | 100%±10%          | 0~100% | <table><tr><th>EXT.DC(V)</th><th>Iout</th><th>LOAD</th></tr><tr><td>DC=1V</td><td>20.12%</td><td>0~100%</td></tr><tr><td>DC=2V</td><td>41.00%</td><td>0~100%</td></tr><tr><td>DC=3V</td><td>60.03%</td><td>0~100%</td></tr><tr><td>DC=4V</td><td>80.18%</td><td>0~100%</td></tr><tr><td>DC=5V</td><td>100.17%</td><td>0~100%</td></tr></table> | EXT.DC(V) | Iout    | LOAD                                                                                                                                                                                                                                                                                                                                                                                                  | DC=1V     | 20.12% | 0~100% | DC=2V | 41.00% | 0~100% | DC=3V | 60.03% | 0~100% | DC=4V | 80.18% | 0~100% | DC=5V | 100.17% | 0~100% |       |         |        |       |         |         |
| EXT.DC(V)         | Io limit                                           | LOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=1V±0.5%        | 20%±10%                                            | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=2V±0.5%        | 40%±10%                                            | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=3V±0.5%        | 60%±10%                                            | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=4V±0.5%        | 80%±10%                                            | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=5V±0.5%        | 100%±10%                                           | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| EXT.DC(V)         | Iout                                               | LOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=1V             | 20.12%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=2V             | 41.00%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=3V             | 60.03%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=4V             | 80.18%                                             | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| DC=5V             | 100.17%                                            | 0~100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| 6                 | Select OLP mode                                    | <div>I/P: 400VAC(Y)</div> <div>O/P:FULL LOAD</div> <div>Ta:25℃</div> <table><tr><th>SW301</th><th>PROTECTION</th></tr><tr><td>SW301 PIN1 ON</td><td>Constant current delay 5sec Vo shutdown repower on</td></tr><tr><td>SW301 PIN1 OFF</td><td>Constant current</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                            | SW301                                                                                                                                                                                              | PROTECTION    | SW301 PIN1 ON | Constant current delay 5sec Vo shutdown repower on | SW301 PIN1 OFF | Constant current                  |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| SW301             | PROTECTION                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| SW301 PIN1 ON     | Constant current delay 5sec Vo shutdown repower on |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| SW301 PIN1 OFF    | Constant current                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| 7                 | Front Panel Indicators                             | <div>I/P: 400VAC(Y)</div> <div>Ta:25℃</div> <table><tr><th>LED</th><th>Description</th></tr><tr><td>GREEN(LED1)</td><td>LED on when output voltage is OK</td></tr><tr><td>RED(LED2)</td><td>LED on when any protection occurs</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                              | LED                                                                                                                                                                                                | Description   | GREEN(LED1)   | LED on when output voltage is OK                   | RED(LED2)      | LED on when any protection occurs |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| LED               | Description                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| GREEN(LED1)       | LED on when output voltage is OK                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| RED(LED2)         | LED on when any protection occurs                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| 8                 | FAN LOCK TEST                                      | <div>I/P: 400VAC(Y)</div> <div>O/P:FULL LOAD</div> <div>Ta:25℃</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Shut down Re-power ON                                                                                                                                                                              |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| 9                 | AC- FAIL                                           | <div>I/P: 400VAC(Y)</div> <div>O/P:FULL LOAD</div> <table><tr><th>Test condition</th><th>Input Voltage</th><th>STATE</th></tr><tr><td>Low Line</td><td>179±5Vac(△)</td><td>AC Fail</td></tr><tr><td>Low Line recovery</td><td>192±5Vac(△)</td><td>OK</td></tr></table> <div>Ta:25℃</div>                                                                                                                                                                                                                                                                                                                                                                                     | Test condition                                                                                                                                                                                     | Input Voltage | STATE         | Low Line                                           | 179±5Vac(△)    | AC Fail                           | Low Line recovery | 192±5Vac(△) | OK     | <table><tr><th>Test condition</th><th>Input Voltage</th><th>STATE</th></tr><tr><td>Low Line</td><td>182.2V</td><td>AC Fail</td></tr><tr><td>Low Line recovery</td><td>193V</td><td>OK</td></tr></table> | Test condition | Input Voltage | STATE      | Low Line | 182.2V | AC Fail    | Low Line recovery | 193V   | OK                                                                                                                                                                                                                                                                                                                                             |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| Test condition    | Input Voltage                                      | STATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| Low Line          | 179±5Vac(△)                                        | AC Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| Low Line recovery | 192±5Vac(△)                                        | OK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| Test condition    | Input Voltage                                      | STATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| Low Line          | 182.2V                                             | AC Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| Low Line recovery | 193V                                               | OK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                    |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |
| 10                | CURRENT SHARING                                    | <div>&lt; ± 10%</div> <div>I/P: 400VAC(Y)</div> <div>O/P : 90%/50% LOAD</div> <div>Ta : 25℃</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <div>O/P : 100%</div> <div>PSU1 : 187.2 A</div> <div>PSU2 : 177.6 A</div> <div>PSU3 : 174.1 A</div> <div>O/P : 50%</div> <div>PSU1 : 106 A</div> <div>PSU2 : 99.8 A</div> <div>PSU3 : 93.7 A</div> |               |               |                                                    |                |                                   |                   |             |        |                                                                                                                                                                                                         |                |               |            |          |        |            |                   |        |                                                                                                                                                                                                                                                                                                                                                |           |         |                                                                                                                                                                                                                                                                                                                                                                                                       |           |        |        |       |        |        |       |        |        |       |        |        |       |         |        |       |         |        |       |         |         |

| <div>11</div> <div>Alarm Signal Output</div>   | <p>There are 4 alarm signals on CN315, and each signal can select two types of output circuit.</p> <p>(1)Relay contact output<br/>Normally open contact. "Short" when the alarm arises. Relay contact rating(maximum) is 30V/1A resistive.</p>  <p>(2)Open collector output<br/>Normally open contact. "Short" when the alarm arises. Relay contact rating(maximum) is 30V/1A resistive.<br/>An external voltage source is required for this function that is shown in Fig 7.2. These signals are isolated from output. The maximum sink current is 10mA and the maximum external voltage is 20V (there is a built-in 24V zener diode in inner circuitry).</p>  <p>TEST CONDITION :</p> <p>I/P: 400VAC(Y)<br/>O/P:FULL LOAD<br/>Ta:25℃</p> <p>RESULT:</p> <table> <thead> <tr> <th>Function</th><th>Description</th></tr> </thead> <tbody> <tr> <td>DC- OK 1:<br/>AC-FAIL 1<br/>FAN -FAIL 1<br/>OTP 1</td><td>Alarm signal of AC-fail.<br/>Normally open contact. "Short" when the PSU input voltage is too low. Relay contact rating(maximum) is 30V/1A resistive.</td></tr> <tr> <td>DC- OK 2:<br/>AC-FAIL 2<br/>FAN -FAIL 2<br/>OTP 2</td><td>Alarm signal of AC fail.<br/>Open collector signal. Low when the PSU input voltage is too low. The maximum sink current is 10mA and the maximum external voltage is 20V.</td></tr> </tbody> </table> | Function | Description | DC- OK 1:<br>AC-FAIL 1<br>FAN -FAIL 1<br>OTP 1 | Alarm signal of AC-fail.<br>Normally open contact. "Short" when the PSU input voltage is too low. Relay contact rating(maximum) is 30V/1A resistive. | DC- OK 2:<br>AC-FAIL 2<br>FAN -FAIL 2<br>OTP 2 | Alarm signal of AC fail.<br>Open collector signal. Low when the PSU input voltage is too low. The maximum sink current is 10mA and the maximum external voltage is 20V. |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Function                                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |             |                                                |                                                                                                                                                      |                                                |                                                                                                                                                                         |
| DC- OK 1:<br>AC-FAIL 1<br>FAN -FAIL 1<br>OTP 1 | Alarm signal of AC-fail.<br>Normally open contact. "Short" when the PSU input voltage is too low. Relay contact rating(maximum) is 30V/1A resistive.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |             |                                                |                                                                                                                                                      |                                                |                                                                                                                                                                         |
| DC- OK 2:<br>AC-FAIL 2<br>FAN -FAIL 2<br>OTP 2 | Alarm signal of AC fail.<br>Open collector signal. Low when the PSU input voltage is too low. The maximum sink current is 10mA and the maximum external voltage is 20V.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |             |                                                |                                                                                                                                                      |                                                |                                                                                                                                                                         |



## COMPONENT STRESS TEST

| NO | TEST ITEM                                             | SPECIFICATION                                         | TEST CONDITION                                                                                                                                 | RESULT                            |
|----|-------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| 1  | Power Transistor<br>(D to S) or (C to E) Peak Voltage | Q 124 Rated<br>600V/38A                               | I/P: High-Line +3V = 308V(△)<br>O/P: (1) Full Load input on/off<br>(2) Output Short<br>(3) Full load continue<br>Ta : 25°C                     | (1) 450V<br>(2) 444V<br>(3) 450V  |
| 2  | Diode Peak Voltage                                    | D452 Rated<br>300A/100V                               | I/P: High-Line +3V = 308 V(△)<br>O/P: (1) Full Load input on/off<br>(2) Output Short<br>(3) Full load continue<br>Ta: 25°C                     | (1) 76.4V<br>(2) 62V<br>(3) 76.4V |
| 3  | Input Capacitor Voltage                               | C1 Rated:<br>470 $\mu$ / 450 V<br>SURGE VOLTAGE: 500V | I/P: High-Line +3V = 308 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) 460V<br>(2) 464V<br>(3) 448V  |
| 4  | Control IC Voltage Test                               | U302 Rated<br>9.8V~18.5V                              | I/P : High-Line +3V = 308 V(△)<br>O/P : (1) Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3) Full Load /Min load Change<br>Ta : 25°C | (1) 12V<br>(2) 12V<br>(3) 12V     |
| 5  | Power Transistor<br>(D to S) or (C to E) Peak Voltage | Q2 Rated<br>47A/ 600V                                 | I/P : High-Line +3V = 308V(△)<br>O/P : (1) Full Load Turn on<br>(2) Output Short<br>(3) Full load continue<br>Ta : 25°C                        | (1) 586V<br>(2) 437V<br>(3) 589V  |

## ■ SAFETY & E.M.C. TEST

### SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION                                                            | TEST CONDITION                                                                       | RESULT                                                                  |
|----|----------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P : 3 KVAC/min<br>I/P-FG : 2KVAC/min<br>O/P-FG : 0.5 KVAC/min      | I/P-O/P : 3.6 KVAC/min<br>I/P-FG : 2.4KVAC/min<br>O/P-FG : 0.6 KVAC/min<br>Ta : 25°C | I/P-O/P : 12.7 mA<br>I/P-FG : 10.71 mA<br>O/P-FG : 6.67 mA<br>NO DAMAGE |
| 2  | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ<br>I/P-FG : 500VDC>100MΩ<br>O/P-FG : 500VDC>100MΩ | I/P-O/P : 500 VDC<br>I/P-FG : 500 VDC<br>O/P-FG : 500 VDC<br>Ta : 25°C/70%RH         | I/P-O/P : 2.11 GΩ<br>I/P-FG : 6.5 GΩ<br>O/P-FG : 11.1 GΩ<br>NO DAMAGE   |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                                   | 40 A / 2min<br>Ta : 25°C / 70%RH                                                     | 18 mΩ                                                                   |

### E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                      | TEST CONDITION                                        | RESULT                |
|----|---------------------------------------------|----------------------------------------------------|-------------------------------------------------------|-----------------------|
| 1  | HARMONIC                                    | EN61000-3-2<br>CLASS A                             | I/P: 400VAC(50HZ) (Y)<br>O/P:100%,LOAD<br>Ta:25°C     | PASS                  |
| 2  | CONDUCTION                                  | EN55022<br>CLASS A                                 | I/P: 400VAC(50HZ) (Y)<br>O/P:FULL/50% LOAD<br>Ta:25°C | Test by certified Lab |
| 3  | RADIATION                                   | EN55022<br>CLASS A                                 | I/P: 400VAC(50HZ) (Y)<br>O/P:FULL LOAD<br>Ta:25°C     | Test by certified Lab |
| 4  | E.S.D                                       | EN61000-4-2<br>INDUSTRY<br>AIR:8KV / Contact:4KV   | I/P: 400VAC(50HZ) (Y)<br>O/P:FULL LOAD<br>Ta:25°C     | CRITERIA A            |
| 5  | E.F.T                                       | EN61000-4-4<br>INDUSTRY<br>INPUT: 2KV              | I/P: 400VAC(50HZ) (Y)<br>O/P:FULL LOAD<br>Ta:25°C     | CRITERIA A            |
| 6  | SURGE                                       | IEC61000-4-5<br>INDUSTRY<br>L-N :2KV<br>L,N-PE:4KV | I/P: 400VAC(50HZ) (Y)<br>O/P:FULL LOAD<br>Ta:25°C     | CRITERIA A            |
| 7  | Test by certified Lab & Test Report Prepare |                                                    |                                                       |                       |

## RELIABILITY TEST

### ENVIRONMENT TEST

| NO | TEST ITEM             | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | TEST CONDITION           | RESULT |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
|----|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------|----|----------|------------------------|--------------------------|---|-------|-------|-------|---|------|-------|-------|---|-------|-------|-------|---|------|-------|-------|---|------|-------|-------|---|----|-------|-------|---|-----|-------|-------|---|----|-------|-------|---|-----|-------|-------|----|-----|-------|--------|----|------|-------|--------|----|------------|-------|-------|----|----|-------|-------|----|----|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|-------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|----|------|-------|-------|
| 1  | TEMPERATURE RISE TEST | MODEL : RST-5000-24<br>1. ROOM AMBIENT BURN-IN : 2 HRS<br>I/P : 230VAC(△) O/P : FULL LOAD Ta= 39 °C<br>2. HIGH AMBIENT BURN-IN : 2 HRS<br>I/P : 230VAC(△) O/P : FULL LOAD Ta= 49.5 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
|    |                       | <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 39 °C</th><th>HIGH AMBIENT Ta= 49.5 °C</th></tr><tr><td>1</td><td>LF501</td><td>41.4℃</td><td>52.8℃</td></tr><tr><td>2</td><td>L501</td><td>51.1℃</td><td>62.1℃</td></tr><tr><td>3</td><td>LF502</td><td>44.1℃</td><td>55.9℃</td></tr><tr><td>4</td><td>Q151</td><td>67.7℃</td><td>79.5℃</td></tr><tr><td>5</td><td>Q126</td><td>68.2℃</td><td>78.6℃</td></tr><tr><td>6</td><td>D3</td><td>80.1℃</td><td>88.2℃</td></tr><tr><td>7</td><td>D43</td><td>73.9℃</td><td>81.3℃</td></tr><tr><td>8</td><td>Q3</td><td>85.7℃</td><td>95.9℃</td></tr><tr><td>9</td><td>Q43</td><td>78.6℃</td><td>90.1℃</td></tr><tr><td>10</td><td>BD1</td><td>99.7℃</td><td>110.1℃</td></tr><tr><td>11</td><td>BD41</td><td>95.2℃</td><td>107.8℃</td></tr><tr><td>12</td><td>T453(CORE)</td><td>61.2℃</td><td>72.0℃</td></tr><tr><td>13</td><td>L1</td><td>63.7℃</td><td>75.3℃</td></tr><tr><td>14</td><td>C1</td><td>54.9℃</td><td>65.5℃</td></tr><tr><td>15</td><td>T123</td><td>56.3℃</td><td>68.4℃</td></tr><tr><td>16</td><td>L121</td><td>77.9℃</td><td>88.6℃</td></tr><tr><td>17</td><td>D148</td><td>57.6℃</td><td>69.6℃</td></tr><tr><td>18</td><td>U204</td><td>62.2℃</td><td>73.6℃</td></tr><tr><td>19</td><td>D454</td><td>84.6℃</td><td>95.1℃</td></tr><tr><td>20</td><td>RTH1</td><td>59.3℃</td><td>66.4℃</td></tr><tr><td>21</td><td>T451</td><td>84.3℃</td><td>96.4℃</td></tr><tr><td>22</td><td>T452</td><td>84.9℃</td><td>97.4℃</td></tr><tr><td>23</td><td>T453</td><td>88.2℃</td><td>91.7℃</td></tr><tr><td>24</td><td>D456</td><td>54.1℃</td><td>67.1℃</td></tr><tr><td>25</td><td>L452</td><td>65.4℃</td><td>80.5℃</td></tr><tr><td>26</td><td>C453</td><td>41.9℃</td><td>52.9℃</td></tr><tr><td>27</td><td>C456</td><td>40.9℃</td><td>51.4℃</td></tr><tr><td>28</td><td>U601</td><td>54.0℃</td><td>66.0℃</td></tr><tr><td>29</td><td>U603</td><td>62.9℃</td><td>75.9℃</td></tr><tr><td>30</td><td>T601</td><td>51.9℃</td><td>64.0℃</td></tr><tr><td>31</td><td>T602</td><td>56.3℃</td><td>69.1℃</td></tr><tr><td>32</td><td>Q640</td><td>46.5℃</td><td>59.4℃</td></tr><tr><td>33</td><td>C647</td><td>48.8℃</td><td>60.5℃</td></tr><tr><td>34</td><td>C602</td><td>49.0℃</td><td>61.2℃</td></tr><tr><td>35</td><td>C621</td><td>53.2℃</td><td>65.0℃</td></tr><tr><td>36</td><td>RG603</td><td>57.2℃</td><td>69.0℃</td></tr><tr><td>37</td><td>U302</td><td>44.9℃</td><td>56.1℃</td></tr><tr><td>38</td><td>U308</td><td>43.4℃</td><td>54.5℃</td></tr><tr><td>39</td><td>C319</td><td>47.3℃</td><td>58.8℃</td></tr><tr><td>40</td><td>C122</td><td>71.1℃</td><td>73.2℃</td></tr><tr><td>41</td><td>C146</td><td>56.5℃</td><td>68.1℃</td></tr><tr><td>42</td><td>TSW1</td><td>79.8℃</td><td>87.3℃</td></tr><tr><td>43</td><td>C465</td><td>53.2℃</td><td>65.4℃</td></tr></table> |                          |        | NO | Position | ROOM AMBIENT Ta= 39 °C | HIGH AMBIENT Ta= 49.5 °C | 1 | LF501 | 41.4℃ | 52.8℃ | 2 | L501 | 51.1℃ | 62.1℃ | 3 | LF502 | 44.1℃ | 55.9℃ | 4 | Q151 | 67.7℃ | 79.5℃ | 5 | Q126 | 68.2℃ | 78.6℃ | 6 | D3 | 80.1℃ | 88.2℃ | 7 | D43 | 73.9℃ | 81.3℃ | 8 | Q3 | 85.7℃ | 95.9℃ | 9 | Q43 | 78.6℃ | 90.1℃ | 10 | BD1 | 99.7℃ | 110.1℃ | 11 | BD41 | 95.2℃ | 107.8℃ | 12 | T453(CORE) | 61.2℃ | 72.0℃ | 13 | L1 | 63.7℃ | 75.3℃ | 14 | C1 | 54.9℃ | 65.5℃ | 15 | T123 | 56.3℃ | 68.4℃ | 16 | L121 | 77.9℃ | 88.6℃ | 17 | D148 | 57.6℃ | 69.6℃ | 18 | U204 | 62.2℃ | 73.6℃ | 19 | D454 | 84.6℃ | 95.1℃ | 20 | RTH1 | 59.3℃ | 66.4℃ | 21 | T451 | 84.3℃ | 96.4℃ | 22 | T452 | 84.9℃ | 97.4℃ | 23 | T453 | 88.2℃ | 91.7℃ | 24 | D456 | 54.1℃ | 67.1℃ | 25 | L452 | 65.4℃ | 80.5℃ | 26 | C453 | 41.9℃ | 52.9℃ | 27 | C456 | 40.9℃ | 51.4℃ | 28 | U601 | 54.0℃ | 66.0℃ | 29 | U603 | 62.9℃ | 75.9℃ | 30 | T601 | 51.9℃ | 64.0℃ | 31 | T602 | 56.3℃ | 69.1℃ | 32 | Q640 | 46.5℃ | 59.4℃ | 33 | C647 | 48.8℃ | 60.5℃ | 34 | C602 | 49.0℃ | 61.2℃ | 35 | C621 | 53.2℃ | 65.0℃ | 36 | RG603 | 57.2℃ | 69.0℃ | 37 | U302 | 44.9℃ | 56.1℃ | 38 | U308 | 43.4℃ | 54.5℃ | 39 | C319 | 47.3℃ | 58.8℃ | 40 | C122 | 71.1℃ | 73.2℃ | 41 | C146 | 56.5℃ | 68.1℃ | 42 | TSW1 | 79.8℃ | 87.3℃ | 43 | C465 | 53.2℃ | 65.4℃ |
| NO | Position              | ROOM AMBIENT Ta= 39 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HIGH AMBIENT Ta= 49.5 °C |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 1  | LF501                 | 41.4℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 52.8℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 2  | L501                  | 51.1℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 62.1℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 3  | LF502                 | 44.1℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 55.9℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 4  | Q151                  | 67.7℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 79.5℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 5  | Q126                  | 68.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 78.6℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 6  | D3                    | 80.1℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.2℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 7  | D43                   | 73.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 81.3℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 8  | Q3                    | 85.7℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 95.9℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 9  | Q43                   | 78.6℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 90.1℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 10 | BD1                   | 99.7℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 110.1℃                   |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 11 | BD41                  | 95.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 107.8℃                   |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 12 | T453(CORE)            | 61.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 72.0℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 13 | L1                    | 63.7℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75.3℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 14 | C1                    | 54.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 65.5℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 15 | T123                  | 56.3℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 68.4℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 16 | L121                  | 77.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.6℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 17 | D148                  | 57.6℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 69.6℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 18 | U204                  | 62.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 73.6℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 19 | D454                  | 84.6℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 95.1℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 20 | RTH1                  | 59.3℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 66.4℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 21 | T451                  | 84.3℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 96.4℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 22 | T452                  | 84.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 97.4℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 23 | T453                  | 88.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 91.7℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 24 | D456                  | 54.1℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 67.1℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 25 | L452                  | 65.4℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 80.5℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 26 | C453                  | 41.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 52.9℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 27 | C456                  | 40.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 51.4℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 28 | U601                  | 54.0℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 66.0℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 29 | U603                  | 62.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75.9℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 30 | T601                  | 51.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 64.0℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 31 | T602                  | 56.3℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 69.1℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 32 | Q640                  | 46.5℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 59.4℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 33 | C647                  | 48.8℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 60.5℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 34 | C602                  | 49.0℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 61.2℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 35 | C621                  | 53.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 65.0℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 36 | RG603                 | 57.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 69.0℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 37 | U302                  | 44.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 56.1℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 38 | U308                  | 43.4℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 54.5℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 39 | C319                  | 47.3℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 58.8℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 40 | C122                  | 71.1℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 73.2℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 41 | C146                  | 56.5℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 68.1℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 42 | TSW1                  | 79.8℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 87.3℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |
| 43 | C465                  | 53.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 65.4℃                    |        |    |          |                        |                          |   |       |       |       |   |      |       |       |   |       |       |       |   |      |       |       |   |      |       |       |   |    |       |       |   |     |       |       |   |    |       |       |   |     |       |       |    |     |       |        |    |      |       |        |    |            |       |       |    |    |       |       |    |    |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |       |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |

|    |                                                                   |                                                                                                                                                                                                                                                                                   |                                                                      |                                                                       |
|----|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|
| 2  | OVER LOAD BURN-IN TEST                                            | NO DAMAGE<br>1 HOUR ( MIN )                                                                                                                                                                                                                                                       | I/P : 230 VAC(△)<br>O/P : 104 % LOAD<br>Ta : 25℃                     | TEST : OK                                                             |
| 3  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                              | I/P : 305VAC/196VAC(△)<br>O/P : 100 % LOAD<br>Ta= -35 ℃              | TEST : OK                                                             |
| 4  | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 50 ℃<br>NO DAMAGE                                                                                                                                                                                                                      | I/P : 308 VAC(△)<br>O/P : FULL LOAD<br>Ta= 50 ℃<br>HUMIDITY= 95 %R.H | TEST : OK                                                             |
| 5  | TEMPERATURE<br>COEFFICIENT                                        | ± 0.05 %(0~50℃)                                                                                                                                                                                                                                                                   | I/P : 230 VAC(△)<br>O/P : FULL LOAD                                  | ± 0.004 %(0~50℃)                                                      |
| 6  | STORAGE TEMPERATURE TEST                                          | 1. Thermal shock Temperature : -45℃~ +90℃<br>2. Temperature change rate : 25℃ / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 5 CYCLE<br>5. Input/Output condition : STATIC                                                                |                                                                      | OK                                                                    |
| 7  | THERMAL SHOCK TEST                                                | 1. Thermal shock Temperature : -35℃~ +55℃<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                                                  |                                                                      | OK                                                                    |
| 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                                                             |
| 9  | CAPACITOR<br>LIFE CYCLE                                           | SUPPOSE C453 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= 50 ℃ LIFE TIME<br>(3) I/P : 230VAC(△) O/P : 75% LOAD Ta= 50 ℃ LIFE TIME<br>(4) I/P : 230VAC(△) O/P : 50% LOAD Ta= 50 ℃ LIFE TIME |                                                                      | (1) 2162895 HRS<br>(2) 369297 HRS<br>(3) 398634 HRS<br>(4) 433136 HRS |
| 10 | MTBF                                                              | Conducted by Parts Stress Analysis Prediction<br>44.1K hrs min. Telcordia SR-332 (Bellcore) ; 34.6K hrs min.<br>MIL-HDBK-217F (25℃)                                                                                                                                               |                                                                      | OK                                                                    |
| 11 | DMTBF/Accelerated Life Test                                       | Demonstration Mean Time Between Failure (Expected Life): Above 50,000 hours @ TA 50℃                                                                                                                                                                                              |                                                                      |                                                                       |

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

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