



# Test Report:RSP-500-12

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500W 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                                                           | VERDICT |
|----|--------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------|
| 1  | RIPPLE & NOISE                 | V1 : 150 mVp-p (Max )                            | I/P : 230VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                    | V1 : 55 mVp-p (Max )                                             | P       |
| 2  | OUTPUT VOLTAGE<br>ADJUST RANGE | CH1 : 10 V ~ 13.2 V                              | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : MIN LOAD<br>Ta : 25°C                                                                                                                                                   | 9.35 V ~ 13.65 V/ 230 VAC<br>9.35 V ~ 13.65 V/ 115 VAC           | P       |
| 3  | OUTPUT VOLTAGE<br>TOLERANCE    | V1 : -1 %~ +1 % (Max)                            | I/P : 100 VAC / 264 VAC<br>O/P : FULL/ MIN LOAD<br>Ta : 25°C                                                                                                                                                    | V1 : 0 %~ 0.04 %                                                 | P       |
| 4  | LINE REGULATION                | V1 : -0.3 %~ +0.3 % (Max)                        | I/P : 100 VAC ~ 264 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                         | V1 : 0 %~ 0.04 %                                                 | P       |
| 5  | LOAD REGULATION                | V1 : -0.5 %~ +0.5 % (Max)                        | I/P : 230 VAC<br>O/P : FULL ~MIN LOAD<br>Ta : 25°C                                                                                                                                                              | V1 : 0 %~ 0 %                                                    | P       |
| 6  | SET UP TIME                    | 230VAC : 1500 ms (Max)<br>115VAC : 3000 ms (Max) | I/P : 230 VAC/115VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                            | 230VAC/ 695 ms<br>115VAC/ 2223 ms                                | P       |
| 7  | RISE TIME                      | 230VAC : 80 ms (Max)<br>115VAC : 80 ms (Max)     | I/P : 230 VAC/115VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                            | 230VAC/ 23.9 ms<br>115VAC/ 24.3 ms                               | P       |
| 8  | HOLD UP TIME                   | 230VAC : 18 ms (Typ.)<br>115VAC : 14 ms (Typ.)   | I/P : 230 VAC/115VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                            | 230VAC/ 26.7 ms<br>115VAC/ 20.8 ms                               | P       |
| 9  | OVER/UNDERSHOOT<br>TEST        | < ±5%                                            | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                                   | TEST : <5 %                                                      | P       |
| 10 | DYNAMIC LOAD                   | V1 : 1200 mVp-p                                  | I/P : 230 VAC<br>(1).O/P : FULL /Min LOAD 90%DUTY/<br>1KHZ<br>(2).O/P : FULL /Min LOAD 90%DUTY/<br>3KHZ<br>(3).O/P : FULL /Min LOAD 90%DUTY/<br>5KHZ<br>(4).O/P : FULL /Min LOAD 50%DUTY/<br>120HZ<br>Ta : 25°C | (1) 486 mVp-p<br>(2) 312 mVp-p<br>(3) 300 mVp-p<br>(4) 802 mVp-p | P       |

### INPUT FUNCTION TEST

| NO | TEST ITEM             | SPECIFICATION                                      | TEST CONDITION                                                                                                                                                                                     | RESULT                                     | VERDICT |
|----|-----------------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------|
| 1  | INPUT VOLTAGE RANGE   | 85VAC~264 VAC                                      | I/P : TESTING<br>O/P : FULL LOAD<br>Ta : 25°C<br><br>I/P :<br>LOW-LINE-3V= 82 V<br>HIGH-LINE+15%=300 V<br>O/P : FULL/MIN LOAD<br>ON : 30 Sec . OFF : 30 Sec 10MIN<br>( AC POWER ON/OFF NO DAMAGE ) | 63 V~264V<br><br>TEST : OK                 | P       |
| 2  | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE OSC                       | I/P : 85 VAC ~ 264 VAC<br>O/P : FULL~MIN LOAD<br>Ta : 25°C                                                                                                                                         | TEST : OK                                  | P       |
| 3  | POWER FACTOR          | 0.95 / 230 VAC(TYP)<br>0.98 / 115 VAC(TYP)         | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                     | PF= 0.971 / 230 VAC<br>PF= 0.991 / 115 VAC | P       |
| 4  | EFFICIENCY            | 89 % (TYP)                                         | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                      | 89.32 %                                    | P       |
| 5  | INPUT CURRENT         | 230V/ 2.65 A (TYP)<br>115V/ 5.3 A (TYP)            | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                     | I = 2.58 A/ 230 VAC<br>I = 5.31 A/ 115 VAC | P       |
| 6  | INRUSH CURRENT        | 230V/ 40 A (TYP)<br>115V/ 20 A (TYP)<br>COLD START | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                                                                                                                                                      | I = 34.9 A/ 230VAC<br>I = 14.6 A/115VAC    | P       |
| 7  | LEAKAGE CURRENT       | < 2 mA / 240VAC                                    | I/P : 264 VAC<br>O/P : Min LOAD<br>Ta : 25°C                                                                                                                                                       | L-FG : 0.68 mA<br>N-FG : 0.68 mA           | P       |

### PROTECTION FUNCTION TEST

| NO | TEST ITEM                   | SPECIFICATION                                                                        | TEST CONDITION                                                | RESULT                                                                                      | VERDICT |
|----|-----------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------|
| 1  | OVER LOAD PROTECTION        | 105 % ~130 %                                                                         | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : TESTING<br>Ta : 25°C  | 107.8 %/230VAC<br>110.5 %/115VAC<br>Constant Current Limiting                               | P       |
| 2  | OVER VOLTAGE PROTECTION     | CH1 : 13.8 V ~ 16.2 V                                                                | I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : MIN LOAD<br>Ta : 25°C | 14.53 V/230VAC<br>14.52 V/ 115 VAC<br>Shut down Re- power ON                                | P       |
| 3  | OVER TEMPERATURE PROTECTION | SPEC :<br>Shut down o/p voltage , recovers automatically after temperature goes down | I/P : 230 VAC<br>O/P : FULL LOAD                              | O.T.P. Active<br>Shut down o/p voltage , recovers automatically after temperature goes down | P       |
| 4  | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE                                               | I/P : 264 VAC<br>O/P : FULL LOAD<br>Ta : 25°C                 | NO DAMAGE<br>Constant Current Limiting                                                      | P       |

### CONTROL FUNCTION TEST

| NO | TEST ITEM          | SPECIFICATION                                         | TEST CONDITION                                | RESULT                                     | VERDICT |
|----|--------------------|-------------------------------------------------------|-----------------------------------------------|--------------------------------------------|---------|
| 1  | REMOTE CONTROL     | CN100<br>POWER ON : < 0~0.8V<br>POWER OFF : 4~10V     | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | POWER ON : 0~1.1 V<br>POWER OFF : 1.2~10 V | P       |
| 2  | FAN ON/OFF CONTROL | RTH2 ≥ 50°C ±10°C FAN ON<br>RTH2 ≤ 40°C ±10°C FAN OFF | I/P : 230 VAC<br>O/P : FULL LOAD<br>Ta : 25°C | FAN ON: 45.3 °C<br>FAN OFF: 39.8 °C        | P       |
| 3  | REMOTE SENSE       | S+ / S-<br>>0.3V                                      | I/P: 230 VAC<br>O/P:FULL LOAD<br>Ta:25°C      | 0.35                                       | P       |

## COMPONENT STRESS TEST

| NO | TEST ITEM                                              | SPECIFICATION                  | TEST CONDITION                                                                                                                                                                                                       | RESULT                                                                                                                           | VERDICT |
|----|--------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------|
| 1  | Power Transistor<br>( D to S) or (C to E) Peak Voltage | Q 4      Rated : 650V   16A    | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>(3)Full load continue<br>(4) Dynamic Load<br>90%Duty/1KHz<br>(5) Dynamic Load<br>50%Duty/120Hz<br><br>Ta : 25℃                      | (1)      396      V<br>(2)      396      V<br>(3)      392      V<br>(4)      396      V<br>(5)      394      V                  | P       |
| 2  | Diode Peak Voltage                                     | Q103    Rated : 100V 30 A      | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2)Output Short<br>(3)Full load continue<br>(4)NO LOAD TURN ON<br>(5) Dynamic Load<br>90%Duty/1KHz<br>(6) Dynamic Load<br>50%Duty/120Hz<br><br>Ta : 25℃ | (1)      77      V<br>(2)      72      V<br>(3)      75      V<br>(4)      69      V<br>(5)      76      V<br>(6)      76      V | P       |
| 3  | Input    Capacitor Voltage                             | C 5    Rated : 180u /400V/105℃ | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load<br>Change<br>Ta : 25℃                                                                          | (1)      380      V<br>(2)      374      V<br>(3)      392      V                                                                | P       |
| 4  | Control IC Voltage Test                                | U 1    Rated :    30 V         | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load<br>Change<br>Ta : 25℃                                                                          | (1)      16.3      V<br>(2)      15.4      V<br>(3)      16.2      V                                                             | P       |
| 5  | PFC Transistor<br>( D to S) or (C to E) Peak Voltage   | Q 1      Rated : 600 V   20 A  | I/P : High-Line +3V = 267 V<br>O/P : (1)Full Load Turn on<br>(2) Output Short<br>(3)Full load continue<br><br>Ta : 25℃                                                                                               | (1)      404      V<br>(2)      388      V<br>(3)      404      V                                                                | P       |

## ■ SAFETY & E.M.C. TEST

### SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION                                                            | TEST CONDITION                                                                        | RESULT                                                                 | VERDICT |
|----|----------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------|
| 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 : 2.4 KVAC/min<br>O/P-FG : 0.6 KVAC/min<br>Ta : 25°C | I/P-O/P : 3.05 mA<br>I/P-FG : 3.11 mA<br>O/P-FG : 3.01 mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ<br>I/P-FG : 500VDC>100MΩ<br>O/P-FG : 500VDC>100MΩ | I/P-O/P : 500 VDC<br>I/P-FG : 500 VDC<br>O/P-FG : 500 VDC<br>Ta : 25°C /70%RH         | I/P-O/P : 9999 MΩ<br>I/P-FG : 9999 MΩ<br>O/P-FG : 9999 MΩ<br>NO DAMAGE | P       |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                                   | 40 A / 2min<br>Ta : 25°C / 70%RH                                                      | 5 mΩ                                                                   | P       |

### E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                         | TEST CONDITION                                           | RESULT                        | VERDICT |
|----|---------------------------------------------|-------------------------------------------------------|----------------------------------------------------------|-------------------------------|---------|
| 1  | HARMONIC                                    | EN61000-3-2<br>CLASS A<br>CLASS D                     | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | PASS                          | P       |
| 2  | CONDUCTION                                  | EN55022<br>CLASS B                                    | I/P : 230 VAC (50HZ)<br>O/P : FULL/50% LOAD<br>Ta : 25°C | PASS<br>Test by certified Lab | P       |
| 3  | RADIATION                                   | EN55022<br>CLASS B                                    | I/P : 230 VAC (50HZ)<br>O/P : FULL LOAD<br>Ta : 25°C     | PASS<br>Test by certified Lab | P       |
| 4  | E.S.D                                       | EN61000-4-2<br>INDUSTRY<br>AIR : 8KV / Contact : 4KV  | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 5  | E.F.T                                       | EN61000-4-4<br>INDUSTRY<br>INPUT : 2KV                | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 6  | SURGE                                       | IEC61000-4-5<br>INDUSTRY<br>L-N : 2KV<br>L,N-PE : 4KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25°C       | CRITERIA A                    | P       |
| 7  | Test by certified Lab & Test Report Prepare |                                                       |                                                          |                               |         |

## RELIABILITY TEST

### ENVIRONMENT TEST

| NO | TEST ITEM                                                         | SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TEST CONDITION                                                    | RESULT    | VERDICT |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
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| 1  | TEMPERATURE RISE TEST                                             | <div>MODEL : RSP-500-24</div> <div>1. ROOM AMBIENT    BURN-IN : 2 HRS</div> <div>    I/P : 230VAC    O/P : FULL LOAD    Ta=24.2℃</div> <div>2. HIGH AMBIENT    BURN-IN : 2 HRS</div> <div>    I/P : 230VAC    O/P : FULL LOAD    Ta=49.5℃</div> <table><thead><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT<br/>Ta=24.2℃</th><th>HIGH AMBIENT<br/>Ta= 49.5℃</th></tr></thead><tbody><tr><td>1</td><td>D5</td><td>38.2℃</td><td>65.1℃</td></tr><tr><td>2</td><td>U202</td><td>38.2℃</td><td>64.4℃</td></tr><tr><td>3</td><td>ZNR1</td><td>26.4℃</td><td>53.2℃</td></tr><tr><td>4</td><td>LF1</td><td>27.6℃</td><td>54.7℃</td></tr><tr><td>5</td><td>BD1</td><td>40.9℃</td><td>66.9℃</td></tr><tr><td>6</td><td>LF2</td><td>30.8℃</td><td>57.9℃</td></tr><tr><td>7</td><td>R15</td><td>34.4℃</td><td>61.5℃</td></tr><tr><td>8</td><td>L1</td><td>33.3℃</td><td>61.3℃</td></tr><tr><td>9</td><td>Q1</td><td>44.8℃</td><td>71.9℃</td></tr><tr><td>10</td><td>Q2</td><td>45.1℃</td><td>71.9℃</td></tr><tr><td>11</td><td>D10</td><td>52.4℃</td><td>77.1℃</td></tr><tr><td>12</td><td>C5</td><td>32.9℃</td><td>59.4℃</td></tr><tr><td>13</td><td>C6</td><td>33.4℃</td><td>59.8℃</td></tr><tr><td>14</td><td>U1</td><td>40.4℃</td><td>67.3℃</td></tr><tr><td>15</td><td>C61</td><td>34.6℃</td><td>61.5℃</td></tr><tr><td>16</td><td>T2</td><td>49.8℃</td><td>77.2℃</td></tr><tr><td>17</td><td>Q3</td><td>53.8℃</td><td>82.6℃</td></tr><tr><td>18</td><td>Q4</td><td>58.5℃</td><td>86.7℃</td></tr><tr><td>19</td><td>T1coil</td><td>63.6℃</td><td>90.3℃</td></tr><tr><td>20</td><td>T1core</td><td>55.6℃</td><td>82.2℃</td></tr><tr><td>21</td><td>Q101</td><td>45.0℃</td><td>71.1℃</td></tr><tr><td>22</td><td>Q102</td><td>40.7℃</td><td>67.2℃</td></tr><tr><td>23</td><td>TSW2</td><td>33.5℃</td><td>59.4℃</td></tr><tr><td>24</td><td>Q103</td><td>37.7℃</td><td>64.4℃</td></tr><tr><td>25</td><td>Q105</td><td>45.8℃</td><td>71.8℃</td></tr><tr><td>26</td><td>L100</td><td>56.6℃</td><td>84.9℃</td></tr><tr><td>27</td><td>C105</td><td>36.6℃</td><td>63.2℃</td></tr><tr><td>28</td><td>RG1</td><td>46.9℃</td><td>73.7℃</td></tr><tr><td>29</td><td>RTH2</td><td>50.1℃</td><td>77.6℃</td></tr><tr><td>30</td><td>TSW1</td><td>35.7℃</td><td>63.1℃</td></tr></tbody></table> |                                                                   |           | NO      | Position | ROOM AMBIENT<br>Ta=24.2℃ | HIGH AMBIENT<br>Ta= 49.5℃ | 1 | D5 | 38.2℃ | 65.1℃ | 2 | U202 | 38.2℃ | 64.4℃ | 3 | ZNR1 | 26.4℃ | 53.2℃ | 4 | LF1 | 27.6℃ | 54.7℃ | 5 | BD1 | 40.9℃ | 66.9℃ | 6 | LF2 | 30.8℃ | 57.9℃ | 7 | R15 | 34.4℃ | 61.5℃ | 8 | L1 | 33.3℃ | 61.3℃ | 9 | Q1 | 44.8℃ | 71.9℃ | 10 | Q2 | 45.1℃ | 71.9℃ | 11 | D10 | 52.4℃ | 77.1℃ | 12 | C5 | 32.9℃ | 59.4℃ | 13 | C6 | 33.4℃ | 59.8℃ | 14 | U1 | 40.4℃ | 67.3℃ | 15 | C61 | 34.6℃ | 61.5℃ | 16 | T2 | 49.8℃ | 77.2℃ | 17 | Q3 | 53.8℃ | 82.6℃ | 18 | Q4 | 58.5℃ | 86.7℃ | 19 | T1coil | 63.6℃ | 90.3℃ | 20 | T1core | 55.6℃ | 82.2℃ | 21 | Q101 | 45.0℃ | 71.1℃ | 22 | Q102 | 40.7℃ | 67.2℃ | 23 | TSW2 | 33.5℃ | 59.4℃ | 24 | Q103 | 37.7℃ | 64.4℃ | 25 | Q105 | 45.8℃ | 71.8℃ | 26 | L100 | 56.6℃ | 84.9℃ | 27 | C105 | 36.6℃ | 63.2℃ | 28 | RG1 | 46.9℃ | 73.7℃ | 29 | RTH2 | 50.1℃ | 77.6℃ | 30 | TSW1 | 35.7℃ | 63.1℃ |  | P |
| NO | Position                                                          | ROOM AMBIENT<br>Ta=24.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HIGH AMBIENT<br>Ta= 49.5℃                                         |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 1  | D5                                                                | 38.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 65.1℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 2  | U202                                                              | 38.2℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 64.4℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 3  | ZNR1                                                              | 26.4℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 53.2℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 4  | LF1                                                               | 27.6℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 54.7℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 5  | BD1                                                               | 40.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 66.9℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 6  | LF2                                                               | 30.8℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 57.9℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 7  | R15                                                               | 34.4℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 61.5℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 8  | L1                                                                | 33.3℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 61.3℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 9  | Q1                                                                | 44.8℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 71.9℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 10 | Q2                                                                | 45.1℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 71.9℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 11 | D10                                                               | 52.4℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 77.1℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 12 | C5                                                                | 32.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 59.4℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 13 | C6                                                                | 33.4℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 59.8℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 14 | U1                                                                | 40.4℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 67.3℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 15 | C61                                                               | 34.6℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 61.5℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 16 | T2                                                                | 49.8℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 77.2℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 17 | Q3                                                                | 53.8℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 82.6℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 18 | Q4                                                                | 58.5℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 86.7℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 19 | T1coil                                                            | 63.6℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 90.3℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 20 | T1core                                                            | 55.6℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 82.2℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 21 | Q101                                                              | 45.0℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 71.1℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 22 | Q102                                                              | 40.7℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 67.2℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 23 | TSW2                                                              | 33.5℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 59.4℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 24 | Q103                                                              | 37.7℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 64.4℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 25 | Q105                                                              | 45.8℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 71.8℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 26 | L100                                                              | 56.6℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 84.9℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 27 | C105                                                              | 36.6℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 63.2℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 28 | RG1                                                               | 46.9℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 73.7℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 29 | RTH2                                                              | 50.1℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 77.6℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 30 | TSW1                                                              | 35.7℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 63.1℃                                                             |           |         |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 2  | OVER LOAD BURN-IN TEST                                            | NO DAMAGE<br>1 HOUR ( MIN )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P : 230 VAC<br>O/P : 114 % LOAD<br>Ta : 25℃                     | TEST : OK | P       |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 3  | LOW TEMPERATURE<br>TURN ON TEST                                   | TURN ON AFTER 2 HOUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | I/P : 264VAC/100VAC<br>O/P : 100 % LOAD<br>Ta= -35℃               | TEST : OK | P       |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |
| 4  | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 50 ℃<br>NO DAMAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | I/P : 272 VAC<br>O/P : FULL LOAD<br>Ta=50.1℃<br>HUMIDITY= 95 %R.H | TEST : OK | P       |          |                          |                           |   |    |       |       |   |      |       |       |   |      |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |     |       |       |   |    |       |       |   |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |     |       |       |    |    |       |       |    |    |       |       |    |    |       |       |    |        |       |       |    |        |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |      |       |       |    |     |       |       |    |      |       |       |    |      |       |       |  |   |

|    |                             |                                                                                                                                                                                                                                                                                                                                          |                                  |                                                                       |   |
|----|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------|---|
| 5  | TEMPERATURE COEFFICIENT     | $\pm 0.05\%/^{\circ}\text{C}$ (0~50 $^{\circ}\text{C}$ )                                                                                                                                                                                                                                                                                 | I/P : 230 VAC<br>O/P : FULL LOAD | $\pm 0\%/^{\circ}\text{C}$ (0~50 $^{\circ}\text{C}$ )                 | P |
| 6  | STORAGE TEMPERATURE TEST    | 1. Thermal shock Temperature : -40 $^{\circ}\text{C}$ ~ +85 $^{\circ}\text{C}$<br>2. Temperature change rate : 25 $^{\circ}\text{C}$ / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 5 CYCLE<br>5. Input/Output condition : STATIC                                                                |                                  | OK                                                                    | P |
| 7  | THERMAL SHOCK TEST          | 1. Thermal shock Temperature : -30 $^{\circ}\text{C}$ ~ +70 $^{\circ}\text{C}$<br>2. Temperature change rate : 25 $^{\circ}\text{C}$ / MIN<br>3. Dwell time low and high temperature : 30 MIN/EACH<br>4. Total test cycle : 10 CYCLE<br>5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST<br>turn on 58sec ; turn off 2sec     |                                  | OK                                                                    | P |
| 8  | VIBRATION TEST              | 1 Carton & 1 Set<br>(1) Waveform : Sine Wave<br>(2) Frequency : 10~500Hz<br>(3) Sweep Time : 12min/sweep cycle<br>(4) Acceleration : 2G<br>(5) Test Time : 60min in each axis (X.Y.Z)<br>(6) Ta : 25 $^{\circ}\text{C}$                                                                                                                  |                                  | TEST : OK                                                             | P |
| 9  | CAPACITOR LIFE CYCLE        | SUPPOSE C105 IS THE MOST CRITICAL COMPONENT<br>(1) I/P : 230VAC O/P : FULL LOAD Ta= 25 $^{\circ}\text{C}$ LIFE TIME<br>(2) I/P : 230VAC O/P : FULL LOAD Ta=50 $^{\circ}\text{C}$ LIFE TIME<br>(3) I/P : 230VAC O/P : 75% LOAD Ta= 50 $^{\circ}\text{C}$ LIFE TIME<br>(4) I/P : 230VAC O/P : 50% LOAD Ta= 50 $^{\circ}\text{C}$ LIFE TIME |                                  | (1) 1307062 HRS<br>(2) 220095 HRS<br>(3) 211170 HRS<br>(4) 269179 HRS | P |
| 10 | MTBF                        | MIL-HDBK-217F NOTICE S2 PARTS COUNT<br>TOTAL FAILURE RATE : 187.7 KHRS                                                                                                                                                                                                                                                                   |                                  |                                                                       | P |
| 11 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure (Expected Life): Above 30,000 hours @ TA 50 $^{\circ}\text{C}$                                                                                                                                                                                                                                   |                                  |                                                                       | P |

| SAMPLE         | TEST RESULT | TESTER | APPROVAL |
|----------------|-------------|--------|----------|
| PRODUCT SAMPLE | PASS        | Shenym | Wangdz   |

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