MODEL：RSP-2400-24

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1： 150 mVp-p (Max)	I/P： 230VAC O/P：FULL LOAD Ta：25℃	V1： 95 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1：22 V~ 28 V	I/P： 230 VAC O/P：MIN LOAD Ta：25℃	21.31 V~ 28.92 V/ 230 VAC 21.30 V~ 28.92 V/ 180 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1： 1 %~ -1 % (Max)	I/P： 180VAC / 264 VAC O/P：FULL/ MIN LOAD Ta：25℃	V1： 0.05 %~ -0.05 %	P
4	LINE REGULATION	V1： 0.5 %~ -0.5 % (Max)	I/P：180VAC ~ 264 VAC O/P：FULL LOAD Ta：25℃	V1： 0.03 %~ -0.03 %	P
5	LOAD REGULATION	V1： 0.5 %~ -0.5 % (Max)	I/P： 230 VAC O/P：FULL ~MIN LOAD Ta：25℃	V1： 0.03 %~ -0.03 %	P
6	SET UP TIME	230VAC： 1000 ms (Max)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 533 ms	P
7	RISE TIME	230VAC： 80 ms (Max)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 57 ms	P
8	HOLD UP TIME	230VAC： 12 ms (TYP)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 25.7 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	TEST： < 5 %	P
10	DYNAMIC LOAD	V1： 2400 mVp-p	I/P： 230 VAC O/P：FULL /Min LOAD 90%DUTY/ 1KHZ Ta：25℃	229 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180VAC~264 VAC	I/P：TESTING O/P：FULL LOAD Ta：25℃	171 V~264V	P
			I/P： LOW-LINE-3V= 177 V HIGH-LINE+15%=300 V O/P：FULL/MIN LOAD ON： 30 Sec . OFF： 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST： OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P： 180 VAC ~ 264 VAC O/P：FULL~MIN LOAD Ta：25℃	TEST： OK	P
3	POWER FACTOR	0.95 / 230 VAC(TYP)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	PF= 0.965 / 230 VAC	P
4	EFFICIENCY	90 % (TYP)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	90.8 %	P
5	INPUT CURRENT	230V/ 12 A (TYP) 180V/ 15.5 A (TYP)	I/P： 230 VAC I/P： 180 VAC O/P：FULL LOAD Ta：25℃	I = 11.94 A/ 230 VAC I = 15.41 A/ 180 VAC	P
6	INRUSH CURRENT	230V/ 60 A (TYP) COLD START	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	I = 55 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P： 264 VAC O/P：Min LOAD Ta：25℃	L-FG： 1.3 mA N-FG： 1.35 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	100%~112 %	I/P： 230 VAC O/P：TESTING Ta：25℃	106.6%/ 230 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1：28.8V~ 33.6V	I/P： 230 VAC O/P：MIN LOAD Ta：25℃	31.4V/ 230 VAC Shut down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC： TSW1： 100 ± 5℃ O.T.P detect on heatsink of power transistor TSW2： 85 ± 5℃ O.T.P detect on heatsink of O/P diode NO DAMAGE	I/P： 230 VAC O/P：FULL LOAD	O.T.P. Active Shut down o/p voltage，recovers automatically after temperature goes down	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P： 264 VAC O/P：FULL LOAD Ta：25℃	NO DAMAGE CN3 PIN9-10 SHORT: Shut down Re-power ON CN3 PIN9-10 OPEN: Current Limit	P

CONTROL FUNCTION TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>AUXILIARY POWER (AUX)</td><td>12V @ 0.1A
(Only for Remote ON/OFF control)</td><td>I/P： 230 VAC
O/P：FULL LOAD
Ta：25℃</td><td>11.907V</td><td>P</td></tr>
<tr><td>2</td><td>REMOTE CONTROL</td><td>Table1.1 Fig1.2(a)(b)(c)
Specification of Remote ON/OFF</td><td>I/P： 230 VAC
O/P：FULL LOAD
Ta：25℃</td><td><table><tr><td colspan="2">Connection Method</td><td>Fig1.2(a)</td><td>Fig1.2(b)</td><td>Fig1.2(c)</td></tr><tr><td rowspan="2">SW Logic</td><td>Output on</td><td>SW Open</td><td>SW Open</td><td>SW Close</td></tr><tr><td>Output off</td><td>SW Close</td><td>SW Close</td><td>SW Open</td></tr></table></td><td>P</td></tr>
<tr><td>3</td><td>ALARM SIGNAL OUTPUT</td><td>Table2.1 Explanation of alarm<table><tr><td>Function</td><td>Description</td></tr><tr><td>P OK</td><td>The signal is "Low" when the power supply is 80% of the rated output voltage-Power OK</td></tr><tr><td></td><td>The signal turns to be "High" when the power supply is under 80% of the rated output voltage-Power Fail</td></tr></table></td><td>I/P： 230 VAC
O/P：FULL LOAD
Ta：25℃</td><td><table><tr><td>Output of alarm (P OK, relay contact)</td><td>Output of alarm (P OK2, TTL Signal)</td></tr><tr><td>Low (0.5V max at 500mA)</td><td>Low (0.5V max at 10mA)</td></tr><tr><td>High or open (External applied voltage 500mA max.)</td><td>High or open (External applied voltage 10mA max.)</td></tr></table></td><td>P</td></tr>
<tr><td>4</td><td>OUTPUT VOLTAGE PROGRAMMABLE(PV)</td><td>(1) Adjustment of output voltage is possible between 20~110%(Typ.) of the rated output which is shown in Fig. 3.1
(2) Connecting a resistor externally between PV and-S on CN1 or CN2 that is shown in Fig. 3.2</td><td>I/P： 230 VAC
O/P：NOL LOAD
Ta：25℃</td><td>PV=1V , Vout= 4.908 V
PV=3V , Vout= 14.808 V
PV=5V , Vout= 24.29 V
PV=5.5,Vout= 26.54 V</td><td>P</td></tr>
<tr><td>5</td><td>CURRENT SHARING</td><td>PSU1-PSU2 < 10%</td><td>I/P： 230 VAC
O/P ： 90%/50% LOAD
Ta：25℃</td><td>O/P：90% LOAD
PSU1：89.3 A
PSU2：89.8 A
PSU3：91.5 A
O/P：50%
PSU1：48.8 A
PSU2：49.4 A
PSU3：52.0 A</td><td>P</td></tr>
<tr><td>6</td><td>REMOTE SENSE</td><td>>0.25V</td><td>I/P： 230 VAC
O/P：FULL LOAD
Ta：25℃</td><td>> 0.25 V</td><td>P</td></tr>
<tr><td>7</td><td>FAN SPEED CONTROL</td><td>-------</td><td>I/P： 230 VAC
O/P ： FULL /NOLOAD
Ta：25℃</td><td>NO LOAD Fan Voltage= 7.32 V
100% LOAD Fan Voltage= 12.549 V</td><td>P</td></tr>
</table>

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL：RSP-2400-24
1. ROOM AMBIENT BURN-IN：1.5 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 35.7 ℃
2. HIGH AMBIENT BURN-IN： 2 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 54.2 ℃
<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 35.7 ℃</th><th>HIGH AMBIENT Ta=54.2 ℃</th></tr>
<tr><td>1</td><td>LF1</td><td>TR-807</td><td>63.2℃</td><td>78.9℃</td></tr>
<tr><td>2</td><td>BD1</td><td>25A/600V D25XB60</td><td>69.3℃</td><td>86.6℃</td></tr>
<tr><td>3</td><td>L1</td><td>CK TF1939</td><td>56.4℃</td><td>71.2℃</td></tr>
<tr><td>4</td><td>D2</td><td>STTH3006DPI 30A/600V</td><td>59.5℃</td><td>77.9℃</td></tr>
<tr><td>5</td><td>Q5</td><td>SPW20N60C3 20.7A/600V</td><td>49.7℃</td><td>68.8℃</td></tr>
<tr><td>6</td><td>C7</td><td>470u/420V 105℃ HU</td><td>48.7℃</td><td>67.6℃</td></tr>
<tr><td>7</td><td>U900</td><td>UCC2818</td><td>46.1℃</td><td>64.8℃</td></tr>
<tr><td>8</td><td>U1</td><td>TNY280</td><td>63.8℃</td><td>82.6℃</td></tr>
<tr><td>9</td><td>ZD80</td><td>TVS P6KE200A</td><td>64.5℃</td><td>83.7℃</td></tr>
<tr><td>10</td><td>T2</td><td>TF-1806A</td><td>66.1℃</td><td>86.3℃</td></tr>
<tr><td>11</td><td>U223</td><td>UCC2895DW</td><td>47.1℃</td><td>66.6℃</td></tr>
<tr><td>12</td><td>T6</td><td>TF-1813</td><td>51.4℃</td><td>71.9℃</td></tr>
<tr><td>13</td><td>Q51</td><td>TK40J60T 40A/600V</td><td>58.8℃</td><td>82.1℃</td></tr>
<tr><td>14</td><td>D980</td><td>BYC8-600 8A/600V</td><td>51.7℃</td><td>72.1℃</td></tr>
<tr><td>15</td><td>L2</td><td>TF-1805</td><td>59.7℃</td><td>78.4℃</td></tr>
<tr><td>16</td><td>D981</td><td>BYC8-600 8A/600V</td><td>56.3℃</td><td>78.8℃</td></tr>
<tr><td>17</td><td>T5</td><td>TF-1811</td><td>69.9℃</td><td>91.7℃</td></tr>
<tr><td>18</td><td>D106</td><td>60CPQ150 60A/150V</td><td>67.2℃</td><td>86.3℃</td></tr>
<tr><td>19</td><td>L102</td><td>TF1808</td><td>58.1℃</td><td>77.1℃</td></tr>
<tr><td>20</td><td>C116</td><td>1500u/35V UL10Kh ZLH</td><td>54.5℃</td><td>73.8℃</td></tr>
<tr><td>21</td><td>Q530</td><td>STP60NF06L 60A/60V</td><td>50.0℃</td><td>70.0℃</td></tr>
<tr><td>22</td><td>TSW2</td><td>ST-22W-R0 85℃</td><td>62.4℃</td><td>81.0℃</td></tr>
<tr><td>23</td><td>TSW1</td><td>ST-22W-R0 100℃</td><td>62.0℃</td><td>85.9℃</td></tr>
</table></td><td>P</td></tr>
<tr><td>2</td><td>OVER LOAD BURN-IN TEST</td><td>NO DAMAGE
1 HOUR (MIN)</td><td>I/P： 230 VAC
O/P：105 % LOAD
Ta：25℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>3</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P： 230 VAC
O/P： 100% LOAD
Ta= -25℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 50 ℃
NO DAMAGE</td><td>I/P： 272 VAC
O/P：FULL LOAD
Ta= 50 ℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>5</td><td>TEMPERATURE
COEFFICIENT</td><td>± 0.05 %(0~50℃)</td><td>I/P： 230 VAC
O/P：FULL LOAD</td><td>± 0.011 %(0~50℃)</td><td>P</td></tr>
<tr><td>6</td><td>VIBRATION TEST</td><td colspan="2">1 Carton & 1 Set
(1) Waveform： Sine Wave
(2) Frequency：10~500Hz
(3) Sweep Time：10min/sweep cycle
(4) Acceleration：2G
(5) Test Time：1 hour in each axis (X.Y.Z)
(6) Ta：25℃</td><td>TEST：OK</td><td>P</td></tr>
</table>

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P： 3 KVAC/min I/P-FG： 2 KVAC/min O/P-FG： 0.5 KVAC/min	I/P-O/P： 3.6 KVAC/min I/P-FG： 2.4 KVAC/min O/P-FG： 0.6 KVAC/min Ta：25℃	I/P-O/P： 11.24 mA I/P-FG： 10.48 mA O/P-FG： 8.04 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P：500VDC>100MΩ I/P-FG： 500VDC>100MΩ O/P-FG：500VDC>100MΩ	I/P-O/P： 500 VDC I/P-FG： 500 VDC O/P-FG： 500 VDC Ta：25℃/70%RH	I/P-O/P： 5.06 GΩ I/P-FG： 5.39 GΩ O/P-FG： 8.53 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta：25℃ / 70%RH	8 mΩ	P
4	APPROVAL	TUV： Certificate NO ： R50146436 UL： File NO ：E183223			P

E.M.C TEST

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

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	RSP-2400-24：SUPPOSE C116 IS THE MOST CRITICAL COMPONENT I/P： 230VAC O/P：FULL LOAD Ta=25 ℃ LIFE TIME=843641.5 HRS I/P： 230VAC O/P：FULL LOAD Ta=50 ℃ LIFE TIME=141071.9 HRS			P
2	MTBF	Conducted by Parts Stress Analysis Prediction 692.3K hrs min. Telcordia SR-332 (Bellcore) ; 83.9K hrs min. MIL-HDBK-217F (25℃)			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 50,000 hours @ TA 50℃			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q50 Rated TK40J60T: 40A/600V	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on (2) Output Short Ta：25℃	(1) 520 V (2) 426 V	P
2	Diode Peak Voltage	D101 Rated 60CPQ150 : 60A/150V	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on (2)Output Short Ta：25℃	(1) 90.8 V (2) 86.8 V	P
3	Input Capacitor Voltage	C5 Rated 470u/420V 105℃	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta：25℃	(1) 380.4 V (2) 383.4 V (3) 383.2 V	P
4	Control IC Voltage Test	U223 Rated UCC2895DW：11.8V~17V	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta：25℃	(1) 12.880 V (2) 12.883 V (3) 12.883 V	P
5	Power Transistor (D to S) or (C to E) Peak Voltage	Q5 Rated SPW20N60C3: 20.7A/600V	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on (2) Output Short Ta：25℃	(1) 588 V (2) 484 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2009/4/21	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2009/6/23	PRODUCT SAMPLE W0905B39	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023