

MODEL : RCP-1000-48

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 300 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 43 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 46.3 V~ 49.7V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	46.05 V~ 51.1 V/ 230 VAC 46.05 V~ 51.1 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 %~ -1 % (Max)	I/P: 100 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.5 %~ -0.5 %	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max)	I/P: 100VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.02 %~ -0.02 %	P
5	LOAD REGULATION	V1: 0.5 %~ -0.5 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.02 %~ -0.02 %	P
6	SET UP TIME	230VAC: 1000 ms (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 80 ms	P
7	RISE TIME	230VAC: 60 ms (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 30 ms	P
8	HOLD UP TIME	230VAC: 16 ms (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 20 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: <5 %	P
10	DYNAMIC LOAD	V1: 4800 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	656 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	81.2V~264V	P
			I/P: LOW-LINE-3V= 87V 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: 90 VAC ~ 264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	POWER FACTOR	0.96 / 230 VAC(TYP) 0.96 / 115 VAC(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	PF= 0.974 / 230 VAC PF= 0.998 / 115 VAC	P
4	EFFICIENCY	89 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	89.1 %	P
5	INPUT CURRENT	230V/ 5.5 A (TYP) 115V/ 11 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 5.11 A/ 230 VAC I = 10.1 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 50 A (TYP) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 45 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 1.1 mA / 230 VAC	I/P: 264 VAC (SINGLE UNIT) O/P:Min LOAD Ta:25°C	L-FG: 0.8 mA N-FG: 0.8 mA	P
		< 3.5 mA / 230 VAC	I/P: 264 VAC (RACK SYSTEM) O/P:Min LOAD Ta:25°C	L-FG: 2.9 mA N-FG: 2.9 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 125 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	119 %/ 230 VAC 119 %/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1: 52.8 V~ 64.8 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	59 V/ 230 VAC 59 V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: TSW1: 75 ± 5°C O.T.P. TSW2: 85 ± 5°C O.T.P. 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°C	NO DAMAGE Constant Current Limiting	P

## CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	FAN LOCK TEST	FAN LOCK :POWER OFF FAN UNLOCK :POWER ON	I/P: 230 VAC O/P:FULL LOAD	FAN LOCK :POWER OFF FAN UNLOCK :POWER ON	P
2	FAN SPEED CONTROL	Fan Voltage : NO LOAD:8.7V ± 1V 100% LOAD:11.8V ± 0.6V	I/P: 230 VAC O/P:TESTING Ta:25°C	Fan Voltage: NO LOAD: 8.17V 100% LOAD: 11.83V	P
3	REMOTE ON/OFF	ON/OFF~ -S SHORT : POWER ON ON/OFF~ -S OPEN : POWER OFF that is shown inFunction Manual 1.1 (SPEC)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	ON/OFF& -S SHORT : POWER ON ON/OFF& -S OPEN : POWER OFF	P
4	AC OK Signal	Sink current 10 mA 1. When Input voltage ≥ 82V ± 4V: AC_OK ~-S : 0~0.5V Output ON/LED ON 2. When input voltage ≤ 82V ± 4V: AC_OK ~-S : 4.5~5.5V Output OFF / LED OFF that is shown in Function Manual 4.1 (SPEC)	I/P: TESTING O/P:FULL LOAD Ta:25°C	1.Input voltage ≥ 84 V : AC_OK ~-S : 0V LED ON / PSU Output ON 2. Input voltage ≤ 83 V : AC_OK ~-S : 4.86 V LED OFF / PSU Output OFF	P
5	DC OK Signal	Sink current 10 mA 1. When output voltage ≥ 80% ± 5%: DC_OK ~-S : 0~0.5V Output ON / LED ON 2. When output voltage ≤ 80% ± 5%: DC_OK ~-S : 4.5~5.5V Output OFF / LED OFF that is shown in Function Manual 4.1 (SPEC)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	1. Output voltage ≥ 80 %: DC_OK ~-S : 0.2V LED ON / PSU Output ON 2. Output voltage ≤ 78 %: DC_OK ~-S : 4.57 V LED OFF / PSU Output ON	P
6	REMOTE SENSE	>0.5V that is shown in Function Manual 2.1 (SPEC)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	>0.5V	P
7	OUTPUT VOLTAGE PROGRAMMABLE	Adjustment of output voltage is possible between 90 %~110 % of rated output Connecting a resistor externally that is shown in Function Manual 3.3 (SPEC)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	External Resistor 90% Voltage= 1.1MΩ 110% Voltage= 13 KΩ	P
8	OVER TEMP ALARM	1.T-OK : When the TSW1 and TSW2 short : T-ALARM ~-S : 0~0.5V Output ON 2. T-ALARM: When the TSW1 or TSW2 open : T-ALARM ~-S : 4.5V~5.5V Output OFF that is shown in Function Manual 4.1 (SPEC)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	1. T-ALARM ~-S : 0 V PSU Output ON 2. T-ALARM ~-S:4.91V PSU Output OFF	P
9	AUX ILIRY POWER (AUX)	5V @ 0.3A (4.5V~5.3V)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	4.94 V	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : RCP-1000-24 1. ROOM AMBIENT BURN-IN : 1.5HRS I/P: 230VAC O/P: FULL LOAD Ta= 36.5℃ 2. HIGH AMBIENT BURN-IN : 3HRS I/P: 230VAC O/P: FULL LOAD Ta= 53.7℃			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 230 VAC O/P: 118% LOAD Ta:25℃	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 100% LOAD Ta= -20℃	TEST : OK	P
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 ℃ NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 50℃ HUMIDITY= 95 %R.H	TEST : OK	P
5	TEMPERATURE COEFFICIENT	± 0.02 %(0~50℃)	I/P: 230 VAC O/P:FULL LOAD	± 0.003 %(0~50℃)	P
6	VIBRATION TEST	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℃		TEST : OK	P

**SAFETY TEST**

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 0.7 KVDC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.84 KVDC/min Ta:25°C	I/P-O/P: 12.63 mA I/P-FG: 8.81 mA O/P-FG: 0.002 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°C	I/P-O/P: 16 GΩ I/P-FG: 30 GΩ O/P-FG: 8 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	7 mΩ	P
4	APPROVAL	TUV: Certificate NO : R50094068 UL: File NO : E183223			P

**E.M.C TEST**

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

**M.T.B.F & LIFE CYCLE CALCULATION**

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	RCP-1000-24 : SUPPOSE C110 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 777098 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 176323 HRS			P
2	MTBF	Conducted by Parts Stress Analysis Prediction 274K hrs min. Telcordia SR-332 (Bellcore) ; 107.3K hrs min. MIL-HDBK-217F (25°C)			P



## COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) <b>Peak Voltage</b>	Q900 Rated 2SK2082 : 900 V 9A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25°C	(1) 835 V (2) 800 V	P
2	Diode <b>Peak Voltage</b>	D102 Rated ESAD92-02 : 200V 20A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25°C	(1) 196 V (2) 109 V	P
3	Clamp Diode <b>Peak Voltage</b>	D900 Rated BYM26E : 1KV 2.3 A	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 820 V	P
4	Input Capacitor <b>Voltage</b>	C5 Rated : 220u / 450V/ 105°C	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°C	(1) 381 V (2) 390 V (3) 390 V	P
5	Control IC <b>Voltage Test</b>	U2 Rated UCC28220D : 15 V	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°C	(1) 14 V (2) 14.2 V (3) 14 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2006/9/8	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/11/14	PRODUCT SAMPLE W0610A30	PASS	VINCENT TSENG	MAX LIN
2007/2/16	PRODUCT SAMPLE W0701B31	PASS	VINCENT TSENG	MAX LIN
2007/5/16	PRODUCT SAMPLE W0704D55	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023