



Test Report : GEM40I48

AC-DC High Reliability Interchangeable Medical Adaptor

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

■ SAFETY TEST

Safety Test

■ RELIABILITY TEST

Environment Test

Other test

DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	200 mVp-p (Max)	I/P:230VAC O/P:FULL LOAD Ta:25°C	129 mVp-p	P
2	VOLTAGE TOLERANCE	-2% ~ +2% (Max)	I/P:90VAC~264VAC O/P:FULL~MIN. LOAD Ta:25°C	-0% ~ +1.46%	P
3	LINE REGULATION	-1% ~ +1% (Max)	I/P:90VAC ~264VAC O/P:FULL LOAD Ta:25°C	-0.04% ~ +0.14%	P
4	LOAD REGULATION	-2% ~ +2% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD Ta:25°C	-0.22% ~ +0.37%	P
5	SET UP TIME	500 ms	I/P:230VAC O/P:FULL LOAD Ta:25°C	226.7 mS	P
6	RISE TIME	30 ms	I/P:230VAC O/P:FULL LOAD Ta:25°C	65.9 mS	P
7	HOLD UP TIME	16 ms (Min)	I/P:115VAC O/P:FULL LOAD Ta:25°C	18.7 mS	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	VOLTAGE RANGE	80VAC ~ 264VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	58V ~ 264V	P
2	FREQUENCY RANGE	47HZ - 63HZ (Typ) NO DAMAGE OSC	I/P: 100VAC ~ 240VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	90.5%	I/P:230VAC O/P:FULL LOAD Ta:25°C	90.98%	P
4	AVERAGE EFFICIENCY	87.59%(DoE Level VI) 88.60% (CoC Version 5)	I/P:115/230VAC O/P:25% 、 50% 、 75% 、 100% LOAD Ta:25°C	90.60% (115VAC) 90.55% (230VAC)	P
5	AC CURRENT	1.0 A (Max)	I/P: 100VAC O/P:FULL LOAD Ta:25°C	0.842A	P
6	NO LOAD POWER CONSUMPTION	< 0.1W (Max)	I/P:230VAC O/P: NO LOAD Ta:25°C	0.0772W	P

7	INRUSH CURRENT	< 65A COLD START	I/P:230VAC O/P:FULL LOAD Ta:25°C	58.9 A	P
8	LEAKAGE CURRENT	< 100μA	I/P:264VAC O/P:Min LOAD Ta:25°C	L-FG: 20μA N-FG: 20μA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105%~160%	I/P:230VAC O/P:TESTING Ta:25°C	130% HICCUP MODE RESET : AUTO RECOVER	P
2	OVER VOLTAGE PROTECTION	110%~140%	I/P:230VAC O/P:MIN LOAD Ta:25°C	136% (1N4736A) Clamp by ZENER diode	P
3	SHORT PROTECTION	SHORT OUTPUT 1 HOUR NO DAMAGE	I/P:264VAC O/P:FULL LOAD Ta:25°C	NO DAMAGE HICCUP MODE RESET AUTO RECOVER	P

■ SAFETY TEST

SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P:5656 VDC/min	I/P-O/P:5656 VDC/min Ta:25°C	I/P-O/P: 0.03uA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P:500 VDC Ta:25°C	I/P-O/P>100MΩ NO DAMAGE	P

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	1. ROOM AMBIENT BURN-IN : 4HRS I/P:230VAC O/P:100% LOAD Ta=25°C 2. HI AMBIENT BURN-IN : 4HRS I/P:230VAC O/P:100% LOAD Ta=40°C			P
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOURS	I/P : 230VAC O/P : 100% LOAD Ta= -25°C	TEST : OK	P

OTHER

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C5 IS THE MOST CRITICAL COMPONENT (4000hrs) I/P:230 VAC O/P:100% LOAD Ta=25°C LIFE TIME= 54948 HRS I/P:230 VAC O/P:100% LOAD Ta=40°C LIFE TIME= 20392 HRS			P
2	MTBF	MIL-KDBK-217F NOTICES 2 PARTS COUNT TOTAL FAILURE RATE : 2.122442 M.T.B.F : 471155 HRS			P

TEST RESULT	TESTER	APPROVAL
PASS	PETER CHENG	VINCENT TSENG