

Traco Power

Model: TOP 200-148

EMC – Test Report

Amendment to EMC-Report: EMC_TOP200_148_03.05.11

EUT: Traco Power Model: TOP 200-148

Serial No.: Test Unit: 51410097185

Manufacturer No.: 200HPP185

Manufacturer: Convertec Ltd.
Whitemill Industrial Estate
Wexford
Republic of Ireland

Tester: Gunnar Tapper, Convertec Ltd

Date: 19/06/2014

It should be noted, that combining two or more CE compliant finished appliances does not automatically produce a compliant system. The manufacturer of an apparatus or a fixed installation as defined in the “Guide for the EMC Directive 2004/108EC, 21. May 2007” is responsible for the EMC-compliance of the final apparatus.

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1. EMC Setup Instructions

To test for EMC compliance on the TOP 100 series units, the units should be mounted on a conductive metal base plate of at least 1mm thickness that extends at least 20mm from all sides as in figure 1(b). The unit must be screwed down on top of 4 metal pillars, which must form a good electrical connection to the base plate. The pillars should be 6mm minimum height and 6.3mm maximum diameter (see figure 1). For safety class I compliance, the base plate should have a good electrical connection to safety earth. For safety class II compliance, no connection to safety earth should be made but the unit should still have a good electrical connection to the base plate via the metal pillars as before. Please see figures 1 (a) & (b) for reference.

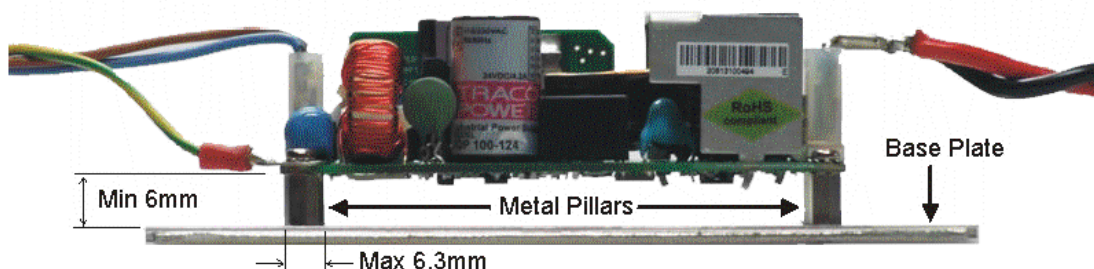


Figure 1(a) TOP 100 Series, EMC setup – Elevation

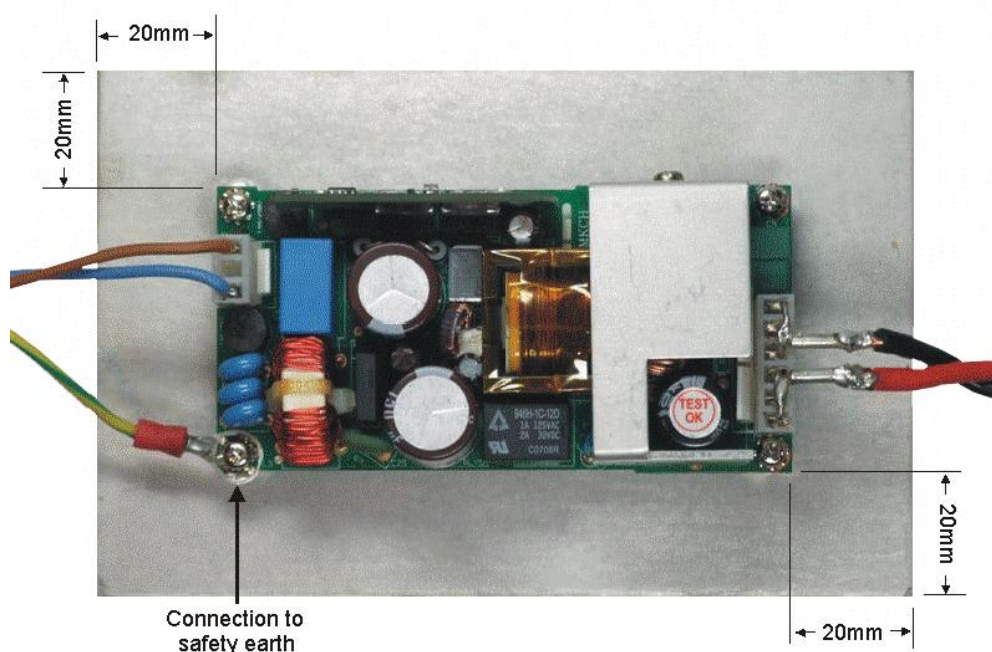


Figure 1(b) TOP 100 Series, EMC setup - Plan

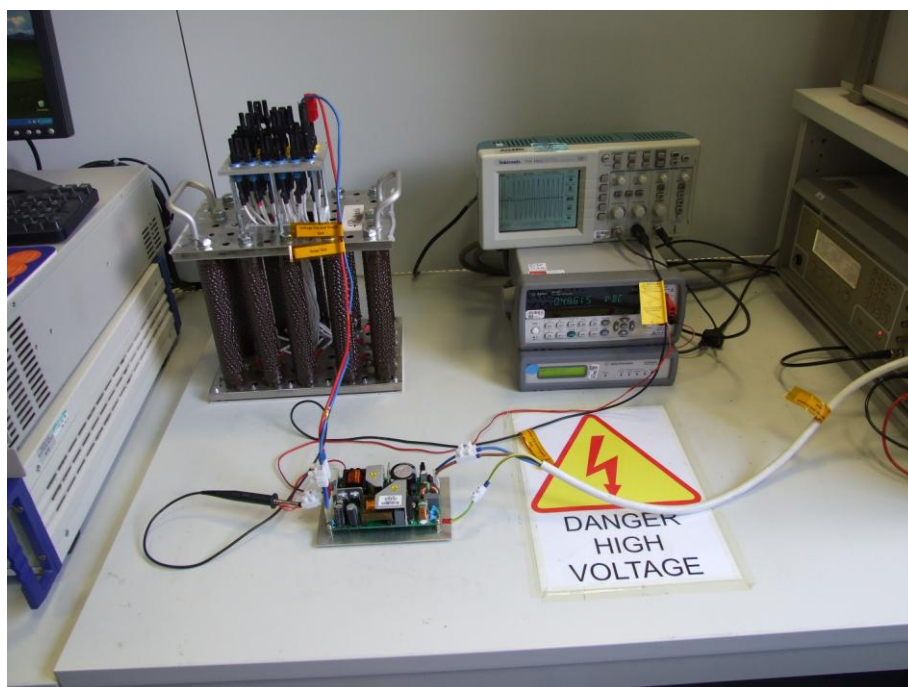
2. Voltage Sag Immunity Test (Semi F47)

Equipment under Test: TOP 200-148
EUT Serial No.: 51410097185
Customer Spec: CS- 200HPPseries.doc
Date: 18/06/2014
Standard: SEMI F47-0706

Notes:

- EUT tested under operating conditions of 230V and 115V 50Hz input at nominal load (48V/4.2A Resistive).
- Test carried out using test generator using Voltage Sag Generator: Schaffner NSG1003: Dropout and Variation Simulator and Oscilloscope Tektronix: TDS2014C.
- Pass/Fail Criteria for Subsystems and Components-Voltage sag immunity testing of subsystems and components should meet the following as required by Semi-F47:
 - A. Performs at full rated operation.
 - B. May not perform at full rated operation but recovers operation without operator and/or host controller intervention. Must not send error signals to the equipment host controller indicating when full rated operation is not achieved.
 - C. May not perform at full rated operation but recovers operation without operator and/or host controller intervention. May send signals to the equipment host controller indicating when full rated operation is not achieved.
 - D. Does not perform at full rated operation and requires an operator and/or host controller intervention for recovering.

2.1. Test Setup



2.2. Voltage Sag Immunity test Results (Semi F47)

Input Voltage = 230VAC, Output = 48V, 4.2A

Voltage Sag	Duration	Duration	Output Voltage	% delta of nominal output voltage	Semi F47	Criteria
[V]	[s]	[cycles]	[V]	DUT 50Hz [%]	[%]	[Class]
207	20	1000	48.59	-1.2	90	A
207	10	500	48.59	-1.2	90	A
184	10	500	48.43	-0.9	80	A
184	1	50	48.43	-0.9	80	A
184	0.5	25	48.41	-0.9	80	A
161	0.5	25	47.77	0.5	70	A
161	0.5	10	47.76	0.5	70	A
115	0.2	10	46.55	3.0	50	B
115	0.02	1	46.55	3.0	50	B
0	0.02	1	44.47	7.4	0	B

*Yellow indicates the required Voltage SAG Immunity Levels. Other levels are recommended.

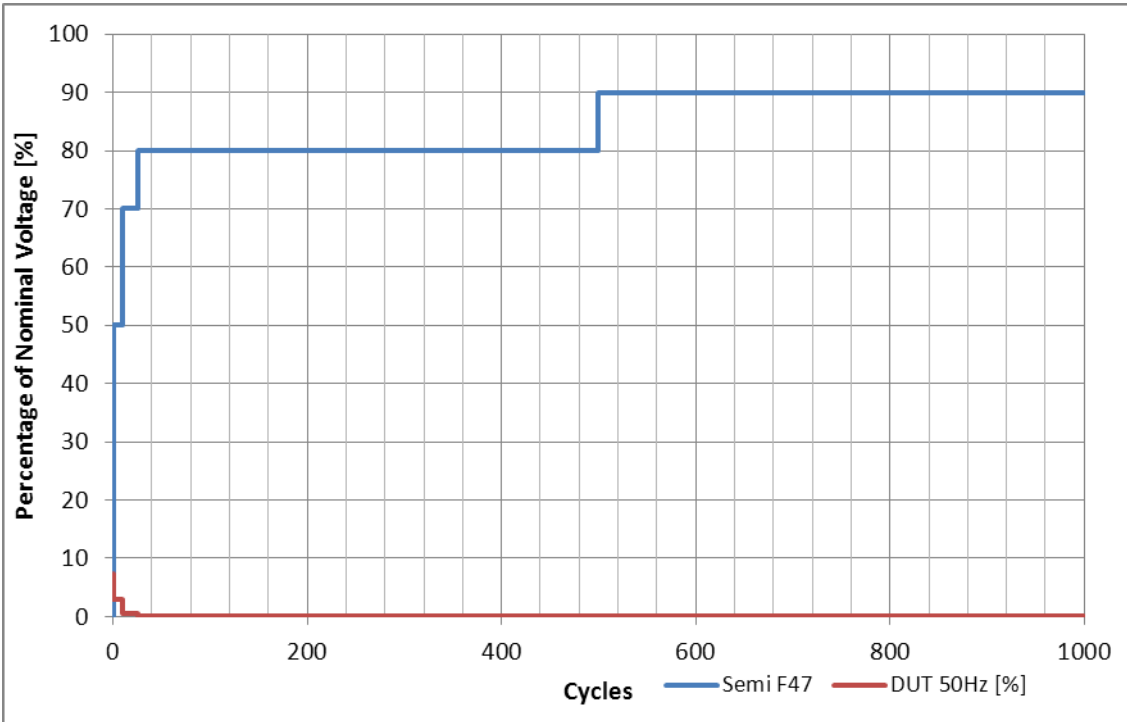


Figure 1: TOP 200-148 / 0-1000 cycles

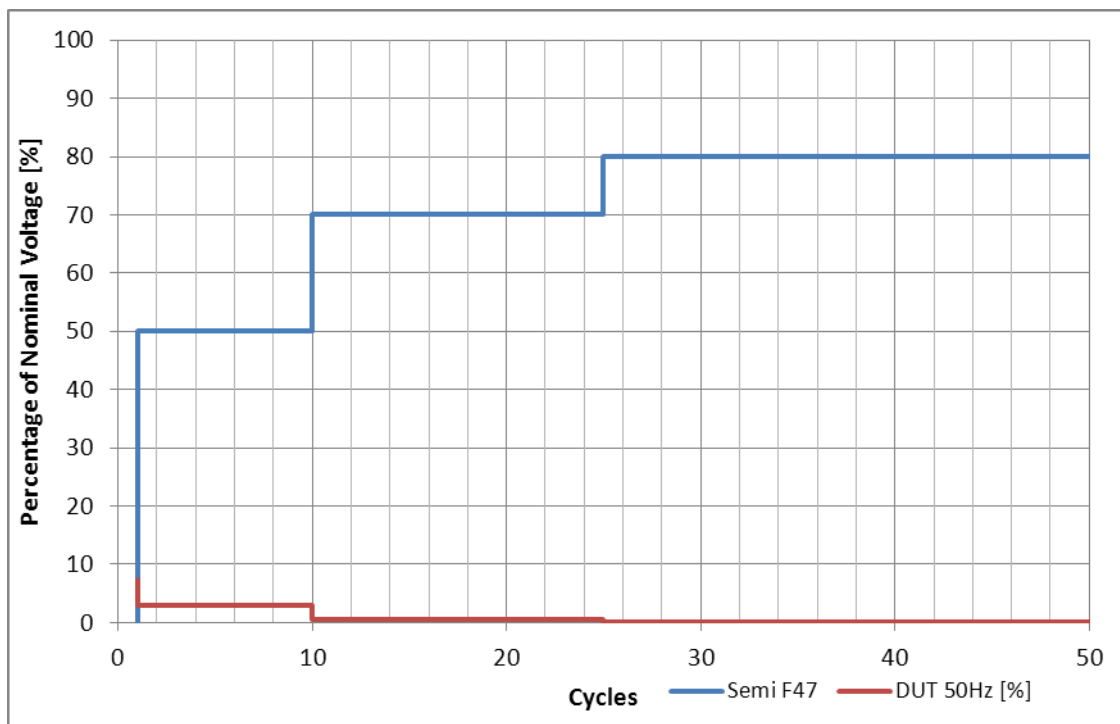


Figure 2: TOP 200-148 / 0-50cycles

Input Voltage = 120VAC, Output = 48V, 4.2A

Voltage Sag	Duration	Duration	Output Voltage	% delta of nominal output voltage	Semi F47	Criteria
[V]	[s]	[cycles]	[V]	DUT 50Hz [%]	[%]	[Class]
108	20	1000	47.68	0.7	90	A
108	10	500	47.67	0.7	90	A
96	10	500	46.76	2.6	80	B
96	1	50	46.74	2.6	80	B
96	0.5	25	46.67	2.8	80	B
84	0.5	25	42.01	12.5	70	B
84	0.5	10	42.20	12.1	70	B
60	0.2	10	1.75	96.3	50	B
60	0.02	1	45.71	4.8	50	B
0	0.02	1	44.23	7.8	0	B

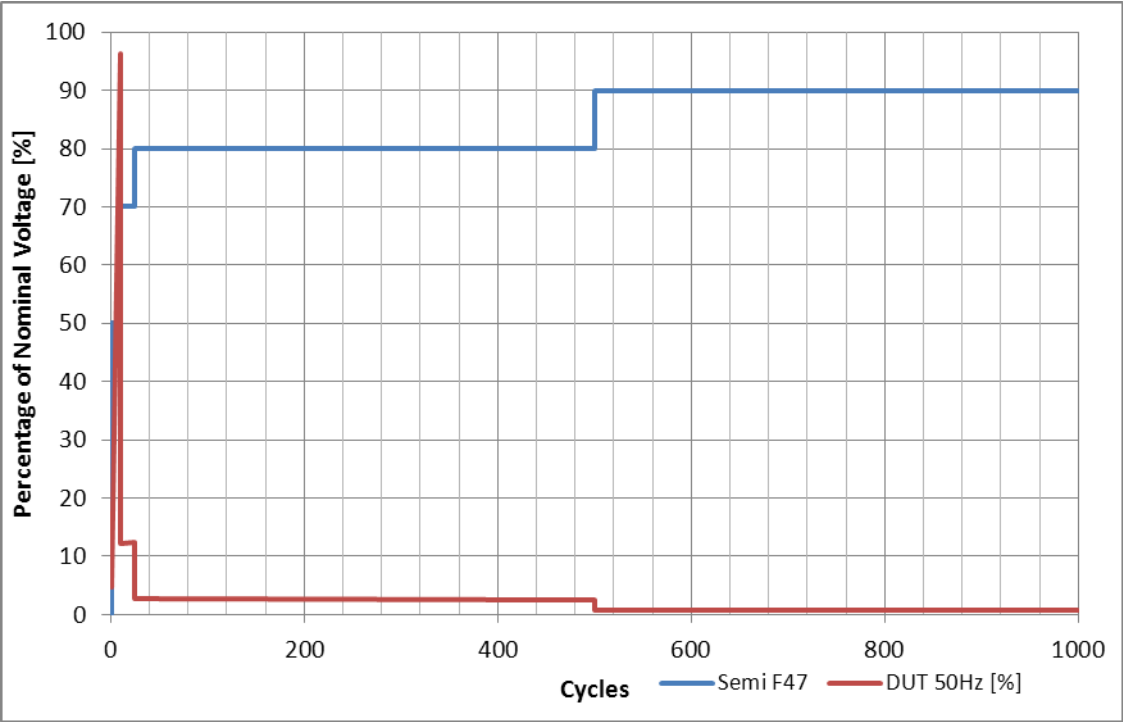


Figure 3: TOP 200-148 / 0-1000 cycles

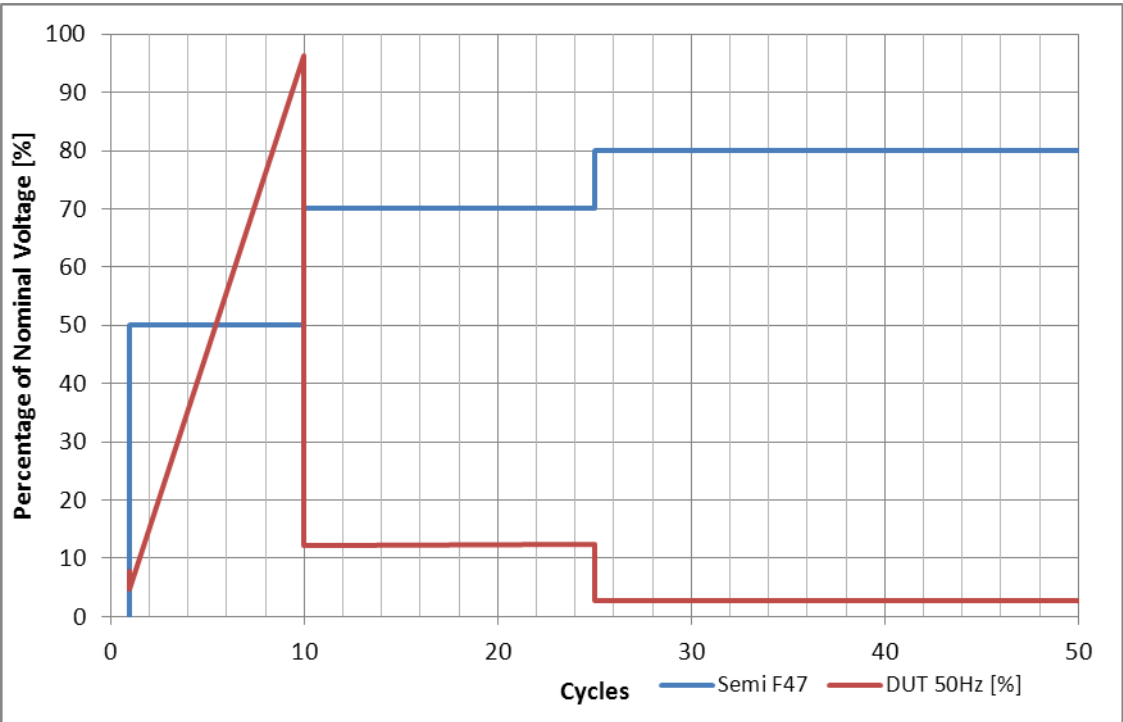
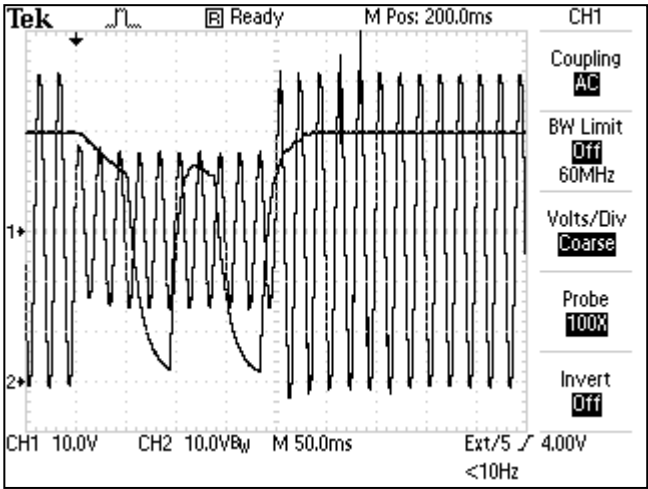


Figure 4: TOP 200-148 / 0-50cycles

Conclusion:

The output voltage of the EUT dropped to 1.75V dc @ 120V constant Voltage and a voltage sag depth of 50% for drop out duration of 200ms. See graph below.



The EUT meets classification C (Ref. SEMI F47-0706). The test results were evaluated in relation to the Customer Specification CS- 200HPPseries.doc and the EUT was considered to have PASSED the tests.

PASS

List of Equipment Used:

Description	Model No.	Manufacturer	Serial No.
EMC Analyzer	E7402A	Agilent	MY45119210
LISN 1	PMM L2-16	PMM	1230L00301
LISN 2	FCC-801-M2-50A	FCC	3035
LISN 3	NSLK 8127	Schwarzbeck	8127683
RF Current Probe	F-33-1	FCC	759
Transient Limiter	11947A	Agilent	3107A03645
Precision Power Meter	LMG95	Zimmer	10790709
ESD Gun	SESD 200	Schloder	142261
Surge Generator	PSURGE 4010	Haefely	583 334-63
Burst generator	PEFT 4010	Haefely	080 981-08
Coupling Capacitor	IP4A	Haefely	171241
Electronic Load	ELA 500	Zentro-Electrik	63145803
High Power Resistors	n/a	n/a	n/a
Multimeter	34405A	Agilent	TW46290007
Multimeter	34405A	Agilent	TW46290015
Multimeter	34410A	Agilent	MY47012359
Multimeter	1906	TTI	n/a
High frequency generator	CWS 500N	EM Test	V0847104427
Coupling/Decoupling Network	CDN M2/M3	EM Test	1108-34
Attenuator	ATT6/75	EM Test	1107-53
Oscilloscope	TDS1002	Tektronix	C016388
Oscilloscope	TDS2014C	Tektronix	C010602
Programmable AC Source	61604	Chroma	ABR000000672
DC power supply	SM 7020 - D	Delta electronika	014604000011
DC power supply	SM 7020 - D	Delta electronika	014604000024
Pulse Generator	33220A	AGILENT	MY44044002
Biconical Antenna	BicoLOG 30100 X	AARONIA	79479
Cables	Type	Length	Comments
Mains Supply Cable	3-wire	1m	Unshielded
Mains Supply Cable	3-wire	1.5m	Unshielded
DC Lines Cable	2-wire	1m	Unshielded
DC Lines Cable	2-wire	1.5m	Unshielded