

# TRACOPOWER

## **Model: TIS600-148**

## **EMC – Test Report**

EUT: TRACOPOWER Model: TIS600-148

Serial No.: N/A

Manufacturer No.: 600PSH148

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

Tester: Tim Whelan, Convertec

Date: 24/03/11

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.

## **Table of Contents:**

1	Electrostatic Discharge Test.....	3
1.1	Test Setup.....	3
1.2	ESD Results.....	7
2	Surge Test .....	8
2.1	Test Setup.....	8
2.2	Surge Results .....	9
3	Fast Transient Test (Burst).....	10
3.1	Test Set-Up: .....	10
3.2	Fast Transient Results .....	11
4	Summary .....	12
5	List of Equipment Used .....	13

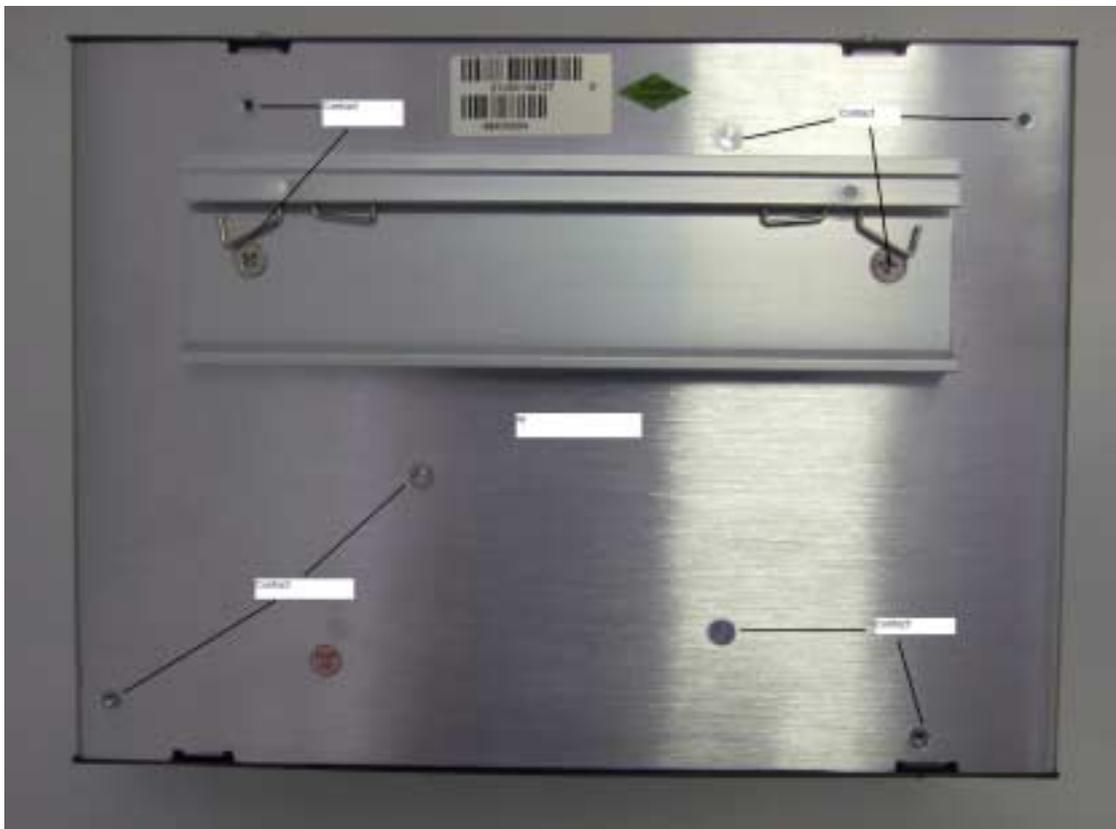
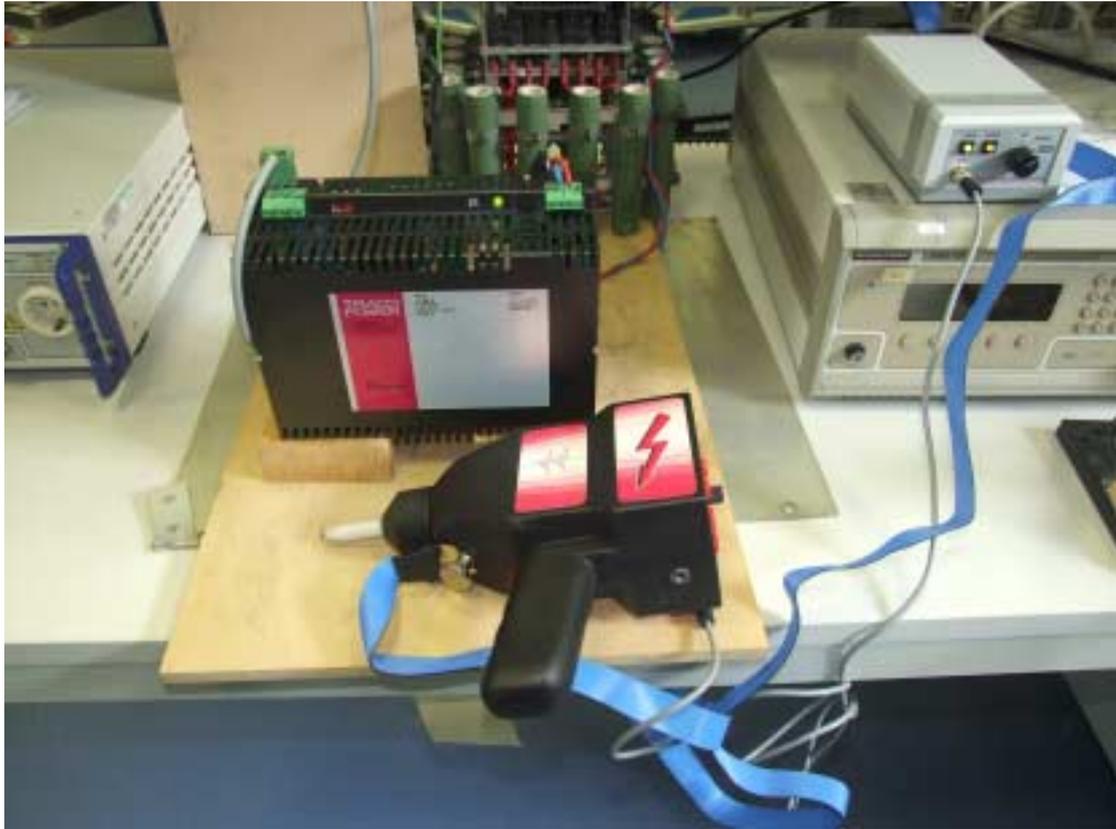
# 1 Electrostatic Discharge Test

**Equipment Under Test:** TIS600-148  
**EUT Serial No.:** N/A  
**Customer Spec:** CS-600PSH185.doc  
**Date:** 24/03/2011  
**Standard:** IEC61000-6-2: 2005 referring to IEC 61000-4-2: 2000

## Notes:

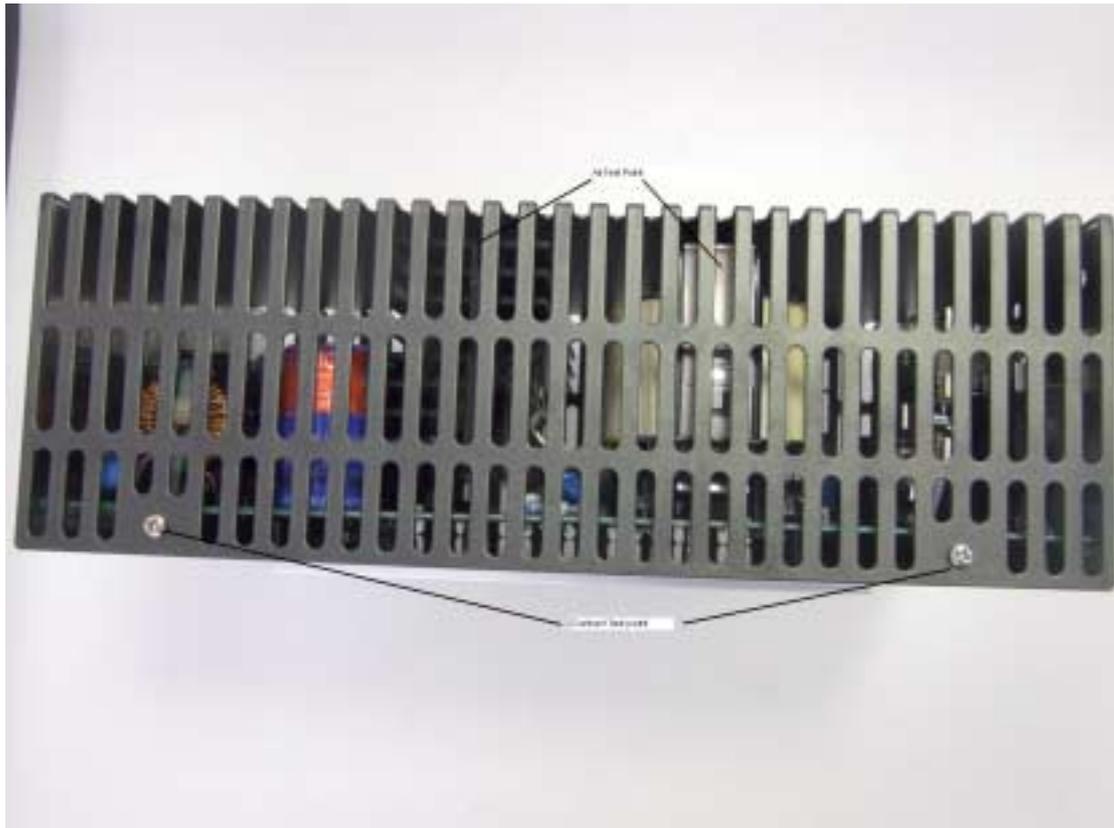
- EUT tested under normal operating conditions of 230V 50Hz input at full load (48V/12A Resistive)
- Since the EUT output is isolated from earth, a 470K HV resistor was placed between output and Earth to provide a discharge path between spikes
- Contact discharge tests shall be applied to all areas exposed to the end user under final installation (See contact test points in diagram) using ESD gun SESD 200
- Test voltage shall be increased from 2kV up to the max 8kV/4kV (air/contact) As required by standard IEC/EN 61000-4-2
- At least 10 discharges were applied per test-point (in both polarities)
- A time interval between discharges of a least 1s was used
- The ESD generator was held perpendicular to the test-point wherever possible for repeatability of results
- In the case of contact discharges, the trigger is engaged at about 20cm and the tester is moved quickly toward the test point until a spark occurs and trigger is released

## 1.1 Test Set-Up:









## 1.2 ESD Results

	Contact Testpoints:	Air Testpoints:
EUT	PASS	PASS

### Conclusion:

EUT still functions as expected after tests therefore are in accordance with IEC61000-4-2

PASS

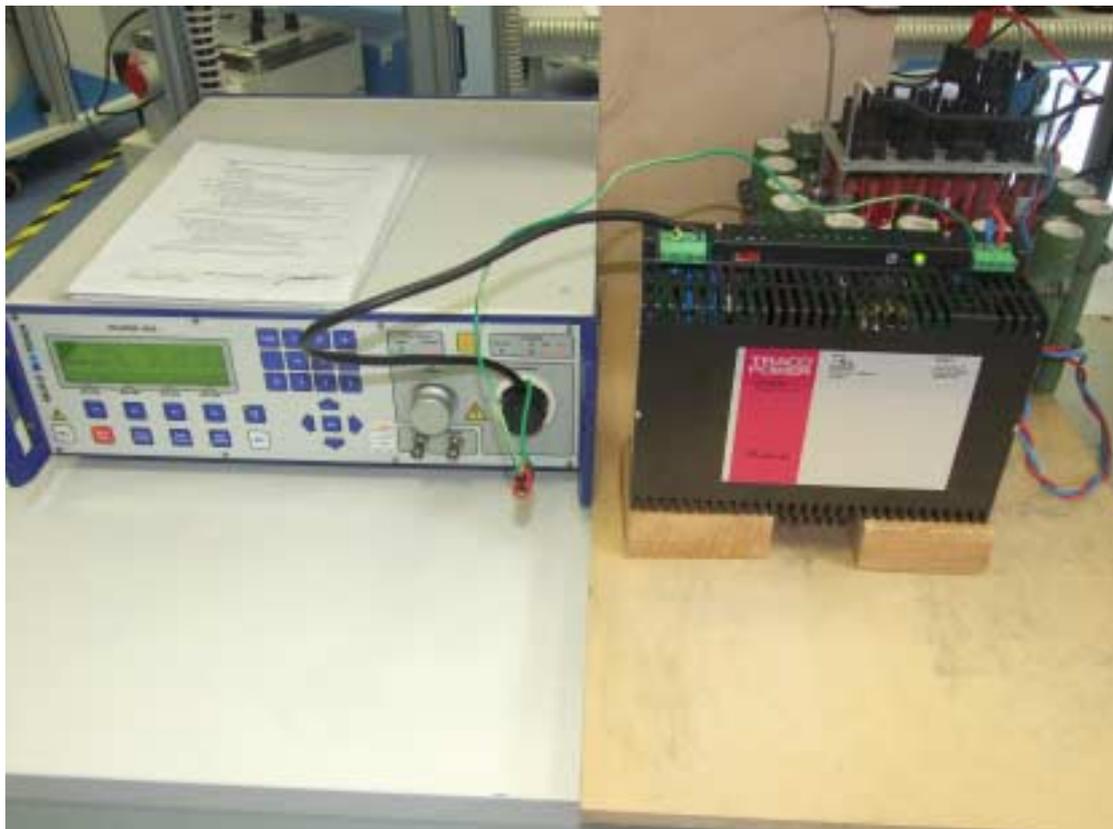
## 2 Surge Test

**Equipment Under Test:** TIS600-148  
**EUT Serial No.:** N/A  
**Customer Spec:** CS-600PSH185.doc  
**Date:** 24/03/2011  
**Standard:** IEC61000-6-2: 2005 referring to IEC 61000-4-5: 2005

### Notes:

- EUT tested under normal operating conditions of 230V 50Hz input at full load (48V/12A Resistive)
- Used Haefely Surge generator PSURGE 4010
- Voltage test level: +/- 1kV Line-Line, +/- 2kV Line-Earth (installation class 3)
- No. of Surges per set: 5 tests Positive at 0, 90, 180, and 270 and 5 tests Negative at 0, 90, 180, and 270
- Interval Between Surges: 10s

### 2.1 Test Setup



## 2.2 Surge Results

	L to N	L to PE	N to PE
EUT: TIS600-148	PASS	PASS	PASS

**Conclusion:**

Meets Classification A (Ref. Section 9, IEC 61000-4-5)

Only Class B performance criteria are required as per Table 6, IEC 61204-3

PASS

### 3 Fast Transient Test (Burst)

**Equipment Under Test:** TIS600-148  
**EUT Serial No.:** N/A  
**Customer Spec:** CS-600PSH185.doc  
**Date:** 24/03/2011  
**Standard:** IEC61000-6-2: 2005 referring to IEC 61000-4-4: 2004

#### Notes:

- EUT tested under normal operating conditions of 230V 50Hz input at full load (48V/12A Resistive)
- Units tested to IEC61000-4-4 test level 3
- Used Haefely Burst tester PEFT 4010
- Voltage test level: +/-2Kv
- Burst Duration: 0.75ms
- Repition rate: 100kHz
- Burst Period: 300ms
- Individual test time: 1 min
- Polarity: Positive and Negative

The output lines were also tested as above to +/-1kV with Haefely coupling capacitor IP4A

#### 3.1 Test Setup



### 3.2 Fast Transient Results

EUT: TIS600-148	L-G	N-G	PE-G	L,N-G	L,PE-G	N,PE-G	L,N,PE-G
Positive	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Negative	PASS	PASS	PASS	PASS	PASS	PASS	PASS

**Conclusion:**

Meets Classification A (Ref. Section 9, IEC 61000-4-4)

Only Class B performance criteria are required as per Table 6, IEC 61204-3

**PASS**

## 4 Summary

<b>Regulation Cl</b>	<b>ass/Test Level</b>	<b>Result</b>	<b>Comments</b>
<b>IEC61000-6-2: 2005 + IEC 61000-4-2:2000</b>			
Electrostatic Discharge			
- Air Discharge	+/- 2/8kV (Class B)	PASS	
- Contact Discharge	+/- 2/4kV (Class B)	PASS	
<b>IEC61000-6-2: 2005 + IEC 61000-4-5:2005</b>			
Surge			
- AC Supply	+/- 2kV (Class B) L-N	PASS	
	+/- 4kV (Class B) L-PE	PASS	
	+/- 4kV (Class B) N-PE	PASS	
<b>IEC61000-6-2: 2005 + IEC 61000-4-4: 2004</b>			
Fast Transient (Burst)			
- AC Supply	+/- 4kV (Class B Between all lines)	PASS	

## 5 List of Equipment Used

<b>Description</b>	<b>Model No.</b>	<b>Manufacturer</b>	<b>Serial No.</b>
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
High Power Resistors	n/a	n/a	n/a
Multimeter	34405A	Agilent	TW46290007
Multimeter	34405A	Agilent	TW46290015
<b>Cables</b>	<b>Type</b>	<b>Length</b>	<b>Comments</b>
Mains Supply Cable	3-wire	1m	Unshielded
DC Lines Cable	2-wire	1m	Unshielded