

# CERTIFICATE OF CALIBRATION

Issued By Alpha Electronics (Northern) Ltd

Date of Issue 16 November 2018

Certificate Number

95167

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Alpha Electronics (Northern) Ltd  
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Approved Signatory



D Abbott

M Williams

S Hartley

**Customer :** LITE ALTERNATIVE  
UNIT 4 DUTTONS WAY, SHADSWORTH BUSINESS PARK  
BLACKBURN BB1 2QR

Date Received : 15 November 2018

<b>Instrument :</b>	System ID :	STE1E0649	Job Number :	136375-2
	Description :	Portable Appliance Tester	Site :	
	Manufacturer :	Seaward	Location :	
	Model Number :	SUPERNOVA	Last Calibration Certificate :	90278
	Serial Number :	31E-0649	Last Calibration Date :	08/11/2017
	Procedure Version :	Elite		

## Environmental Conditions

Temperature : 20°C +/- 3°C  
Relative Humidity : 50% +/- 20%

Mains Voltage : 230V +/- 12V  
Mains Frequency : 50Hz +/- 0.5Hz

## Comments

## Traceability Information

<i>Instrument description</i>	<i>Serial number</i>	<i>Certificate number</i>	<i>Cal. Date</i>	<i>Cal. Period</i>
PATCAL Resistance Box	27080901	92559	08/05/2018	52
Kyoritsu 2003A	W8126594	U53935	30/04/2018	52
Fluke 287 TRMS Multimeter	18220133	U51804	01/10/2018	52

Calibrated By : A.Tabernacle

Date of Calibration : 16 November 2018

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Test Title	Tolerance	Applied Value	Reading	Pass/Fail
<b>Earthbond Current Checks</b>				
25A Test	---	---	Pass	
10A Test	---	---	Pass	
4A Test	---	---	Pass	
25A Range	25.4m $\Omega$	0.11 $\Omega$	0.12 $\Omega$	Pass
25A Range	45.3m $\Omega$	0.51 $\Omega$	0.52 $\Omega$	Pass
25A Range	70.2m $\Omega$	1.00 $\Omega$	1.02 $\Omega$	Pass
10A Range	25.4m $\Omega$	0.11 $\Omega$	0.13 $\Omega$	Pass
4A Range	25.4m $\Omega$	0.11 $\Omega$	0.13 $\Omega$	Pass
<b>Earth Screen Test</b>				
100mA O/P Test	---	---	Pass	
100mA Range	25.4m $\Omega$	0.11 $\Omega$	0.11 $\Omega$	Pass
100mA Range	45.3m $\Omega$	0.51 $\Omega$	0.50 $\Omega$	Pass
100mA Range	52.2m $\Omega$	1.00 $\Omega$	1.01 $\Omega$	Pass
<b>Insulation Test</b>				
500V Output	---	---	Pass	
Ins. 500V	225k $\Omega$	0.50M $\Omega$	0.50M $\Omega$	Pass
Ins. 500V	250k $\Omega$	1.00M $\Omega$	1.01M $\Omega$	Pass
Ins. 500V	450.5k $\Omega$	5.01M $\Omega$	5.13M $\Omega$	Pass
<b>Class II</b>				
Ins. 500V	550k $\Omega$	7.00M $\Omega$	7.04M $\Omega$	Pass
250V Output	---	---	Pass	
Ins. 250V	225k $\Omega$	0.50M $\Omega$	0.49M $\Omega$	Pass
Ins. 250V	250k $\Omega$	1.00M $\Omega$	1.01M $\Omega$	Pass
Ins. 250V	450.5k $\Omega$	5.01M $\Omega$	5.05M $\Omega$	Pass
<b>Class II</b>				
Ins. 250V	550k $\Omega$	7.00M $\Omega$	7.03M $\Omega$	Pass
<b>Flash Test</b>				
Class I 1.5kV	---	---	Pass	
Class II 3kV	---	---	Pass	
Class I Leakage	57.5uA	0.75mA	0.79mA	Pass
Class I Leakage	95uA	1.50mA	1.54mA	Pass
Class II Leakage	120uA	2.00mA	2.04mA	Pass
Class II Leakage	95uA	1.50mA	1.54mA	Pass

## Uncertainties

Fluke 287 Voltages	DC Voltage +/- 0.025% + 2 Digits, AC Voltage +/-0.3% + 25 Digits
Fluke 287 Current	DC Current +/- 0.6% + 20 Digits: AC Current +/-0.3% + 10 Digits
2003A AC Current	AC Current 0-1000A +/-1.5% +2 Digits, 1001-1999A +/-3.0% + 2 Digits.
Earthbond Resistance	0.1R - 18R +/- 0.005%
PAT Resistances	50kR - 10MR +/-1%

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Test Title	Tolerance	Applied Value	Reading	Pass/Fail
<b>Substitute Leakage Test</b>				
Class I Volts	---	---	Pass	
Class II Volts	---	---	Pass	
Class I Current	550uA	3.50mA	3.54mA	Pass
Class II Current	550uA	3.50mA	3.56mA	Pass
<b>Leakage Test</b>				
mA Output	140uA	2.40mA	2.46mA	Pass
<b>Load Test</b>				
2.00kVA Test	220VA	2.00kVA	2.06kVA	Pass
<b>Touch Leakage</b>				
Touch Leakage	---	---	Pass	
<b>IEC Lead Tests</b>				
Auto IEC Lead Test	---	---	Pass	
IEC Lead Test	---	---	Pass	
RCD Function	---	---	Pass	
<b>110V Range</b>				
110V Run test	---	---	Pass	
110V IEC Lead Test	---	---	Pass	
Reset Counter	---	---	Pass	

## Uncertainties

Fluke 287 Voltages DC Voltage +/- 0.025% + 2 Digits, AC Voltage +/-0.3% + 25 Digits  
Fluke 287 Current DC Current +/- 0.6% + 20 Digits: AC Current +/-0.3% + 10 Digits  
2003A AC Current AC Current 0-1000A +/-1.5% +2 Digits, 1001-1999A +/-3.0% + 2 Digits.  
Earthbond Resistance 0.1R - 18R +/- 0.005%  
PAT Resistances 50kR - 10MR +/-1%

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UNIT 4 DUTTONS WAY, SHADSWORTH BUSINESS PARK  
BLACKBURN BB1 2QR

**Date Received :** 15 November 2018

<b>Instrument :</b>	System ID :	SVA200336	Job Number :	136375-1
	Description :	Portable Appliance Tester	Site :	
	Manufacturer :	Seaward	Location :	
	Model Number :	SUPERNOVA	Last Calibration Certificate :	90277
	Serial Number :	Z20-0336	Last Calibration Date :	07/11/2017
	Procedure Version :	Plus		

## Environmental Conditions

Temperature : 20°C +/- 3°C  
Relative Humidity : 50% +/- 20%

Mains Voltage : 230V +/- 12V  
Mains Frequency : 50Hz +/- 0.5Hz

## Comments

## Traceability Information

<i>Instrument description</i>	<i>Serial number</i>	<i>Certificate number</i>	<i>Cal. Date</i>	<i>Cal. Period</i>
PATCAL Resistance Box	27080901	92559	08/05/2018	52
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Fluke 287 TRMS Multimeter	18220133	U51804	01/10/2018	52

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<b>Earthbond Current Checks</b>				
25A Test	---	---	Pass	
10A Test	---	---	Pass	
4A Test	---	---	Pass	
25A Range	25.4mΩ	0.11Ω	0.12Ω	Pass
25A Range	45.3mΩ	0.51Ω	0.52Ω	Pass
25A Range	70.2mΩ	1.00Ω	1.02Ω	Pass
10A Range	25.4mΩ	0.11Ω	0.12Ω	Pass
4A Range	25.4mΩ	0.11Ω	0.12Ω	Pass
<b>Earth Screen Test</b>				
100mA O/P Test	---	---	Pass	
100mA Range	25.4mΩ	0.11Ω	0.09Ω	Pass
100mA Range	45.3mΩ	0.51Ω	0.49Ω	Pass
100mA Range	52.2mΩ	1.00Ω	0.97Ω	Pass
<b>Insulation Test</b>				
500V Output	---	---	Pass	
Ins. 500V	225kΩ	0.50MΩ	0.49MΩ	Pass
Ins. 500V	250kΩ	1.00MΩ	1.00MΩ	Pass
Ins. 500V	450.5kΩ	5.01MΩ	5.10MΩ	Pass
<b>Class II</b>				
Ins. 500V	550kΩ	7.00MΩ	6.98MΩ	Pass
250V Output	---	---	Pass	
Ins. 250V	225kΩ	0.50MΩ	0.49MΩ	Pass
Ins. 250V	250kΩ	1.00MΩ	0.98MΩ	Pass
Ins. 250V	450.5kΩ	5.01MΩ	4.98MΩ	Pass
<b>Class II</b>				
Ins. 250V	550kΩ	7.00MΩ	7.00MΩ	Pass
<b>Flash Test</b>				
Class I 1.5kV	---	---	Pass	
Class II 3kV	---	---	Pass	
Class I Leakage	57.5uA	0.75mA	0.76mA	Pass
Class I Leakage	95uA	1.50mA	1.54mA	Pass
Class II Leakage	120uA	2.00mA	2.04mA	Pass
Class II Leakage	95uA	1.50mA	1.54mA	Pass

## Uncertainties

Fluke 287 Voltages	DC Voltage +/- 0.025% + 2 Digits, AC Voltage +/-0.3% + 25 Digits
Fluke 287 Current	DC Current +/- 0.6% + 20 Digits: AC Current +/-0.3% + 10 Digits
2003A AC Current	AC Current 0-1000A +/-1.5% +2 Digits, 1001-1999A +/-3.0% + 2 Digits.
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<b>Substitute Leakage Test</b>				
Class I Volts	---	---	Pass	
Class II Volts	---	---	Pass	
Class I Current	550uA	3.50mA	3.24mA	Pass
Class II Current	550uA	3.50mA	3.13mA	Pass
<b>Leakage Test</b>				
mA Output	140uA	2.40mA	2.36mA	Pass
<b>Load Test</b>				
2.00kVA Test	220VA	2.00kVA	2.02kVA	Pass
<b>Touch Leakage</b>				
Touch Leakage	---	---	Pass	
<b>IEC Lead Tests</b>				
Auto IEC Lead Test	---	---	Pass	
IEC Lead Test	---	---	Pass	
<b>110V Range</b>				
110V Run test	---	---	Pass	
110V IEC Lead Test	---	---	Pass	
Reset Counter	---	---	Pass	

## Uncertainties

Fluke 287 Voltages DC Voltage +/- 0.025% + 2 Digits, AC Voltage +/-0.3% + 25 Digits  
Fluke 287 Current DC Current +/- 0.6% + 20 Digits: AC Current +/-0.3% + 10 Digits  
2003A AC Current AC Current 0-1000A +/-1.5% +2 Digits, 1001-1999A +/-3.0% + 2 Digits.  
Earthbond Resistance 0.1R - 18R +/- 0.005%  
PAT Resistances 50kR - 10MR +/-1%