

CERTIFICATE OF CALIBRATION

Issued By Alpha Electronics (Northern) Ltd

Date of Issue 08 November 2017

Certificate Number

90278

Page 1 of 3 Pages



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 : 07 November 2017

Instrument :	System ID :	STE1E0649	Job Number :	111270-2
	Description :	Portable Appliance Tester	Site :	
	Manufacturer :	Seaward	Location :	
	Model Number :	SUPERNOVA	Last Calibration Certificate :	85245
	Serial Number :	31E-0649	Last Calibration Date :	09/11/2016
	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

Instrument description	Serial number	Certificate number	Cal. Date	Cal. Period
PATCAL Resistance Box	27080901	89063	17/08/2017	52
Kyoritsu 2003A	W8126594	TERUKAS47050	25/04/2017	52
Fluke 187 TRMS Multimeter	82310191	U53427	23/01/2017	52

Calibrated By : D.Barttrupe/AT

Date of Calibration : 08 November 2017

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Page 2 of 3 Pages

Test Title	Tolerance	Applied Value	Reading	Pass/Fail
Earthbond Current Checks				
25A Test	---	---	Pass	
10A Test	---	---	Pass	
4A Test	---	---	Pass	
25A Range	25.6m Ω	0.11 Ω	0.12 Ω	Pass
25A Range	45.5m Ω	0.51 Ω	0.52 Ω	Pass
25A Range	70.4m Ω	1.01 Ω	1.02 Ω	Pass
10A Range	25.6m Ω	0.11 Ω	0.12 Ω	Pass
4A Range	25.6m Ω	0.11 Ω	0.12 Ω	Pass
Earth Screen Test				
100mA O/P Test	---	---	Pass	
100mA Range	25.6m Ω	0.11 Ω	0.10 Ω	Pass
100mA Range	45.5m Ω	0.51 Ω	0.49 Ω	Pass
100mA Range	52.4m Ω	1.01 Ω	1.00 Ω	Pass
Insulation Test				
500V Output	---	---	Pass	
Ins. 500V	225k Ω	0.50M Ω	0.50M Ω	Pass
Ins. 500V	250k Ω	1.00M Ω	1.00M Ω	Pass
Ins. 500V	450.5k Ω	5.01M Ω	5.05M Ω	Pass
Class II				
Ins. 500V	550k Ω	7.00M Ω	7.01M Ω	Pass
250V Output	---	---	Pass	
Ins. 250V	225k Ω	0.50M Ω	0.49M Ω	Pass
Ins. 250V	250k Ω	1.00M Ω	1.00M Ω	Pass
Ins. 250V	450.5k Ω	5.01M Ω	4.99M Ω	Pass
Class II				
Ins. 250V	550k Ω	7.00M Ω	7.00M Ω	Pass
Flash Test				
Class I 1.5kV	---	---	Pass	
Class II 3kV	---	---	Pass	
Class I Leakage	57.5uA	0.79mA	0.77mA	Pass
Class I Leakage	95uA	1.56mA	1.53mA	Pass
Class II Leakage	120uA	2.05mA	2.05mA	Pass
Class II Leakage	95uA	1.55mA	1.59mA	Pass

Uncertainties

Fluke 187 Voltages	DC Voltage +/-0.025% + 5 Digits: A.C. Voltage 0.4%+40 Digits
Fluke 187 Current	DC Current +/-0.15% + 2 Digits: AC Current 0.75% + 5 Digits
2003AAC 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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Page 3 of 3 Pages

Test Title	Tolerance	Applied Value	Reading	Pass/Fail
Substitute Leakage Test				
Class I Volts	---	---	Pass	
Class II Volts	---	---	Pass	
Class I Current	550uA	3.50mA	3.50mA	Pass
Class II Current	550uA	3.50mA	3.56mA	Pass
Leakage Test				
mA Output	140uA	2.40mA	2.46mA	Pass
Load Test				
2.00kVA Test	220VA	2.00kVA	2.01kVA	Pass
Touch Leakage				
Touch Leakage	---	---	Pass	
IEC Lead Tests				
Auto IEC Lead Test	---	---	Pass	
IEC Lead Test	---	---	Pass	
RCD Function	---	---	Pass	
110V Range				
110V Run test	---	---	Pass	
110V IEC Lead Test	---	---	Pass	
Reset Counter	---	---	Pass	

Uncertainties

Fluke 187 Voltages DC Voltage +/-0.025% + 5 Digits: A.C. Voltage 0.4%+40 Digits
Fluke 187 Current DC Current +/-0.15% + 2 Digits: AC Current 0.75% + 5 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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Customer : LITE ALTERNATIVE
UNIT 4 DUTTONS WAY, SHADSWORTH BUSINESS PARK
BLACKBURN BB1 2QR

Date Received : 07 November 2017

Instrument -	System ID :	SVA200336	Job Number :	111270-1
	Description :	Portable Appliance Tester		
	Manufacturer :	Seaward	Site :	
	Model Number :	SUPERNOVA	Location :	
	Serial Number :	Z20-0336	Last Certificate Number :	85246
	Procedure Version :	Plus	Last Calibration Date :	10/11/2016

Environmental Conditions

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

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

Comments

Traceability Information

Instrument description	Serial number	Certificate number	Cal. Date	Cal. Period
PATCAL Resistance Box	27080901	89063	17/08/2017	52
Kyoritsu 2003A	W8126594	TERUKAS47050	25/04/2017	52
Fluke 287 TRMS Multimeter	18220133	53739	23/10/2017	52

Calibrated By : T.A.K

Date of Calibration : 07 November 2017

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Page 2 of 3 Pages

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Earthbond Current Checks				
25A Test	---	---	Pass	
10A Test	---	---	Pass	
4A Test	---	---	Pass	
25A Range	25.9mΩ	0.12Ω	0.13Ω	Pass
25A Range	45.4mΩ	0.51Ω	0.52Ω	Pass
25A Range	70.2mΩ	1.01Ω	1.03Ω	Pass
10A Range	25.9mΩ	0.12Ω	0.13Ω	Pass
4A Range	25.9mΩ	0.12Ω	0.12Ω	Pass
Earth Screen Test				
100mA O/P Test	---	---	Pass	
100mA Range	25.9mΩ	0.12Ω	0.10Ω	Pass
100mA Range	45.4mΩ	0.51Ω	0.49Ω	Pass
100mA Range	52.3mΩ	1.01Ω	0.96Ω	Pass
Insulation Test				
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	5.08MΩ	Pass
Class II				
Ins. 500V	550kΩ	7.00MΩ	6.96MΩ	Pass
250V Output	---	---	Pass	
Ins. 250V	225kΩ	0.50MΩ	0.49MΩ	Pass
Ins. 250V	250kΩ	1.00MΩ	1.01MΩ	Pass
Ins. 250V	450.5kΩ	5.01MΩ	5.01MΩ	Pass
Class II				
Ins. 250V	550kΩ	7.00MΩ	6.97MΩ	Pass
Flash Test				
Class I 1.5kV	---	---	Pass	
Class II 3kV	---	---	Pass	
Class I Leakage	57.5uA	0.75mA	0.77mA	Pass
Class I Leakage	95uA	1.50mA	1.53mA	Pass
Class II Leakage	120uA	2.00mA	2.01mA	Pass
Class II Leakage	95uA	1.50mA	1.52mA	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
2003AAC 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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Substitute Leakage Test				
Class I Volts	---	---	Pass	
Class II Volts	---	---	Pass	
Class I Current	550uA	3.50mA	3.24mA	Pass
Class II Current	550uA	3.50mA	3.24mA	Pass
Leakage Test				
mA Output	140uA	2.40mA	2.42mA	Pass
Load Test				
2.00kVA Test	220VA	2.00kVA	2.07kVA	Pass
Touch Leakage				
Touch Leakage	---	---	Pass	
IEC Lead Tests				
Auto IEC Lead Test	---	---	Pass	
IEC Lead Test	---	---	Pass	
110V Range				
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%