

NOTICE

Date: 5/11/2011

Cost Center/Customer: DIV20 / DON BANNON

Mail Stop: B57

Manufacturer/Model: KEITHLEY / 485

Description: PICOAMMETER

Serial Number: 509163

Asset Number: 001437

Supplier or Calibration Procedure: KEITHLEY 485 & 486 - 22 MAY 07

Work Order: 303101364

The above instrument was received for service on May 06, 2011 and found not to meet calibration procedure specifications, or specified by you. As-found readings are provided in the attached measurement report or noted in remarks below. Recommend you review the as-found data to determine if the instrument had a negative impact on project requirements or cost center quality policy and procedures.

Please call extension 5215 if you have any questions or need additional information.

Remarks: 20 nA and 2 nA OOT.

NOTICE

Robert L Trollinger

From: Don Bannon [dbannon@cnwra.swri.edu]
Sent: Wednesday, May 18, 2011 1:52 PM
To: 'Dymekia Brownlee'; robert.trollinger@swri.org
Subject: RE: Asset Number: 001437

Bob—

As you have further found the manufacturer no longer repairs this instrument, I am removing the 2 nA and 20 nA ranges from the calibration specification.

Please do not calibrate the 2 nA and 20 nA ranges. Please calibrate all other aspects of the instrument as in past calibrations.

Thank you,
--Don

From: Don Bannon [mailto:dbannon@cnwra.swri.edu]
Sent: Friday, May 13, 2011 1:34 PM
To: 'Dymekia Brownlee'
Cc: 'robert.trollinger@swri.org'
Subject: RE: Asset Number: 001437

Bob—
Please repair the asset.

Thank you,
--Don

S O U T H W E S T R E S E A R C H I N S T I T U T E
6220 Culebra Rd., Bldg. 57, San Antonio, TX 78238

Don Bannon
Engineering Technologist
Geology & Geochemistry Group
Center for Nuclear Waste Regulatory Analyses
Geosciences & Engineering Division
office: 210.522.5118
fax: 210.522.5184
dbannon@swri.org

From: Dymekia Brownlee [mailto:dymekia.brownlee@swri.org]
Sent: Friday, May 13, 2011 10:08 AM
To: 'Don Bannon'
Cc: robert.trollinger@swri.org
Subject: Asset Number: 001437

Institute Calibration Laboratory
Memorandum

May 13, 2011

To: Don Bannon
Div 20, Ext 5118

From: Bob Trollinger
Institute Calibration Laboratory

Subject: Review of Work Request Number 303101364

The work you requested is pending your response. Please review the information provided and respond with your approval or further instructions for work to proceed. Return a signed copy via mail to Cal Lab Bldg 64, FAX (522-4834) or reply to this email. If you have questions please call extension 5215.

Unit Received: May 06, 2011

Work Requested: Cal

Manufacturer: Keithley

Model: 485

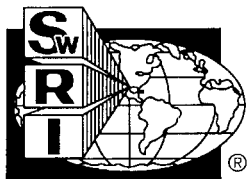
Description: Picoammeter

Serial Number: 509163

Asset Number: 001437

User ID:

Cause of Review: The 2 nA range will not balance between + and – values. Adjustment will not bring the unit into specifications. Factory repair is required. How do you wish to proceed.



SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-4834



Calibration Laboratory
Certificate #0972-01

Certificate of Calibration

Cost Center / Customer: DIV20 / DON BANNON

Mail Stop: B57

Manufacturer/Model: KEITHLEY / 485

Description: PICOAMMETER

Serial Number: 509163

Asset Number: 001437

Procedure: KEITHLEY 485 & 486 - 22 MAY 07

Work Order: 303101364

Date Issued: 18-May-2011

Date Calibrated: 18-May-2011

* Date Due : 18-May-2011

** Results: AS-LEFT

Temperature: 74.0 °F

Humidity: 40 %RH

Barometer: N/A

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Data type found in this certificate or attached measurement report must be interpreted as: Found-left - adjustment and/or repair was not performed, As-found - data is before unit is adjusted and/or repaired, As-left - data is after adjusted and/or repaired was performed. The customer has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance.

Measurement uncertainty calculated in accordance with the method described in the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM), for a confidence level of approximately 95 percent using a coverage factor of $k=2$.

Remarks: 2 nA range and 20 nA not calibrated.

Standards Used

Asset #	Manufacturer	Model	Description	Cal Date	Due Date
000182	FLUKE	5700A/EP	MULT-FUNCTION CALIBRATOR	2-May-2011	2-Aug-2011
001022	FLUKE	742A-10K	RESISTOR, STANDARD	3-May-2011	3-Nov-2011
009829	ESI	SR1050-10M	RESISTANCE TRANSFER STANDARD	16-May-2011	16-May-2012


Walt Hill

Laboratory Manager


Bob Trollinger

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303101364	Mfr:	Keithley	Technician:	blt
Asset No:	001437	Model:	485	Data Type:	As-found
Serial No:	509163	Type:	Picoammeter	Cal Date:	11-May-11
Remarks:					

Function/Range	Test Point	TI Reading	Difference	± Limit	± Uncertainty	Result	% Limit
DC Current	mA	mA	mA	mA	mA		
	1.9000	1.9001	0.0001	0.0020	0.00013	Pass	5%
	uA	uA	uA	uA	uA		
	190.00	190.06	0.06	0.20	0.013	Pass	30%
	19.000	19.004	0.004	0.020	0.013	Pass	20%
	1.9000	1.9005	0.0005	0.0030	0.00013	Pass	17%
	nA	nA	nA	nA	nA		
	190.00	190.06	0.06	0.39	0.0010	Pass	15%
	19.000	19.293	0.293	0.077	0.00010	Fail	381%
	1.9000	1.9442	0.0442	0.0080	0.00020	Fail	553%
	mA	mA	mA	mA	mA		
	-1.9000	-1.9000	0.0000	0.0020	0.00013	Pass	0%
	uA	uA	uA	uA	uA		
	-190.00	-190.03	-0.03	0.20	0.013	Pass	15%
	-19.000	-19.004	-0.004	0.020	0.013	Pass	20%
	-1.9000	-1.9003	-0.0003	0.0030	0.00013	Pass	10%
	nA	nA	nA	nA	nA		
	-190.00	-189.99	0.01	0.39	0.00098	Pass	3%
	-19.000	-19.263	-0.263	0.077	0.00010	Fail	342%
	-1.9000	-1.9165	-0.0165	0.0080	0.00020	Fail	206%

END OF REPORT

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303101364	Mfr:	Keithley	Technician:	blt
Asset No:	001437	Model:	485	Data Type:	As-left
Serial No:	509163	Type:	Picoammeter	Cal Date:	18-May-11
Remarks: 2 nA and 20 nA range not calibrated per customer request.					

Function/Range	Test Point	TI Reading	Difference	± Limit	± Uncertainty	Result	% Limit
DC Current	mA	mA	mA	mA	mA		
	1.9000	1.9005	0.0005	0.0020	0.00013	Pass	25%
	uA	uA	uA	uA	uA		
	190.00	190.05	0.05	0.20	0.013	Pass	25%
	19.000	19.006	0.006	0.020	0.013	Pass	30%
	1.9000	1.9007	0.0007	0.0030	0.00013	Pass	23%
	nA	nA	nA	nA	nA		
	190.00	190.07	0.07	0.39	0.0010	Pass	18%
	19.000	Not Cal'd	#VALUE!	0.077	0.00010	#####	#####
	1.9000	Not Cal'd	#VALUE!	0.0080	0.00020	#####	#####
	mA	mA	mA	mA	mA		
	-1.9000	-1.9005	-0.0005	0.0020	0.00013	Pass	25%
	uA	uA	uA	uA	uA		
	-190.00	-190.03	-0.03	0.20	0.013	Pass	15%
	-19.000	-19.004	-0.004	0.020	0.013	Pass	20%
	-1.9000	-1.9003	-0.0003	0.0030	0.00013	Pass	10%
	nA	nA	nA	nA	nA		
	-190.00	-189.88	0.12	0.39	0.00098	Pass	31%
	-19.000	Not Cal'd	#VALUE!	0.077	0.00010	#####	#####
	-1.9000	Not Cal'd	#VALUE!	0.0080	0.00020	#####	#####

END OF REPORT