SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
11/08/94

Issued to: NARASI SRIDHAR DIV20 ,B57
Manufacturer: SWRI
Nomenclature: RESISTOR BOX
Serial Number: 171002

Asset Number: 003095
Model Number: 10 OHM

SwRI Capital Number: NONE

ENVIRONMENTAL CONDITIONS

Temperature: 70.0F

Relative Humidity: 38 %

CALIBRATION INFORMATION

Location: CAL1
Procedure Number: SWRI
Remarks: ACCURACY IS +/- 0.1 OHMS(+/- 1%)
MEASURED VALUE IS 10.06 OHMS

Technician: 10004
Accuracy: +/-1%
Received IN Tolerance

Calibration was in accordance with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

STANDARDS USED FOR CERTIFICATION

Asset #	Serial #	Mfg	Model #	Nomenclature	Cal Date	Int.	Cal Due
001505	2823A07741	HP	3458A	SYSTEM MULTIMETER	05/04/94	12	05/04/95

Certified by : Walt Dew

Calibration Date: 11/08/94
Interval: 6 months
Next Calibration Due: 05/08/95

Certificate#: 15596

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
05/11/95

Issued to: DARRELL DUNN DIV20 ,B57
Manufacturer: SWRI
Nomenclature: RESISTOR BOX
Serial Number: 171002

Asset Number: 003095
Model Number: 10 OHM
SwRI/Div. I.D. #: NONE

ENVIRONMENTAL CONDITIONS

Temperature: 70.0F

Relative Humidity: 48%

CALIBRATION INFORMATION

Procedure Number: SWRI
Remarks: MEASURED RESISTANCE IS 10.068 OHMS

Accuracy: +/-1%
Received IN Tolerance

Calibration was in accordance with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

STANDARDS USED FOR CERTIFICATION

Asset #	Serial #	Mfg	Model #	Nomenclature	Cal Date	Int.	Cal Due
000115	2201A08306	HP	3456A	DIGITAL VOLTMETER	11/29/94	6	05/29/95

Certified by : 

Calibration Date: 05/11/95
Interval: 6 months
Next Calibration Due: 11/11/95

Certificate#: 17392

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
11/22/95

Issued to: DARRELL DUNN DIV20 ,B57
Manufacturer/Model: SWRI /10 OHM
Nomenclature: RESISTOR BOX
Serial Number: 171002
Asset Number: 003095
Notes:

ENVIRONMENTAL CONDITIONS

Temperature: 72.0F

Relative Humidity: 42%

CALIBRATION INFORMATION

Procedure Number: SWRI
Remarks:

Accuracy: +/-1%
Received IN Tolerance

Calibration was in accordance with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

STANDARDS USED FOR CERTIFICATION

Asset #	Serial #	Mfg	Model #	Nomenclature	Cal Date	Int.	Cal Due
001505	2823A07741	HP	3458A	SYSTEM MULTIMETER	05/11/95	12	05/11/96

Certified by : _____

Calibration Date: 11/22/95
Interval: 6 months
Next Calibration Due: 05/22/96

Certificate#: 19322

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

14 June 1996

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 10 OHM
Description: RESISTOR BOX
Serial Number: 171002
Asset Number: 003095

Environmental Conditions

Temperature: 73.0 **Humidity:** 44%

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Measurements are traceable to the National Institute of Standards and Technology (NIST). This report may not be reproduced except in full without written approval of the originator. Inspection and test data are on file and available for inspection.

Calibration Date: 13 Jun 96 **Calibration Procedure:** CLCP-OR-001

Interval: 6 months **Accuracy:** +/-1%

Next Calibration Due: 13 Dec 96 **Received:** In Tolerance

Remarks:

Certificate # 21450 **Signed:**

LAST PAGE OF REPORT
Total Pages Printed: 1

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

17 December 1996

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 10 OHM
Description: RESISTOR BOX
Serial Number: 171002
Asset Number: 003095

Environmental Conditions

Temperature: 70.0 Deg. F **Humidity:** 34%

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Measurements are traceable to the National Institute of Standards and Technology (NIST). This report may not be reproduced except in full without written approval of the originator. Inspection and test data are on file and available for inspection.

Calibration Date: 17 Dec 96 **Calibration Procedure:** CLCP-OR-001

Interval: 6 months **Accuracy:** +/-1%

Next Calibration Due: 17 Jun 97 **Received:** In Tolerance

Remarks: AVERAGE MEASURED VALUE OVER 10 SAMPLES:
10.06745 OHMS

Standards Used

Asset	MFR	Model	Description	Serial No.	Due Cal
001505	HP	3458A	SYSTEM MULTIMETER	2823A07741	18 Jan 97

Certificate # 23527 **Signed:** Vincent Morales

LAST PAGE OF REPORT
Total Pages Printed: 1

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

21 July 1997

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 10 OHM
Description: RESISTOR BOX
Serial Number: 171002
Asset Number: 003095

Environmental Conditions

Temperature: 74.0 Deg. F **Humidity:** 47%

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Measurements are traceable to the National Institute of Standards and Technology (NIST). This report may not be reproduced except in full without written approval of the originator. Inspection and test data are on file and available for inspection.

Calibration Date: 21 Jul 97 **Calibration Procedure:** CLCP-OR-001

Interval: 6 months **Accuracy:** +/-1%

Next Calibration Due: 21 Jan 98 **Received:** In Tolerance

Remarks: AVERAGE OHM VALUE OVER 10 SAMPLES:
10.06805 OHMS

Standards Used

Asset	MFR	Model	Description	Serial No.	Due Cal
001505	HEWLETT-PA	3458A	SYSTEM MULTIMETER	2823A07741	1 Feb 98

Certificate # 26041

Signed:

LAST PAGE OF REPORT
Total Pages Printed: 1

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
Department of Quality Assurance
Calibration Laboratory

ACCREDITED
Certificate # 0972-01

Certificate of Calibration

4 September 1998

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 10 OHM
Description: RESISTOR BOX
Serial Number: 171002
Asset Number: 003095

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Measurements are traceable to the National Institute of Standards and Technology (NIST). This report may not be reproduced except in full without written approval of the originator. Inspection and test data are on file and available for inspection.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this calibration certificate have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in the report. The uncertainty of the calibration was sufficient to determine that the instrument met the manufacturer's specifications.

Temperature: 72.0 Deg. F **Humidity:** 40 % RH

Calibration Date: 4 Sep 98 **Calibration Procedure:** CLCP-OR-001

Interval: 6 months **Received:** IN TOLERANCE

Next Calibration Due: 4 Mar 99

Remarks: MEASURED VALUE: 10.072560 OHMS

Standards Used

Asset	MFR	Model	Description	Serial No.	Due Cal
005243	HEWLETT-PACKARD	34420A	NANO VOLT/MICRO OHM METER	US36000342	29 Jul 99

Signed: Vincent Mercado
Title: Cal. Tech

LAST PAGE OF REPORT
Total Pages Printed: 1

Certificate # 31063

Southwest Research Institue
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Accredited

Certificate #
0972-01

Certificate of Calibration

1 April 1999

Issued to:	DARRELL DUNN DIV20 B57
Manufacturer/Model:	SWRI 10 OHM
Description:	RESISTOR BOX
Serial Number:	171002
Asset Number:	003095

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results of this calibration certificate were determined in accordance with the terms of accreditation unless stated otherwise below.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 74.0 Degrees Fahrenheit Humidity: 40 % RH

Calibration Date: 1 Apr 99 **Calibration Procedure:** CLCP-OR-001

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks: MEASURED RESISTANCE VALUE: 10.08921 OHMS
STANDARD MEASUREMENT UNCERTAINTY: .0061%

Approved by:

Jim Patterson, Supervisor or Walt Hill, Metrologist

Measurements performed by:

Vince Morales, Technician

Certificate # 33574

m:\a2la.rpt Rev date 10 Mar 99

Southwest Research Institue
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Accredited

Certificate #
0972-01

Certificate of Calibration

30 September 1999

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 10 OHM
Description: RESISTOR BOX
Serial Number: 171002
Asset Number: 003095

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results of this calibration certificate were determined in accordance with the terms of accreditation unless stated otherwise below.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 74.0 Degrees Fahrenheit Humidity: 40 % RH

Calibration Date: 20 Sep 99 **Calibration Procedure** CL-70,JUN 99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks: AVERAGE MEASURED VALUE: 10.068 OHMS
MEASUREMENT UNCERTAINTY: +/-1 MILLIOHM

Approved by:
Jim Patterson, Supervisor or Walt Hill, Metrologist

Measurements performed by:
Vince Morales, Technician

Certificate # 36050

m:\a2la.rpt Rev date 10 Mar 99

SOUTHWEST RESEARCH INSTITUTE™

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-3692

Certificate of Calibration

Submitted By:	DIV20	**Work Order:**	444050662
Address:	B57	**Date Issued:**	Oct 15, 2002
Contact:	DARRELL DUNN	**Calibration Date:**	Oct 15, 2002
Manufacturer Model:	SWRI 10 OHM	****Calibration Due:**	Apr 15, 2003
Description:	RESISTOR BOX	**Calibration Location:**	N/A
Serial No:	171002	**Environment:**	Temp. 72.0°F Hum. 40 %RH
Asset No:	003095	***As Found:**	IN TOLERANCE
Procedure:	CL-70, JUN 99	***As Left:**	IN TOLERANCE

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, 1999 and ANSI/NCSL Z540-1-1994 which are equivalent to relevant requirements of the ISO 9000-1994 series of standards. This certificate may not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. The results of this calibration relate only to the individual instrument described above. This certificate shall not be used to claim product endorsement by the American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government.

Uncertainty evaluation includes the item under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor of k=2 to approximate a 95% confidence level. The calibration process provides a Test Uncertainty Ratio (TUR) of less than or equal to 25% (4:1) of the test limit unless otherwise stated in remarks or an attachment.

*The client has sole responsibility for determination of in/out of tolerance or compliance/noncompliance. An in/out of tolerance opinion is provided for your convenience based only on the Test Instrument (TI) reading(s) and limits as reported. The reported uncertainty relates only to the results at the time of calibration and does not imply any short or long term stability of the TI.

**Calibration interval is determined by the client and does not assure the instrument will remain within tolerance until this date. Any number of factors may cause the instrument to be out of tolerance before the next calibration date.

Remarks: None

Standards Used

Asset	Manufacturer	Model	Description	Cal Due
007001	HEWLETT-PACKARD	3458A/OPT-002	MULTIMETER	Jan 06, 03

Approved by: Walt Hill
Metrology Group Leader

Measurements by: Tony Planas
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Calibration Sheet

Work Order:	444050662	Mfr.	SWRI	Technician	Tplanas
Asset No.	3095	Model	10 OHM	Procedure	CL-70 06/99
Serial No.	171002	Type.	Resistor	Cal Date.	15-Oct-02

Remarks:

Function/Range	Test Point	TI Reading	Difference	Test Limits+/-	Uncertainty	Found/Left
Resistance	Ohm	Ohm	Ohm	Ohm	Ohm	Results
	10.00	10.06	0.06	0.10	>4:1	Pass

SOUTHWEST RESEARCH INSTITUTE™

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-3692

Certificate of Calibration

Submitted By: DIV20
Address: B57
Contact: DARRELL DUNN
Manufacturer Model: SWRI 10 OHM
Description: RESISTOR BOX
Serial No: 171002
Asset No: 003095
Procedure: CL-70, JUN 99

Work Order: 444053024
Date Issued: Apr 3, 2003
Calibration Date: Apr 3, 2003
****Calibration Due:** Oct 3, 2003
Calibration Location: Bldg. 64
Environment: Temp. 68.0°F Hum. 42 %RH
***As Found:** IN TOLERANCE
***As Left:** IN TOLERANCE

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, 1999 and ANSI/NCSL Z540-1-1994 which are equivalent to relevant requirements of the ISO 9000-1994 series of standards. This certificate may not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. The results of this calibration relate only to the individual instrument described above. This certificate shall not be used to claim product endorsement by the American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government.

Uncertainty evaluation includes the item under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor of k=2 to approximate a 95% confidence level. The calibration process provides a Test Uncertainty Ratio (TUR) of less than or equal to 25% (4:1) of the test limit unless otherwise stated in remarks or an attachment.

*The client has sole responsibility for determination of in/out of tolerance or compliance/noncompliance. An in/out of tolerance opinion is provided for your convenience based only on the Test Instrument (TI) reading(s) and limits as reported. The reported uncertainty relates only to the results at the time of calibration and does not imply any short or long term stability of the TI.

**Calibration interval is determined by the client and does not assure the instrument will remain within tolerance until this date. Any number of factors may cause the instrument to be out of tolerance before the next calibration date.

Remarks: None

Standards Used

Asset	Manufacturer	Model	Description	Cal Due
007001	HEWLETT-PACKARD	3458A/OPT-002	MULTIMETER	Jan 17, 04

Approved by: Walt Hill
Metrology Group Leader
m:\Nona2la1.rpt Rev date 15, August 02

Measurements by: Tom Hannon
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Calibration Sheet

Work Order:	444053024	Mfr.	SWRI	Technician	Thomas Hannon
Asset No.	003095	Model	10 OHM		
Serial No.	171002	Type.	Resistor	Cal Date.	3-Apr-03
Remarks:					

Function/Range	Test Point	TI Reading	Difference	Test Limits+/-	Uncertainty	Found/Left
Resistance	Ohm	Ohm	Ohm	Ohm	Ohm	Results
	10.00	10.07	0.07	0.10	0.0008	Pass

END OF REPORT

SOUTHWEST RESEARCH INSTITUTE™

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-3692

ACCREDITED
Certificate #
0972-01

Certificate of Calibration

Submitted By:	DIV20	**Work Order:**	444055696
Address:	B57	**Date Issued:**	Oct 7, 2003
Contact:	DARRELL DUNN	**Calibration Date:**	Oct 3, 2003
Manufacturer Model:	SWRI 10 OHM	****Calibration Due:**	Apr 3, 2004
Description:	RESISTOR BOX	**Calibration Location:**	Bldg. 64
Serial No:	171002	**Environment:**	Temp. 70.0°F Hum. 40 %RH
Asset No:	003095	***As Found:**	IN TOLERANCE
Procedure:	CL-70, JUN/99	***As Left:**	IN TOLERANCE

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, 1999 and ANSI/NCSL Z540-1-1994 which are equivalent to relevant requirements of the ISO 9000-1994 series of standards. This certificate may not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. The results of this calibration relate only to the individual instrument described above. This certificate shall not be used to claim product endorsement by the American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government.

Uncertainty evaluation includes the item under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor of k=2 to approximate a 95% confidence level. The calibration process provides a Test Uncertainty Ratio (TUR) of less than or equal to 25% (4:1) of the test limit unless otherwise stated in remarks or an attachment.

*The client has sole responsibility for determination of in/out of tolerance or compliance/noncompliance. An in/out of tolerance opinion is provided for your convenience based only on the Test Instrument (TI) reading(s) and limits as reported. The reported uncertainty relates only to the results at the time of calibration and does not imply any short or long term stability of the TI.

**Calibration interval is determined by the client and does not assure the instrument will remain within tolerance until this date. Any number of factors may cause the instrument to be out of tolerance before the next calibration date.

Remarks: None

Standards Used

Asset	Manufacturer	Model	Description	Cal Due
001505	HEWLETT-PACKARD	3458A/OPT-002	MULTIMETER	Apr 14, 04

Approved by: Walt Hill
Metrology Group Leader
m:\a2la1.rpt Rev date 15, August 02

Measurements by: Vince Morales
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Calibration Report

Work Order:	444055696	Mfr.	SWRI	Technician	Vmorales
Asset No.	3095	Model	10 OHM		
Serial No.	171002	Type.	Resistor	Cal Date.	3-Oct-03
Remarks:					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left
Resistance	Ohm	Ohm	Ohm	Ohm	Ohm	Results
	10.00	10.06	0.06	0.10	0.0008	Pass

END OF REPORT

SOUTHWEST RESEARCH INSTITUTE™

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-3692

ACCREDITED
Certificate #
0972-01

Certificate of Calibration

Submitted By:	DIV20	**Work Order:**	444058431
Address:	B57	**Date Issued:**	Apr 7, 2004
Contact:	DARRELL DUNN	**Calibration Date:**	Apr 7, 2004
Manufacturer Model:	SWRI 10 OHM	****Calibration Due:**	Oct 7, 2004
Description:	RESISTOR BOX	**Calibration Location:**	Bldg. 64
Serial No:	171002	**Environment:**	Temp. 73.0°F Hum. 45 %RH
Asset No:	003095	***As Found:**	IN TOLERANCE
Procedure:	RESISTORS JAN/04	***As Left:**	IN TOLERANCE

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, 1999 and ANSI/NCSL Z540-1-1994 which are equivalent to relevant requirements of the ISO 9000-1994 series of standards. This certificate may not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. The results of this calibration relate only to the individual instrument described above. This certificate shall not be used to claim product endorsement by the American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government.

Uncertainty evaluation includes the item under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor of k=2 to approximate a 95% confidence level. The calibration process provides a Test Uncertainty Ratio (TUR) of less than or equal to 25% (4:1) of the test limit unless otherwise stated in remarks or an attachment.

*The client has sole responsibility for determination of in/out of tolerance or compliance/noncompliance. An in/out of tolerance opinion is provided for your convenience based only on the Test Instrument (TI) reading(s) and limits as reported. The reported uncertainty relates only to the results at the time of calibration and does not imply any short or long term stability of the TI.

**Calibration interval is determined by the client and does not assure the instrument will remain within tolerance until this date. Any number of factors may cause the instrument to be out of tolerance before the next calibration date.

Remarks: None

Standards Used

Asset	Manufacturer	Model	Description	Cal Due
010465	FLUKE	8508A-01	MULTIMETER	Aug 27, 04

Approved by: Walt Hill
Metrology Group Leader
m:\a2la1.rpt Rev date 15, August 02

Measurements by: Bob Trollinger
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Calibration Report

Work Order:	444058431	Mfr.	SWRI	Technician	blt
Asset No.	003095	Model	10 OHM		
Serial No.	171002	Type.	Resistor	Cal Date.	7-Apr-04
Remarks:					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left
Resistance	Ohm	Ohm	Ohm	Ohm	Ohm	Results
G-W	10.00	10.07	0.07	0.10	0.0008	Pass
G-R	10.00	10.07	0.07	0.10	0.0008	Pass

END OF REPORT

SOUTHWEST RESEARCH INSTITUTE™

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-3692

ACCREDITED
Certificate #
0972-01

Certificate of Calibration

Submitted By:	DIV20	**Work Order:**	444061101
Address:	B57	**Date Issued:**	Oct 14, 2004
Contact:	DARRELL DUNN	**Calibration Date:**	Oct 14, 2004
Manufacturer Model:	SWRI 10 OHM	****Calibration Due:**	Apr 14, 2005
Description:	RESISTOR BOX	**Calibration Location:**	Bldg. 64
Serial No:	171002	**Environment:**	Temp. 73.0°F Hum. 40 %RH
Asset No:	003095	***As Found:**	IN TOLERANCE
Procedure:	RESISTORS JAN/04	***As Left:**	IN TOLERANCE

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, 1999 and ANSI/NCSL Z540-1-1994 which are equivalent to relevant requirements of the ISO 9000-1994 series of standards. This certificate may not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. The results of this calibration relate only to the individual instrument described above. This certificate shall not be used to claim product endorsement by the American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government.

Uncertainty evaluation includes the item under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor of k=2 to approximate a 95% confidence level. See Remarks or attached Calibration Report with the same Work Order number for calibration data.

*The client has sole responsibility for determination of in/out of tolerance or compliance/noncompliance. An in/out of tolerance opinion is provided for your convenience based only on the Test Instrument (TI) reading(s) and limits as reported. The reported uncertainty relates only to the results at the time of calibration and does not imply any short or long term stability of the TI.

**Calibration interval is determined by the client and does not assure the instrument will remain within tolerance until this date. Any number of factors may cause the instrument to be out of tolerance before the next calibration date.

Remarks: None

Standards Used

Asset	Manufacturer	Model	Description	Cal Due
007001	HEWLETT-PACKARD	3458A/OPT-002	MULTIMETER	Feb 19, 05

Approved by: Walt Hill
Metrology Group Leader
m:\a2la1.rpt Rev date 11, May 04

Measurements by: Scott Kester
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Calibration Report

Work Order:	444061101	Mfr.	SWRI	Technician	SRK
Asset No.	003095	Model	10 OHM		
Serial No.	171002	Type.	Resistor	Cal Date.	14-Oct-04
Remarks:					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left
Resistance	Ohm	Ohm	Ohm	Ohm	Ohm	Results
G-W	10.00	10.08	0.08	0.10	0.00075	Pass
G-R	10.00	10.08	0.08	0.10	0.00075	Pass

END OF REPORT