

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 23526 ASSET # 003096 DATE 02 Dec 96

ITEM DATA:

Manufacturer Suoni Model 1000 offer
Description MSI for box Serial # 171001
Accessories _____

ACTION REQUESTED _____

CUSTODIAN Daniel Dunn, Div. 20

Turned in by: _____ Phone 1090

CHARGE # 20-995-001 Date Required _____

INSTRUMENT USED ON: NUCLEAR DOD NASA GLP SPPE
 OTHER _____

COPY OF CALIBRATION CERTIFICATE Yes No

- CONDITION RECEIVED:
- _____ Out of tolerance, repaired to specifications
 - _____ In tolerance, minor adjustments/repairs made
 - _____ in tolerance, no adjustments/repairs
 - _____ Out of tolerance, adjusted to specifications
 - _____ Received into system, introduced or reactivated
 - _____ Calibration internal
 - _____ Realibility code

ACTION TAKEN: (Calibration/Repair/Parts) AVERAGE Measured value over
10 SAMPLES 1.000439 KΩ

CAL ENVIRONMENT:
Temperature 70 °F Humidity 34 %RH

CALIBRATED/REPAIRED:
By D Morales Cal Procedure CLCP-DR-001
Date 17 Dec 96 Accuracy 1%
Cal Interval 6 Time to complete: _____
Next Cal due 17 JUN 97 Cal _____ Repair _____
Standards used (Asset#) 1505

DATE COMPLETED 17 Dec 96
DATE PICKED UP 12/18/96 PICKED UP BY [Signature]

23526

SOUTHWEST RESEARCH INSTITUTE
 Department of Quality Assurance
 Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 26040 ASSET # 005096 DATE 10 July 97

ITEM DATA:

Manufacturer SwRI Model 1000 OAM
 Description Resistor box Serial # 171001
 Accessories _____

ACTION REQUESTED Cal

CUSTODIAN Dr. 20, David Durr

Turned in by: _____ Phone 6090

CHARGE # 205708 501 Date Required _____

INSTRUMENT USED ON: DOD/NASA NUCLEAR GLP SPPE ISO
 OTHER _____

COPY OF CALIBRATION CERTIFICATE Yes No

NEW WORK Yes No If yes, an evaluation shall be made to verify capabilities.

By _____ Date _____

CONDITION RECEIVED: _____ (F) Out of tolerance, repaired to specifications
 _____ (G) In tolerance, minor adjustments/repairs made
 (J) In tolerance, no adjustments/repairs
 _____ (K) Out of tolerance, adjusted to specifications
 _____ (S) Received into system, introduced or reactivated

ACTION TAKEN: (Calibration/Repair/Parts) 7/17 5:00pm

1.0004568	1.0004565	1.000478 KΩ	1.000509 KΩ
1.0004566	1.0004567	1.000509 KΩ	1.000510 KΩ
1.0004568	1.0004564	1.000512 KΩ	1.000511 KΩ
1.0004566	1.0004565	1.000511 KΩ	1.000509 KΩ
1.0004565	1.0004562	1.000510 KΩ	1.000508 KΩ

(MEN) *(MEN)*

CAL ENVIRONMENT:
 Temperature 75 °F Humidity 44 %RH

CALIBRATED/REPAIRED:
 By UMoral Cal Procedure CLCP-DR-001
 Date 21 July 97 Accuracy +/- 1%
 Cal Interval 6mo. Reliability Code: _____
 Next Cal due 21 Jan 98 Cal Time _____ Repair Time _____
 Standards used (Asset#) 1505

DATE COMPLETED 21 July 98
 DATE PICKED UP 7/25/97 PICKED UP BY [Signature]

26040

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 28682 ASSET # 003096 DATE 18 Feb 98

ITEM DATA:

Manufacturer SWRI Model 100 OHM
Description resistor box Serial # 171001
Accessories _____

ACTION REQUESTED cal

CUSTODIAN DW-70, Darrell Quinn

Turned in by: _____ Phone 6090

CHARGE # 20-140-571 Date Required _____

INSTRUMENT USED ON: DOD/NASA NUCLEAR GLP SPPE ISO
OTHER _____

COPY OF CALIBRATION CERTIFICATE Yes No

NEW WORK Yes No If yes, an evaluation shall be made to verify capabilities.
By _____ Date _____

CONDITION RECEIVED: _____ (F) Out of tolerance, repaired to specifications
_____ (G) In tolerance, minor adjustments/repairs made
 (J) In tolerance, no adjustments/repairs
_____ (K) Out of tolerance, adjusted to specifications
_____ (S) Received into system, introduced or reactivated

ACTION TAKEN: (Calibration/Repair/Parts)
Measured Value: 1.000 4661 K Ω

CAL ENVIRONMENT: Temperature 73 °F Humidity 34 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure CLCP-OR-001
Date Feb 19 98 Accuracy ±1%
Cal Interval 6mo Reliability Code: 8
Next Cal due 19 Aug 98 Cal Time 110 Repair Time _____
Standards used (Asset#) 1505

DATE COMPLETED Feb-19-98
DATE PICKED UP 2/18/98 PICKED UP BY [Signature]

28682

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 31062 ASSET # 003096 DATE 31 Aug 98

ITEM DATA:
Manufacturer SwRI Model 1000 ohm
Description cal box Serial # 171001
Accessories _____

ACTION REQUESTED cal

CUSTODIAN D.W. Powell Dunn

Turned in by: _____ Phone 6090

CHARGE # 20-1402571 Date Required _____

INSTRUMENT USED ON: (DOD/NASA) (NUCLEAR) (GLP) (SPPE) (ISO)
 OTHER _____

COPY OF CALIBRATION CERTIFICATE (Yes) (No)

NEW WORK Yes No If yes, an evaluation shall be made to verify capabilities.

By NAAP/ Date 08-31-98

Work involves proprietary/confidential information or equipment (Yes) (No)

CONDITION RECEIVED: _____ (F) Out of tolerance, repaired to specifications
_____ (G) In tolerance, minor adjustments/repairs made
 (J) In tolerance, no adjustments/repairs
_____ (K) Out of tolerance, adjusted to specifications
_____ (S) Received into system, introduced or reactivated

31062

ACTION TAKEN: (Calibration/Repair/Parts) Measured Value: 1.0007080

CAL ENVIRONMENT: Temperature 72 °F Humidity 40 %RH

CALIBRATED/REPAIRED:
By M. M. M. Cal Procedure CCCP-OR-001
Date 4 Sep 98 Accuracy M5
Cal Interval 6 Reliability Code: 8
Next Cal due 4 MAR 98 Cal Time 1.0 Repair Time _____
Standards used (Asset#) 5243

DATE COMPLETED 4 Sep 98
DATE PICKED UP 9/22/98 PICKED UP BY [Signature]

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 33513 ASSET # 013096 DATE 05 MAR 99

ITEM DATA:

Manufacturer SOPL Model 1000 ohm
Description resistor box Serial # 171001
Accessories _____

ACTION REQUESTED 101

CUSTODIAN DUGO, Arnold Duma

Turned in by: _____ Phone 6096

CHARGE # 20-1102-57104 o/s/a Date Required _____

INSTRUMENT USED ON: (DOD/NASA) (NUCLEAR) (GLP) (SPPE) (ISO)
 OTHER _____

COPY OF CALIBRATION CERTIFICATE (Yes) (No)

NEW WORK Yes No If yes, an evaluation shall be made to verify capabilities.

By MAL Date 03-25-99

Work involves proprietary/confidential information or equipment (Yes) (No)

CONDITION RECEIVED: _____ (F) Out of tolerance, repaired to specifications
_____ (G) In tolerance, minor adjustments/repairs made
 (J) In tolerance, no adjustments/repairs
_____ (K) Out of tolerance, adjusted to specifications
_____ (S) Received into system, introduced or reactivated

ACTION TAKEN: (Calibration/Repair/Parts) Measured Resistance Value: 1.000529kΩ
STANDARD UNCERTAINTY
for Measured Value: .0079%

CAL ENVIRONMENT: Temperature 74°F Humidity 40 %RH

CALIBRATED/REPAIRED By Morley Cal Procedure CLCP-OR-001
Date 1 APR 99 Accuracy Mfg
Cal Interval 6 Reliability Code: 9
Next Cal due 1 OCT 99 Cal Time 1.0 Repair Time _____
Standards used (Asset#) 5243

DATE COMPLETED 1 APR 99
DATE PICKED UP 1/1/99 PICKED UP BY [Signature]

33513

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

WORK ORDER # 36051 ASSET # 003096 DATE 9/16/99

ITEM DATA:

Manufacturer SWRT Model 1000 6hm
Description Resistor box Serial # 171001
Accessories _____

ACTION REQUESTED cal

CUSTODIAN Div. 80, Darrell Denn

Turned in by: _____ Phone 6090

CHARGE # 20-0H Date Required _____

INSTRUMENT USED ON: (DOD/NASA) (NUCLEAR) (GLP) (SPPE) (ISO)
 OTHER _____

COPY OF CALIBRATION CERTIFICATE (Yes) (No)

NEW WORK Yes No If yes, an evaluation shall be made to verify capabilities.

By [Signature] Date 9/16/99

Work involves proprietary/confidential information or equipment (Yes) (No)

CONDITION RECEIVED: Out of tolerance
 In tolerance
 Damaged (Contact customer)
 Contact _____ Date _____
 Received into system, introduced or reactivated

ACTION TAKEN: (Calibration/Repair/Parts) 1) 1.000471 K Ω 6) 1.000458 K Ω Avg: 1.000461
2) 1.000470 K Ω 7) 1.000457 K Ω
3) 1.000471 K Ω 8) 1.000458 K Ω
4) 1.000467 K Ω 9) 1.000466 K Ω .00104%
5) 1.000460 K Ω 10) 1.000467 K Ω

CAL ENVIRONMENT:
Temperature 74 °F Humidity 40 %RH

CALIBRATED/REPAIRED:
By Mercedes Cal Procedure MANAIR 17-20AQ-124, 1 Dec 96
Date 20 Sep 99 Accuracy MFB
Cal Interval 6 Reliability Code 18
Next Cal Due 20 MAR 2000 Cal Time 1.8 Repair Time _____
Standards used (Asset #) 1505

DATE COMPLETED 20 Sep 99
DATE PICKED UP 11/1/99 PICKED UP BY [Signature]

36051



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

Accredited



Certificate #
0972-01

Certificate of Calibration

21 April 2000

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 1000 OHM
Description: RESISTOR BOX
Serial Number: 171001
Asset Number: 003096

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NC SL Z540-1-1994. The results of this calibration relate only to the individual item as described above. 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 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: 73.0 Degrees Fahrenheit Humidity: 36 % RH

Calibration Date: 21 Apr 00 **Calibration Procedure:** CL-70, JUN 99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 38596

m:\a2la.rpt Rev date 14 Dec 99

Measurements performed by:

Vince Morales, Technician

Page 1 of 1

WORK ORDER 38596

Date Received 4/10/00

Asset No. 003096 Manufacturer SWRI Model 1000 OHM
Description RESISTOR BOX Serial Number 171001
Accessory Received/Required NONE
Div/CC ID NONE Accessory to Asset No. N/A Accuracy +/-1%
Div/CC DIV20 Location B57 Custodian DARRELL DUNN Tel. 6090
Charge/Project No. 20.00751.006 Proprietary/Confidential N Date Required ROUTINE
Work Requested CALIBRATION
Receiving Inspection O.K.
Delivered By DARRELL DUNN Tel. 6090

WORK HISTORY

Date	Start Time	Stop Time	Notes

PARTS

Part Name	Part Number	Cost	Failure Description

WORK SUMMARY

Failure Description _____
Repair Action _____
Cal Procedure CG 70 JUN 99 Temp 73 F Hum 36 %
Tech UMoral Cal Hrs. .5 Repair Hrs. _____ Part Cost _____
Action Taken Calibration
Standards Used 7001
Date Cal 21 APR 00 Int. 6 Mo. Date Due 21 Oct 00 Reliability Code 11
Date Picked Up 8/2/00 Picked Up By [Signature]
workreq.rpt Rev 30 Jan 00

38596

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Processed by RCRUZ at 8:44:40AM on 10/24/00

I4213

||||| ||||| ||||| ||||| ||||| ||||| |||||

Work Order No 444041092

Arrived 10/24/00

Asset No. 003096 Manufacturer SWRI

Model 1000 OHM

Instrument Type/Class RESISTOR BOX

Serial No. 171001

Accessory No. Calibration Procedure CL-70, JUN 99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel. 6090

Charge/Project No. 20.00751.006

Delivered By / Telephone DARRELL DUNN

IN4CAL

Special Instructions _____

WORK NOTES

Date	Hours	Remarks/Notes
<u>Oct. 24, 00</u>	<u>0.5</u>	<u>Calib</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

REPAIR PARTS

Date	Hours	Part Name	Part Number	Failure Description	Cost
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

WORK SUMMARY

Failure Description None

Repair Action None

Calibration Procedure CL-70, June 99 Temp 72 F Hum. 43 %

Tech [Signature] Totals Cal Hours 0.5 Repair Hours _____ Parts Cost _____

Standards Used 2001

Date Picked Up 10/25/2000

Picked Up By [Signature]

41092



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



Certificate #
0972-01

Certificate of Calibration

24 October 2000

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 1000 OHM
Description: RESISTOR BOX
Serial Number: 171001
Asset Number: 003096

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCCL Z540-1-1994. The results of this calibration relate only to the individual item as described above. 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 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: 72.0 Degrees Fahrenheit Humidity: 43 % RH

Calibration Date: 24 Oct 00 **Calibration Procedure:** CL-70, JUN 99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 444041092

m:a2la.rpt Rev date 22 May 00

Measurements performed by:

Tom Hanson, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Processed by RCRUZ at 4:00:53PM on 4/26/01

||||| ||||| ||||| ||||| ||||| ||||| |||||

Work Order 444043364

Arrived 4/26/01

Asset No. 003096 Manufacturer SWRI

Model 1000 OHM

Instrument Type/Class RESISTOR BOX

Serial No. 171001

Accessory No. Calibration Procedure CL-70, JUN 99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel. 6090

Charge/Project No. 20.00751.006

Delivered By / Telephone

IN4CAL

Special Instructions 20.00751.006

WORK NOTES

Date	Hours	Remarks/Notes
<u>4.27.01</u>	<u>.5</u>	<u>Calibrate</u>

REPAIR PARTS

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description None

Repair Action None

Calibration Procedure CL-70, JUN 99 Temp 72 F Hum. 40 %

Tech RJW/THannon Totals Cal Hours .5 Repair Hours _____ Parts Cost _____

Standards Used 007001

Date Picked Up 5/2/01

Picked Up By [Signature]

43364



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



Certificate #
0972-01

Certificate of Calibration

27 April 2001

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 1000 OHM
Description: RESISTOR BOX
Serial Number: 171001
Asset Number: 003096
Work Order Number: 444043364

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSS Z540-1-1994. The results of this calibration relate only to the individual item as described above. 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 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: 72.0 Degrees Fahrenheit Humidity: 40 % RH

Calibration Date: 27 Apr 01 **Calibration Procedure:** CL-70, JUN 99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Tom Hannon, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by RCRUZ, 10/26/01 11:23:26AM

Arrived 10/26/01

Work Order **444045918**

Asset No 003096 Manufacturer SWRI

Model 1000 OHM

Equipment Type RESISTOR BOX

Serial No. 171001

Accessory No.

Interval 6 M

Calibration Procedure CL-70, JUN 99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel 6090

IN4CAL

Special Instructions 20.00751.006

Notify before adjustments or repairs. (Provide data with certificate) Certificate Type B540

Charge/Project No. 00751.006 1.20

Requester / Telephone

This information is correct for the work requested.

WORK NOTES

Date	Hours	Remarks/Notes
<u>Oct 29, 2001</u>		<u>Calibrate</u>

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description None

Repair Action

Tech Cal Hrs 0.5 Repair Hrs Parts Cost Temp 21 F Hum. 43 %

Standards Used 1505

Date Picked Up 11/16/01

Picked Up By B. F. [Signature]

444045918



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



Certificate #
0972-01

Certificate of Calibration

29 October 2001

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 1000 OHM
Description: RESISTOR BOX
Serial Number: 171001
Asset Number: 003096
Work Order Number: 444045918

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. The results of this calibration relate only to the individual item as described above. 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 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: 71.0 Degrees Fahrenheit Humidity: 43 % RH

Calibration Date: 29 Oct 01 **Calibration Procedure:** CL-70, JUN 99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Tom Hannon, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by RCRUZ, 4/17/02 4:03:18PM

Arrived 4/17/02

Work Order **444048240**

Asset No. 003096 Manufacturer SWRI

Model 1000 OHM

Equipment Type RESISTOR BOX

Serial No. 171001

Accessory No.

Interval 6 M

Calibration Procedure CL-70, JUN 99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel 6090

IN LINE

Special Instructions 20.00751.006

Notify before adjustments or repairs. () Provide data with certificate (✓) Certificate Typ _____

Charge/Project No. 00751.006 1.20

Requester / Telephone DARRELL DUNN X6090

This information is correct for the work requested. Darrell Dunn

WORK NOTES

Date	Hours	Remarks/Notes
<u>April 18, 2002</u>		<u>Calibrate</u>

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description None
Repair Action None
Tech None Cal Hrs 0.5 Repair Hrs Parts Cost Temp 72 F Hum. 47 %
Standards Used 1505

Date Picked Up 5/9/02 Picked Up By Darrell Dunn

48240



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

Certificate of Calibration

18 April 2002

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: SWRI 1000 OHM
Description: RESISTOR BOX
Serial Number: 171001
Asset Number: 003096
Work Order Number: 444048240

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.

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: 72.0 Degrees Fahrenheit Humidity: 42 % RH

Calibration Date: 18 Apr 02 Calibration Procedure: CL-70, JUN 99

Condition as Received: IN TOLERANCE

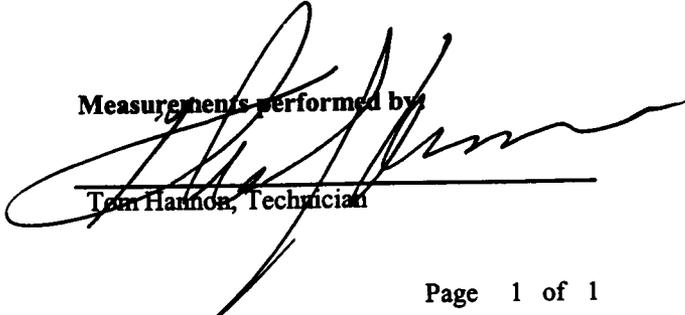
Condition as Returned: IN TOLERANCE

Remarks:

Approved by:


Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Measurements performed by:


Tom Hanna, Technician