

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

WORK ORDER

CERTIFICATE # 22379 ASSET # 2469 DATE 14 Aug 96

ITEM DATA:

Manufacturer Fisher Model 14-983-10B
Description Thermometer Serial # 183303
Accessories _____

ACTION REQUESTED cal

CUSTODIAN Darrell Dunn Div 20

Turned in by: _____ Phone _____

CHARGE # 20-5708-573 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) Calibrated per Procedure.
Std 447
0.0°C 0°C

CAL ENVIRONMENT:
Temperature 50 °F Humidity 33 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure 21-9-30-57103
Date 19 Aug 96 Accuracy ±1°C
Cal Interval 6 mos Time to complete:
Next Cal due 19 Feb 97 Cal 1.0 Repair _____
Standards used (Asset#) 4965

DATE COMPLETED 19 Aug 96
DATE PICKED UP 8/21/96 PICKED UP BY [Signature]

22379

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

WORK ORDER

CERTIFICATE # 24347 ASSET # 002469 DATE 17 Feb. 97

ITEM DATA:

Manufacturer Fisher brand Model 14-983-105
Description thermometer Serial # 18303
Accessories _____

ACTION REQUESTED cal

CUSTODIAN Donnell Dunn, DU.20

Turned in by: _____ Phone _____

CHARGE # 5708.561 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
 - _____ Reliability code

ACTION TAKEN: (Calibration/Repair/Parts) Calibrated As Received
all out
0.04°C 0.0°C

24347

CAL ENVIRONMENT:
Temperature 78 °F Humidity 37 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure W1-9-30-2463
Date 21 Feb 97 Accuracy +/- 1°C
Cal Interval 6 Mths Time to complete:
Next Cal due 21 Aug 97 Cal 2.0 Repair _____
Standards used (Asset#) 218, 328

DATE COMPLETED 21 Feb 97
DATE PICKED UP 2/26/97 PICKED UP BY [Signature]

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

WORK ORDER

CERTIFICATE # 26596 ASSET # 132489 DATE 25 Aug 97

ITEM DATA:

Manufacturer Espe Model NI 18-5-DB
Description 1 m. meas. Serial # 183302
Accessories _____

ACTION REQUESTED cal

CUSTODIAN DW 20, David Duan

Turned in by: _____ Phone 6020

CHARGE # 20-5208-561 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) Calibrated by Procedure
STP WUT
0.012°C 0.0°C

CAL ENVIRONMENT:
Temperature 81 °F Humidity 34 %RH

CALIBRATED/REPAIRED:
By K. H. [Signature] Cal Procedure WI-9-30-9703
Date 3 Sep 97 Accuracy ±1°C
Cal Interval 6 mths Reliability Code: 7
Next Cal due 3 Dec 98 Cal Time 1.5 Repair Time _____
Standards used (Asset#) 219, 328

DATE COMPLETED 4 Sep 97
DATE PICKED UP 9/10/97 PICKED UP BY [Signature]

26596

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

WORK ORDER

CERTIFICATE # 28931 ASSET # 002469 DATE 09 MAR 98

ITEM DATA:

Manufacturer T. Star Model 14-985-1013
Description Thermometer Serial # 18593
Accessories _____

ACTION REQUESTED Cal

CUSTODIAN D. P. Jones

Turned in by: _____ Phone 6176

CHARGE # 70146 311 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) _____
cal std unit
-0.03°C ± 0.1°C

CAL ENVIRONMENT: Temperature 66 °F Humidity 26 %RH

CALIBRATED/REPAIRED:
By K. Hughes Cal Procedure WI 9-30-TH03
Date 10 Mar 98 Accuracy ± 1°C
Cal Interval 6 mos Reliability Code: 8
Next Cal due 10 Sep 98 Cal Time 1.0 Repair Time _____
Standards used (Asset#) 29, 328

DATE COMPLETED 10 Mar 98
DATE PICKED UP 3/18/98 PICKED UP BY [Signature]

28931

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

WORK ORDER

CERTIFICATE # 31644 ASSET # 002469 DATE 19 OCT 98

ITEM DATA:

Manufacturer Fisher Model 14-983-10B
Description Thermometer Serial # 183303
Accessories _____

ACTION REQUESTED (N)

CUSTODIAN Du. Jo. Donell Dunn

Turned in by: _____ Phone 6090

CHARGE # 20-1402-571 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 mael Date 10/19/98

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

ACTION TAKEN: (Calibration/Repair/Parts) Calibrated As Specified

CAL ENVIRONMENT:
Temperature 75 °F Humidity 54 %RH

CALIBRATED/REPAIRED:
By Keith Cal Procedure ASTM E77-92
Date 19 Oct 98 Accuracy ±0.1
Cal Interval 6 mths Reliability Code: 9
Next Cal due 12 Apr 99 Cal Time 1.0 Repair Time _____
Standards used (Asset#) 219, 328

DATE COMPLETED 19 Oct 98
DATE PICKED UP 10/22/98 PICKED UP BY [Signature]

31644

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

WORK ORDER

CERTIFICATE # 34373 ASSET # 002469 DATE 04 May 99

ITEM DATA:

Manufacturer Fisherbrand Model 11-983-06
Description thermometer Serial # 183303
Accessories tube

ACTION REQUESTED 101

CUSTODIAN Div. 20, Darrill Dunn

Turned in by: _____ Phone 6090

CHARGE # 20.04 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 mad Date 05-04-99

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) Calibrated by procedure

CAL ENVIRONMENT:
Temperature 76 °F Humidity 33 %RH

CALIBRATED/REPAIRED:
By [Signature] Cal Procedure SO. 33X5-1-42-1, April 97
Date 7 May 99 Accuracy 1/3 years
Cal Interval 6 mos Reliability Code: _____
Next Cal due 7 Nov 99 Cal Time 1.5 Repair Time _____
Standards used (Asset#) 5174, 7001

DATE COMPLETED 7 May 99
DATE PICKED UP 5/12/99 PICKED UP BY [Signature]

34373

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

WORK ORDER

WORK ORDER # 36846 ASSET # 002469 DATE 17 Nov. 99

ITEM DATA:

Manufacturer Fisherbrand Model 14-983-106
Description Thermometer Serial # 183303
Accessories _____

ACTION REQUESTED cal

CUSTODIAN Dr. 20, Danell Dunn

Turned in by: _____ Phone 6090

CHARGE # 20-04 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 MAD Date 11-17-99

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) calibrated by procedure

CAL ENVIRONMENT:

Temperature 74 °F Humidity 49 %RH

CALIBRATED/REPAIRED:

By R. K. Hays Cal Procedure CL-9, May 99
Date 19 Nov 99 Accuracy 0.1% span
Cal Interval 6 mos Reliability Code 11
Next Cal Due 19 May 00 Cal Time 2 Repair Time _____
Standards used (Asset #) 5243, 5174

DATE COMPLETED 19 Nov 99

DATE PICKED UP 11/23/99 PICKED UP BY Danell Dunn

36846



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

19 November 1999

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 14-983-10B
Description: THERMOMETER
Serial Number: 183303
Asset Number: 002469

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: 49 % RH

Calibration Date: 19 Nov 99 **Calibration Procedure:** CL-9, MAY99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Jim Patterson, Supervisor or Walt Hill, Metrologist

Certificate # 36846

m:\a2la.rpt Rev date 10 Mar 99

Measurements performed by:

Ken Harp, Technician

Page 1 of 1

WORK ORDER 39222

Date Received 5/25/00

Asset No. 002489 Manufacturer FISHER SCIENTIFIC Model 14-983-10B
Description THERMOMETER Serial Number 183303
Accessory Received/Required NONE
Div/CC ID NONE Accessory to Asset No. N/A
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 CL-9, MAY99 Temp 74 F Hum 47 %
Tech DM Cal Hrs. .7 Repair Hrs. _____ Part Cost _____
Action Taken enL
Standards Used 219 5174
Date Cal JUN 2000 Int. 6 Mo. Date Due DEC 2000 Reliability Code 12
Date Picked Up 6/2/00 Picked Up By Darrell Dunn

39222



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

1 June 2000

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 14-983-10B
Description: THERMOMETER
Serial Number: 183303
Asset Number: 002469

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: 76.0 Degrees Fahrenheit Humidity: 47 % RH

Calibration Date: 1 Jun 00 **Calibration Procedure:** CL-9, MAY99

Condition as Received: In Tolerance

Remarks:

Approved by:

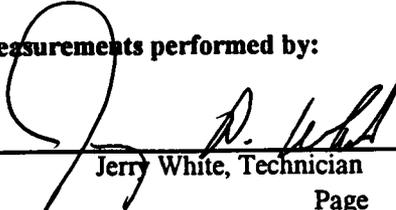


Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 39222

m:\a2la.rpt Rev date 22 May 00

Measurements performed by:



Jerry White, Technician

Page 1 of 1

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Processed by RCRUZ at 3:56:28PM on 12/14/00

1 10000 10000 10000 10000 10000 10000 10000

Work Order 444041760

Arrived 12/14/00

Asset No. 002469

Manufacturer FISHER SCIENTIFIC

Model 14-983-10B

Instrument Type/Class THERMOMETER

Serial No. 183303

Accessory No.

Calibration Procedure CL-9, MAY99

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 _____

WORK NOTES

Date	Hours	Remarks/Notes
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

REPAIR PARTS

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

WORK SUMMARY

Failure Description _____

Repair Action _____

Calibration Procedure _____

Temp 65 F

Hum. 40 %

Tech JW

Totals

Cal Hours 1

Repair Hours _____

Parts Cost _____

Standards Used 219

Date Picked Up 1/4/2001

Picked Up By Darrell Dunn

444041760



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

22 December 2000

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 14-983-10B
Description: THERMOMETER
Serial Number: 183303
Asset Number: 002469

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: 69.0 Degrees Fahrenheit Humidity: 40 % RH

Calibration Date: 21 Dec 00 **Calibration Procedure:** CL-9, MAY99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 444041760

m:\a2la.rpt Rev date 22 May 00

Measurements performed by:

Jerry White, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Processed by RCRUZ at 2:43:41PM on 6/22/01

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

Work Order 444044169

Arrived 6/22/01

Asset No. 002469

Manufacturer FISHER SCIENTIFIC

Model 14-983-10B

Instrument Type/Class THERMOMETER

Serial No. 183303

Accessory No.

Calibration Procedure CL-9, MAY99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel. 6090

Charge/Project No. 00751.006 1.20

Delivered By / Telephone

IN4CAL

Special Instructions _____

WORK NOTES

Date	Hours	Remarks/Notes
<u>6/25</u>	<u>.5</u>	<u>Cal</u>
<u>6/26</u>	<u>.5</u>	<u>Cal</u>

REPAIR PARTS

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description n/a

Repair Action n/a

Calibration Procedure CL-9, 5/99 Temp 75F Hum. 50%

Tech R. O. K. Stn Totals Cal Hours 1.0 Repair Hours _____ Parts Cost _____

Standards Used 0219

Date Picked Up 7/9/01

Picked Up By R. O. K.

44169



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 June 2001

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 14-983-10B
Description: THERMOMETER
Serial Number: 183303
Asset Number: 002469
Work Order Number: 444044169

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: 75.0 Degrees Fahrenheit Humidity: 50 % RH

Calibration Date: 26 Jun 01 **Calibration Procedure:** CL-9, MAY99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Roger Dykstra, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by RCRUZ, 12/6/01 2:25:38PM

Arrived 12/6/01

Work Order **444046373**

Asset No. 002469 Manufacturer FISHER SCIENTIFIC

Model 14-983-10B

Equipment Type THERMOMETER

Serial No. 183303

Accessory No.

Interval 6 M

Calibration Procedure CL-9, MAY99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel 6090

IN4CAL

Special Instructions _____

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

Charge/Project No. 00751.006 1.20

Requester / Telephone _____

This information is correct for the work requested.

WORK NOTES

Date	Hours	Remarks/Notes
<u>12/11</u>	<u>1.0</u>	<u>cal</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Date	Hours	Part Name	Part Number	Failure Description	Cost
<u>n/a</u>	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

WORK SUMMARY

Failure Description n/a

Repair Action n/a

Tech RJK Cal Hrs. 1.0 Repair Hrs _____ Parts Cost _____ Temp 75 F Hum. 32 %

Standards Used 0219

Date Picked Up 12/18/01

Picked Up By Darrell Dunn

444046373



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

Certificate of Calibration

11 December 2001

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 14-983-10B
Description: THERMOMETER
Serial Number: 183303
Asset Number: 002469
Work Order Number: 444046373

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: 75.0 Degrees Fahrenheit Humidity: 32 % RH

Calibration Date: 11 Dec 01 **Calibration Procedure:** CL-9, MAY99

Condition as Received: SEE ATTACHED DATA

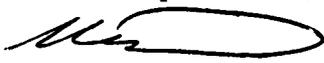
Condition as Returned: SEE ATTACHED DATA

Remarks: SEE ATTACHED DATA SHEET FOR DATA AND UNCERTAINTY.

Approved by:


Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:


Roger Dykstra, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by AANDERSON, 6/6/02 9:11:09AM

Arrived 6/6/02

Work Order **444048914**

Asset No. 002469 Manufacturer FISHER SCIENTIFIC

Model 14-983-10B

Equipment Type THERMOMETER

Serial No. 183303

Accessory No.

Interval 6 M

Calibration Procedure CL-9, MAY99

Location B57

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel 6090

IN LINE

Special Instructions _____

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

Charge/Project No. 00751.006 1.20

Requestor / Telephone DARRELL DUNN

This information is correct for the work requested.

WORK NOTES

Date	Hours	Remarks/Notes
<u>6/10/02</u>	<u>.5</u>	<u>cal</u>
<u>6/11/02</u>	<u>.5</u>	<u>cal</u>

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description _____

Repair Action _____

Tech R Dykstra Cal Hrs. 1.0 Repair Hrs _____ Parts Cost _____ Temp 74 F Hum. 55 %

Standards Used 941A, 5174, 9137, 8920

Date Picked Up 6/24/02

Picked Up By Darrell Dunn

48914



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

Certificate of Calibration

11 June 2002

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: FISHER SCIENTIFIC 14-983-10B
Description: THERMOMETER
Serial Number: 183303
Asset Number: 002469
Work Order Number: 444048914

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: 68.0 Degrees Fahrenheit Humidity: 36 % RH

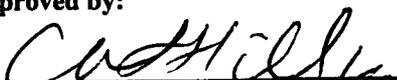
Calibration Date: 11 Jun 02 **Calibration Procedure:** CL-9, MAY99

Condition as Received: SEE ATTACHED DATA

Condition as Returned: SEE ATTACHED DATA

Remarks:

Approved by:


Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Measurements performed by:


Roger Dykstra, Technician

Southwest Research Institute
Calibration Laboratory
Calibration Data Sheet

Workorder 444048914
Asset #. 002469
Serial #. 183303

Mfr. Fisher Scientific
Model 14-983-10B
Type Thermometer

Technician R Dykstra
Procedure CL-9, 5/99
Cal Date 6/10/02

Ambient Conditions:

Temperature 74 Degree F
Humidity 55 % R.H.
Baro. Pressure N/A PSIA

Data sheet Revision:

Revision 0 2/21/02

Standards used:

Asset #	Due Date	Nomenclature
9414.00	12/06/02	H.P. 34420A Digital Multi-Meter
005174	12/06/02	RTD probe
009137	12/10/02	Hart Super Thermometer
008920	12/07/02	RTD probe

Is statement of compliance to a specification requested. Yes
(if statement is required, print yes otherwise leave blank)

Tolerance 1.00 Degree C Range -20 to 110 Degree C
(if not required leave blank)

Degree C	Degree C	Degree C	Degree C	Degree C		
Std Reading	As Found	TI Reading	Error	Test Limits	Uncertainty	Results
-19.84	-19.4		0.44	1	0.35	Pass
12.13	12.2		0.07	1	0.35	Pass
44.23	44.0		-0.23	1	0.35	Pass
75.97	76.4		0.43	1	0.35	Pass
108.94	110.0		1.06	1	0.35	

Remarks:

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, which provides a level of confidence of approximately 95%.

If compliance testing to a specification is requested. The results can be pass, fail, or if blank "Not determinable". If results are not determinable it is to end user to determine if results meet their needs.

If compliance testing to a specification is not requested, only data and uncertainty will be given on data sheet.