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

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION

Issued to: DIV20 B57 NARASI SRIDHAR Device No: 2291

Manufacturer: ABB Model: SE 120

Nomenclature: PLOTTER

Serial Number: 0049616 SwRI No: NONE

Remarks

Accuracy: MFGR Procedure: MFGR

ENVIRONMENT

Temperature: 72 Humidity: 39 Location: ROOM A11 B68 SWRI

CONCLUSION

Tolerance/Remarks: Received into the system, introduced or reactivated

Calibration was in accord 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.

Signed _____

Calibration Date: 04/05/93

Record Number: 00010992 Next Calibration Due: 04/05/94

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

Department of Quality Assurance
Calibration Laboratory

Device Serial No: 0049616 Calibration Date: 04/05/93

STANDARDS

Standard No: 132 Manufacturer: JOHN FLUKE Model: 5100B
Nomenclature: CALIBRATOR
Serial No: 2730017 Cal.Due: 04/08/93 Cal.Rec.No: 00009975

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

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION

Issued to: DIV20 B57 NARASI SRIDHAR Device No: 2291

Manufacturer: ABB Model: SE 120

Nomenclature: PLOTTER

Serial Number: 0049616 SwRI No: NONE Cal interval 12 Mo.

Remarks
*Accuracy: .5% of input

Accuracy: * Procedure: MFGR

ENVIRONMENT

Temperature: 74 Humidity: 45 Location: ROOM A11 B68 SWRI

CONCLUSION

Tolerance/Remarks: Received in tolerance, no adjustments made

Calibration was in accord 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.

Signed _____

Calibration Date: 04/05/94

Cal interval: 12 Months

Record Number: 00013772 Next Calibration Due: 04/05/95

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

Department of Quality Assurance
Calibration Laboratory

Device Serial No: 0049616 Calibration Date: 04/05/94

STANDARDS

Standard No: 168 Manufacturer: JOHN FLUKE Model: 335A
Nomenclature: DC VOLTAGE STANDARD/DIFFERENTIAL VOLTMETER/NULL DET.
Serial No: 775024 Cal.Due: 04/19/94 Cal.Rec.No: 00012453

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
05/02/95

Issued to: DARRELL DUNN DIV20 ,B57
Manufacturer: ABB
Nomenclature: PLOTTER
Serial Number: 0049616

Asset Number: 002291
Model Number: SE 120
SwRI/Div. I.D. #:

ENVIRONMENTAL CONDITIONS

Temperature: 74.0F

Relative Humidity: 43%

CALIBRATION INFORMATION

Procedure Number: MFGR
Remarks:

Accuracy: MFGR SPECS
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
000132	2730017	FLUKE	5100B	CALIBRATOR	11/16/94	6	05/16/95
003237	4193001	EXTEC	DL-SW230	STOP WATCH	01/19/95	6	07/19/95

Certified by : Arthur P Carson

Calibration Date: 05/02/95
Interval: 12 months
Next Calibration Due: 05/02/96

Certificate#: 17111

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

Certificate of Calibration

23 May 1996

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: ABB SE 120
Description: PLOTTER
Serial Number: 0049616
Asset Number: 002291

Environmental Conditions

Temperature: 76.0 **Humidity:** 42%

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: 23 May 96 **Calibration Procedure:** 330006703

Interval: 12 months **Accuracy:** MFGR SPECS

Next Calibration Due: 23 May 97 **Received:** In Tolerance

Remarks:

Certificate # 21222 **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

2 June 1997

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: ABB SE 120
Description: PLOTTER
Serial Number: 0049616
Asset Number: 002291

Environmental Conditions

Temperature: 77.0 Deg. F **Humidity:** 49%

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: 2 Jun 97 **Calibration Procedure:** 300.0067.03

Interval: 12 months **Accuracy:** MFG SPECS

Next Calibration Due: 2 Jun 98 **Received:** In Tolerance

Remarks:

Standards Used

Asset	MFR	Model	Description	Serial No.	Due Cal
000168	FLUKE	335A	DC VOLTAGE STANDARD/D	775024	4 Aug 97

Certificate # 25530

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 of Calibration

5 June 1998

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: ABB SE 120
Description: PLOTTER
Serial Number: 0049616
Asset Number: 002291

Environmental Conditions

Temperature: 73.00 Deg. F **Humidity:** 48 % RH

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.

The uncertainty of the calibration was sufficient to determine that the instrument met the manufacturer's specifications.

Calibration Date: 5 Jun 98 **Calibration Procedure:** MFGR MANUAL

Interval: 12 months

Next Calibration Due: 5 Jun 99 **Received:** In Tolerance

Remarks:

Standards Used

Asset	MFR	Model	Description	Serial No.	Due Cal
000168	FLUKE	335A	DC VOLTAGE STANDARD/DIFFE	775024	23 Oct 98

Signed: _____

Title: Staff Tech

LAST PAGE OF REPORT
Total Pages Printed: 1

Certificate # 29977

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

15 June 1999

Issued to:	DARRELL DUNN DIV20 B57
Manufacturer/Model:	ABBEON SE 120
Description:	PLOTTER
Serial Number:	0049616
Asset Number:	002291

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: 75.0 Degrees Fahrenheit Humidity: 42 % RH

Calibration Date: 15 Jun 99 **Calibration Procedure:** CL-75, JUNE 99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Jim Patterson, Supervisor or Walt Hill, Metrologist

Measurements performed by:

Tony Planas, Technician

Certificate # 34810

m:\a2la.rpt Rev date 10 Mar 99

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

4 September 2001

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: ABBEON SE 120
Description: STRIP CHART RECORDER
Serial Number: 0049616
Asset Number: 002291
Work Order Number: 444044940

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: 72.0 Degrees Fahrenheit Humidity: 42 % RH

Calibration Date: 4 Sep 01 **Calibration Procedure:** CL-75 6/99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Tony Planas, Technician

m:\a2la.rpt Rev date 8 Jan 01

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:**	444050124
Address:	B57	**Date Issued:**	Sep 6, 2002
Contact:	DARRELL DUNN	**Calibration Date:**	Sep 6, 2002
Manufacturer Model:	ABBEON SE 120	****Calibration Due:**	Sep 6, 2003
Description:	STRIP CHART RECORDER	**Calibration Location:**	N/A
Serial No:	0049616	**Environment:**	Temp. 72.0°F Hum. 40 %RH
Asset No:	002291	***As Found:**	IN TOLERANCE
Procedure:	CL-75 6/99	***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
004164	FLUKE	5500A/SC300	CALIBRATOR	Jul 25, 03

Approved by: Walt Hill
Metrology Group Leader

Measurements by: Tony Planas
Metrology Technician

Southwest Research Institute
Calibration laboratory
Calibration Sheet.

Work Order:	444050124	Mfr.	Abb	Technician	Tplanas
Asset No.	2291	Model	SE120	Procedure	CL-75 06/99
Serial No.	0049616	Type.	Chart Recorder	Cal Date.	6 Sept. 02

Remarks:

Function/Range	Test Point	TI Reading	Difference	Test Limits+/-	Uncertainty	Found/Left
DCV Ch 1	mVolts	mVolts	mVolts	mVolts	mVolts	Results
1 mV	1.000	0.996	-0.004	0.010	2.7:1	Pass
2 mV	2.000	2.010	0.010	0.010	2.7:1	Pass
5 mV	5.000	4.987	-0.013	0.025	2.5:1	Pass
10 mV	10.00	9.98	-0.02	0.05	>4:1	Pass
20 mV	20.00	19.96	-0.04	0.10	>4:1	Pass
50 mV	50.00	49.85	-0.15	0.25	>4:1	Pass
100 mV	100.0	99.9	-0.1	0.5	>4:1	Pass
	50.0	49.9	-0.1	0.3	>4:1	Pass
	25.00	24.94	-0.06	0.13	>4:1	Pass
DCV	Volts	Volts	Volts	Volts	Volts	Results
1 V	1.000	0.997	-0.003	0.005	>4:1	Pass
2 V	2.000	1.999	-0.001	0.010	>4:1	Pass
5 V	5.000	5.003	0.003	0.025	>4:1	Pass
10 V	10.00	9.98	-0.02	0.05	>4:1	Pass
20 V	20.00	19.94	-0.06	0.10	>4:1	Pass
50 V	50.00	50.00	0.00	0.25	>4:1	Pass
100 V	100.00	99.89	-0.11	0.50	>4:1	Pass
200 V	200.0	199.4	-0.6	1.0	>4:1	Pass

Function/Range	Test Point	TI Reading	Difference	Test Limits+/-	Uncertainty	
DCV Ch 2	mVolts	mVolts	mVolts	mVolts	mVolts	Results
1 mV	1.000	0.999	-0.001	0.010	2.7:1	Pass
2 mV	2.000	1.990	-0.010	0.010	2.7:1	Pass
5 mV	5.000	4.985	-0.015	0.025	2.5:1	Pass
10 mV	10.00	9.98	-0.02	0.05	>4:1	Pass
20 mV	20.00	19.93	-0.07	0.10	>4:1	Pass
50 mV	50.00	50.00	0.00	0.25	>4:1	Pass
100 mV	100.0	99.8	-0.2	0.5	>4:1	Pass
	50.0	49.9	-0.1	0.3	>4:1	Pass
	25.00	24.88	-0.12	0.13	>4:1	Pass
DCV	Volts	Volts	Volts	Volts	Volts	Results
1 V	1.000	0.997	-0.003	0.005	>4:1	Pass
2 V	2.000	1.993	-0.007	0.010	>4:1	Pass
5 V	5.000	4.983	-0.017	0.025	>4:1	Pass
10 V	10.00	9.97	-0.03	0.05	>4:1	Pass
20 V	20.00	19.95	-0.05	0.10	>4:1	Pass
50 V	50.00	50.00	0.00	0.25	>4:1	Pass
100 V	100.00	99.90	-0.10	0.50	>4:1	Pass
200 V	200.0	199.6	-0.4	1.0	>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	**Work Order:**	444055347
Address:	B57	**Date Issued:**	Sep 17, 2003
Contact:	DARRELL DUNN	**Calibration Date:**	Sep 16, 2003
Manufacturer Model:	ABBEON SE 120	****Calibration Due:**	Sep 16, 2004
Description:	STRIP CHART RECORDER	**Calibration Location:**	Bldg. 64
Serial No:	0049616	**Environment:**	Temp. 72.0°F Hum. 38 %RH
Asset No:	002291	***As Found:**	IN TOLERANCE
Procedure:	CL-75, 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
006413	FLUKE	5520A/SC1100	MULTI-PRODUCT CALIBRATOR	Jan 17, 04

Approved by: Walt Hill
Metrology Group Leader

Measurements by: Vince Morales
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Calibration Report

Work Order:	444055347	Mfr.	ABB	Technician	Vmorales
Asset No.	2291	Model	SE120	Procedure	
Serial No.	0049616	Type.	Chart Recorder	Cal Date.	16-Sep-03
Remarks:					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left
DCV Ch 1	mVolts	mVolts	mVolts	mVolts	mVolts	Result
1 mV	1.000	0.997	-0.003	0.010	0.58	Pass
2 mV	2.000	1.997	-0.003	0.010	0.58	Pass
5 mV	5.000	4.985	-0.015	0.025	0.58	Pass
10 mV	10.00	9.97	-0.03	0.05	0.58	Pass
20 mV	20.00	19.93	-0.07	0.10	0.58	Pass
50 mV	50.00	49.81	-0.19	0.25	0.58	Pass
100 mV	100.0	99.7	-0.3	0.5	0.58	Pass
	50.0	49.8	-0.2	0.3	0.58	Pass
	25.0	24.9	-0.1	0.1	0.58	Pass
DCV	Volts	Volts	Volts	Volts	Volts	
1 V	1.000	0.997	-0.003	0.005	0.58	Pass
2 V	2.000	1.994	-0.006	0.010	0.58	Pass
5 V	5.000	4.985	-0.015	0.025	0.58	Pass
10 V	10.00	9.97	-0.03	0.05	0.58	Pass
20 V	20.00	19.96	-0.04	0.10	0.58	Pass
50 V	50.00	49.88	-0.12	0.25	0.58	Pass
100 V	100.0	99.7	-0.3	0.5	0.58	Pass
200 V	200.0	199.6	-0.4	1.0	0.58	Pass
DCV Ch 2	mVolts	mVolts	mVolts	mVolts	mVolts	
1 mV	1.000	0.998	-0.002	0.010	0.58	Pass
2 mV	2.000	1.995	-0.005	0.010	0.58	Pass
5 mV	5.000	4.985	-0.015	0.025	0.58	Pass
10 mV	10.00	9.97	-0.03	0.05	0.58	Pass
20 mV	20.00	19.95	-0.05	0.10	0.58	Pass
50 mV	50.00	49.89	-0.11	0.25	0.58	Pass
100 mV	100.0	99.8	-0.2	0.5	0.58	Pass
	50.0	49.9	-0.1	0.3	0.58	Pass
	25.00	24.97	-0.03	0.13	0.58	Pass
DCV	Volts	Volts	Volts	Volts	Volts	
1 V	1.000	1.000	0.000	0.005	0.58	Pass
2 V	2.000	1.996	-0.004	0.010	0.58	Pass
5 V	5.000	4.988	-0.012	0.025	0.58	Pass
10 V	10.00	9.98	-0.02	0.05	0.58	Pass
20 V	20.00	19.95	-0.05	0.10	0.58	Pass
50 V	50.00	49.90	-0.10	0.25	0.58	Pass
100 V	100.00	99.95	-0.05	0.50	0.58	Pass
200 V	200.0	199.5	-0.5	1.0	0.58	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:**	444061100
Address:	B57	**Date Issued:**	Oct 18, 2004
Contact:	DARRELL DUNN	**Calibration Date:**	Oct 18, 2004
Manufacturer Model:	ABBEON SE 120	****Calibration Due:**	Oct 18, 2005
Description:	STRIP CHART RECORDER	**Calibration Location:**	Bldg. 64
Serial No:	0049616	**Environment:**	Temp. 73.0°F Hum. 40 %RH
Asset No:	002291	***As Found:**	IN TOLERANCE
Procedure:	CL-75, 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. 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
004164	FLUKE	5500A/SC300	CALIBRATOR	Aug 03, 05

Approved by: Walt Hill
Metrology Group Leader

Measurements by: Scott Kester
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	444061100	Mfr.	ABB	Technician	SRK
Asset No.	002291	Model	SE120	Procedure	
Serial No.	0049616	Type.	Chart Recorder	Cal Date.	18-Oct-04
Remarks:					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left
DCV Ch 1	mVolts	mVolts	mVolts	mVolts	mVolts	Result
1 mV	1.000	1.000	0.000	0.010	0.58	Pass
2 mV	2.000	2.000	0.000	0.010	0.58	Pass
5 mV	5.000	5.025	0.025	0.025	0.58	Pass
10 mV	10.00	10.05	0.05	0.05	0.58	Pass
20 mV	20.00	20.10	0.10	0.10	0.58	Pass
50 mV	50.00	50.13	0.13	0.25	0.58	Pass
100 mV	100.0	100.3	0.3	0.5	0.58	Pass
200 mV	200.0	200.0	0.0	1.0	0.58	Pass
500 mV	500.0	500.0	0.0	2.5	0.58	Pass
DCV	Volts	Volts	Volts	Volts	Volts	
1 V	1.000	1.003	0.003	0.005	0.58	Pass
2 V	2.000	2.005	0.005	0.010	0.58	Pass
5 V	5.000	5.025	0.025	0.025	0.58	Pass
10 V	10.00	10.05	0.05	0.05	0.58	Pass
20 V	20.00	20.05	0.05	0.10	0.58	Pass
50 V	50.00	50.00	0.00	0.25	0.58	Pass
100 V	100.0	100.0	0.0	0.5	0.58	Pass
200 V	200.0	200.0	0.0	1.0	0.58	Pass
DCV Ch 2	mVolts	mVolts	mVolts	mVolts	mVolts	
1 mV	1.000	1.000	0.000	0.010	0.58	Pass
2 mV	2.000	2.000	0.000	0.010	0.58	Pass
5 mV	5.000	5.000	0.000	0.025	0.58	Pass
10 mV	10.00	10.00	0.00	0.05	0.58	Pass
20 mV	20.00	20.00	0.00	0.10	0.58	Pass
50 mV	50.00	50.00	0.00	0.25	0.58	Pass
100 mV	100.0	100.0	0.0	0.5	0.58	Pass
200 mV	200.0	200.0	0.0	1.0	0.58	Pass
500 mV	500.00	500.00	0.00	2.50	0.58	Pass
DCV	Volts	Volts	Volts	Volts	Volts	
1 V	1.000	0.998	-0.002	0.005	0.58	Pass
2 V	2.000	1.995	-0.005	0.010	0.58	Pass
5 V	5.000	5.000	0.000	0.025	0.58	Pass
10 V	10.00	10.00	0.00	0.05	0.58	Pass
20 V	20.00	20.00	0.00	0.10	0.58	Pass
50 V	50.00	49.75	-0.25	0.25	0.58	Pass
100 V	100.00	99.75	-0.25	0.50	0.58	Pass
200 V	200.0	199.5	-0.5	1.0	0.58	Pass

END OF REPORT