

**SOUTHWEST RESEARCH INSTITUTE
CALIBRATION LABORATORY
MEMORANDUM**

July 1, 2003

To: DARRELL DUNN DIV20 B57

From: Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Subject: Status of Calibration Supplier

Manufacturer/Model: QUADTECH 7600

Description: LCR METER

Serial Number: 3164285

Asset Number: 010232

Work Order Number: 444054017

Date Calibrated: June 21, 2003

Supplier: HAYES INSTRUMENTS, BILLERICA MA - 978 663-4800

Remarks: Hyes Instruments Calibration Certificate

☒ Supplier is on the Approved Suppliers List (ASL).

☐ Supplier is not on the Approved Suppliers List.

☐ Calibration is ISO 17025 accredited.

☒ Calibration is not ISO 17025 accredited.

☐ There is no known supplier to meet ISO 17025 accreditation at this time.

Please notify the Institute Calibration Laboratory, extension 5215, of any discrepancies with the item or calibration documentation.

Attachment(s) 2

ISO CERTIFIED



Certificate Of Calibration

Submitted by: SOUTHWEST RESEARCH INSTITUTE
Calibration Date: JUNE 21, 2003
Manufacturer: QUADTECH/GR
Model: 7600
Description: PRECISION RLC METER
Serial Number: 3164285
Property Number:

The above unit was calibrated in accordance with purchase order requirements on the date noted above and was performing in accordance with the manufacturer's specifications at the time of release from this laboratory. This certification was performed using standards maintained by this laboratory, which are periodically certified traceable to the National Institute of Standards and Technology. The cycling and certification of all standards of measurement used by Hayes Instrument service meet the requirements of ISO-9001:2000, MIL-STD-45662A, ISO-10012:1992 and ANSI/NCSL Z540-1-1994. The calibration standards used have an uncertainty error of no more than 1/4 of the tolerance of the equipment being calibrated, or have an accuracy that ensures the equipment being calibrated will be within required tolerances. (Accomplished under quality system manual, QM-100 dated 09/30/02 Rev. C 2002)

STANDARD	N.I.S.T	CERT#
DC Voltage	VIA JOSEPHSON ARRAY	
AC Voltage		264373
Resistance		264806
Frequency	VLF Transmission	
	ON WWVB & LORAN C	
Mass		256080
Dimensional		263310

Authorized Signature

Temperature & Humidity
72° °F 45% ± 15% R.H.

Received in tol ✓ out tol
Returned in tol ✓ out tol

5487

101 11/02

Hayes Instrument Service, Inc.

W.O. NO. 353188

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SUBMITTED BY Southwest Research CALIBRATION DATE 6-21-03
 MANUFACTURER QUADTECH DUE DATE 6-21-04
 MODEL NO. 7600 CALIBRATION ENGINEER 101
 DESCRIPTION PRECISION RLC METER CAL. PROCEDURE MFG MANUAL
 SERIAL NO. 3164285 PROPERTY NO. _____

H.I.S. REF# 775, 716, 471, 1079, 1281

TEMP & HUMIDITY

72° 50%

APPROVED BY M.T.

CALIBRATION RECORD

FUNCTION TESTED	RANGE	STANDARD VALUE	ACTUAL MEAS. VALUE	AFTER ADJUST MEAS. VALUE	TOLERANCE
SELF TEST		CHECK	PASS	NO ADJ	PASS TEST
TEST FREQUENCY		PASS	PASS		PASS TEST
TEST LEVEL		PASS	PASS		PASS TEST
INDUCTANCE		100.00uH	100.01		99.90 - 100.10
		1.0000mH	1.0002		.9990 - 1.0010
		10.000mH	10.001		9.990 - 10.010
		100.00mH	100.00		99.90 - 100.10
		1.0000H	1.0000		.9990 - 1.0010
		10.000H	10.001		9.990 - 10.010
"Q"		CHECK	PASS		PASS TEST
CAPACITANCE		100.00pF	100.02		99.90 - 100.10
		1.0000nF	1.0000		.9990 - 1.0010
		1.0000uF	1.0000		.9990 - 1.0010
		10.000uF	9.999		9.990 - 10.010
		100.00uF	99.98		99.90 - 100.10
DISSIPATION		CHECK	PASS		PASS TEST
RESISTANCE		100.00Ω	100.01		99.80 - 100.20
		10.000KΩ	10.000		9.980 - 10.020
		1.0000MΩ	1.0004		.9980 - 1.0020
H.I.S. REFERENCE STANDARDS				CAL DATE	CYCLE
GR	STANDARD CAPACITORS	1409	SERIES	6-03	12 MO
GR	STANDARD INDUCTORS	1482	SERIES	5-03	6 MO
ESI	STANDARD RESISTOR	SR1	SERIES	2-03	6 MO
HP	DIGITAL MULTIMETER	3458A	2823A14064	6-03	6 MO
GR	STANDARD CAPACITORS	1403	SERIES	10-02	12 MO

