

## TEST EQUIPMENT

### List of Measuring Equipment

ARA model ALA-130/RS Calibrated Loop Antenna  
Agilent Technologies model E7402A Spectrum Analyzer  
Electro-Metrics Model EM-6917 Biconical Log Periodic Antenna

### Calibration

Certificates of calibration are included for the listed measuring equipment.


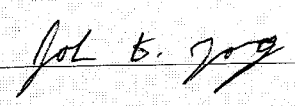
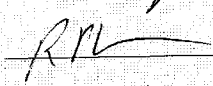

		<b>11317 Frederick Avenue Beltsville, MD 20705-2088</b> <b>Phone: (301) 937-9381 • Fax: (301) 937-2796</b> <b>http://www.aratech-inc.com • emc@aratech-inc.com</b>	
<b>CERTIFICATE OF CALIBRATION</b>			
<b>Antenna Research Associates, Inc.</b> 11317 Frederick Avenue Beltsville, MD 20705 Ph: 301-937-8888 Fa: 301-937-2796		<b>Customer:</b> <b>Southwest Microwave</b> 9055 South McKemy Street Tempe AZ 85282-2946 Attention: Jim Cheal	
<b>OWNER:</b>	Southwest Microwave	<b>JOB NUMBER:</b>	803-040
<b>MANUFACTURER:</b>	Antenna Research Assoc, Inc.	<b>PO NUMBER:</b>	26346
<b>MODEL NUMBER:</b>	ALA-130/RS	<b>PROCEDURE NUMBER:</b>	Q.A.140810
<b>DESCRIPTION:</b>	Active Loop Antenna	<b>REPORT NUMBER:</b>	01150304
<b>SERIAL NUMBER:</b>	1040	<b>CONTROL NUMBER:</b>	
<b>ASSET NUMBER:</b>			
<b>Calibration Performed In Accordance With:</b>		ANSI / NCSL Z540-1 1994	
<b>Reports Sent With Certificate of Calibration:</b>		Antenna Factor	
<b>Out Of Tolerance Conditions:</b>		None	
<b>Calibration Equipment Used:</b>		TE-405, TE-109	
<b>NIST Traceability</b>		811791	
<b>Date Of Calibration:</b>	January 15, 2003	<b>Temperature:</b>	70° F
<b>Calibration Due Date:</b>	January 15, 2004	<b>Humidity:</b>	70% rH
<b>Calibrated By:</b> 			
<b>Certified By:</b> 		<b>Date:</b> 1-15-03	
Calibrations of reference standards and instrumentation that have been used in obtaining results, are traceable to the National Institute of Standards and Technology (NIST) or other nationally accepted measuring systems. This			

Fig 1

 <b>Agilent Technologies</b>	EPSG Support Operation 10090 Foothills Blvd. Roseville, CA. 95747 (800) 403-0801	AGILENT TECHNOLOGIES INTERNAL ASSESSMENT PROGRAM : TMO-Q-07/95
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**Certificate of Calibration**  
**Standard Calibration**  
**Certificate No: 1-9759327-1**

<b>Manufacturer:</b> Agilent/HP <b>Model No:</b> E7402A <b>Serial No:</b> US40240233 <b>Customer:</b>	<b>Description:</b> EMC analyzer 9 KHz to 3.0 GHz <b>Options installed:</b> <b>Customer asset No:</b> <b>Location of calibration:</b> EPSG Support Operation 10090 Foothills Blvd. Roseville, CA. 95747 (800) 403-0801
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<b>Customer PO No.:</b> <b>Date of calibration:</b> 28 Feb 2003 <b>Temperature:</b> 18-28 °C <b>Procedure:</b> STE-5011-4192-A.00.04	<b>Agreement No:</b> <b>Received date:</b> 27 Feb 2003 <b>Humidity:</b> 20-80 %RH
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This certifies that the above product was calibrated in compliance with a quality system compliant to ISO9002:1994 using applicable Agilent Technologies procedures.

**As received conditions:**

Initial testing found the equipment to be **IN-SPECIFICATION** at the points tested.

**As shipped conditions:**

At the completion of the calibration, measured values were **IN-SPECIFICATION** at the points tested.

**Remarks or special requirements:**

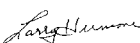
Our calibration procedures are designed to provide measurement uncertainty of less than or equal to one quarter of the specification of the unit under test, where possible, with a coverage factor of 2.

The test limits stated in the report correspond to the published specifications of the equipment, at the points tested.

This certificate is composed of 2 pages containing a summary of calibration information.

Based on the recommended calibration interval, the next calibration is due on 28 Feb 2004.

Print Date: 28 Feb 2003

  
 Larry Hermone Operations Manager

**Fig 2**

