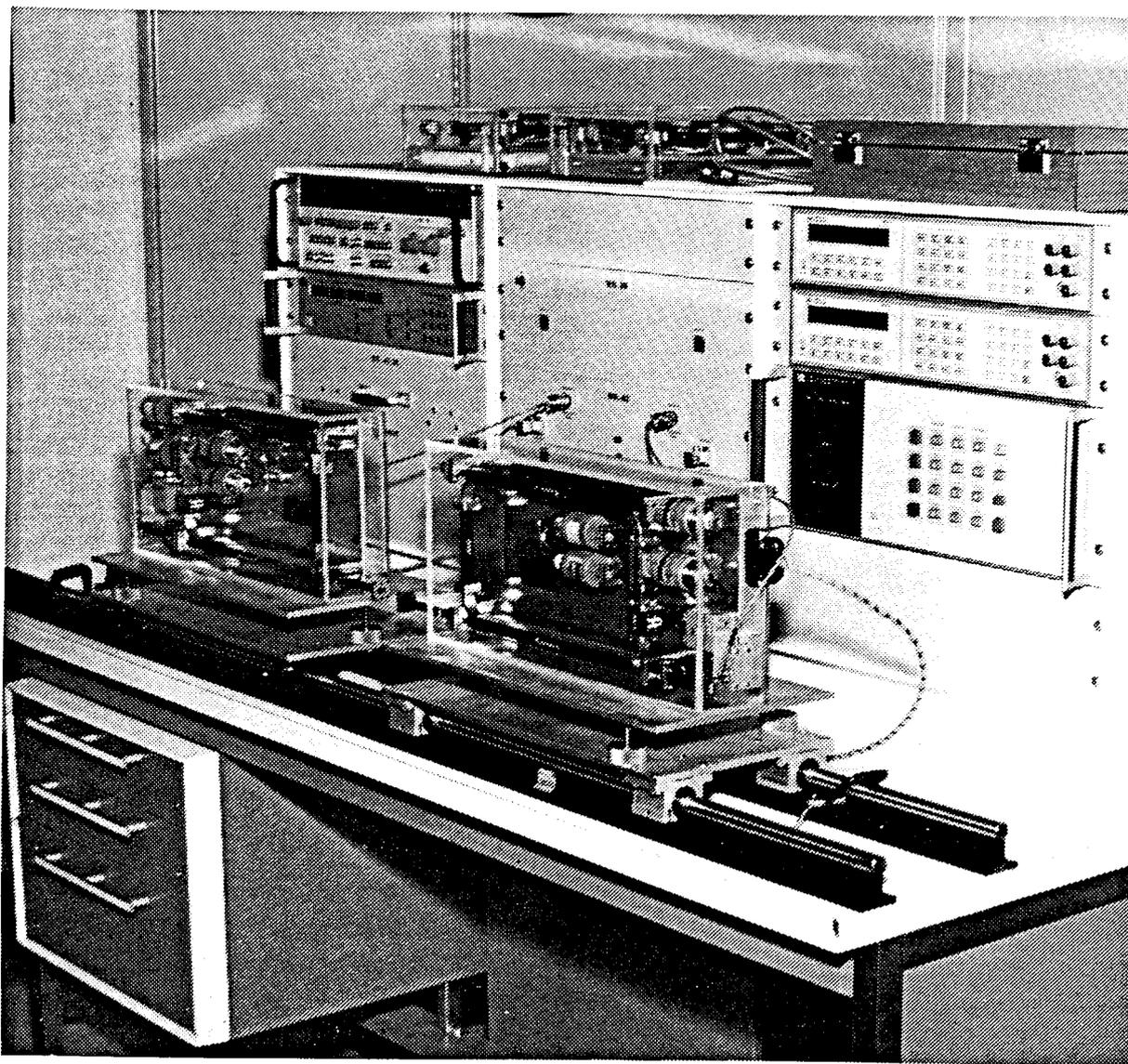




# METROLOGY bulletin

Measurement Science Directorate, Naval Warfare Assessment Center, Corona, CA

January 1992



WR-42/28 6 Port Automatic Network Analyzer  
(Article on Page 4)

PUBLISHED BY AUTHORITY OF THE COMMANDER, NAVAL SEA SYSTEMS COMMAND

## 1. NAVY CALIBRATION INFORMATION

### 1.1 WR-42/28 6 Port Automatic Network Analyzer

*Jim Wheeler (NPSL)*

Pictured on the Cover is the WR-42/28 6 port Automatic Network Analyzer (ANA) showing WR-42 (18-26.5 GHz) heads in position with WR-28 (26.5-40 GHz) heads on top of cabinet.

On November 18, 1991, the National Institute of Standards and Technology (NIST) delivered a new microwave WR-42/28 6 Port Automatic Network Analyzer to the Navy Primary Standards Lab (NPSL) located at the Naval Aviation Depot, North Island. The 6 Port ANA is capable of making 1 port and 2 port ~~attenuation~~ attenuation, impedance, phase, and power measurements over the frequency range of 18 to 40 GHz using 2 sets of six port heads, 1 set for WR-42 (K-band) waveguide and 1 set for WR-28 (R band) waveguide. The 6 port ANA replaces 2 tuned modified reflectometers in use since the 1960s.

NPSL will continue to use NIST traceable thermistor mounts at 19.8, 22, and 23.8 GHz for WR-42 and 29, 33, and 37 GHz for WR-28 waveguide power measurements of effective efficiency and calibration factor. If there are requirements for calibrations at 1 GHz steps (i.e. 18, 20, 20...26 GHz), a power standard will be submitted to NIST for calibration and that service will be made available to the customer.

Calibrations at the Navy Primary Standards Lab are now available at 1 GHz steps for attenuation, impedance and phase for WR-28 and WR-42.

NPSL is acquiring capability from NIST to provide service for 3.5 mm and 2.4 mm connector microwave calibration components in support of CASS and other future calibration requirements. This service should be available in FY 93.

For further information or assistance contact Jim Wheeler, Electromagnetics Division, at AV 735-9705 or COMM (619) 545-9705.

## 2. GENERAL INFORMATION

### 2.1 New Mailing Address for Measurement Science Directorate

**REMINDER:** For First Class Mail and U.S. Express Mail, which is sent via the U.S. Post Office, please use the following mailing address:

Measurement Science Directorate (MS-XX)  
Naval Warfare Assessment Center  
P.O. Box 5000, Corona, CA 91718-5000

### 2.2 NIST Handbook 44-1991 *NIST Update (25 Nov 91)*

NIST Handbook 44-1991, Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices, now contains a Tentative Code for Mass Flow Meters that established tolerances for measuring the mass of liquids or vapors. When the tentative code is adopted by NCWM as a full code, requirements for mass flow meters that appear in other codes will be deleted. The Hydrocarbon Gas Vapor-Measuring Devices Code also was revised to recognize devices that measure compressed natural gas when sold as a motor fuel.

Copies of the handbooks are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Order Handbook 130-1992 by stock no. 003-003-03105-4, \$11 prepaid.

### 2.3 Correction to item 1.4 of the June 1991 METBUL

Point of Contact for Article 1.4 should be Regina Carreon, Code MS-34I, AV 933-4421 or commercial (714) 273-4421.