

CONFERENCE *Briefs*

THERMAL CONDUCTIVITY CONFERENCE TO MEET AT BUREAU

On November 13 to 15 NBS will host the Seventh Conference on Thermal Conductivity at its new facilities in Gaithersburg, Md. This Conference is expected to provide a well-rounded discussion of the major areas of thermal conductivity. Papers contributed both from this country and abroad will cover a large volume of new material of general interest.

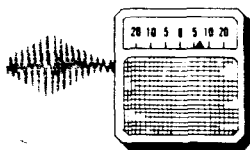
Participants will discuss such topics as new and improved experimental techniques in the field and methods of measuring thermal conductivity.

Progress in these areas is especially important for studying extremely high and low temperatures, as those encountered in the re-entry of missiles. The program also will include a survey of the developments in the theory of heat conduction; papers on heat conduction in the gas, liquid, and solid states; and new data on potential standard reference materials.

SYMPOSIUM ON MASS TRANSPORT IN OXIDES

NBS and the Advanced Research Projects Agency will sponsor a Symposium on Mass Transport in Oxides at the Bureau site in Gaithersburg,

Md., from October 22 through 25. Invited papers will include such topics as: (1) a review of mass transport in model systems; (2) theory of energetics of simple defects in oxides; (3) diffusion and ionic conductivity: (a) kinetics of defect motion, (b) interdiffusion and chemical effects; (4) diffusion in oxides; and (5) purity and perfection of research specimens of oxides. Proceedings of the Symposium will be published by the National Bureau of Standards and copies may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.



STANDARDS AND CALIBRATION

ATTENUATION CALIBRATION SERVICE IN WR430 WAVEGUIDE (1.70–2.60 GHz)

The NBS Radio Standards Laboratory at Boulder, Colo., announces an extension of microwave attenuation calibration service to include WR430 waveguide (1.70–2.60 GHz). The service includes attenuation difference measurements on variable attenuators and insertion loss measurement on two-port fixed attenuators. Although calibrations can be performed throughout the recommended frequency range of WR430 waveguide, some degree of economy to the customer often results if calibrations are performed at the selected frequencies of 1.8, 2.2, and 2.5 GHz.¹

The present calibration service can perform attenuation-difference and insertion-loss measurements to a maximum value of 40 dB. The maximum value of attenuation measurement will be increased when further developments have been completed.

The calibration limits of uncertainty will be reported as ± 0.1 dB or ± 1 percent of attenuation difference in decibels, whichever is greater for variable waveguide attenu-

ators, and ± 0.2 dB or ± 1 percent of insertion loss in decibels, whichever is greater for fixed waveguide attenuators.

Variable waveguide attenuators submitted for calibration should have a repeatability of the dial setting better than ± 0.1 dB. Both variable and fixed waveguide attenuators submitted for calibration should have a VSWR less than 1.1 at each waveguide port.

STANDARD FREQUENCY AND TIME BROADCASTS

WWV—2.5, 5.0, 10.0, 15.0, 20.0, and 25.0 MHz
WWVH—2.5, 5.0, 10.0, and 15.0 MHz
WWVB—60 kHz

Radio stations WWV (Fort Collins, Colo.) and WWVH (Maui, Hawaii) broadcast signals that are kept in close agreement with the UT2 scale by making step adjustments of 100 ms as necessary. Each pulse indicates that the earth has rotated approximately 15 arcseconds about its axis since the previous one. Adjustments are made at 0000 UT on the first day of a month. *There will be no adjustment*

made on 1 November 1967. The pulses occur at intervals that are longer than one second by 300 parts in 10^{10} due to an offset in carrier frequency coordinated by the Bureau International de l'Heure (BIH), Paris, France.

Radio station WWVB (Fort Collins, Colo.) broadcasts seconds pulses derived from the NBS Time Standard (NBS-III) with no offset. Step adjustments of 200 ms are made at 0000 UT on the first day of a month when necessary. BIH announces when such adjustments should be made in the scale to maintain the seconds pulses within about 100 ms of UT2. *There will be no adjustment made on 1 November 1967.*

WWVH RADIATION PATTERN MODIFIED

In order to improve reception in the Pacific and Far East of signals from standard-frequency station WWVH at Maui, Hawaii, the radiation patterns at 5, 10, and 15 MHz have been modified by installing parasitic reflectors on the existing antennas. The change required several days and was completed at 1500 hours Hawaiian Standard Time on July 20, 1967. (No change has been made on the 2.5-MHz radiation pattern which remains omnidirectional.) WWVH is operated by the National Bureau of Standards.

The design and locations of the reflectors are such as to transmit a maximum of radiation in the direction of Manila with an effective gain of approximately 3 dB, and to give no degradation of the radiation intensities in the directions of Alaska and New Zealand. However, there has been a decrease of about 6 dB in the direction of the main continental portion of the United States of America.

UTC CLOCK COORDINATION

For the past several months comparisons of the coordinated universal time (UTC) clocks at the U.S. Naval Observatory (USNO) and at NBS (presently known as NBS-UA) have shown a systematic offset in rate of approximately 1.3 parts in 10^{12} . With the intention to improve the synchronization of these two clocks and to maintain their synchronization, the NBS clock was advanced 200 microseconds at 0000 UT on 20 September 1967. Consequently, the phases of the time signals from NBS stations WWV, WWVH, and WWVL were advanced 200 microseconds at the same time. The effect of this reset in epoch was to make the transmitted epochs of time signals from these NBS stations about 30 microseconds early relative to the UTC clock at USNO on the date of adjustment. Because of the offset in rates, the indicated times of the UTC clocks of the two agencies will gradually approach each other. Coincidence in epoch is expected around the middle of 1968, at which time appropriate steps will be taken to ensure continued close agreement.

Following the reset in epoch the NBS clock controlling the time signals emitted from these stations will be referred to as UTC(NBS). Similarly, the corresponding clock at the Naval Observatory will be designated UTC(USNO).

¹ In performing microwave calibrations, a considerable amount of time usually is needed to prepare the system for measurement operation. Much of this preparation is related to adjustment of the system to the frequency of operations selected for the calibration. Time and cost often can be reduced by minimizing the number of times the operating frequency of the calibration system must be readjusted.

NBS NAMES DEPUTY FOR COMPUTER CENTER

■ William C. Bieber has been named Deputy Director of the Center for Computer Sciences and Technology of the National Bureau of Standards.

The Center develops standards for automatic data processing, conducts research, and provides technical services to other agencies for improving the cost effectiveness of Federal Government programs in the selection, acquisition, and use of automatic data processing equipment.

Mr. Bieber comes to NBS from the Westinghouse

Electric Company where he managed a staff organization providing specialized automatic data processing services. Before joining Westinghouse, he was employed by the General Electric Company where he directed technical activities associated with the sale and installation of computer hardware and software systems to agencies of the Federal Government. Mr. Bieber also spent ten years with the International Business Machines Corporation managing a variety of data processing activities, including a series of contracts for the U.S. Air Force.

