



## AUTOMATIC RF TECHNIQUES GROUP

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### 32ND ARFTG PRE & POST CONFERENCE MINUTES HI-LITES

#### CONFERENCE WRAP-UP:

The 32nd Conference was held in Tempe, Arizona at the Westcourt-in-the-Buttes Hotel. The location and facilities were excellent. There were sixty-eight paid attendees and several commented positively on the technical program. The sessions were judged to have been among the best at any ARFTG conference.

On Friday afternoon, the group was treated to a tour of the W. L. Gore facilities. Gore is the manufacturer of the extremely flexible RF cables used by many automatic network analyzer users. The tour was very interesting and informative.

The Best Paper entitled "Principles of Non-linear Active Device for Circuit Simulation" was presented by David Root and Brian Hughes of Hewlett Packard.

**MICROFILMING AND INDEXING OF ARFTG DIGESTS:**  
The Publications Chairman, Mark Roos, has collected all but the 19th-22nd digests. Microfilming will begin as soon the remaining digests are received. Several requests for out of print digests have been received and as soon as the work is complete, back issues will be available.

#### PUBLICITY REPORT:

Several companies including Eaton, Maury, HP, Wiltron, EIP and Innovative Measurements have received the ARFTG information brochure for distribution. The brochure includes a business reply card for you to request information on the ARFTG. If you receive a brochure, send it in or hand it to a fellow worker to receive the latest on ARFTG.

#### TREASURER'S REPORT:

Barry Perlman, Treasurer, announced he will be unable to continue to serve in this capacity but is willing to serve in another. The task of treasurer includes registration and maintaining the mailing list. These tasks will be separated and Mike Little will be assuming responsibility for them. Gary Simpson will carry on as ARFTG Treasurer.

#### EXECUTIVE SECRETARY:

Thirty-five business reply cards have been received to date. An effort is being made to measure the effectiveness of this drive by monitoring the returned cards from the various manufactures.

#### STANDARDS COMMITTEE:

One of the most active areas within ARFTG will be the standards intercomparisons which are being planned. In order to have a meaningful program, Bob Judish, Standards Committee Chairman, asked that the instructions be rewritten and the data transfer process be automated.

During the Friday lunch, the Standards Committee met to discuss the need of intercomparisons and to define new standards kits. There was a lot of discussion on the objectives of the intercomparisons and a common understanding was reached.

Bill Little of NIST is asking the ARFTG to co-sponsor some activities in the MIMIC measurement area. Interest was also expressed in noise figure and power meter measurements. However, a decision has to be made as to the variety of measurement disciplines in which the ARFTG is to get involved.

#### EXHIBITS:

Bill Pastori of Eaton reported disappointedly on the small number of exhibitors at this conference. He contacted local businesses but it did not prove successful. Suggestions for increasing the number of exhibitors ranged from increasing the number of attendees to providing information to potential exhibitors earlier; perhaps 1-1/2 prior to the conference to allow time for budgeting.

#### NOMINATIONS COMMITTEE:

A slate of candidates had been nominated for Executive Committee selection. The four incumbents were Jim Taylor, Mike Little, Ken Bradley and Bill Pastori. Jim Ratio, Jonathan Schepps and Bob Judish completed the slate. Results of the voting are in the business meeting highlights.

#### BUSINESS MEETING HI-LITES:

The business meeting was held on Thursday 4PM. It was opened by John Barr who turned it over to Pete Lacy for the introduction of the candidates for the Executive Committee. The minutes of the 31st conference were approved as submitted and the treasurer report was read by John Barr. There was no discussion and it was also approved for acceptance.

Standards round-robins were mentioned; Bob Judish will be the contact for this activity.

Anyone requiring Government rates should apply for them through the Conference Chairman.

The vote for four ExCom was held and three majority winners were announced. These were Ken Bradley, Bill Pastori and Jim Taylor. A third vote was necessary to proclaim Bob Judish as the fourth ARFTG ExCom member.

#### NEW EXECUTIVE COMMITTEE MEMBERS ELECTED

The following biographies are those of the newly elected members of the Executive Committee. They bring to the ARFTG a great deal of knowledge and experience.

**KEN BRADLEY:** Ken received his BSEE from Texas Technological University in 1970. He has been working in the field of automatic testing since 1972 and has been active in automated test software for specialized test systems at Texas Instruments. His most recent work has been programming test systems used in the characterization of Phased Array T/R modules.

**BOB JUDISH:** Bob attended Colorado State University where he received his BS and MS in Statistics. In 1980 he joined the Electromagnetic Fields Division of the National Institute of Standards and Technology (NIST). Currently He is a Senior Project Leader in the Microwave Metrology Group and is responsible for developing and implementing formal Measurement Quality Assurance Programs for the Calibration and Measurement Services offered by the Group.

Bob is a member of the ASQC and the American Statistical Association.

**BILL PASTORI:** A graduate with a BSEE from Rensselaer Polytechnic Institute, Troy, N.Y., Bill is employed by the Electronic Instrument Division of EATON Corporation. Over the past 30 years he has specialized in the design, development and application of receiver noise measurement equipment. He has written over thirty papers and gives over 15 seminars per year on noise figure topics.

Bill has been a member of ARFTG for over ten years. He is also a member of PMA and is the EATON representative to the NCSL.

**JIM TAYLOR:** Jim is the principle engineer in the Radar Product Development Group at the Kansas City Division of Allied-Signal where he has been employed since 1958. He graduated from the University of Kansas with a BSEE and MSEE in 1958 and 1964 respectively. He has been involved with automatic phasor network analyzer measurements since 1971.

Jim has been a member of the ARFTG since 1973 and a member of the Executive Committee since 1981. He has served as recording secretary and presently is Vice President of the Executive Committee.

#### TECHNICAL SESSION:

There were thirteen papers presented at the 32nd Conference. The conference theme was "Non-linear Measurements and Modeling Techniques". Most of the papers presented were on the topic and include:

**PRINCIPLES OF NONLINEAR ACTIVE DEVICE MODELING FIR CIRCUIT SIMULATION** By David E. Root & Brian Hughes

**DESIGN METHODOLOGIES FOR NONLINEAR CIRCUIT SIMULATION AND OPTIMIZATION** By Rowan Gilmore

**NEW MEASUREMENT TECHNIQUES FOR TESTING BOTH LINEAR AND NONLINEAR DEVICES WITH THE HP8753B RF NETWORK ANALYZERS** By Barry Brown

**NONLINEAR MEASUREMENT USING THE SIX-PORT NETWORK ANALYZER** By C. Gingras and R. Bosisio

**DEVELOPING A PULSED VECTOR NETWORK ANALYZER** By Mark Roos

**MILLIMETER-WAVE NOISE FIGURE MEASUREMENT TECHNIQUES AND RESULTS** By J.M. Cadwallader

**AUTOMATED MILLIMETER-WAVE SYSTEMS TO SUPPORT A WR-22 BAND TESTING PROGRAM** By P. Nolan

**IN-FIXTURE CALIBRATION OF AN S-PARAMETER MEASUREMENT SYSTEM BY MEANS OF TIME DOMAIN REFLECTOMETRY** By C. Beccari, et al

**DETERMINATION OF SOME NONLINEAR TRANSISTOR MODEL PARAMETERS BY USING PERIODIC TIME DOMAIN REFLECTOMETRY** By P.E. Jeroma

**A METHODOLOGY FOR THE MEASUREMENT AND NONLINEAR PARAMETER EXTRACTION OF GaAs FET's** By Larry Lerner and Chuck McGuire

**LARGE SIGNAL MESFET PARAMETER EXTRACTION TECHNIQUES** By Benjamin Epstein, et al

**NONLINEAR MEASUREMENTS OF A MICROWAVE TIME-VARYING LOAD** By Chia-Lun J. Hu

**MOVING REFERENCE PLANES FOR ON-WAFER MEASUREMENTS USING THE TRL CALIBRATION TECHNIQUE** By Paul Jeroma

#### UP AND COMING ATTRACTIONS

33rd Conference. In conjunction with the MTT-S, the ARFTG will hold its 33rd Conference in Long Beach, California. The sessions will be held on Thursday, June 15 and Friday, June 16. The topic will be "Microwave ATE as a Productivity Multiplier". Mark Roos of EIP is the Conference Chairman.

34th Conference. The site will be the Westin Cypress Creek in Fort Lauderdale, Florida. The dates are Nov. 30 and Dec. 1, 1989. The topic is slated to be "MMIC Testing".