



AUTOMATIC RF TECHNIQUES GROUP

NEWSLETTER

SUMMER 2016

NUMBER 55

Important deadlines:

Sept. 6, 2016: ARFTG/IMS workshop proposals for spring 2017

Oct. 1, 2016: ARFTG student fellowship applications

Oct. 7, 2016: 88th conference paper submission and Ph.D. student sponsorship applications (Fall 2016)

Feb. 15, 2017: 89th conference paper submission deadline (Spring 2017)

87th ARFTG Microwave Measurement Conference: “Measurements for Emerging Communications Technologies”

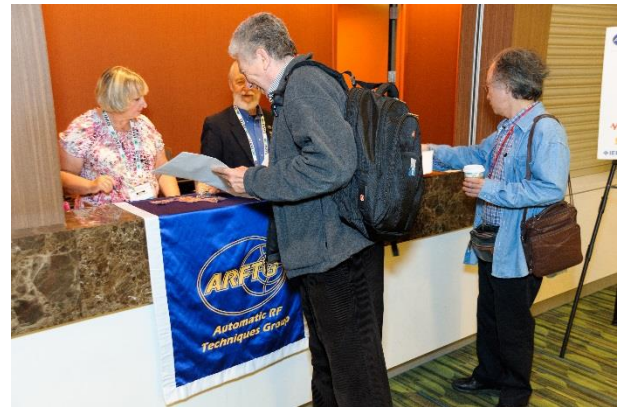
OVERVIEW



The Marriot Marquis Hotel, site for the 87th ARFTG Microwave Measurement Conference.

The 87th ARFTG Conference took place at the Marriot Marquis Hotel, San Francisco, CA, on May 27, 2016 with 147 attendees. The conference formed part of Microwave Week 2016, which also included the International Microwave Symposium (IMS), the Radio Frequency Integrated Circuits (RFIC) Symposium, and many workshops, short courses, and other meetings.

In addition to its conference, ARFTG also sponsored a meeting of the NVNA Users' Forum, two joint ARFTG/IMS Workshops, and two joint IMS/ARFTG Technical Sessions. All these activities ran from Monday, May 23rd through Friday, May 27th.



*Attendees are greeted at the ARFTG registration desk.
(Photo by LylePhotos, Atlanta)*

CONFERENCE TECHNICAL SESSIONS

The 87th ARFTG conference began with a welcome from Jon Martens, ARFTG President, Conference Chair, John Wood, and Technical Program Co-Chairs, Dominique Schreurs and Gayle Collins. The conference theme was “Measurements for Emerging Communications Technologies,” and featured four technical sessions and an interactive forum. The main technical sessions consisted of papers given as oral presentations and addressed a variety of topics, such as 5G measurements, linear calibration and measurements, nonlinear characterization and modeling, and measurement uncertainty. The technical sessions were all recorded (with author permission) and talks will be available for later viewing at www.arftg.org. The interactive forum featured a total of 15 papers presented as posters during the breaks from the oral sessions.



*Attendees listen to the keynote talk.
(Photo by LylePhotos, Atlanta)*

The best oral presentation, as selected by the attendees, was "Traceable Calibration with 1.0 mm Coaxial Standards," by J. Hoffmann, M. Wollensack, J. Ruefenacht, D. Stalder, and M. Zeier (Federal Institute of Metrology METAS). The best interactive forum presentation was voted to be "Wideband RF Characterization Setup with High Dynamic Range Low Frequency Measurement Capabilities," by S. Gustafsson, C. Fager, K. Buisman, and M. Thorsell (Chalmers University of Technology).

ARFTG is pleased to thank the sponsors of the 87th Microwave Measurement Conference:

Gold sponsor: Qorvo, Inc.

Silver sponsors: Anritsu Company, Copper Mountain Technologies, Keysight Technologies, Maury Microwave, MPI Corp., and National Instruments.

For future sponsorship opportunities, please contact the ARFTG Sponsorship Chair, Mohamed Sayed (sponsorship@arftg.org).



Interactive forum papers, collocated with the exhibition, encourage ample discussions between presenters and attendees. (Photo by LylePhotos, Atlanta)

CONFERENCE EXHIBITS

ARFTG has a strong tradition of holding an exhibition jointly with the conference. A total of 17 companies chose to exhibit their latest equipment and capabilities at the 2016 Spring ARFTG conference.



The Exhibits Chair introduces the exhibitors at the start of the morning break. (Photo by LylePhotos, Atlanta)

These companies were Anritsu Company, Cascade Microtech, Copper Mountain Technologies, Flann Microwave, Focus Microwaves, Junkosha Inc., Keysight Technologies, Maury Microwave, Microsanj, MPI Corporation, OML, Inc., Rohde & Schwarz, Spinner GmbH, Tektronix, T-Plus Co. Ltd., TEGAM, and Virginia Diodes, Inc. Keysight Technologies was voted as best exhibitor by the attendees. To exhibit at future conferences, please contact the Exhibits Chair, Joel Dunsmore (exhibits@arftg.org).



Extended breaks allowed for ample interaction between attendees and exhibitors. (Photo by LylePhotos, Atlanta)

AWARDS LUNCHEON

ARFTG President, Jon Martens, presided over the Awards Luncheon. This began with handing out Certificates of Appreciation to the 87th conference organizers: Conference Chair John Wood, Technical Program Co-Chairs Dominique Schreurs and Gayle Collins, and Exhibits Chair Joel Dunsmore. This was followed by handing out awards related to the 86th (Fall 2015) ARFTG conference, held in Atlanta, GA. The best oral paper presentation award was given to "Microwave Characterization of Ink-Jet Printed CPW on PET Substrates" by A. Sahu¹, V. Devabhaktuni¹, A. Lewandowski², P. Barmuta², T. M. Walllis³, M. Shkunov⁴, P. H. Aaen⁴ (¹Univ. of Toledo, ²Warsaw Univ.

of Technology, ³NIST, ⁴Univ. of Surrey). The best interactive forum paper award went to “Impedance Standard Substrate Fabricated by Screen Printing Technology,” by M. Horibe and R. Sakamaki (AIST). The Best Exhibitor was awarded to Maury Microwave.

ARFTG also recognizes long-standing ARFTG members with ARFTG Life Member status. For more information, please visit www.arftg.org/index.php/membership/life-member.



ARFTG President, Jon Martens, presents the 86th Conf. Best Paper Award. (Photo by LylePhotos, Atlanta)

NVNA USERS' FORUM

A meeting of the NVNA Users' Forum was held on May 26th and about 46 persons attended. The meeting was moderated by Apolinar Reynoso Hernandez and Patrick Roblin and had a full program. Discussion topics were led by Christian Fager on Challenges in Characterization, Simulation & Design of Future 5G Radio Hardware, Jose Carlos Pedro on Circuit-Level NVNA System-Level VSG-VSA Setup Integration, Kate Remley on Standard on measurement uncertainty in EVM, Slim Boumaiza on Towards Multi-Harmonic Nonlinear Device Characterization Under Ultra Wideband Modulated Signals Using NVNAs, and Dylan Williams on Measurement Uncertainties for Vector Nonlinear-Network Analysis (VNNA). The Users' Forum encourages students to bring questions on their research to the NVNA community, and there were two student question topics by Sebastian Gustafsson on Wideband RF Characterization Setup with High Dynamic Range Low Frequency Measurement Capabilities and Filipe Barradas on Time Alignment in RF Envelope Measurements for Low Pass Equivalent Models. Feel free to contact any of the organisers for more information or visit the NVNA tab at www.arftg.org.

JOINT ARFTG/IMS WORKSHOPS AND TECHNICAL SESSIONS

Two joint ARFTG/IMS workshops were held on Monday, May 23rd. About 70 people attended the full day

workshop, “WME Large-Signal Network Analysis: from instrumentation architectures to software applications for your RF design flow improvement,” organized by Tibault Reveyrand (Univ. of Colorado) and Antonio Raffo (Univ. of Ferrara). A half-day workshop, “WMC Power and Signal Integrity Characterization Techniques,” organized by Heidi Barnes, Ken Wong, and Mike Resso (all from Keysight Technologies), was attended by about 50 people. Additionally, there were two joint ARFTG/IMS technical sessions on Thursday, May 26th: TH2F Novel Nonlinear Measurement Techniques and TH3F Novel and Diverse Measurement Techniques.



Joint ARFTG/IMS sessions provide more avenues for ARFTG topics. (Photo by LylePhotos, Atlanta)

FUTURE EVENTS NVNA Users' Forum

NVNA Users' Forum occurs at all ARFTG conferences. Please send your ideas for the meeting at the fall ARFTG in Austin or any future meetings to the Forum organizers: Apolinar Reynoso Hernandez (apolinar@cicese.mx), Patrick Roblin (roblin@ece.osu.edu), Dominique Schreurs (dominique.schreurs@kuleuven.be), or Jean-Pierre Teyssier (jean-pierre_teyssier@keysight.com).

In addition, a meeting is also held in Europe. The next European meeting will be during INMMiC at the Graz University of Technology in Graz, Austria on April 20-21, 2017. Please send your suggestions to Dominique Schreurs (dominique.schreurs@kuleuven.be) or Michael Gadringer (michael.gadringer@tugraz.at).

More information on the latest activities and schedules can be found at the ARFTG web site, www.arftg.org under the NVNA tab. The program should be available on-line about two weeks prior to the meeting.

Fall 2016 ARFTG Symposium

This year's Fall ARFTG Symposium will consist of the 88th Microwave Measurement Conference, two short courses, a workshop, and the NVNA Users' Forum. All of these events will be held at the Austin Hilton on Dec.

6-9, 2016. Detailed information and registration is available at www.arftg.org under the Upcoming Conferences tab.

Ph.D. Student Support

ARFTG Ph.D. Student Sponsorships help students defray the expense of attending. The application deadline is October 7th, 2016. For more information, visit the ARFTG website or contact the Sponsorship Chair, Mohamed Sayed (sponsorship@arftg.org).

Short courses and Workshops

This year we will have a 1 ½ day short course on introduction to power amplifier design and characterization. For more information, contact John Wood (john.wood@ieee.org). A workshop on power amplifiers will be held on Wednesday afternoon, and a second workshop is being planned for Friday afternoon. For more information, contact Patrick Roblin (roblin@ece.osu.edu).

Microwave Measurement Conference

The theme for the 88th ARFTG Microwave Measurement Conference is “Power Amplifiers and Systems Design for Wireless Applications”. The deadline for submitting summaries (with supporting data and figures) is October 7th, 2016. The paper submission link and instructions are at <http://www.arftg.org/index.php/upcoming-conference/author-instructions>. As on previous occasions, the conference will offer ample opportunity for participants to interact with leading professionals in the microwave field. For more information, contact the Conference Chair, Jon Martens (Jon.Martens@anritsu.com) or the Technical Program Chair, Mitch Wallis (thomas.wallis@nist.gov).

Fall 2016 ARFTG Symposium – tentative schedule

Tuesday, Dec. 6 8:00 am – 5:00 pm	Introduction to Power Amplifier Design Short Course
Wednesday, Dec. 7 8:00 am – 12:00 pm	Introduction to Power Amplifier Design Short Course
Wednesday, Dec. 7 1:00 pm – 5:00 pm	Power Amplifier Workshop
Wednesday, Dec. 7 5:00 pm – 7:00 pm	NVNA Users’ Forum
Thursday, Dec. 8 8:00 am - 5:00 pm	88 th Microwave Measurement Conference
Thursday, Dec. 8 7:00 pm – 10:00 pm	Reception and Awards Banquet
Friday, Dec. 9 8:00 am – 12:00 pm	88 th Microwave Measurement Conference
Friday, Dec. 9 1:00 pm – 5:00 pm	Workshop



The Austin Hilton is the site of the 88th (Fall 2016) ARFTG Symposium.

Spring 2017 ARFTG activities

The 89th ARFTG Microwave Measurement Conference will be held on June 9, 2017 in Honolulu, Hawaii, as part of Microwave Week 2017, in conjunction with IMS (www.ims2017.org) and the RFIC symposium. The conference theme is “Advanced Technologies for Communications”. **The deadline for submission of paper abstracts (with supporting data and figures) is February 15, 2017.**

For up-to-date information, visit www.arftg.org or contact the Conference Chair, Peter Aaen (p.aaen@surrey.ac.uk) or the Technical Program Chair, Nick Ridler (nick.ridler@npl.co.uk). As part of the 89th ARFTG conference activities, it is also planned to have joint IMS/ARFTG technical sessions, to hold a meeting of the NVNA Users’ Forum, and to co-sponsor appropriate workshops that will be taking place during Microwave Week 2017. For those interested in organizing a workshop, note that the proposal deadline is September 6, 2016 (contact Patrick Roblin for more information at roblin@ece.osu.edu).

STUDENT FELLOWSHIP

The next application deadline for the ARFTG Roger Pollard Memorial Student Fellowship in Microwave Measurement is October 1, 2016. The purpose is to recognize and provide financial assistance to graduate students who show promise and interest in pursuing research related to microwave measurement techniques. For more information, contact the fellowship coordinator, John Wood (john.wood@ieee.org) or visit http://www.arftg.org/student_fellowship.html.

ADDENDUM

Every effort has been made to publish correct information in this newsletter. Significant errors should be reported to the ARFTG Executive Committee Secretary, Joe Gering (joe.gering@qorvo.com), so that corrections can be reported in the next issue.