

JIM MITZLAFF

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SUMMARY

RF Power Amplifier Engineer with over 35 years' experience in advanced circuit and system design. Provides technical leadership, coaching and mentoring for groups of up to 40 RF engineers in various departments. Collaborates with senior management, setting strategic direction for RF power amplifier circuit and system design. Develops RF power technology roadmaps and performs competitive analyses. Disclosed novel design ideas, resulting in 26 US patents. Promotes development of additional patentable ideas within engineering teams. Expert-level proficiency in use of advanced RF CAE systems (Agilent ADS), improving bandwidth and reducing power consumption and design cycle time of linear RF power amplifier systems.

PROFESSIONAL EXPERIENCE

MOTOROLA INCORPORATED / MOTOROLA SOLUTIONS, Schaumburg, IL **1976 – 2013**

Principal RF Engineer / MTS

1993 – 2013

Linear RF Power Amplifier (PA) Technology

Developed and demonstrated advanced technologies for increasing PA performance. Authored over 20 internal papers and presentations covering design of LDMOS PA stages, Doherty PA design, evaluation of SiC and GaN RF power devices, evaluation of competitive LPA products and PA modeling using MDS and ADS. Participated in cross-functional team solving RF Computer Aided Engineering (CAE) tool issues and managing RF CAE tool contracts.

- [Developed, promoted and trained engineers in linear PA design methods and modeling tools, improving PA design robustness and shortening design cycle-time.
- [Built strong relationship with RF power transistor suppliers (Motorola and Freescale), producing industry leading PA performance at lowest cost.
- [Promoted use of LDMOS RF power transistor technology, enabling ~25% cost and size reduction of ultra linear RF power amplifiers, compared to previous designs using Bipolar transistors.
- [Developed and implemented high-efficiency Doherty PA design, avoiding need for production tuning found in previous Doherty PA designs, becoming basis for most future high efficiency linear PA designs.
- [Identified and resolved instability problems causing frequent self-destruction in early PA designs. Captured results in major internal paper specifying new set of stability test methods, ensuring robustness of hot-swappable PA modules.
- [Co-developed and initiated Envelope Tracking technology, improving PA efficiency up to 40% in Land Mobile Base Stations, where required operating bandwidth too large to permit use of Doherty PA technology. Incorporated in latest generation of high-tier Land Mobile Base Stations.
- [Co-developed and demonstrated PA linearization system, achieving 80 dB suppression of distortion products in multi-carrier linear PA.

Principal RF Engineer, Wireless LAN Architecture

1987 – 1992

Recruited and managed local team of 12 engineers responsible for initial RF design and system integration of 10 Mb/s wireless LAN (Altair). Interfaced with off-site team, implementing 18 GHz RF head design, using GaAs MMIC multi-chip module. Designed modulation scheme and corresponding filtering for meeting emission requirements. Conducted 18 GHz indoor radio propagation studies and published results.

- [Designed and demonstrated initial 18 GHz transceiver for 10 Mb/s wireless LAN, securing funding for production transceiver development.
- [Convinced management to change data rate and modulation format, achieving required coverage area.

Engineer / Sr. Staff Engineer, RF Power Amplifier Design 1976 – 1987

Designed RF power amplifiers for use in VHF / UHF / 800 MHz mobile and portable transmitters. Evaluated RF power transistors from various suppliers for use in specified designs. Designed transmitter power control and PA protection circuits. Integrated PA circuits into overall transceiver design. Trained junior engineers in PA design.

- [Developed and documented techniques for optimizing efficiency of 800 MHz "Class C" portable power amplifiers using GaAs MESFETs, reducing size and extending battery life of cellular handhelds.
- [Resolved several RFI and spurious signal problems, clearing path for transmitters to enter production.
- [Improved stability of 75 W VHF RF power transistor, making (MRF247) preferred device for application.
- [Developed and documented techniques for detecting and removing instabilities in constant envelope ("Class C") RF power amplifiers, improving PA reliability and reducing design cycle-time.

EDUCATION

University Degrees

MS, Electrical Engineering, University of Wisconsin at Madison, WI

BS, Electrical Engineering, Seattle University, Seattle, WA, summa cum laude

Continuing Education

Using HP ADS for RF & Microwave Circuit Design, Agilent / Motorola

HP ADS Essentials and Circuit Envelope, Agilent / Motorola

Mentor Graphics DA / LMS with MCL, Mentor Graphics / Motorola

Advanced Communication Systems Using DSP, UCLA Eng 881.123

Semiconductor Material and Device Characterization, ASU

TRIZ / Computer Aided Inventing / Theory of Inventive Principles, Motorola

Motorola Internal Courses on Leadership Skills, Six Sigma and Robust Design

Numerous Motorola and IEEE Conferences (MTT/s, VTC, Globecomm, etc.)

MAJOR AWARDS / PROFESSIONAL DEVELOPMENT

Six Sigma Yellow Belt

Motorola Master Innovator

Motorola Dan Noble Fellow

Motorola Science Advisory Board Associate

Served on Patent Disclosure Review Committees, 1990 – 2013