

Gordon G. Rabjohn

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I am a retired RF and microwave designer who has a passion for hands-on design, prototyping, testing, and most importantly, creating revenue-generating product. I have worked in all phases of a product lifecycle, from concept selection to launch of volume production. I am now a collector of antique radios and test equipment, and enjoy creating and restoring electronics of all varieties. I am a licensed (though inactive) Ham Radio Operator, call sign VE3ILZ.

Business Experience

Ottawa Vintage Radio Club (President since 2019) www.ovrc.org

Skyworks Solutions Inc (formerly SiGe Semiconductor), Ottawa, Ontario, Canada.

Skyworks markets low-cost RF ASICs for a wide variety of RF systems.

1/2016-9/2019 Principal Engineer (part time and on contract)

4/2005-1/2016 Manager, PA Design, Ottawa.

- Responsible for the design of GaAs power amplifiers (PAs) and front-end modules for WiLAN (802.11) applications at 2-6GHz.
- I have been personally responsible for an LNA design and parts of PA designs that have gone into high volume production (>100M units).
- I managed teams from 2 to 6 people.

IceFyre Semiconductor, Ottawa, Ontario, Canada.

IceFyre Semiconductor designed and marketed chipsets for 802.11a, b, and g WLAN standards. Their patented architectures require custom PAs.

5/2003-3/2005 Manager, Power Amplifier Design

- Responsible for a small technical group that designed 2.5 GHz and 5 GHz GaAs PHEMT 1 watt peak “LINC” and “EE&R” power amplifier modules.
- Nurtured the ICE5352 PA from pre-prototype to low volume production.
- Liaised with U.S. GaAs foundry and Taiwanese contract manufacturer.
- Personally responsible for PA module design, and some ASIC design.

Sirenza Microdevices (formerly Stanford Microdevices), Ottawa, Ontario, Canada.

The charter of this design center was to design, test, and support RF ICs and modules (mixers, demodulators, modulators, and amplifiers) for wireless infrastructure applications.

2002, 2003 Manager, RF Signal Processing Design Center.

- Guided products from inception in Ottawa to production.
- Mentored other designers in the area of microwave design and test.
- Assured Ottawa Design Center compliance to ISO9001-2000 quality system.
- Assisted sales and marketing team through customer visits and development of sales collateral.

- 2000, 2001 Senior RF Engineer.
- Designed, prototyped, and introduced into production a broad-band, 2 GHz low noise, high intercept amplifier module (the SLX-2143).
 - Proposed new product offerings for the linearized power amplifier industry.

Nortel Networks, Ottawa, Ontario, Canada.

The Wireless Technology Laboratory explored new RF and microwave technologies and techniques (both within Nortel and outside Nortel) and matured them to the point that they could be used in Nortel product.

- 1996-1999 Manager, Power Amplifier Design, Wireless Technology Lab.
- Led a team that researched linear PCS high power amplifiers and power amplifier correction schemes (feed-forward, feedback, and pre-distortion).
 - Explored the use of new GaAs and SiC devices for high power use.
 - Consulted on GaAs analog design issues from 100 MHz to 30 GHz.
- 1993-1996 Manager, GaAs IC Design, Wireless Technology Lab.
- Led a team that designed GaAs Integrated Circuits and Multi-Chip Modules for radio products at 400 MHz, 800 MHz, C band, and Ka band.
 - Contributed to the design of GaAs monolithic mixers and amplifiers.
- 1992-1993 Manager, High Speed Design, Advanced Technology Lab.
- Managed a team responsible for high-speed electronic packaging, GaAs foundry support, CAD support, and GaAs IC design.
 - Supported external customers that used the Nortel GaAs foundry.
 - Created an analog design framework and library for the Nortel GaAs foundry.
- 1983-1992 Member of Scientific Staff, Advanced Technology Lab.
- Designed GaAs radio circuits such as high linearity mixers, monolithic baluns, switches, and amplifiers at 850 MHz, 1.9 GHz, and 3.5-6 GHz.
 - Designed digital I/O cells for 2.4 Gbit/s fibre optic interface ICs.
 - Introduced high frequency wafer probing to 40 GHz, including the design and fabrication of custom RF probes for noise characterization.
 - Designed thin film metalization processes in a clean room environment.
 - Liaised with external vendors (Harris, TriQuint, Adams-Russell, MSC) of GaAs fabrication services.

Post-Secondary Education

- 1985-1991 Carleton University, Ottawa, Ontario.
(Part time) Master of Engineering, Department of Electronics.
Area of study: Microwave passive and active electronics.
Thesis: "Monolithic Microwave Transformers". <https://rabjohn.ca/gord/thesis/>
- 1978-1983 University of Waterloo, Waterloo, Ontario.
(Full time) Bachelor of Applied Science, Electrical Engineering.
Area of study: Analog and Microwave Electronics.

Skills

CAD Tools: ADS, SuperCompact, Spice, Cadence, KiCAD, Autocad (limited)

Lab Work: Experienced with PCB and chip-level design, test and assembly techniques.
Able to wirebond and die-attach.
Experienced with all RF/microwave test equipment.

Professional Development

Patents: "Spiral Monolithic Transformers", 1988.
"Tunable Microwave Probes", 1989.
"Transformer Coupled Stacked Power Amplifier", 1999.
"Integrated implementation of a voltage boost follower and method therefor" 2007.
"Method and apparatus for distortion correction of RF amplifiers", 2008.
"Dual band amplifier", 2012.
"Power detector and method for detecting power", 2012.
"RF Detector and Method for Detecting", 2023.
"Temperature Compensated Power Amplifier Gain", 2022.
"Amplifier Distortion Detection System", 2022.
"Temperature Sensing Circuit with Shut-off", 2023.
"Temperature-Based Gain Droop Compensation Circuit", 2023.
"Variable Attenuator Circuit Utilizing Varactor Diodes", 2023.
"Temperature Sensing Circuit with Shut-off", 2023.

Publications: "High Frequency Wafer Probing Techniques", Canadian Journal of Physics, Volume 63, #6, June 1985.
"Tunable microwave wafer probes", 1988 GaAs IC Symposium.
"Low Voltage, High Efficiency GaAs Class E Power Amplifiers for Wireless Transmitters", IEEE Journal of Solid-State Circuits, Volume 30, #10, October 1995.
"SAW Technology in RF Multichip Modules for Cellular Systems", 1995 IEEE International Ultrasonics Symposium.
"Semiconductors in Wireless Infrastructure" Invited speaker at AVS, Nov. 1998.
"Transformer Coupled Stacked FET Power Amplifiers", IEEE Journal of Solid-State Circuits, Volume 34, #2, February 1999.
"Direct Conversion Receivers for Modern Basestations", Wireless Industry Congress, Ottawa, August 2002.
"A High Efficiency Chireix Out-phasing Power Amplifier for 5GHz WLAN Applications", 2004 International Microwave Symposium, Fort Worth, Texas.
"Out-Phasing Power Amplifiers: New Possibilities in Advanced Wireless Systems Design", 2004 Microwave Workshop and Exhibit, Yokohama, Japan.

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