

# DAVID R. DROEGE

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## Senior Microwave Engineer

- 15+ years of experience specializing in creating and implementing new product and process solutions moving RF, Microwave, and optical electronic products from conception through design, qualification, and into high volume manufacturing and sustaining engineering.
- Skilled with the operation and programming of RF/Microwave equipment including spectrum and vector network analyzers, RF power sources and meters, counters, synthesizers, and digital signal analyzers.
- Trained in SPC, RF transmission and antenna design and RF modeling tools such as Smith charts, Sonnet and Ansoft's HFSS.

## EMPLOYMENT

### Redgarden Engineering, LLC, Louisville, CO

2010 to Present

Delivering critical electronics engineering solutions  
**Affiliate Senior Microwave Engineer**

### Medtronic Navigation, Louisville, CO

2009 to 2010

Develops, manufactures, and supports surgical navigation equipment.

#### **Senior Electrical Engineer**

Responsible for resolving systemic device issues as well as ongoing device electrical support.

- Diagnosed and improved the RF immunity performance of a device from 250V to over 2kV.

### JDSU and Picolight, Louisville, CO

*(JDSU acquired Picolight in 2007, closed site in 2009)*

2002 to 2009

Designs and manufactures 1, 2, 4, & 10 GHz RF/optical transceivers.

#### **Senior Manufacturing / Design / Technical Lead Engineer**

Responsible for innovating, implementing, and validating accurate and repeatable performance and assembly of designs and processes for electro-optical assemblies.

- Project Technical Lead for design of 1<sup>st</sup> generation high-volume (>45M), low-cost (<\$3) RF/optical transceiver for USB 4.0. Formulated and documented performance and customer specs, power/jitter budgets, DFMEA, and risk mitigation plans.
- Reduced engineering measurement test time by 90% through efficient LabView programming of RF performance characterization of RIN, spectral analysis, S-parameters.
- Developed and documented mathematical algorithms, software, and procedures for high-volume production, sub-micron optical alignment, and characterization of RF, DC, and optical subassemblies.
- Improved sub-micron alignment accuracy and post-alignment test yields by designing and programming software control routines for automated optical aligners.
- On-site leader in Thailand and China to transfer RF/optical subassembly production and test equipment and to qualify the new production lines at two separate CMs.
- Completed RF / Optical Design Verification and Qualification measurement testing on 2, 4, and 10GHz assemblies.

## David R. Droege cont'd

### Cielo Communications Inc., Broomfield CO (Company closed in 2002.)

2001 - 2002

Optical component startup company designed and manufactured RF/Laser transceivers.

#### **Senior Product Engineer**

Responsible for designing and implementing accurate and dependable assembly processes for the world's first VCSEL-based 4GHz 1310 nm laser array modules.

- Provided on-site technical leadership to Philippine engineering and manufacturing team to prepare for volume production, while creating and documenting assembly processes, fixtures, process flow, and adhering to cost and schedule goals.

### Ericsson Inc., Consumer Products, Verification, Lynchburg VA

1996 - 2001

Cellular phone manufacturer. Verification team provided engineering validation and guidance to ensure accurate qualification of high volume production products and processes.

#### **Staff Engineer promoted to Technical Leader, then Sr. Technical Leader, then Technical Manager.**

Performed and directed regional performance and assembly verification team activities from pre-study to end-of-life for all cell phones built in the US, Mexico, and Brazil factories.

- Promoted to Technical Manager in 3 years with a budget of \$2.5M/yr. Increased engineering staff from 3 to 23. Supported cell phone production volume increase from <1M/yr to 12M+/yr.
- Saved \$880K in test-time and test equipment and reduced power adjustment time at production test by 50% by creating an efficient RF power-tuning algorithm.
- Devised and performed production verification for Ericsson's first cell phone factory in Brazil. Interviewed and trained the original on-site Verification Engineering Team.
- Commissioned as the technical lead on a joint HP-Ericsson Measurement Capability Team to improve RF, electrical, and acoustical production test measurement accuracy and repeatability.
- Received Managerial Award within 6 months, and promoted within 9 months of hiring.

### HE Microwave, Tucson, AZ

1991 - 1996

Partnership between Hughes and Delco Electronics to design and produce high frequency radar transceivers for commercial applications.

#### **Product Engineer**

Responsible for designing and developing subsystems and testing processes for 10GHz commercial radar systems.

- Devised efficient RF temperature test and tuning process for an automobile radar system, tripling yields and reducing test time by 95%.
- Designed and implemented 10GHz Microstrip patch antenna array and microstrip feeder network for commercial radar system.
- Developed CAD and optimization software to expand the capabilities of commercial electromagnetic design analysis package.

**EDUCATION**      M.S., Electrical Engineering / Electromagnetics, University of Arizona  
B.S., Applied Geophysics, Michigan Technological University

**SKILLS**            Proficient in LabView, MathCad, SPC, RF transmission design and analysis.