

Ethan Funk

Partner/Co-Founder - Red Mountain Radio LLC

PO BOX 1056

Ouray, CO 81427

970-325-2158x11

ethan@redmountainradio.com

Citizenship: United States of America

Summary

Ethan has over 25 years experience as an electrical and radio frequency design engineer, working on applications in consumer products, communications (military, government, commercial), and broadcast.

He has strong skills in radio frequency engineering, including multi-layer RF board layout; oscillator, synthesizer, power and low noise amplifier design; antenna matching; noise analysis; and wireless system specification design. Ethan possesses a working knowledge of a wide variety of related electronic systems and components, including: digital interfacing, linear and switching power supplies, and microprocessor level code development.

Experience

RF/Microwave Design Engineer/Partner Red Mountain Radio LLC (Ouray, CO) June 2003 to Present

Co-founder and Partner at Red Mountain Radio LLC. Manages RF Design projects for clients including specification, budget, and timeline development, performing board level hardware design, firmware coding, design prototyping, testing, and documentation, and assisting with transition to production.

Recent design projects include the following: radar transceiver front-ends, machine-to-machine communications devices, automotive OBD devices, consumer product antenna matching, laboratory test instrument design, high temperature down-hole oil well sensor, UHF receiver, L-band receiver, wide-band wearable antenna, and wireless pet products.

Key skills include the following: design and test of PLLs, VCOs, microwave filters, low noise and power amplifiers, T/R switches, front-end limiters, RF codecs, developing and debugging related low level micro-controller code in C, proficiency with related test equipment, and development tools, and solder rework.

Broadcast Engineer /Co-owner
Brown Mountain Broadcasting LLC (Ouray, CO)
September 2011 – Present

Co-founder, Partner, and Broadcast Engineer at Brown Mountain Broadcasting LLC, which owns and operates KRKQ/Mountain Chill Radio®, a Class-A commercial FM and Internet radio station in Telluride, CO.

Ethan developed a custom, resilient, Internet audio streaming protocol (open-source encoder, decoder, and server software written in C), with FEC, interleaving, and MIMO for use at the station as both a studio-to-transmitter link, and as distributed servers for public listening on-line. He also developed AudioRack, a custom, open source radio automation and audio mixing system for the Apple OSX platform with software components written in C++, and ObjectiveC.

Independent RF Design Consultant
November 1998 – July 2003

Client: Trios Associates, Inc. (Lanham MD)

Microwave design subcontractor - Developed (for production) a 0.5 to 10 Watt L-Band Pulse transmitter module for a radar response application, with a follow-on contract to add FSK modulation capability and a matching receiver module.

Client: Digital Ink, Inc. (Wellesley MA)

Lead analog design engineer for the company's flagship product: a pen that remembers what it writes. Responsible for power management, signal conditioning, ADC, PLL, IR sensors, digital interfacing, etc.

Client: Museum Technology Source (Winchester MA)

Designed and prototyped various custom and product line microprocessor-based audio and control devices for end use in controlling museum exhibits.

Client: Litton Advanced Systems Inc. (College Park MD)

Subcontracted for on-site debug/redesign of the SSRS (space to space radio system) at Johnson Space center. Also participated in various design feasibility studies including a cable television network access device with dynamic program access control residing outside the customer's premises, and a space based GPS receiver for use on satellites.

Senior RF Engineer
Racal Communications Inc. (Rockville MD)
July 1997 – October 1998

Design engineer responsible for the receiver and synthesizer sections of a hand-held, SINCGARS, VHF radio, and the 20 Watt linear power amplifier section of an associated multi-band (30 to 512 MHz) vehicle adapter.

**Electrical Engineer - Tactical Radio group
Harris, RF Communications (Rochester, NY)
December 1996 – June 1997**

Design engineer responsible for the synthesized UHF low noise local oscillator and the transmit/receive first IF chain of a 20 watt multi-band (1.5 to 512 MHz) all mode Man-pack radio.

**Electrical Engineer - Systems group
Harris, RF Communications (Rochester, NY)
June 1995 – November 1996**

Systems engineer responsible for rack level system design of air traffic control HF radio communications systems including the system installed at Chek Lap Kok Airport, Hong Kong. Extensive experience with 1 kW and 5 kW HF transmitters, specialized transmit filter design, and system level testing.

**Engineering CO-OP - Systems group
Harris, RF Communications (Rochester, NY)
March 1993 – December 1994**

Responsible for parts list management, test documentation, and OEM equipment specification for a variety of projects included audio/video surveillance systems and sheltered military communications systems.

**Chief Operator/Consultant
WTR-FM/Rochester Institute of Tech. (Rochester, NY)
September 1993 – June 1997**

Responsible for the general fitness of the studio and transmitting facilities, and FCC required operating logs. Provided basic engineering, maintenance and studio production training for the staff.

Developed a "Live Assist" digital audio software system featuring computer based storage, sequencing, and unattended automation of audio material for air play. Designed and directed the reconstruction of two broadcast studios, a production studio and a sound studio. Installed and licensed a new studio-to-transmitter microwave link, remote broadcast facilities, and a 1 kW FM broadcast transmitter and antenna system.

EDUCATION

**B.S. (BSEE), Electrical Engineering (1995)
Rochester Institute of Technology
Rochester NY**

Technical Concentrations: Microwave Engineering, Digital Data Communications
Senior Project: 98 MHz, 128 kb/s simplex spread spectrum wireless modem