

## **Eric Funk, Ph. D.**

Partner/Founder - Red Mountain Radio LLC  
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### **Summary**

Eric Funk is an entrepreneur and co-founder of both Red Mountain Radio LLC (RMR) and Brown Mountain Broadcasting LLC (BMB).

**Red Mountain Radio LLC** provides technical problem solving and analog/ RF Circuit Design for clients. **Brown Mountain Broadcasting LLC** operates a Class-A FM radio station serving the Telluride, CO resort market.

Dr. Funk has over 29 years of experience as an electrical engineer. His proprietary designs for clients appear in a variety of industrial, research, and consumer electronics products. Dr. Funk's Ph. D. is in Electrical Engineering with a specialty in microwave photonics. While a researcher, he published extensively on ultra-wideband communications, and radio-over-fiber.

### **Experience**

**Owner / RF Design Engineer at Red Mountain Radio LLC**  
**Ouray, CO**  
**June 2003 - Present**

Dr. Funk is a co-owner, manager, and RF Design Engineer at Red Mountain Radio LLC (RMR).

At RMR, Eric manages RF Design projects from start to finish for clients including developing specifications, budgets, and timelines, performing board level hardware design, firmware coding, prototyping, documentation, and assisting with transition to production.

Dr. Funk has recently managed RF Design work on the following products: radar receiver, machine-to-machine communications device, automotive OBD device, personal fitness monitor, wireless test instrument, infrared wireless microphone, radio over fiber system, high temperature down-hole oil well sensor, UHF receiver, L-band receiver, wideband wearable antenna, cell phone detector, CATV set-top-box, RF tag reader, pager transmitter, pet collar.

RF Board Level Design: Eric applies best practice RF Engineering principles to board-level design including the design and implementation of PLLs, VCOs, microwave filters, low noise and power amplifiers, T/R switches, front-end limiters, ADCs and DACs. This includes RF layout on multi-layer and microwave laminate boards. In his design and troubleshooting work he routinely works with vector network analyzers, spectrum analyzers, vector signal generators, oscilloscopes, function generators, and thermal test ovens. He is proficient at soldering and solder rework.

Optical Design: Eric applies best practice optical and RF design engineering principles to develop radio-over-fiber systems. He works proficiently with DFB lasers, laser controllers, MZMs, and SMF28 and specialty single mode fibers.

Problem Solving & Analysis: Eric routinely performs system level and software development including link budgets, noise figure analysis, Lab View coding, MatLab signal processing design, firmware coding (C) and desktop (OSX) C coding. Many of his ideas have led to patents for his customers.

**Owner/Broadcast Engineer – Brown Mountain Broadcasting LLC  
Ouray, CO  
2011 - Present**

Eric is also a founder and co-owner of Brown Mountain Broadcasting LLC, which owns and operates the Class-A commercial radio station KRKQ in Telluride, CO.

The station has been a test-bed for more reliable Internet streaming delivery (custom protocol with FEC, interleaving, and MIMO). Eric also developed a unique Rhythmic Adult Alternative music format for the station.

**Research Electrical Engineer – Naval Research Lab  
Washington, DC  
June 2000 - May 2003 (2 years 11 months)**

Designed and demonstrated long-haul (110 km) radio over fiber link/delay line capable of supporting 256- QAM modulated microwave radio above 10 GHz. Demonstrated LAN bridge over hybrid 26 GHz optical/ wireless channel. [Project Leader.]

Laser Radar Developed direct sequence coded eye-safe CW laser radar for near-horizon target identification. Designed/ developed hybrid optical/RF heterodyne receiver. [Project Leader.]

**Senior RF Design Engineer – EER Systems/ L-3 Communications  
Chantilly, VA  
March 1999 - May 2000 (1 year 2 months)**

Designed and developed subscriber units for Local Multipoint Distribution Service (LMDS), 28 GHz wireless product. Design work includes microwave and baseband circuit design, specification development, and communications channel modeling. [System Design Leader]

**Research Associate/ Principal Investigator - University of Maryland  
College Park, MD  
March 1997 - February 1999 (1 year 11 months)**

Developed and patented ultra-wideband (UWB) radio transceiver utilizing photoconductive correlation for exceptional dynamic range and throughput. Performed theoretical analysis, developed and tested hardware, and performed propagation measurements.

**Graduate Research & Teaching Assistant - University of Maryland  
College Park, MD  
September 1988 - March 1997 (8 years 6 months)**

Developed novel photonic UWB true-time-delay steerable radar transmitter. Developed photoconductively switched, low-jitter pulsed-power systems. Performed microwave photonics research in the ultra-fast photonics lab of Prof. Chi H. Lee and taught analog Electrical Engineering classes and labs as a Teaching Assistant.

## **Education**

**Ph. D., Electrical Engineering**  
**University of Maryland**  
**College Park, MD**  
1988 - 1995

Activities and Societies: IEEE MTT-S Washington DC Chapter Chair

**B.S., Physics**  
**Rensselaer Polytechnic Institute**  
**Troy, NY**  
1984 - 1988

Activities and Societies: WRPI - Public Relations Director