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# Greg Macijuk, P.Eng.

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## Expert-Witness Profile

Broadband and wireless communications expert specializing in DOCSIS, EPON/XGSPON, Wi-Fi (802.11 g/n/ac/ax/be), 3GPP 5G and customer-premise networking technologies. Extensive end-to-end knowledge of residential and business broadband systems, including access, core, and backbone TCP/IP routing and transport networks.

Provide litigation and technical consulting related to 3GPP 5G and IEEE 802.11 standards, including source-code analysis, Relativity document review, claim interpretation and mapping, and network protocol tracing (Wireshark). Nearly three decades of engineering experience across broadband, wireless, cable, and military communications systems.

## Expertise

- Broadband access technologies: DOCSIS 1.x/2.0/3.0/3.1/4.0 (FDD/ESD), EPON, XGSPON
- Wi-Fi technologies: 802.11 g/n/ac/ax/6GHz/be, Wi-Fi mesh (802.11s), EasyMesh, roaming (802.11k/v/r)
- 5G/3GPP standards and wireless protocols
- Customer-premise equipment (CPE), gateways, and home networking
- PHY/MAC layer design, OFDM/OFDMA, FEC (Reed-Solomon, LDPC)
- IoT protocols: Thread, Matter, Zigbee/802.15.4, LoRa
- System-level latency reduction: LLD, AQM, L4S
- Network protocol analysis and performance characterization
- FPGA/ASIC design for wireless systems (W-OFDM, WiMAX)
- Regulatory submissions (ISED) and spectrum characterization
- Ubiquiti Wi-Fi Networks and Captive Portal

## Litigation & Technical Consulting Experience

### Mountainside Digital Consulting Inc. (2023–Present)

Technical Consultant supporting Bartlit Beck on behalf of plaintiffs in:

- *General Access Solutions, LTD. v. Verizon et al.*, Case No. 2:22-cv-00394-JRG
- *General Access Solutions, LTD. v. T-Mobile USA, Inc.*, C.A. No. 2:23-cv-00158

### Work performed:

- Interpretation and mapping of 3GPP 5G and IEEE 802.11 standards

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- Source-code review and analysis
  - Relativity document review
  - Network protocol tracing (Wireshark)
  - Technical analysis of accused technologies

## **Industry Standards Participation**

### **IEEE Ballot Committee**

- 802.15.4ac – Low-Rate Wireless Networks: Privacy Enhancement
- 802.3dk – Ethernet >50 Gb/s Bidirectional Optical Access PHYs
- 802.15.4ab – Enhanced UWB PHY/MAC (in progress)
- 802.11bi – WLAN MAC/PHY: Enhanced Service with Privacy Protection (in progress)

## **Wi-Fi Captive Portal**

### **Ubiquiti Custom Wi-Fi Captive Portal**

- Python Based, Locally running Captive Portal
- Docker enabled for portability
- Designed to sit behind Carrier Grade NAT(CGNAT)

## **Telecommunications Engineering Experience**

### **Rogers Communications (2005–2023)**

National MSO providing consumer and business Internet, voice, video, and wireless services.

#### **Roles:**

- Engineering Manager, Customer Premise Technology (2014–2023)
- Engineering Manager, Cable Modem Systems (2012–2014)
- Senior Engineer, Broadband Access (2006–2012)
- Engineer, Broadband Access (2005–2006)

#### **Key contributions:**

- Led engineering for Wi-Fi 3/4/5/6/6e/7 CPE and home-networking technologies
- Developed ISED submissions for 6GHz spectrum use and developmental licenses
- Managed DOCSIS PHY/MAC performance baselining, OFDM/OFDMA, channel bonding, and FEC
- Oversaw EPON/XGSPON deployments and ONU/ONT performance validation
- Guided IoT protocol integration (Thread, Matter, Zigbee, LoRa)
- Drove latency-reduction initiatives (LLD, AQM, L4S)
- Contributed to CableLabs Gateway Device Security Best Practices

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## **CableLabs Working Groups (on behalf of Rogers)**

- Perfecting Wi-Fi – Multi-MSO initiative to improve Wi-Fi performance
- Next-Gen Home Networks – Architecture definition for future home networking

## **Wi-Fi Alliance (WFA)**

- Wi-Fi 7 Technical Task Group – Plug-fest and certification wave development

## **Wireless & FPGA/ASIC Engineering**

### **Wi-LAN, Inc. (2000–2005)**

FPGA/ASIC Engineer designing cellular communications devices.

#### **Specialization:**

- Xilinx FPGA design using RTL
- W-OFDM/WiMAX (802.16 a/d/e) PHY development
- FFT, AGC, channel sync, AFC, mobility support
- Reed-Solomon FEC implementation

### **General Dynamics Canada (1995–1999)**

Engineer developing military communications systems.

#### **Roles:**

- FPGA Engineer, Advanced Technology (1998–1999)
- Junior Hardware Engineer, Communications Systems Division (1997–1998)
- Engineering Internship (1995–1996)

## **Programming & Tools**

- C, C++, Python, MATLAB, Assembly
- RTL (VHDL, Verilog)
- Linux, Unix, Cygwin, Windows Command, PowerShell

## **Education**

**University of Calgary** B.Sc. Electrical Engineering, Computer Engineering Minor (with Internship) Specialization in wireless communications, digital communications, DSP, microprocessors, and CMOS VLSI IC design.

## **Licenses & Professional Associations**

- Professional Engineer (P.Eng.), APEGA (2005–Present)
- IEEE Member (COMSOC)
- CableLabs and Wi-Fi Alliance working groups (through 2023)

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## **Volunteer Work**

### **STEM Innovation Academy**

- Sparkans Robotics Mentor (2023–Present)
- Technical Subcommittee Member (2023) Provide mentoring and technical guidance for student robotics teams, including electrical system design and industry-focused education.