



Large-Scale Coverage Testing for Radio Systems



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Mechanical Engineering

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Introduction/Issue Confronting Site

Coverage Testing is used to evaluate radio system performance across a defined area, which can be a city, county, or an entire state. Radio systems are evaluated using three main criteria: bit error rate (BER), RF signal strength (RSSI), and delivered audio quality (DAQ). These criteria determine the quality and range of radio frequency (RF) coverage, which is critical especially to our first responder clients who require coverage even in extremely remote areas. My summer internship at SBP Consulting, LLC consisted mainly of conducting RF coverage tests across different projects.

Site Information

Name: SBP Consulting, LLC (sbpconsultingllc.com)

Address: 9125 Whiskey Bottom Road Suite H, Laurel, MD 20723

Supervisor: Bhavesh Patel

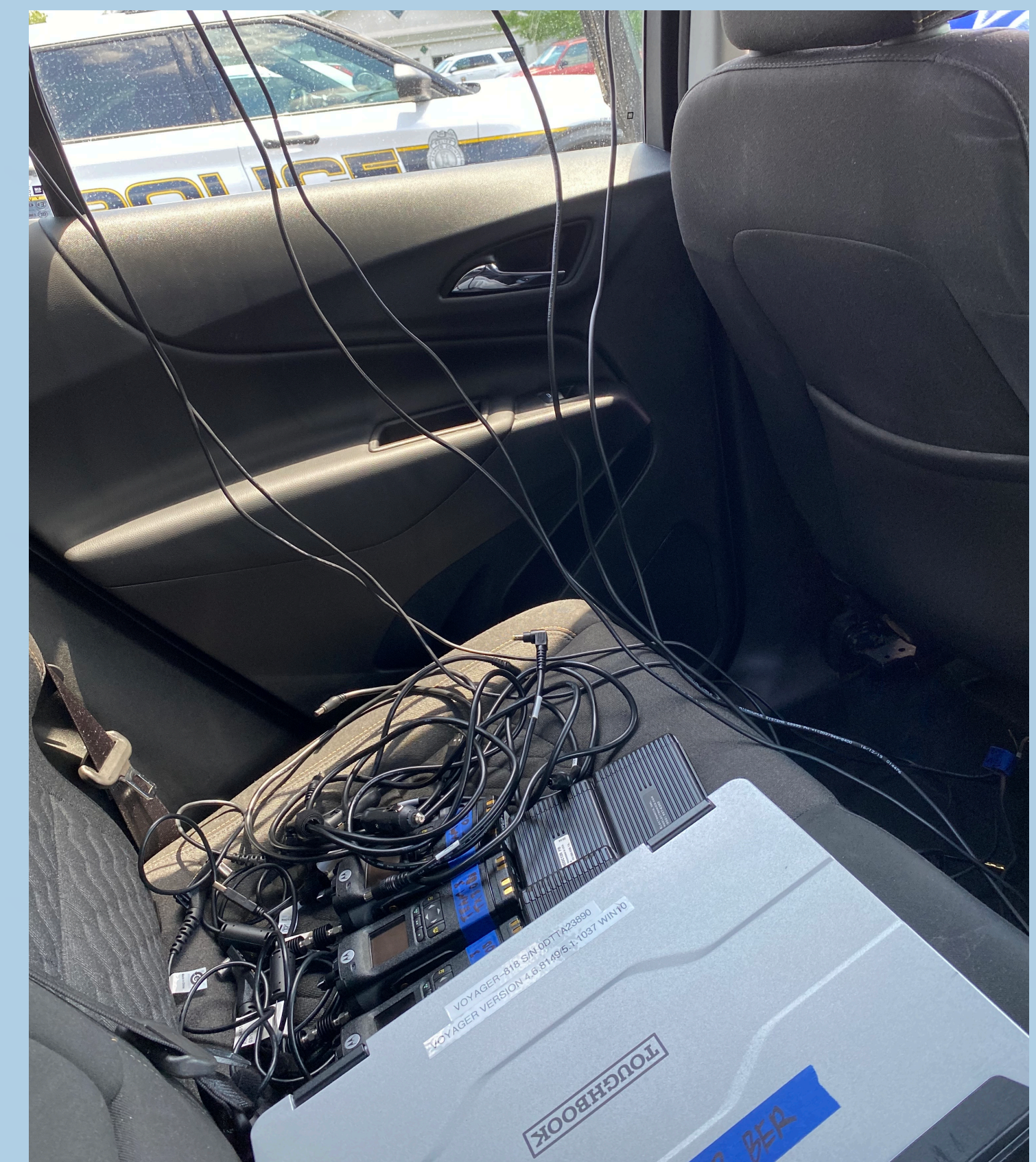
“SBP Consulting is a company run by engineers and IT professionals, not sales people. Our goal is to provide our clients the very best customized service to improve your business operations and efficiency at a reasonable cost.”

Activities

- Performed radio coverage tests for various commercial and government clients, including PECO, Shenandoah County Public Safety, and the U.S. Marshals.
- Learned to operate RF test equipment and Motorola’s proprietary GIS software, Voyager.
- Troubleshot hardware and software issues during field tests.
- Consulted with clients to ensure optimal testing and attended meetings to discuss test strategies and results.



Coverage testing for Shenandoah Public Safety

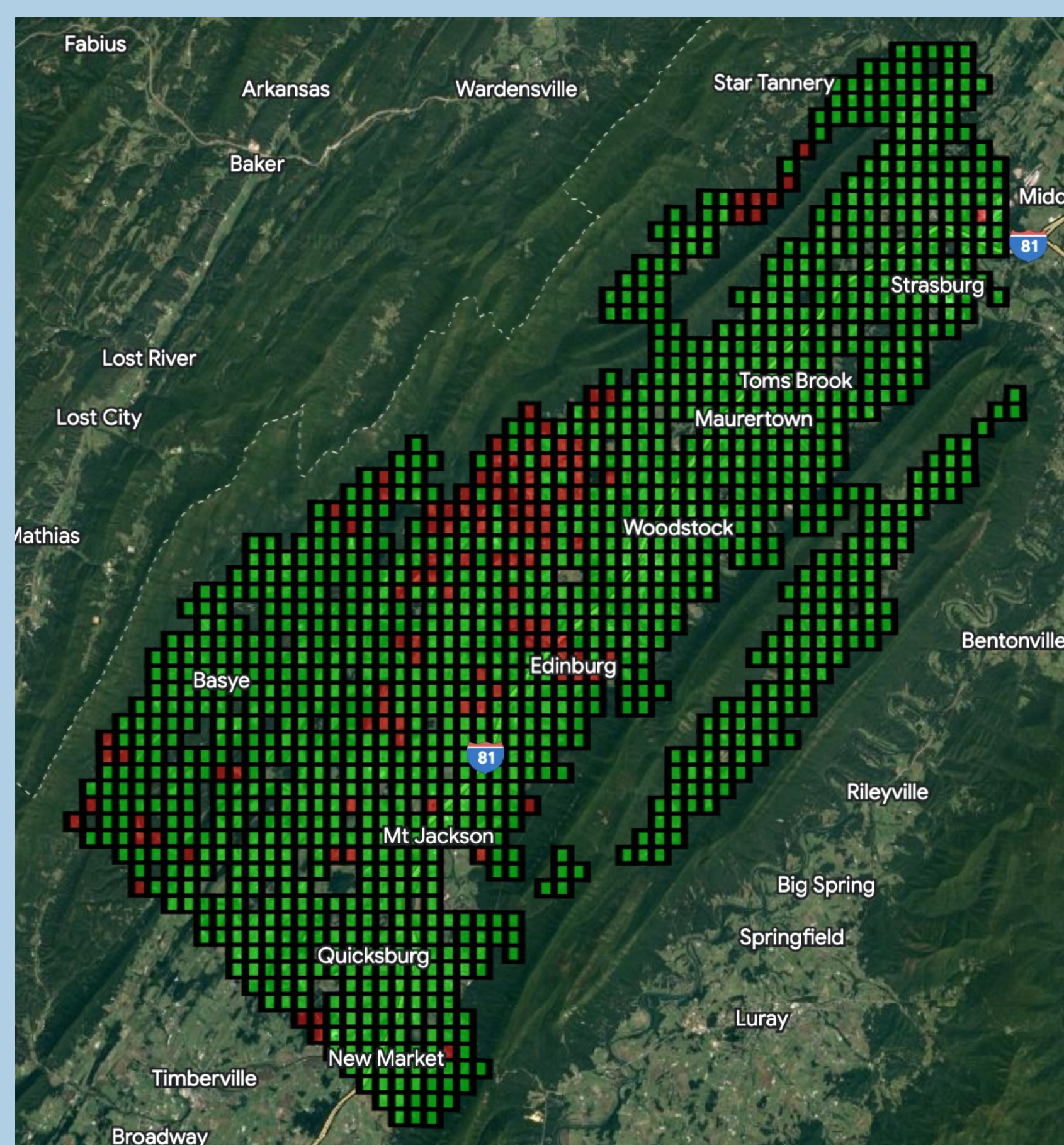


RF equipment: Motorola radios, attenuators, mag-mount antennas, GPS receiver, Voyager Toughbook

Impacts

Through my internship, I helped SBP Consulting and Motorola deliver radio systems to commercial and government clients by performing coverage tests.

The internship was an amazing learning experience for me to gain hands-on skills in RF engineering, technical consulting, and quickly adapting to different projects.



Example of results for a Coverage Acceptance Test Plan (CATP)

Future Work

I hope to continue to gain engineering experience through my classes and internships, while SBP Consulting will continue to expand and undertake new projects in RF engineering.

Acknowledgements

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Thank you to College Park Scholars, SGC specifically, and Dr. Holtz and Dr. Merck for a great experience in my first two years of college.

