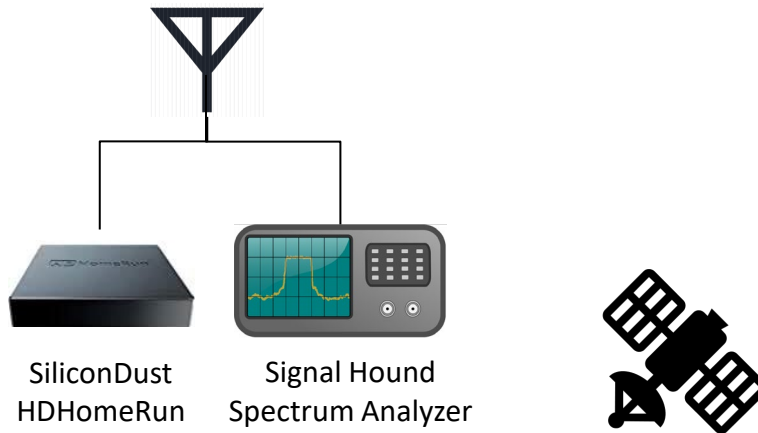# NOMAD DTV Analyzer For ATSC 1.0 and 3.0

Hardware Specifications

Basic Operating Principles

User connects to Octave Server and uploads the campaign pre-analysis file (up to 4 stations)

SiliconDust HDHomeRun

Signal Hound Spectrum Analyzer

GPS Receiver

NOMAD DTV ANALYZER

Mobile Acquisition: better than 1 point every 50 m

NOMAD DTV ANALYZER

Real-time analysis: identification of unexpected propagation problems (transmitter/antenna issues, interferer, host interference, etc)

Post-Campaign Analysis:
- Export to Google Earth, CSV, HTML5, RTF or OpenStreetMap
- Antenna analysis report
- FM quality analyzer
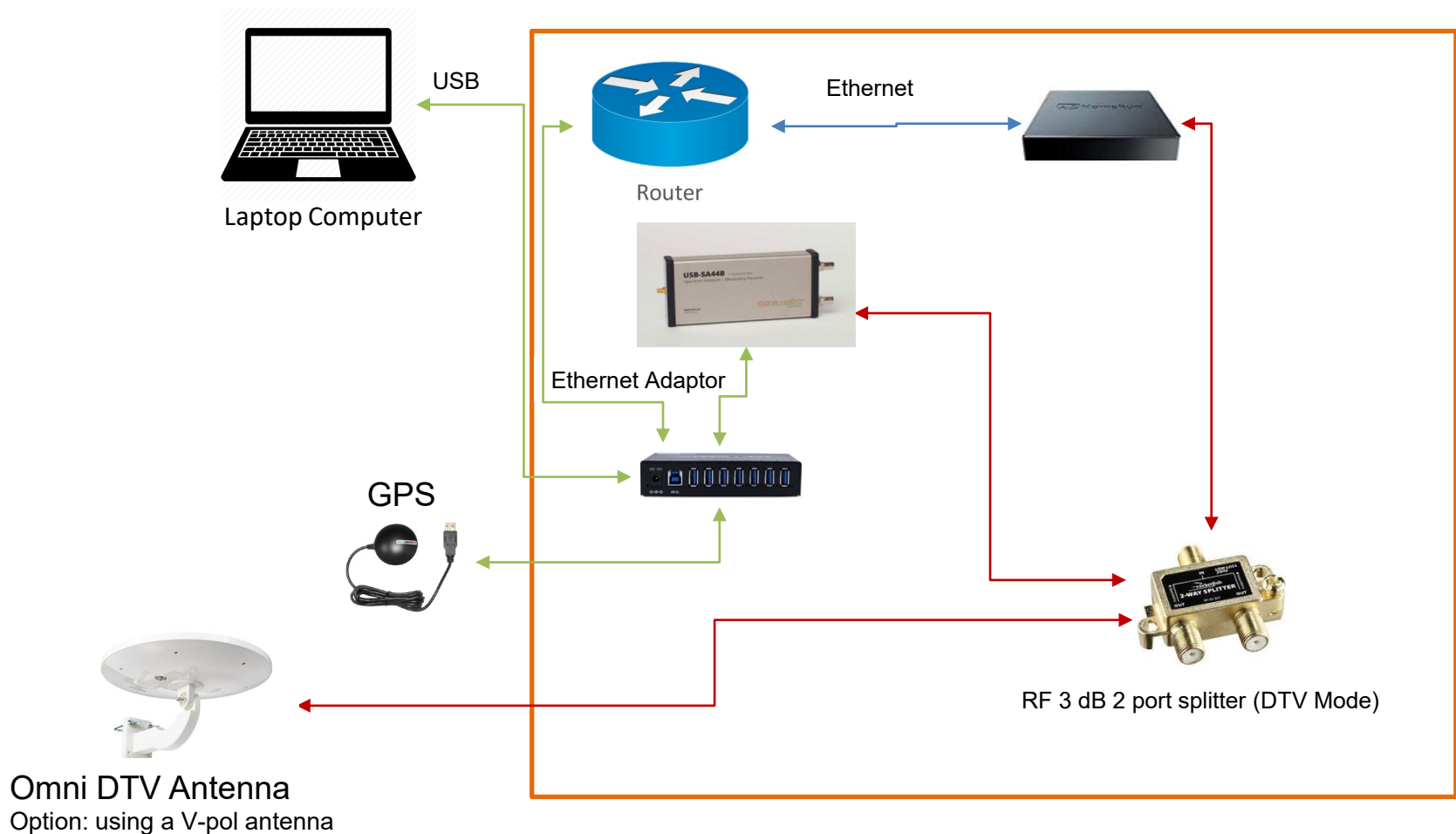- HD Radio coverage
- SFN analyzer

Nomad Hardware Kit

The system comes fully mounted and calibrated in a transportable Gator 3U or 4U (depending on the options on number of receivers) Light Weight Rack Bag.

Note: the example on the left shows a dual HDR/FM and DTV Nomad kit.

Connectivity Diagram

Laptop Computer

USB

Router

Ethernet

Ethernet Adaptor

GPS

Omni DTV Antenna
Option: using a V-pol antenna

RF 3 dB 2 port splitter (DTV Mode)

GPS System Characteristics

GPS: US Global Sat BU-353-S4 (or compatible)

- Output rate: 5 hz

- Chipset: Star IV

- Accuracy: <2.5 m

- WAAS enabled (North America)

- Max speed: 1854 km/h

- Power: 60 mA (USB)

Receiving DTV Antenna

ANI 9011S DTV Active Antenna

The antenna, amplifier and splitter are calibrated at Octave Communications for the complete DTV band (high-VHF and UHF)

If measurements require a V-pol investigation, a second pass can be completed using a calibrated whip antenna.

Spectrum Analyzer

Signal Hound USB-SA44B

https://signalhound.com/products/usb-sa44b/

Main specifications:

- Noise floor at 100 MHz: -161 dBm

- Dynamic pre-amp control

- Max Amplitude: + 10 dBm

Ethernet Switch

All devices are accessible directly via the ethernet switch (connected via the USB port or directly to an ethernet port of the computer)

Different model can be used depending on hardware requirements
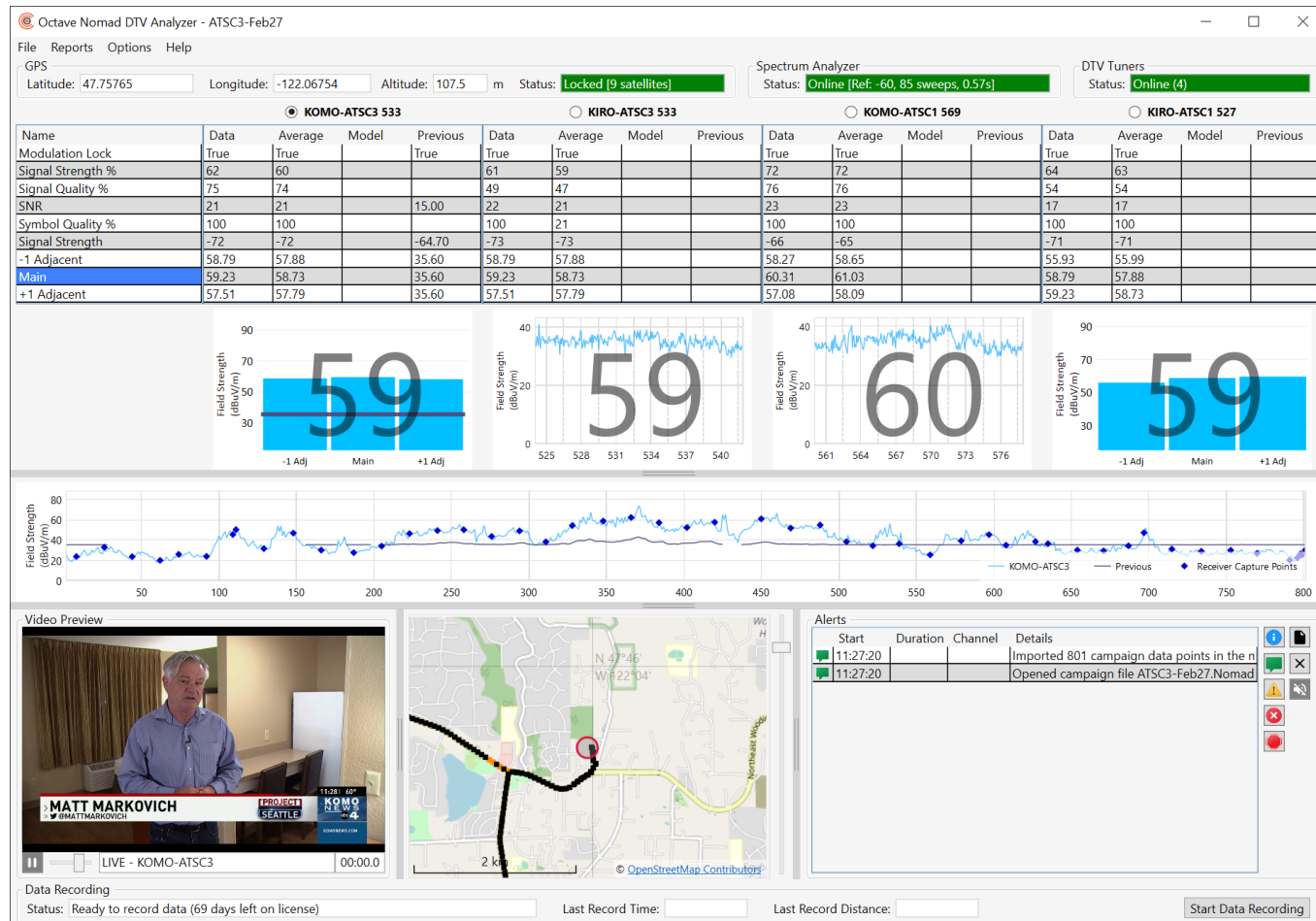
Power Consumption: 0.9 W

DTV Receiver(S)

Nomad supports the following SilliconDust Receivers:

- HDHomeRun Connect 4K (for ATSC 1.0 and 3.0)

- HDHomeRun Connect Duo-Quatro (for ATSC 1.0 only)

System Main Interface

# Key Features

Nomad DTV System Features:

- Mobile ATSC 3.0 Metrics / Video recording

- Static ATSC 1.0 Metrics / Video recording

- Coverage comparison (with model or other campaign)

- Antenna pattern validation

- 1st adjacent power level interference detection

- Full campaign playback (video, location and metrics)

- Complete report output
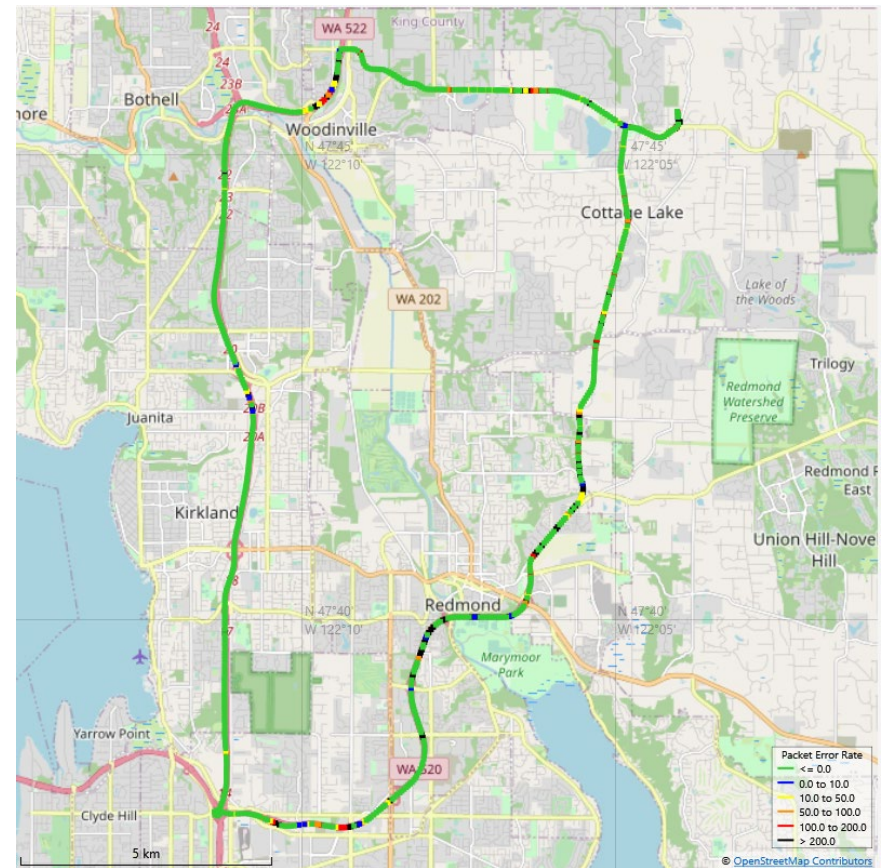
Nomad DTV Metrics Recorded:

- Modulation Lock

- Signal Strength

- Signal Quality

- SNR

- Symbol Quality

- Carrier Offset

- Channel Bandwidth

- TS Bandwidth

- TS Error Count

- CRC Error Count

- Packets Per Second

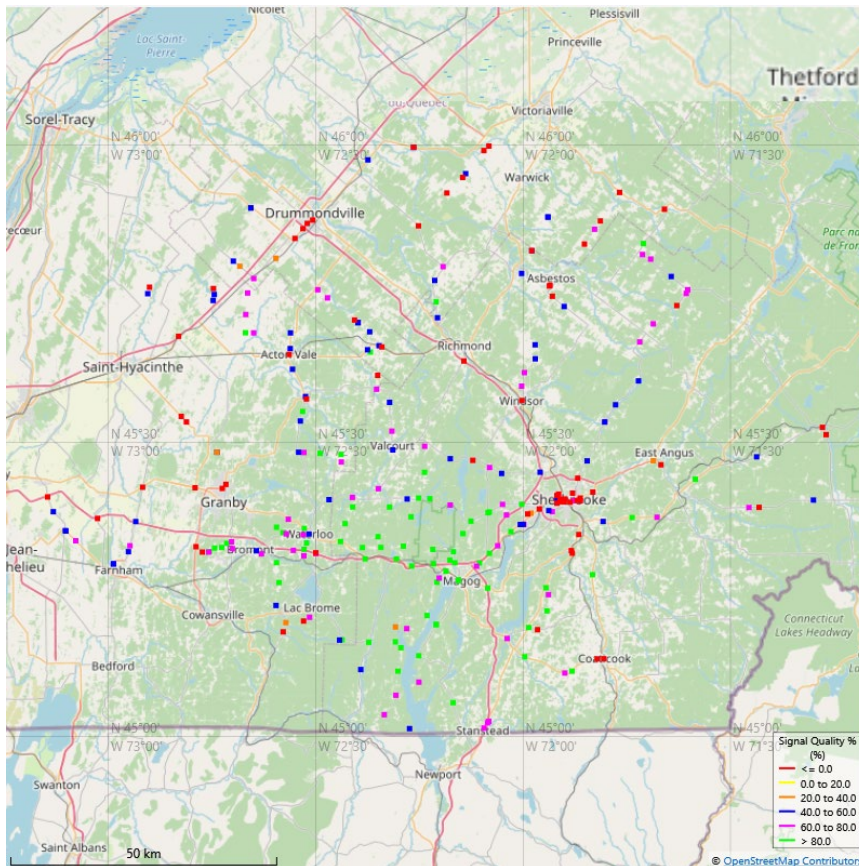- Packet Error Count

Example ATSC 3.0 – Seattle WA

SNR

Packet Error Rate

Example ATSC 1.0 – Sherbrooke QC
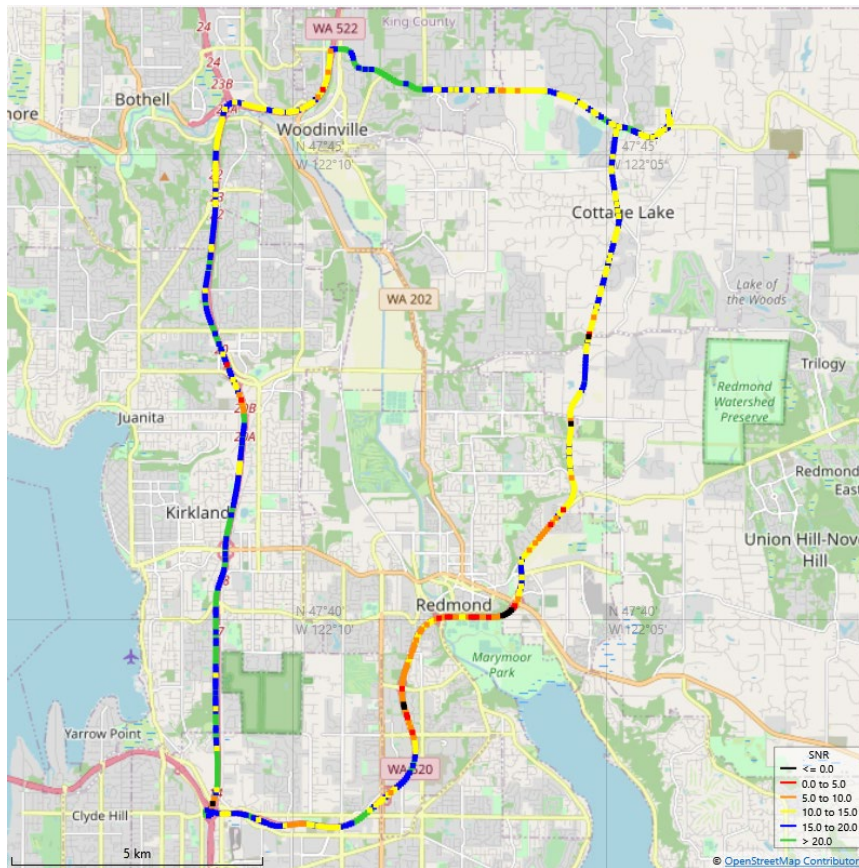
Signal Quality %

Antenna Verification