Spectra Go – Portable Monitoring & DF System

Compact Portable DF Monitoring

Spectra Go is a compact, portable, wideband monitoring and direction-finding system with an operating frequency range of 20 MHz to 6 GHz. Spectra Go was specifically developed for high performance tactical RF signal monitoring, direction-finding and geolocation applications.

Portable and Rugged

Spectra Go comprises of a packable DF antenna, ruggedised receiver, optional processing unit, and SpectraView software.

The Spectra Go Direction Finding antenna incorporates two antenna bands, each comprised of five elements.

The antenna incorporates low noise amplifiers to maximise sensitivity, RF gain control and pre-selection filtering to maximise dynamic range, and RF sequencing to facilitate phase-interferometric direction finding.

The antenna is light weight and designed for minimum packing size to facilitate easier deployment logistics. **Spectra Go is ideal for man-portable and vehicle borne operations. Elevation of the antenna using masts or buildings of opportunity will enhance detection ranges from static/semi-static locations.**

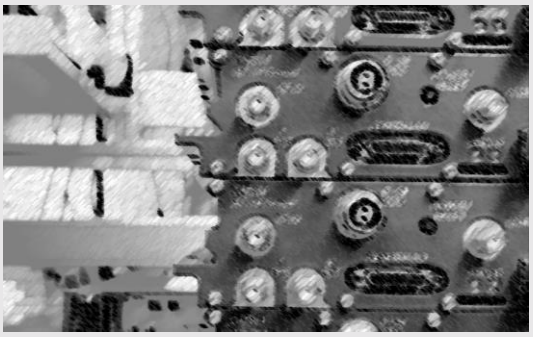
The wideband receiver is packaged in a rugged waterproof housing suitable for the harshest of environments. Spectra Go has two phase-coherent digitising receive channels, each with 100 MHz digitised bandwidth.

Spectra Go Antenna Unit – Portable Monitoring & DF

Powerful DF Processing

Advanced integrated digital signals processing enables parallel prosecution of multiple signals of interest whilst maintaining energy and compute resource efficiency.

An optional processing unit extends the base system with long-duration wideband buffering to facilitate after the event 'post-facto' signal monitoring, recording, direction-finding and geo-location.



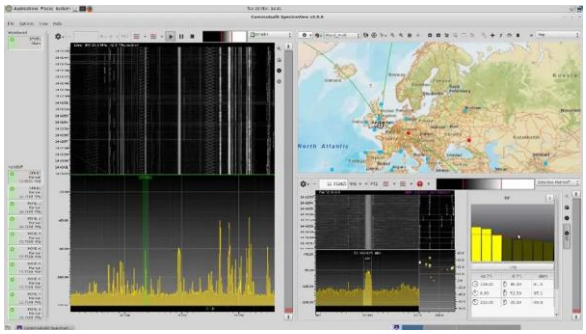
Spectra View – Electronic Mapping & offline Geospatial Information

SpectraView - Powerful Wideband Search Features

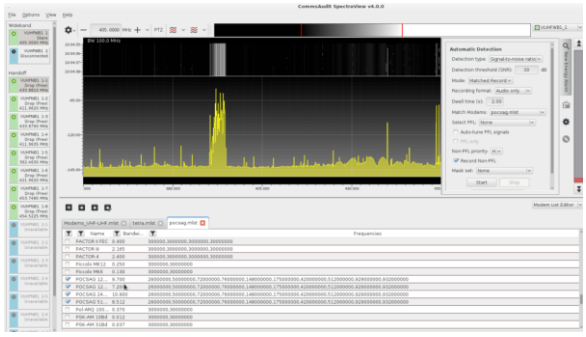
SpectraView is our easy-to-learn software package for RF monitoring, direction-finding/geo-location operations. The software layout is clear and intuitive.

Powerful automated wideband search features enable a user to automatically search for specific signal types/protocols, triggering targeted collection, direction-finding and geo-location signals of interest.

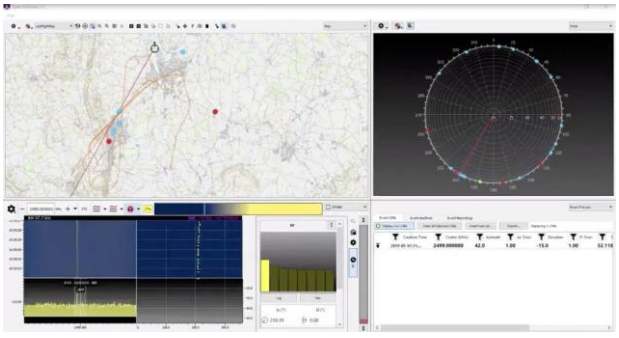
User defined priority frequency lists and spectral masks enable efficient resource allocation in congested/contest environments. Integrated geospatial information system utilising ESRI offline tilepackage (.tpk) data is used to present live and historical lines of bearing and geo-fixes for signal events of interest.



SpectraView provides automatic signals recognition



Native DF Capabilities



Organic Signals Recognition capabilities mean Operators can quickly find signals of interest based on modulation type or modem

Each antenna element is sampled continuously without sequencing. This approach yields superior POI for short duration emissions giving single-digit micro second (µS) detection and DF with pulse widths in the region 7-9 µS.

Paired with a DF capable sensor, SpectraView offers Operators various means to DF and Geolocate signals of interest:

- ✓ Electronic Mapping & offline Geospatial Information System (utilising Esri ArcGIS)
- ✓ Direction Finding Polar & Scatter Plots
- ✓ View, edit & manage Direction Finding results (requires DF sensor)
- ✓ Blind Signal Separation using adaptive digital beam-forming (requires Super-Resolution capable sensor)

Spectra Go & Spectra View Specifications

Direction Finding Antenna

Low Band	30 MHz—1 GHz, 5 elements
High Band	1 GHz– 6 GHz, 5 elements
RF Gain Range	18 dB, 6 dB steps
RF Pre-Selector Bands	7 Sub-bands + bypass
GPS Antenna	Integrated multi-constellation GPS antenna
Heading Reference	Integrated electronic compass
Power Input	Powered via RF interconnect from receiver assembly.
Antenna size (deployed) diameter, height (mm)	1200mm x 720mm, 12kg.
IP Rating	Designed for harsh environmental conditions - IP65

Wideband Receiver

Frequency Range	20 MHz—6 GHz
Digitised bandwidth	2x 100 MHz, phase coherent
Handoff DDC channels (derived from wideband data stream)	128 max, 64 phase coherent (processing sub-system dependent).
Time/Frequency Reference Source	RF GPS, (Possible to use external hardened RF GPS Feed) Timing accuracy 15ns (1-sigma) relative to UTC
Power Input	AC, DC and Battery power supply options.

Optional Processing Unit

Wideband Buffer	2x 100 MHz lossless buffering for 30 minutes to 3 hours

SpectraView

Time & Frequency Displays	Wideband & Narrowband (handoff) Spectrograms and Waterfalls
Direction Finding Displays	Azimuth Waterfall, Polar Display (compass plot), Frequency vs Bearing, Lob Manager, Geo Manager
Automatic Signal Detection / Search	Amplitude threshold (Absolute or Signal to Noise Ratio)
Automatic Signal Detection / Search Criteria	None: free search Frequencies of interest: User defined Priority Frequency Lists (PFL) Frequencies not of interest: User defined masks Signals of interest: User selected protocols
Geospatial Information System	Offline local mapping using ESRI® Tilepackages
Event Manager	Event Manager & Event Preview associates products (Recordings, LoBs, GeoFix) with time, frequency, signal parameters
Smart Database	Signals , Sub-Bands, Locations, Library
Signal Recording	IQ data (VITA 49, 16T, 32T, MIDAS Blue) Audio (.wav)
Signal Recognition	Option 1 - User modifiable/editable signal recogniser & decoder Option 2 - Digital Push To Talk (PTT)

Key Options