



TECHNICAL DATA SHEET

RAPTOR XBS-BL

Boundary Layer Radar Wind Profilers

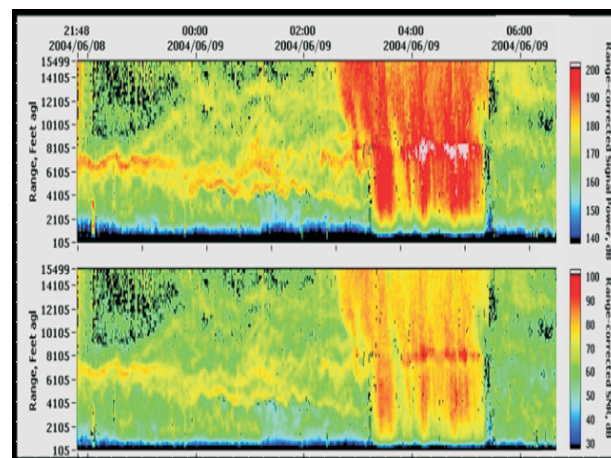


DeTect's RAPTOR XBS-BL represents a revolutionary, unique design in Radar Wind Profiler technology offering a high performance, digital system in a compact, portable design that is simple and quick to set up.

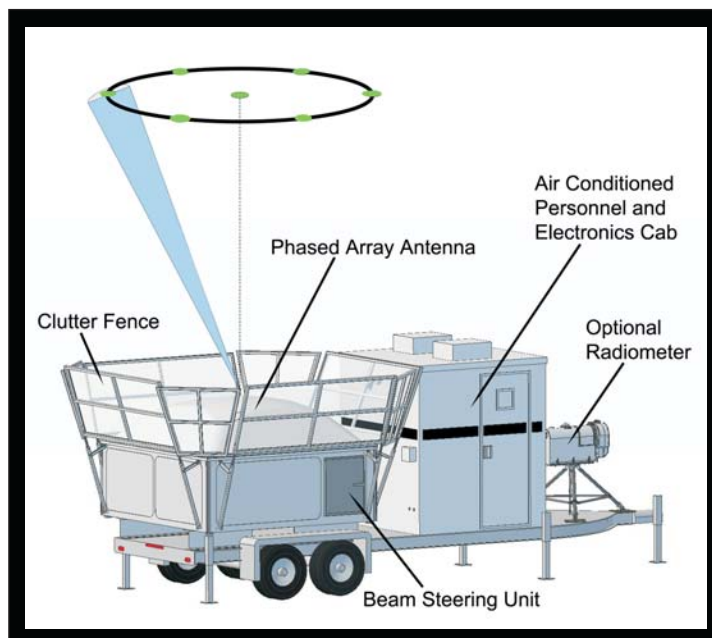
System:	RAPTOR XBS-BL Radar Wind Profiler
Applications:	Real-time operational support for weather forecasting, aviation operations, and other applications demanding high quality meteorological data products
Tx Frequency:	915 MHz or 1290 MHz nominal, or custom
Antenna:	Approximately 2.4 m (8') diameter phased array
Beam Steering:	6-beam oblique and 1-vertical
Peak Power:	800 W or 1400 W options
Height Resolution:	User selectable from 75 to 500 m
Range:	~3 km in clear air, ~5 km in precipitation
AC Power:	< 1500 Watts
Accuracy:	< 1 m/s; <10° for wind speeds > 5 m/s; <15° for wind speeds ≤ 5 m/s
Network/ Remote Access:	Network, cellular, serial available
PC OS:	Windows 7 Enterprise, Red Hat Linux, CentOS Linux

Option: Integrated radiometer for boundary layer thermodynamic profiling, e.g. radiosonde replacement

Specifications are subject to change without notice.

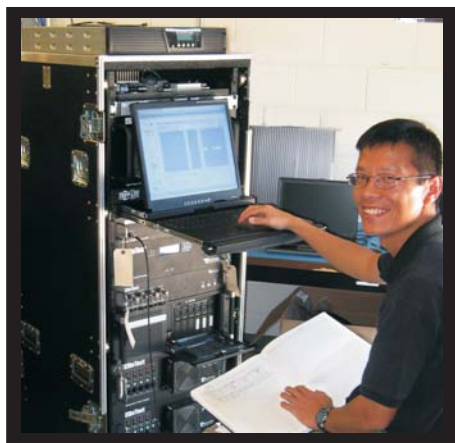


Display of range corrected radar returned power (top) and Signal to Noise Ratio (bottom). Image shows turbulent layers and clouds. The melting-layer is evident during the rain storm as an area of enhanced reflectivity or "bright band".



XBS-BL trailer-mount unit showing components and options available. Data collected at seven points above antenna; six oblique beams can be used for VAD processing.

The **DeTect RAPTOR line of Radar Wind Profilers** provides unattended, real-time operational support for weather forecasting and aviation, aerospace, military,



research, and other applications demanding high-quality meteorological data products. Our modular, scalable RAPTOR systems are engineered and constructed to high standards incorporating

commercial off-the-shelf (COTS) components, reducing costs of ownership and enabling technology insertion and upgrade opportunities.

RAPTOR systems use a modern digital radar design to ensure high reliability and low operating cost. Our digital receiver system and advanced signal processing result in superior data products at high temporal resolution suitable for operational applications.

A Radio Acoustic Sounding System (RASS) can be added to provide vertical profiles of virtual temperature. Depending on atmospheric conditions, RASS can provide up to 1.5 km agl.

The **RAPTOR XBS-BL** is nominally a 915 MHz or 1290 MHz radar for boundary-layer wind profiling. The system has a weatherproofed phased array antenna, server-class PC for radar control and signal processing, and a software package that includes:

- **BIRCH** radar control software generates time series, spectra, moments products, displays, and data archive.
- **ASPEN** advanced signal detection processing and data display software with time/height continuity analysis, multi-peak discrimination, QC algorithms, many product displays, and data archive.

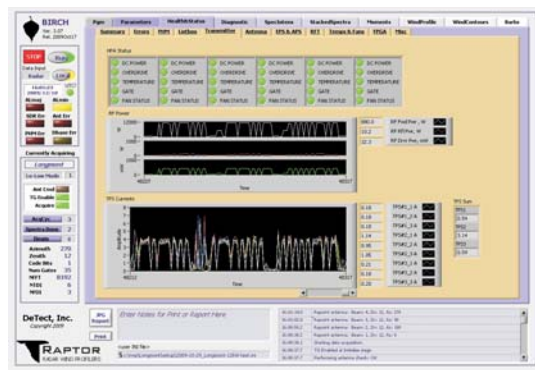
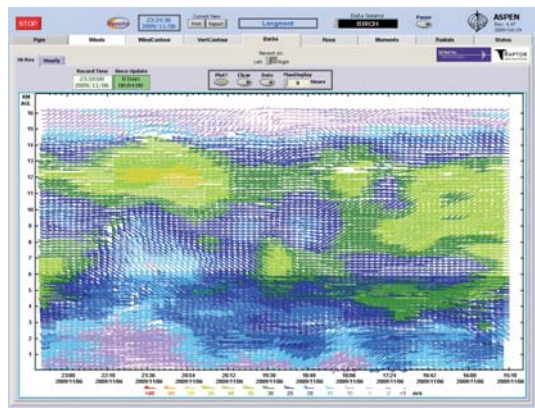
Other components of the RAPTOR XBS-BL include:

- Intermediate Frequency Conditioner (IFC) (acts as analog front-end for digital receiver)
- Transmit/Receive Switch
- High Power Final Amplifier
- Profiler Health Monitor (PHM) (Optional)
- Radar Power Supply (RPS)
- Surge/lightning protection on antenna RF and control cables
- All required cables

RAPTOR systems include warranty on parts and labor for:

- Internet and telephone technical support
- Data QA/QC checking
- RAPTOR software upgrades

RAPTOR systems can be configured to comply with country or project-specific operating requirements. Customizable options include but are not limited to: total system power, operational frequency, computer operating system, RASS, and AC operating voltage.



Displays of ASPEN wind barbs screen (upper), and BIRCH profiler monitoring screen (lower).