

TECHNICAL DATA SHEET

RAPTOR FBS-ST

Stratosphere/Troposphere Radar Wind Profilers



System: RAPTOR FBS-ST Radar Wind Profiler

Applications: Real-time operational support for weather forecasting, aviation operations, and other applications demanding high quality meteorological data products. Scalable for boundary layer or mid-troposphere.

Transmit Frequency: 449 MHz nominal; additional frequencies available

Antenna: High performance phased array using Yagi elements (scalable in 64 to 1024 element arrays)

Beam Steering: Multiple-azimuth, multiple-zenith full beam steering 20° cone above radar

Transmitter: Solid state, scalable from 2 to 24 kW

Receiver: Fully digital IF generation and reception

Height Resolution: User selectable from 75 to 1000 meters

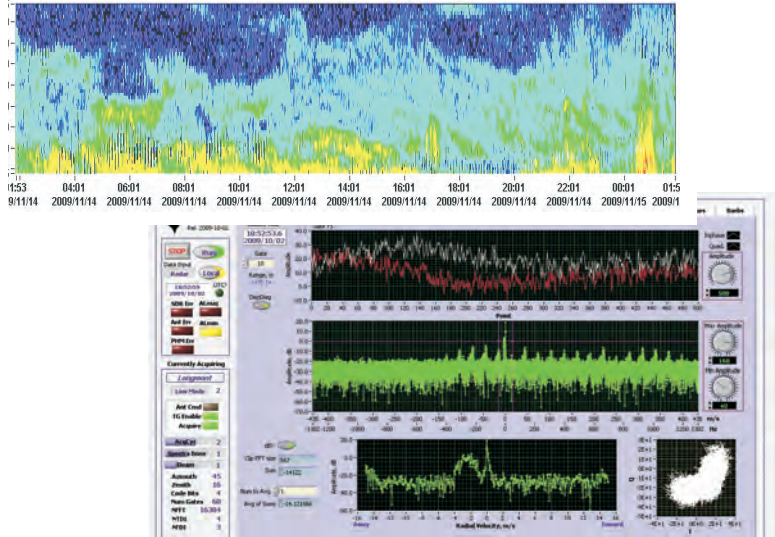
Range: <180m to 16km

AC Power: 120 or 240 VAC, 50 or 60 Hz single phase standard (country of delivery power systems available)

Network: TCP/IP supports multi-user remote system display and control via fiber optic, wireless or cellular networks

PC OS: Windows 7 Enterprise or Red Hat Linux

Custom features and additional options available



Above Top: Display of range corrected radar returned power (upper) and Signal to Noise Ratio (lower). Image shows turbulent layers and clouds. Above Bottom: Diagnostic time series and spectra display allows investigation of hardware problems or radio frequency interference.

Below: The RAPTOR FBS-ST is equipped with advanced phase shifter electronics and Yagi antenna element that delivers ease in installation and maintenance. All components are user replaceable in the field to provide increased uptime and improved data quality.





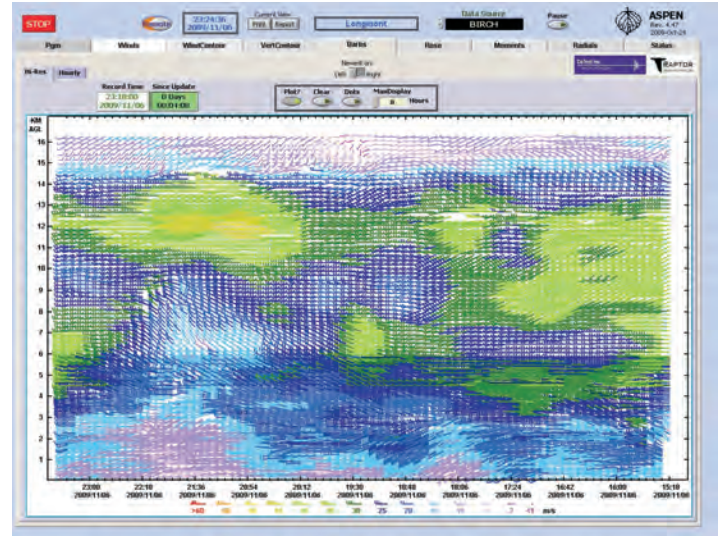
The DeTect RAPTOR line of Radar Wind Profilers provides unattended, real-time operational support for weather forecasting and aviation, aerospace, military, research and other applications demanding high quality meteorological data products. RAPTOR

systems utilize the latest in digital radar technologies to insure high reliability and low operating cost. With a full digital receiver system and advanced signal processing, the result is superior data products at high temporal resolution suitable for true operational applications. With the Radio Acoustic Sounding System (RASS) option, the system additionally provides vertical profiles of virtual temperature. RAPTOR systems are modular, scalable and engineered and constructed to high standards incorporating commercial off-the-shelf (COTS) components to reduce costs of ownership and enable ongoing technology insertion and upgrade opportunities.

The standard RAPTOR FBS-ST is nominally a 449 MHz radar for tropospheric and stratospheric wind profiling. Alternate frequency configurations are also available and all systems can be custom configured to comply with country or project specific operating requirements.

Customizable options include but are not limited to: transmit power, and frequency, antenna size, computer operating system, and AC operating voltage. The system utilizes an innovative fixed-mount phased array antenna with easily maintainable Yagi elements and phase shifter electronics, a server-class PC for radar control and signal processing and a proprietary software package that includes:

- BIRCH radar control software with consensus processing wind calculation software, and low-level data (time series and spectra), moments and winds products displays and data archive.



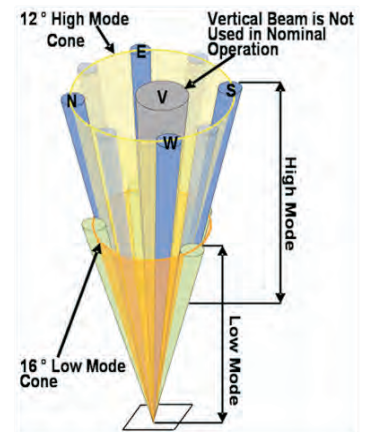
- ASPEN advanced signal detection processing and data display software with time/height continuity analysis, multi-peak discrimination, QC algorithms displays and data archive.

The complete RAPTOR system includes:

- Radio Frequency Translator (RFT) Subsystem (acts as analog front-end for digital receiver)
- Transmit/Receive Switch
- High power Amplifiers (2000 W each)
- Profiler Health Monitor (PHM)
- Electronics Power Supply (EPS)
- Surge/lightning protection on antenna RF and control cables

All RAPTOR radar systems come with a full parts and labor warranty that includes:

- On-site service
- Technical support
- Data QA/QC checking
- RAPTOR software upgrades



Top: Highly customizable, operator-friendly display of wind speed and direction. Bottom: Illustration of RAPTOR's full beam steering capabilities in both low and high modes.