

RAPTOR XBS-BL Specifications

The following table displays nominal specifications for the RAPTOR XBS-BL Radar Wind Profiler. Specifications may vary per project requirements.

Item	Description
Transmit Frequency	915 MHz or 1290 MHz nominal; can be tailored to country specific frequency
Antenna Type	Planar hexagonal phased array using micropatch elements with molded radome and clutter fence
Antenna Aperture	915 MHz: 2.4 m (8') diameter (4.7 m ² physical area) 1290 MHz: 2.4 m (8') diameter (4.7 m ² physical area)
Antenna Pointing	DBS (Doppler Beam Swinging), antenna can point in 7 directions: 1 vertical beam and 6 oblique beams
Antenna Beamwidth (-3 dB)	At 915 MHz: 10°; At 1290 MHz: 8°
Antenna Gain (excluding feed network losses)	915 MHz: 26 dBi 1290 MHz: 28 dBi
Peak Transmit Power	915 MHz: 800 W or 1400 W; 1290 MHz: 700 W or 1200 W; up to 15% duty-cycle
Pulse Width	User definable from 500 ns to 6 μs
Pulse Repetition Rate (PRF)	User definable from 5 kHz to 100 kHz
Height Resolution	User definable, from 75 to 500 m
Max Range (estimated) with 100 m pulse width	2000 m clear air / 5 km or higher with precipitation
Max Range (estimated) with 200 m pulse width	3000 m clear air / 5 km or higher with precipitation
Max Range (estimated) with 500 m pulse width	4000 m clear air / 5 km or higher with precipitation
Minimum Range	75 to 100 m (depends on clutter environment)
AC Power Requirements (radar only)	< 1500 Watts (120 or 240 VAC, 60 or 50 Hz)
Accuracy	< 1 m/s speed; < 10° for wind speed > 5 m/s; < 15° for wind speed ≤ 5 m/s
Resolution	0.1 m/s (horizontal and vertical), 1° wind azimuth
Operating Temperature, Humidity, and Rain	Interior components: +10°C to +40°C, < 100% RH (noncond.) Exterior components: -40°C to +50°C, 100% RH, ≤ 80mm/hr
Maximum Wind	≤ 75 m/s
Software Defined Radio (SDR) Card Clock	915-MHz and 1290-MHz systems: 130.0 MHz
Local Oscillator (LO) Signal	1290-MHz system: 1230 MHz 915-MHz system: 855 MHz

RAPTOR XBS-BL RASS Specifications

The following table displays nominal specifications for the optional RAPTOR XBS-BL Radio Acoustic Sounding System (RASS).

Item	Description
Transducers	Four each, high power compression driver (rated 150W, CW)
Transducer Frequency Range	500 Hz to 20 kHz
Transducer Efficiency	30% (500 Hz to 2.5 kHz)
Transducer Sensitivity	111 dB SPL, 1 W @ 1 m on-axis on horn 118 dB SPL, 1 mW on plane-wave tube
Antenna	Uses fiberglass RASS cuffs, with 4 transducers and individual acoustic feeds
Amplifier	Commercial grade/continuous operation
Amplifier Protection	Full protection from shorted outputs, DC, mismatch loads, overheating, under/over voltage, internal faults, variable speed cooling fans for long life