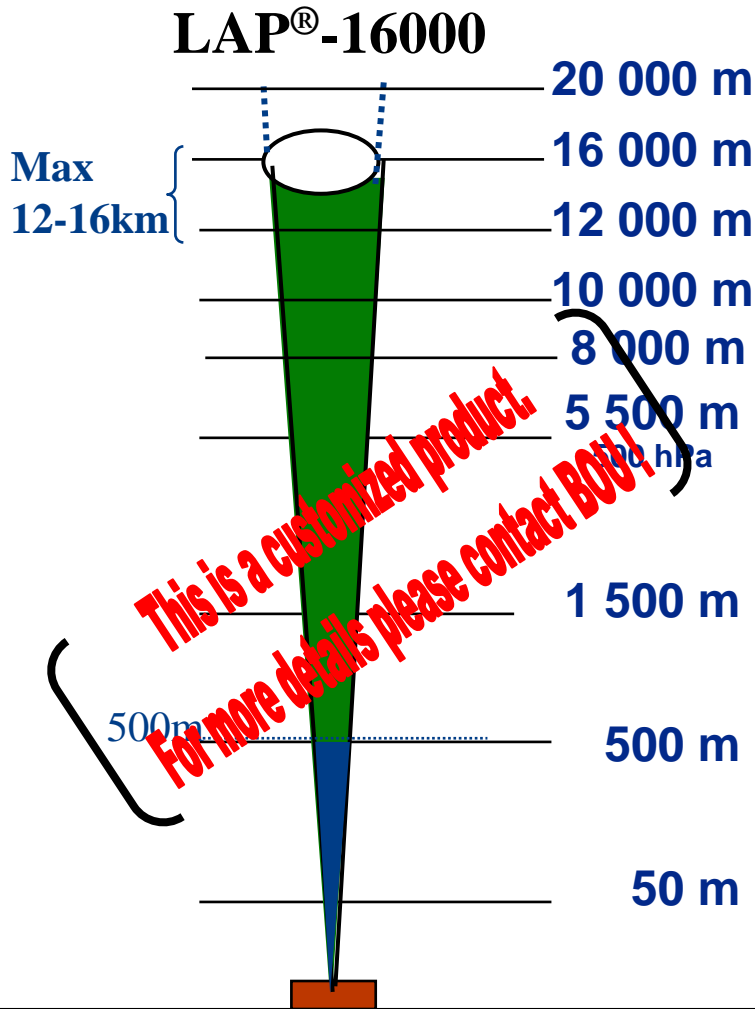


Vaisala LAP[®]-16000

Tropospheric Wind Profiler

Vaisala LAP[®]-16000 Tropospheric Wind Profiler



Operating Frequency:
440-490 MHz
449, 482MHz Recommended

Key Customer segments:
Synoptic

-- Max Height Dependent on atmospheric scattering conditions and system operating parameters

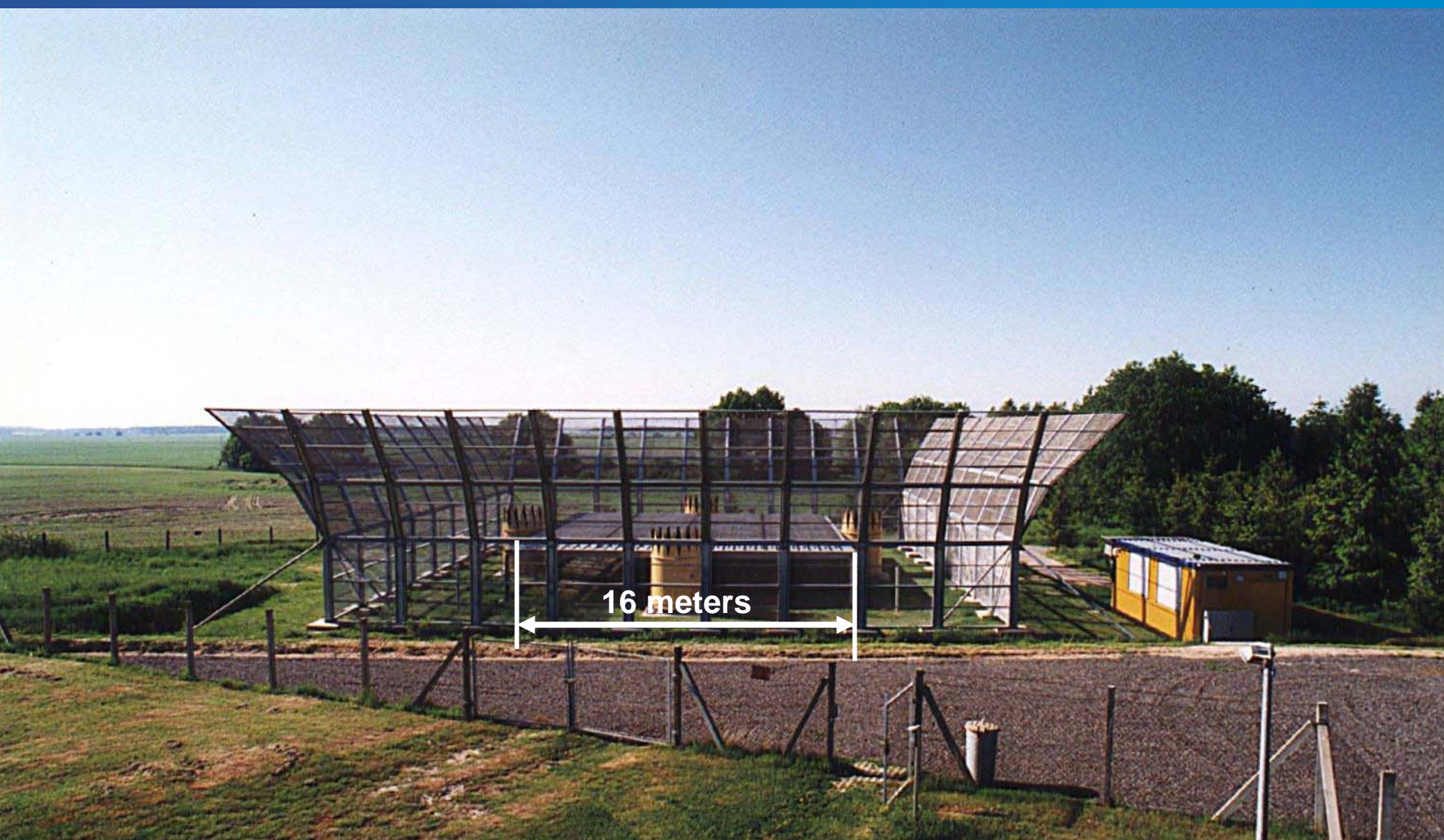
■ Min Height Dependent on clutter environment and available radio frequency emission bandwidth

Vaisala LAP[®]-16000 Tropospheric Wind Profiler

LAP[®]-16000 is a customized product and requires information about the customer's intended installation site and application in order to address opportunities:

- The customer's intended use
- The measurement range requirement
 - Resolution
 - Requirement for virtual temperature measurement
- Available frequency 440-490 MHz band
 - Recommendation 449MHz or 482Mhz
- Intended installation location
 - Conditions, climate
 - Size of Area available for the antenna. Minimum flat area is 20 meters x 20 meters! (see example dimensions on the next slide)
 - Infrastructure, shelter, power, communication available

Vaisala 482MHz LAP[®]-16000 Tropospheric Wind Profiler



LAP[®]-16000 Operating Characteristics

Frequency 482.0078 MHz

Transmitting Characteristics

Transmitted Pulse Bandwidth

with 1700 ns pulse 600 kHz (-3 dB)

with 2200 ns pulse 460 kHz (-3 dB)

with 3300 ns pulse 300 kHz (-3 dB)

with 6700 ns pulse 150 kHz (-3 dB)

Maximum 99% bandwidth -4 MHz (1.7 μ s)

Power Measured in Main Feedline

Peak RF envelope 16 kW

Average RF envelope 1600 W

LAP[®]-16000 Operating Characteristics

Receiver Characteristics

- **Noise Figure** <0.8 dB
- **+3dB Input Sensitivity** <-127 dBm
- **Image Rejection** >45 dB
- **Spurious Rejection** >45 dB

Phased Array Antenna Characteristics

- **Type** Coaxial-collinear phased array formed by 120 elements
- **Aperture** Typically 140 m²
- **Direction** Zenith and $\pm 15^\circ$ from zenith in four orthogonal directions
- **Gain** ~32 dBi
- **Beamwidth** <4°

LAP[®]-16000 Operating Characteristics

<i>Pulse width</i>	1.7 μs
<i>Pulse repetition frequency</i>	1-15 kHz
<i>Number of spectral points</i>	128
<i>Maximum radial velocity</i>	\pm 25 m/s
<i>Height range (sampled)</i>	500 m to 15 km
<i>Sample spacing</i>	user adjustable (should correspond to 250 m, 330 m, 500 m, or 1000 m)
<i>Averaging time</i>	3-60 minutes
<i>Minimum measurement height:</i>	250 m
<i>Maximum measurement height:</i>	12 to 18 km

LAP[®]-16000 Operating Characteristics

Vertical resolution:

<i>with 1700 ns pulse</i>	250 m
<i>with 2200 ns pulse</i>	330 m
<i>with 3300 ns pulse</i>	500 m
<i>with 6700 ns pulse</i>	1000 m

Wind speed accuracy: **<1 m/s**

Wind direction accuracy: **<10 ½**

LAP[®]-16000 Applications

- Supplemental/complementary synoptic upper-air observations
- Special Research Programs
- Space launch support