

**X-POW:** The XPOW (X-band Polarimetric On Wheels) system is an X-band (3.2 cm wavelength or 9,300 MHz frequency) dual polarization radar unit mounted on a flatbed truck (see attached figure). The general characteristics of the radar are given in the attached Table. The XPOL will be located at a distance approximately 10-20 km from the surface rain gauge network available in CAMEX-4 and a maximum of 10-15 km from the disdrometer and the profiling system. The radar will be operated in a volume-scanning as well as sector-scanning mode with elevation sweeps ranging from 0.4° to 20° elevation angles. Due to the simultaneous Horizontal and Vertical polarization transmission capability of this system the antenna scanning rate will be set to 13-15 degrees per second. Receiver gain calibration will be evaluated weekly using a microwave signal generator tests. Comparisons against TRMM Precipitation Radar reflectivity data will be used for overall reflectivity calibration evaluation.

*Specifications of the Mobile XPOL Scanning Radar*

Transmitter system	2.98 cm radar wavelength, 50 kW peak transmit power, and selectable pulse length (38-150 meter resolution volumes).
Polarization diversity	Simultaneous transmission of signal at horizontal and vertical polarization.
Antenna system	0.95°, 3 dB beamwidth (8.5 feet antenna), and a maximum of 30 degrees per second azimuth rotation. During operation antenna center is about 8 feet from the ground.
Antenna control system	Plan position indicator, range height indicator, and survey scan modes. Programmable azimuth and elevation boundaries and step angles and rates. Solar calibration mode.
Radar measurables	Horizontal and vertical polarization reflectivity, Doppler velocities, spectral width, differential phase shift, and specific differential phase shift.
Radar calibration	Use of a signal generator to calibrate the antenna gain. Use of solar calibration and GPS for exact radar positioning.
Mobile platform	Radar system mounted on a flatbed truck with radar operations cabin, a hydraulic leveling system, and a diesel power generator.

*Picture of the XPOL mobile system proposed for deployment in CAMEX-4.*

