AIRBORNE PROXIMITY RADAR FOR LASER EYE SAFETY: DESIGN AND DEVELOPMENT

Frank Pratte, UCAR/NCAR, Boulder, CO 80307., Grant R. Gray, and Jack Fox.

Probing the atmosphere using certain wavelengths of high intensity light presents a potential hazard to pilots of aircraft at close range. The system design of a pulsed Doppler radar for the specific purpose of aircraft detection and laser shutdown is described. A radar of this type was built and fielded for the International H2O Project (IHOP_2002) to protect general aviation aircrews as well as project personnel from narrow-beam laser emissions of the airborne LEANDRE II water vapor remote sensor. This paper includes a discussion of the design and implementation tradeoffs among target detection in clutter, antenna performance, reliability, mechanical size and weight, aerodynamic load, radio frequency interference, and suitable signal processor. A companion paper describes the detection algorithm and parameters.