

Master 2013

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Forward Looking 36 GHz Interferometric Helicopter Radar.

ABSTRACT - Masterthesis

The purpose of the research is to investigate the Radar Cross Section, RCS measurements of different targets specially the High Voltage overhead power lines at frequency of 36GHz and interferometry test design for developing Interferometry Helicopter Flight Support Radar Demonstrator to be used for assisting pilots in avoiding potential hazards for helicopter safety during flight phase (such as terrain, antennas, trees, wires, etc.) applying an innovative interferometric method. This sensor works in various weather conditions and during day and night.

Due to the recent growth of commercial helicopter numbers around the world, there is indeed an increasing demand for helicopter safety related systems, like TAWS (Terrain Awareness and Warning System), obstacle detection and support for operations in various environmental conditions. For instance, Emergency Medical Services (EMS) aviation operations provide an important service to the public by transporting injured / ill patients or donor organs to emergency care facilities. The pressure to safety and quickly conduct these operations in various environmental conditions (such as degraded weather, at night and unfamiliar landing sites) makes EMS operations inherently dangerous, and the hazards associated with EMS operations are resulting in major accidents. This radar system provide early warning information about the obstacles between the flight path.