

Experimentation Description

Applicant's Name (company): FLIR Radars Inc.

- a) The complete program of research and experimentation proposed including description of equipment and theory of operation.

The experimentation will consist in technical demonstrations of the R20SS radar in various locations in the USA.

The R20SS radar is a Doppler ground-surveillance radar specifically designed to detect and track personnel and vehicles within a 20 kilometer range. The radar transmits with a sector antenna of 90 deg by 5.5 deg and uses phased array techniques in the receive antenna. With its electronic scanning capability and fast refresh rate, the R20SS has class leading target detection and acquisition performance.

The R20SS utilizes advanced tracking algorithms which enable fast detection and track initiation resulting in highly accurate target location with a low false alarm rate. The system operates in the X-band for all weather operation and minimal effects from adverse weather and precipitation. The R20SS uses linear FMCW modulation and can be programmed to transmit in any of 3 channels of 100 MHz within the 9200 to 9500 MHz frequency range.

The Ranger R20SS provides fast 90-degree, fixed sector coverage. Incorporating the next generation "track while scan" capabilities, the entire 90-degree coverage area is covered twice per second. When deployed on an optional pan/tilt device, the Ranger R20SS can provide 360-degree coverage.

- b) The specific objectives sought to be accomplished.

Successfully demonstrate the capabilities of the new radar equipment in detecting pedestrians and ground vehicles at ranges specified for the equipment.

- c) How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion or utilization of the radio art, or is along line not already investigated.

The R20SS radar incorporates phased array technology with fast scan capability for optimal detection of ground targets. With its very low MDV (Minimum Detectable Velocity), the R20SS radar is of the next generation radars for ground surveillance. The experimentation proposed is to demonstrate this new capability.