LOW LEVEL TRANSPORTABLE RADAR (LLTR) - ASHWINI

1. Description of Technology:

LLTR indigenous rotating active phased array multifunction 4D radar capable of automatic detection and tracking of aerial targets ranging from fighter aircrafts to slow moving targets. The system has an instrumented range of 200 Km and is able to detect 2sqm RCS targets as far as 150 Km in range with the altitude coverage from 30 meters to 15Kms. The radar operates either in Staring or Rotation Mode. In rotation mode, the antenna rotates at 7.5 / 15 rpm with surveillance coverage of 360^o in azimuth and 40^o in elevation. In staring mode of operation the antenna stares in specified azimuth with surveillance coverage of $\pm 60^o$ in azimuth and 40^o in elevation. The Radar is based on solid state active aperture phased array with Digital Beam Forming and has electronic scanning capability in both azimuth and elevation. The coverage is attained using wide transmit beam and multiple receive beams in both azimuth and elevation.

Technologies:

The following are the technologies established as part of ASHWINI radar and it has spin-off for all future similar class of radar projects of LRDE

- Rotating Active Phased Array
- Time synchronization of multiple receivers
- 2D Digital Beam-forming
- DBF based active array calibration
- Multi-Beam processing
- Critical real-time software and firmware
- Mechanical Packaging (Engineering, Thermal, etc.,)

2. Application Areas:

LLTR technology can be to be used for any ship borne radar applications.

3. Field Trials:

First Phase of Field trails of the radar in integrated mode hasbeen carried out successfully. Sample HMI screenshots are attached herewith.

Radar Sensor Vehicle

Operation Shelter

500 m

100 m

20 m

AC POWER

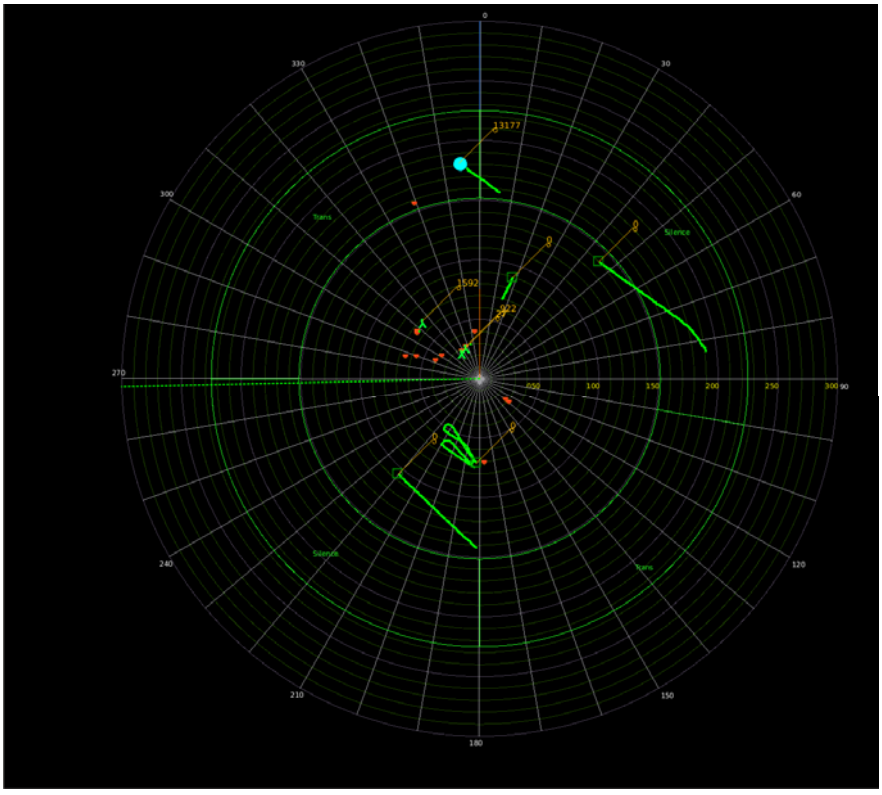
DATA

Power (Generator with UPS, 4 x 90kVA)

Power (Generator with UPS, 2 x 90kVA)

Physical Configuration

HMI Display



Target tracking