

MEDIUM POWER RADAR (MPR) - ARUDHRA

1. Description of Technology:

MPR 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 400 Km and is able to detect 2sqm RCS targets as far as 300 Km in range with the altitude coverage from 100 meters to 30 Kms. 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° in azimuth and 30° in elevation. In staring mode of operation the antenna stares in specified azimuth with surveillance coverage of $\pm 60^\circ$ in azimuth and 30° 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 ARUDHRA 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
- Independently rotating IFF radar.
- Mechanical Packaging (Engineering, Thermal, etc.,)

2. Application Areas:

MPR technology can be used for any ship borne radar applications. The technology will be used for mountain radar and in future family of radars of LRDE for various applications. Presently MPR technology is used for similar class of radars for Indian Army.

3. Field Trials:

Field trials of the radar in integrated mode have been carried out successfully in various locations. Sample HMI screenshots are attached herewith.



MPR Deployed

HMI Display

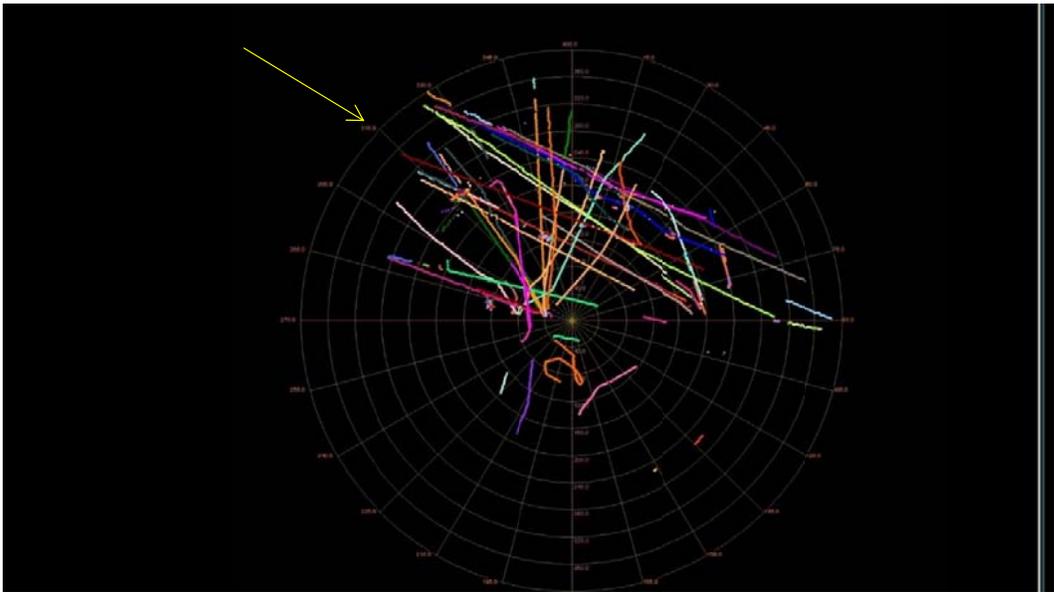


Figure 1 - MPR Opportunity Target Tracking

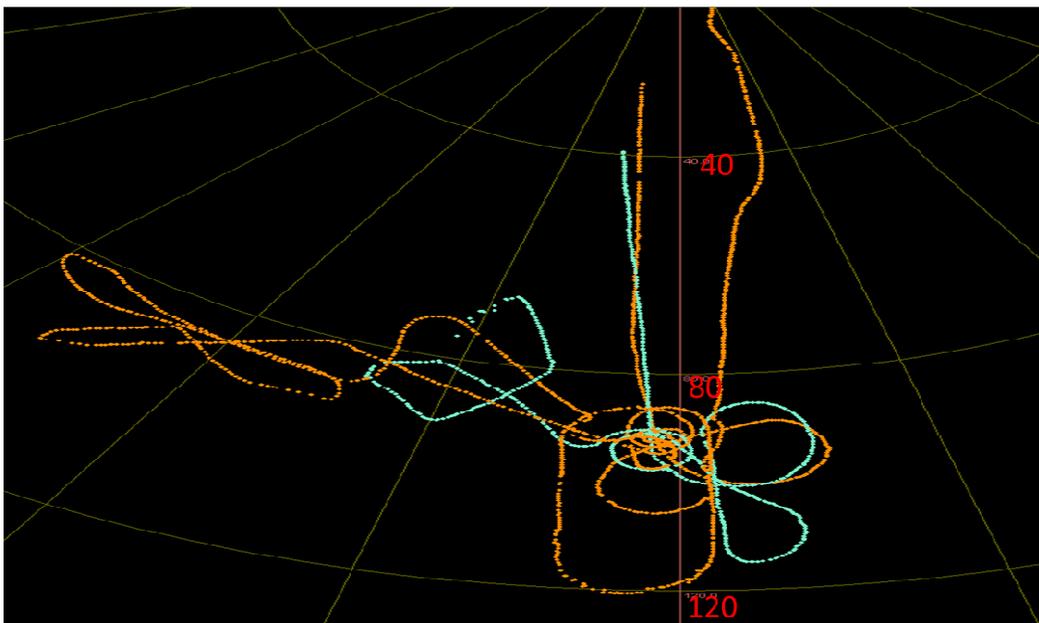


Figure 2 - Maneuvering Performance