Radar

ATR
Atlantic Test Ranges

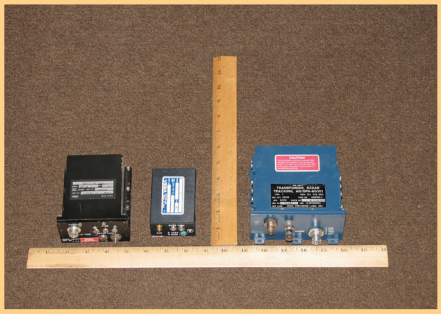
The Atlantic Test Ranges (ATR) operates four instrumentation-caliber tracking radar to provide precise and accurate Time, Space, Position Information (TSPI) for the Research, Development, Test and Evaluation (RDT&E) of fixed- and rotary-wing aircraft, as well as Unmanned Aerial Systems (UAS).

Radar can be used for real time tracking of cooperative (beacon) and non-cooperative (skin) targets. Beacon transponders that are provided, aligned and maintained by ATR radar personnel are used to provide cooperative tracking capabilities. Each radar is capable of tracking in skin, beacon or optical mode, and switching between modes when required. ATR radar are located at Cedar Point in the vicinity of the main ATR complex.

Radar measures the time-of-arrival and angle-of-arrival from emitted pulses to generate azimuth, elevation and range of a target. This data is published real-time to the Advanced Range Operations Network (ARON) data distribution network. ATR radar TSPI data is used as a final data product of an object's position in space versus time. This same radar data is used for aircraft vectoring, safety monitoring and pedestal slaving information. Missions supported include Radar Cross Section (RCS) measurements, chaff measurements, and pointing of emitter or optical instrumentation.

ATR's radar team also maintains five surveillance radar systems interfaced to the SureTrak surveillance system. These computer-based surface search radar are used to maintain range safety during flight test and to monitor shoreline security in accordance with Homeland Security and Chief of Naval Installations directives.

Furuno surveillance radar


Radar beacons supported by ATR

Range Instrumentation Radar (RIR-778)

FOR MORE INFORMATION

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Radar

RANGE INSTRUMENTATION RADAR

The three RIR-778 (Range Instrumentation Radar) are precision, computer-based, single-object-tracking systems that are designed to obtain continuous and highly accurate position of targets for flight test programs.

- X- and C-band, 8.5-9.6 and 5.4-5.9 GHz
- 250Kw peak power, magnetron based
- 0.25, 0.5 and 1.0 microsecond gated CW transmitted pulse width at 160, 320, 640 and 1024 PPS
- Output data rate (TSPI information), 100 Hz
- Auto acquisition using Raster scan or Circular scan
- Option of angle tracking with optical contrast tracker

RIR-778 C-band

RIR-778 X-band

MULTIPLE-TARGET INSTRUMENTATION RADAR

The Multiple-target Instrumentation Radar (MIR), AN/FPQ-17, incorporates an 8973-element, phased-array antenna which provides instantaneous beam pointing over 70 x 60 degrees. This permits precision tracking of multiple skin and beacon targets, up to16 total, while simultaneously providing surveillance in two selected search volumes. The antenna array is mounted on an elevation-over-azimuth pedestal providing hemispherical coverage.

- C-band, frequency diverse, 5.4-5.9 GHz
- 150Kw peak power, coherent TWT final amplifier
- 0.25 and 2.0 microsecond gated CW, 100 microsecond 12 MHz LFM Chirp transmitted pulse widths
- 320 Hz fixed PRF, time-division-multiplexed to deliver 20, 10, and 5 Hz, up to 16 independent tracks simultaneously
- 2 independent, operator-defined, search/acquisition volumes
- Target acquisition can be automatic or manual
- Trajectory acquisition modes to acquire separating objects
- Capable of pulse-to-pulse frequency and pulsewidth agility

Multiple-target Instrumentation Radar (MIR)