

NORTHROP GRUMMAN

Multi-Radar Tracker (MRT)



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The MRT advanced multi-radar tracking and sensor fusion system provides a single integrated air picture. MRT technology is deployed worldwide in USAF, USMC, international air forces and commercial applications.

Overview

The Multi-Radar Tracker (MRT) is a fully integrated, commercial-off-the-shelf (COTS) based, open architecture radar tracking and sensor fusion system. This advanced design is the latest generation of the Northrop Grumman (formerly Litton Systems) radar tracking product line that is deployed worldwide in conjunction with the AN/TYQ-23 system by the U.S. Air Force, the U.S. Marine Corps, and in international air forces. The MRT is a low risk, proven performance solution for today's most demanding air surveillance and command and control systems.

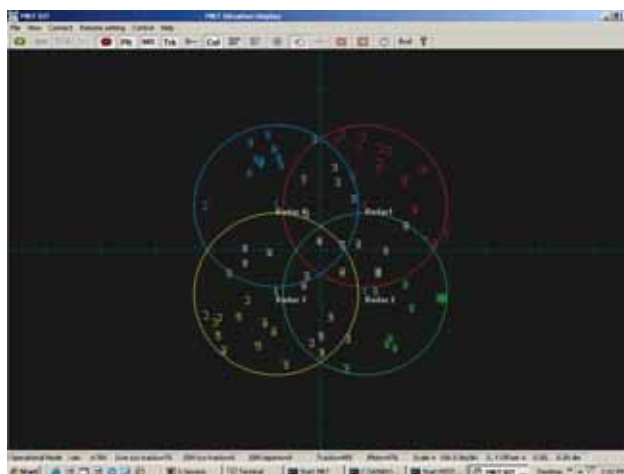
Benefits

The MRT is a rugged self-contained assembly that is suitable for fixed site, mobile or transportable applications. This turnkey system capability can provide complete autonomous standalone operation. In addition, the MRT supports remote unattended or local tracking and fusion elements for air surveillance and Command and Control (C2) systems.

The unit is ideal for a wide range of applications including:

- Airspace Surveillance
- Border Surveillance
- Range Safety
- Coastal Surveillance
- Large Area Surveillance

The MRT is available in the standard off-the-shelf configuration or in custom system-engineered configurations to meet unique customer needs.

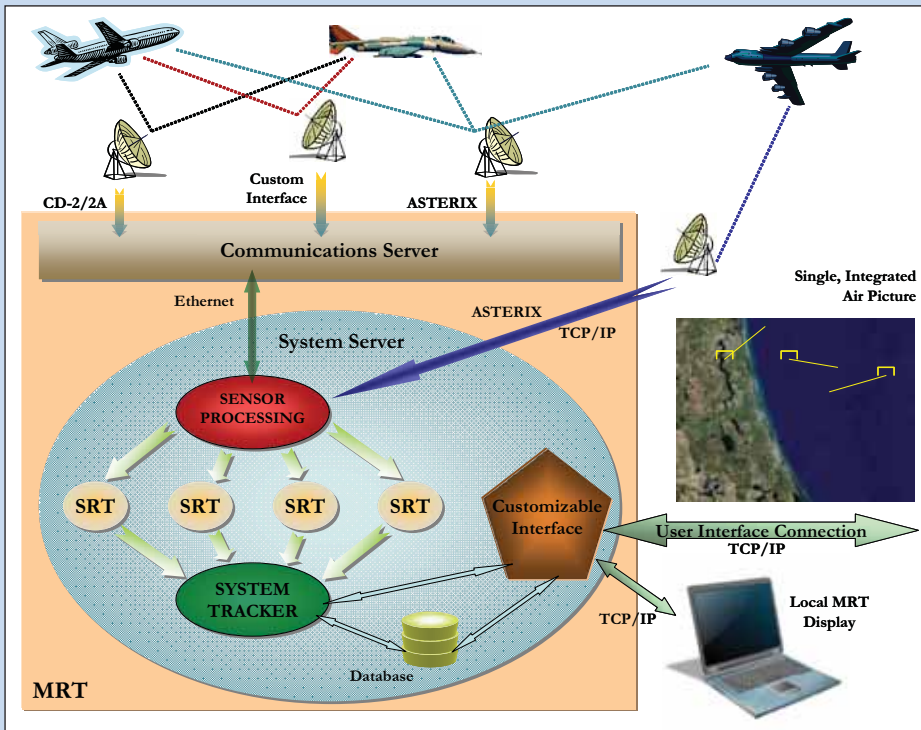


Proven Performance

The MRT provides the latest advances in hardware and software technology in a fully integrated system.

The MRT receives and processes plot data from multiple disparate sensor sources. Automatic track initiation and maintenance is provided over the entire surveillance volume. The MRT provides a single integrated air picture utilizing

data from up to 12 radars in the standard configuration. Additional sensor capacity is available in custom configurations. A patented sensor registration system uses targets of opportunity to automatically calculate azimuth and range correction values. This feature eliminates the need for lengthy calibration using test flights to align the radar net.



Modern Architecture

The MRT is a COTS based, open architecture system. Adherence to open standards assures that system upgrade, functional expansion and COTS refresh is easily accommodated.

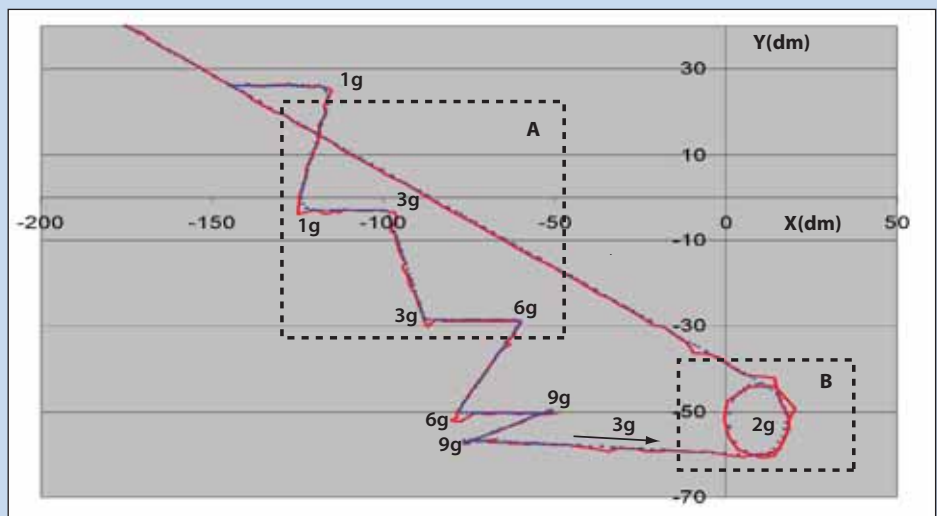
The hardware configuration is composed of a high performance SUN Microsystems system server and a flexible communications server. The communications server is capable of supporting a wide range of standard interfaces and protocols for sensor and command center connections.

A local display is provided that can be used for full autonomous, standalone operation of the MRT or as a control and performance monitor when the MRT is connected to another system.

The MRT C++ software system is modular and designed for ease of support and update.

Precise Tracking

The MRT provides the precise tracking performance required to support control of modern high performance aircraft. Refined adaptive algorithms maintain tracking performance during challenging target maneuvers as shown in the test scenario depicting a series of 1g to 9g maneuvers.



Capacities

- Up to 32 radar inputs
- 1000 tracks per radar
- 2000 tracks in the surveillance area
- 500 plots per second per radar
- 1000 plots per second total
- 10,000 tentative tracks per radar

Interfaces/Protocols Supported

- EIA-232
- EIA-449 (422)
- EIA-530
- MIL-STD-188-114A
- V.11
- V.21 bis V.35
- Asynchronous
- HDLC
- SDLC
- X.25
- TCP/IP
- CD-2/CD-2A
- BISYNC Radar
- 9-bit Radars
- ASTERIX
- Other front end interfaces can be provided

MRT Specifications

Performance

- Maneuver Limits
 - Lateral acceleration to $\pm 8g$
 - Axial acceleration to $\pm 2g$
- Target Velocity: 4,000 knots, max
- Track Initiation:
 - Track initiation within two antenna scans in clear areas using IFF data
 - Track initiation within eight scans in high false-report areas with no IFF data
- Less than 10 false track reports per hour with 2000 clutter and noise plots per scan
- Low-Speed Filter: 0 to 160 knots, selectable

Accuracy

- For non-accelerating targets, MRT track data typically provides:
 - A 200% improvement in track-to-input plot position accuracy
 - Velocity within ten (10) Nautical Mile (NM)/hr
 - Heading accuracy better than five (5) degrees
- Automatic Sensor Registration
 - Azimuth correction value < 0.1 degree
 - Range correction value < 0.1 NM

Physical

- Dimensions 22.2 in.W x 18.4 in. H x 39.8 in. D
(56.3 cm x 46.8 cm x 101.1 cm)
- Weight 150 lb (68 kg)
- Power 500 Watts, 115-240 VAC 50/60 Hz

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