AN/FPS-117, AN/TPS-77, TPS-77 MRR
AIR SURVEILLANCE RADARS
World’s Leading Manufacturer of Ground-Based Radar Systems

Active Electronic Elevation Scanning Arrays

- Reliably Developing and Delivering Radar Systems to Our Customers for Over 60 Years
- Utilize State-of-the-Art Technology in All Our Radar Products
- Leader in Solid-State Electronically Steered Phased Array Technology
- Over 175 Long-Range Ground-Based Radars Delivered World Wide - Greater Than any Other
- Proven Operational Performance Under All Environmental Conditions

FPS-117, TPS-77 and TPS-77 MRR Radars Offers A Proven Advanced Architecture

- D/L Frequency Band and Scanning Pencil Beam Architectures Makes Radars Highest Performing in Class
- 30+ Years Experience Developing Adaptive Algorithms for Complex Operating Environments (Cognitive Radars)
- Radars Provide Simultaneous Low, Medium and High Altitude Coverage
- Full Monopulse Provides Accurate Target Position in Single Beam Dwell
- Fully Independent Transmit and Receive Beams Allows Multiple Missions Simultaneously
- Proven Radar Design that is Routinely Updated with “State-of-the-Art” Technology
- Radars Delivered Mission Ready with Operator-Shelter and Space for Customer Communication Equipment

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<thead>
<tr>
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<tr>
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Clutter-Resistant Pencil Beams
Detect Low-Flying Targets
Around Windfarms

Utilize MTI and Doppler As Well As Adaptive Beam Forming Processing to Minimize Impact of Clutter

Long-Range Beams Provide Additional Sensitivity for Detecting Targets at Greater Distances

Ultra-Low Valley Coverage to -6° Without Losing Coverage in the Normal (0° - 20°) Surveillance Volume (No Mechanical Tilt Required)

Dedicated TBM Track Beams
Track Targets up to 60° in Elevation While Maintaining Coverage in the Normal Surveillance Volume
Pencil Beam Radars Out Perform Stacked Beam Radars

- **Characteristics**
  - Total Elevation Coverage
  - Terrain Adaptation
  - Look-Down Capability
  - TBM Track
  - Low Elevation Detection
  - Susceptibility to Jammers

- **Limitation of Stacked Beams**
  - Beam Shape Limits Elevation Performance
  - No Sectorized Terrain Adaptation
  - Requires Mechanical Tilt
  - Limited to Normal Volume Only: <20°
  - Limited Due to Transmit Beam Shape
  - Multiple Simultaneous Receive Beams

**Stacked Beam Radars More Susceptible to Jamming**

**Advantage of Pencil Beam Radars Against Active Jamming**

- **Pencil Beams**
  - Pencil Beams More Difficult to Jam Due to Narrow Receive Beam

- **Stacked Beams**
  - Stacked Beams Easy to Jam Due to Multiple Simultaneous Receive Beams

**D/L-Band Frequency of Choice for Long Range Surveillance Radars**

- **Comparison of L-Band vs S-Band Detection Performance Against Small Fighter Aircraft in 4 mm/hr Rain**

- **S-Band**
  - 70% Less Volume

- **L-Band**

- **Significant Performance Advantage in Clutter Over S-Band Radars**
- **Greater than 20 db Clutter Rejection Improvement Over S-Band Radars**
- **Lower Frequency Makes Radars Less Susceptible to Different Forms of Clutter**
- **In 4 mm/hour Rain, L-Band Provides Almost 3.5 Times More Surveillance Volume Than S-Band**

**Best Support in the Industry**

- Each Radar Backed by a Strong Support Network
- For More than 30 Years No Radar Taken Out of Service
- LM Users Conference - Customers Introduced to Latest in Radar Technology