



**AN/FPS-117, AN/TPS-77, TPS-77 MRR**  
AIR SURVEILLANCE RADARS

**LOCKHEED MARTIN**



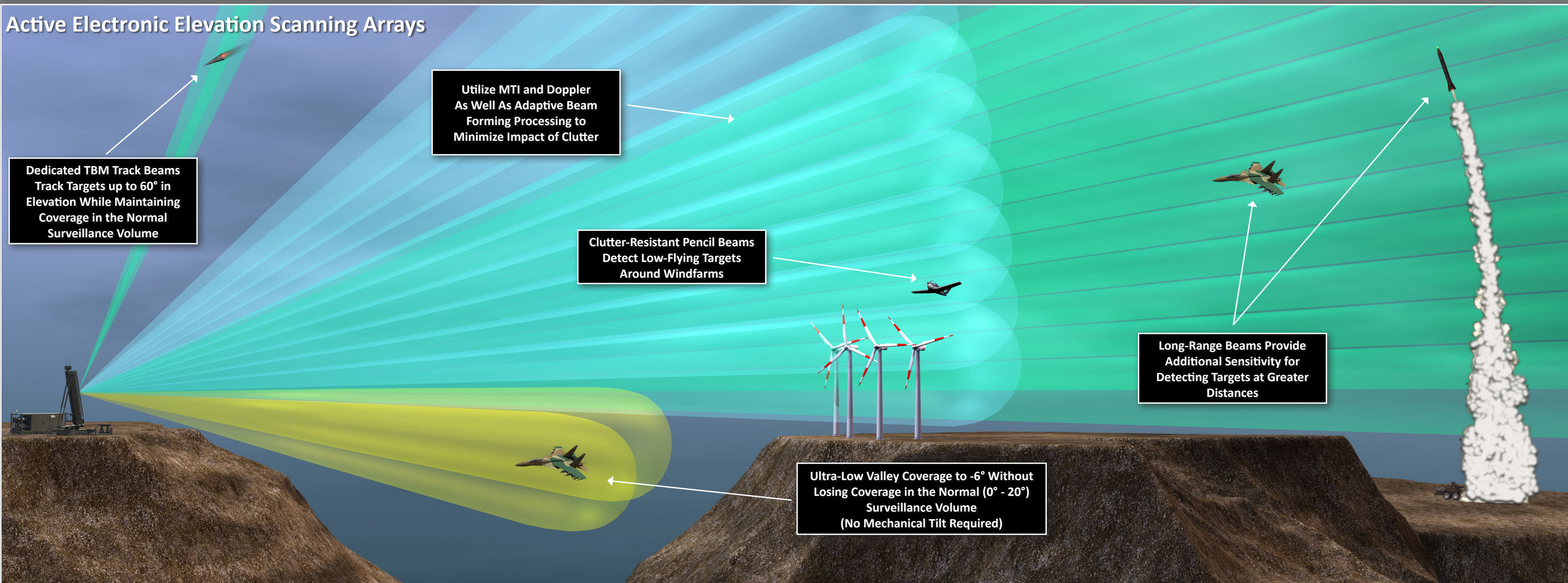
North America 47  
 Europe 41  
 Middle East 50  
 Asia 30  
 South America 6  
 Australia 4

- 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

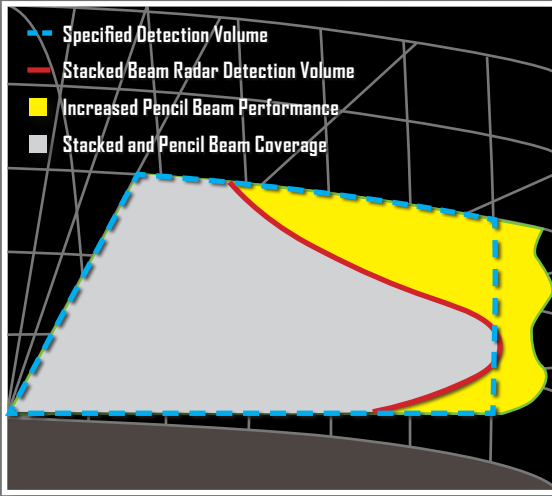


- D/L Frequency Band and Scanning Pencil Beam Architectures Makes Radars Highest Performing in Class
- 30+ Years Experience Developing Adaptive Algorithms for Complex Operating Environments (Cognitive Radars)
- Radars Provide Simultaneous Low, Medium and High Altitude Coverage
- Full Monopulse Provides 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

Active Electronic Elevation Scanning Arrays



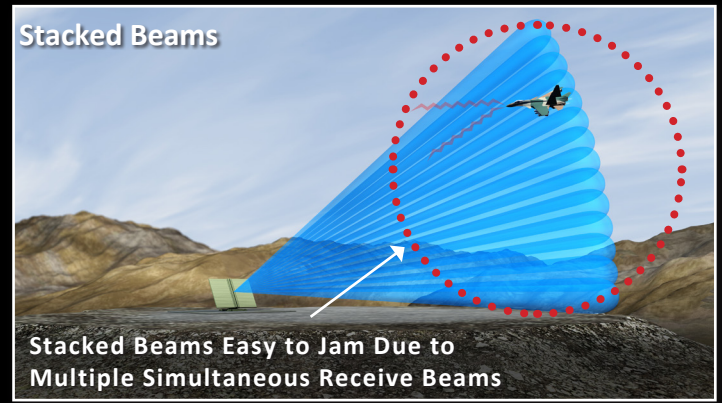
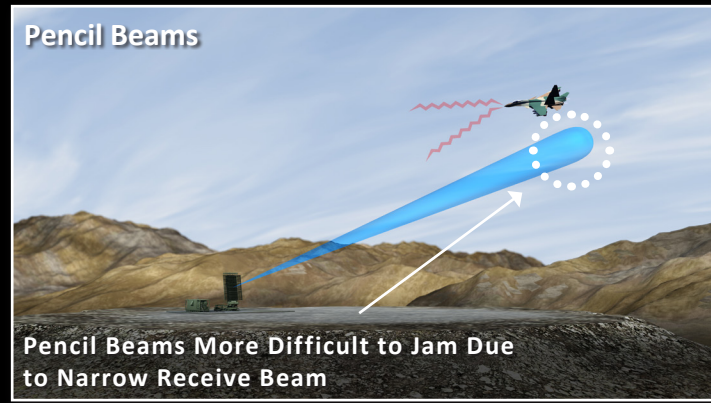
# Pencil Beam Radars Out Perform Stacked Beam Radars



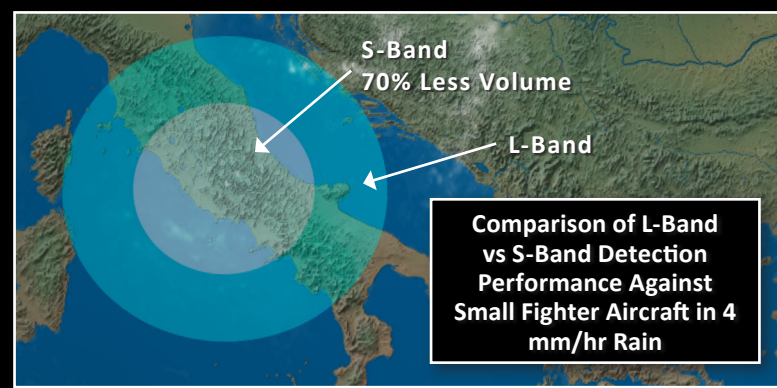
Characteristics	Limitation of Stacked Beams
Total Elevation Coverage	Beam Shape Limits Elevation Performance
Terrain Adaptation	No Sectorized Terrain Adaptation
Look-Down Capability	Requires Mechanical Tilt
TBM Track	Limited to Normal Volume Only: <math><20^\circ</math>
Low Elevation Detection	Limited Due to Transmit Beam Shape
Susceptibility to Jammers	Multiple Simultaneous Receive Beams

## Stacked Beam Radars More Susceptible to Jamming

### Advantage of Pencil Beam Radars Against Active Jamming



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



- 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



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