



# QUINSTAR TECHNOLOGY, INC.

## ANTENNA FOR SHIPBOARD MISSILE DETECTION SYSTEM

Millimeter-wave antennas with integral downconverters

### About the Technology

A great deal of interest and effort has been directed toward the development of Millimeter - Wave (MMW) missile seekers, over the years. Relatively small antennas can provide high gain and narrow beamwidth at MMW frequencies. The MMW technology can penetrate fog, smoke, clouds, and dust, and because of its short wavelength, can provide sensing accuracy, when used in sensor systems such as radars. It is widely projected that anti-ship missile systems will operate in the Ka-band and W-band where low atmospheric attenuation windows exist around 35 GHz and 94 GHz, respectively. In order to defend naval ships against such missiles armed with MMW seeker technology, detection systems with a high probability of detection and intercept are needed.

QuinStar Technology, Inc. has developed high gain MMW omnidirectional antennas, direction finding antennas, and integral upconverters, for the 30-40 GHz and 90-100 GHz bands, where missile attack threats are deemed the highest. The key elements of the MMW receiver systems are the downconverters and antennas, which can detect vertical and horizontal polarizations. QuinStar received funding from SPAWAR and General Dynamic to develop millimeter-wave antennas and integral converters for the Surface Electronic Warfare Improvement Program (SEWIP).

### Military and Commercial Significance

The shipboard missile detection technology is the primary feature of the new Navy SEWIP, which replaces the older AN/SLQ-32 system. Combined with the integral MMW downconverters, the MMW antennas can be used to upgrade existing systems, or as the front-end of new naval electronic warfare systems and implemented across several classes of ships. The MMW antenna provides enabling technology for the development of new systems and other applications including high data rate communications, force protection, surveillance, homeland security, and Unmanned Aerial Vehicles (UAV) control and data transmission.

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Topic Number: N02-087  
(ONR)

SBIR Investment: \$834K  
Project Revenue: \$329K

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### APPLICATIONS

- Navy: SEWIP, Anti-Ship Missile Defense System, AN/SLO-32 – Future naval electronic warfare systems
- Communication Industry: Wireless LAN, wide band communications - Point to multipoint data communication systems
- Homeland Security: Security systems, emergency communication systems, surveillance, secure data communications, quick deployment
- UAV control and data transmission, force protection, surveillance

### About the Company

QuinStar Technology, Inc. is an ISO9001:2000-certified MMW technology company offering innovative product solutions. With expertise in MMW products, micro electronic assembly, rapid prototyping, and mass customization, the company serves the commercial, scientific, and defense arena. QuinStar's program experience includes DoD R&D, high reliability space flight, and volume production of products fielded in broadband wireless communication networks. SBIR funding has allowed QuinStar to work with a system integrator prime contractor and to explore other system applications.