

Omniguard: All-Weather Multispectral Surveillance System

ASTRI's Omniguard multispectral imaging system delivers superior haze penetration, exceptional contrast and outstanding signal clarity. By harnessing shortwave infrared technology operating at 900–1700nm wavelengths, the system cuts through atmospheric scattering far more effectively than visible-light cameras. This means reliable, long-range detection even when fog or smoke would blind conventional surveillance.

Industry Challenges

- Traditional systems frequently miss small, non-metallic vessels made of wood, plastic, or fiberglass — commonly used in smuggling, illegal fishing, and irregular migration
- Standard optical cameras fail completely in low-light at night, fog, haze, rain, or sea spray conditions

Major Benefits

- **All-Condition Detection:** SWIR and long-wave infrared (LWIR) sensors reliably spot non-metallic vessels invisible to radar—even in harsh coastal environments
- **Pixel-Perfect Fusion:** Patented coaxial optics eliminate parallax, delivering full HD fused video at 30fps with edge AI processing
- **High-Speed Tracking:** Autonomously tracks targets at up to 110km/h

Application Areas

- **Coastal Border Security:** Round-the-clock coastline monitoring to detect and intercept illegal immigration, smuggling and intrusions
- **Port & Harbour Protection:** Safeguard critical infrastructure from unauthorised vessel approaches
- **Critical Infrastructure Security:** Defend oil rigs, coastal power plants and strategic assets against waterborne threats

Collaborator(s)

A department of HKSAR Government,
telecommunications services provider

Award(s)

International Exhibition of Inventions Geneva



This hyperspectral imaging optical system is able to penetrate haze and capture clear images in adverse weather conditions

