Table 1. EO/IR Sensors for Border Security

Sensor	Wavelengths	Security Applications	Advantages	Disadvantages	Examples
Ultraviolet	$<0.3\mu$	• Gunshot, rocket/missile, and explosion detection	• Non-directional • Good in fog/snow/light rain	• No-or Limited-Imagery Capability • Reduced sensitivity in Ozone (heavy smog)	• Photomultiplier tube, • Micro channel-plate • Threat Warning Sensors
Visible/Near IR	• 0.3 to 0.9 μ • 0.8 to 0.9 μ (near IR)	• General Observation	• High Resolution • Color Capability	• Day-light or Moon-light only • Degrade in poor weather • Some Near-IR capability for low light conditions	• Silicon CCD
Shortwave-IR	1.0 to 3.0 μ	• Camouflage Detection • Night Vision Goggles	• Readily available • Low Cost	• Poor depth/terrain perception • Require illumination (moon/star light or IR Illuminator)	• Night Vision Goggles • HgCdTe
Midwave-IR	3.0 to 5.0 μ	• Night Observation	• Readily available • High resolution sensors • Good high-humidity performance	• Mostly Cooled Sensors (cost and reliability) • PbSe (Uncooled) not fully developed, low resolution	• InSb • PbSe (Uncooled • QWIP • HgCdTe
Longwave-IR	8.0 to 14.0 μ	• Night Observation • Heat Generator Detection	• Readily available Uncooled sensors at low cost • Cooled sensors with 2-color capability for improved discrimination at higher cost	• Sensitivity affected by humidity • Cooled sensors (cost and reliability) • Uncooled sensors have lower sensitivity	• HgCdTe (cooled) • QWIP (cooled) • VOx Bolometer (Uncooled)