

# Radio Frequency (RF) Unattended Ground Sensor



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## VENDOR DESCRIPTION

Harris has developed a Radio Frequency Unattended Ground Sensor for detection of low-power RF emanations. Several contracts have been executed to take the system from concept to field demo with the sensor operating autonomously with SATCOM relay back to the host on battery power. The hardware can be configured for mini-UAV applications and used in direction finding modes or simple detection modes. Power management has been implemented for extended operations. At the present (CY03/Q1), the frequency of operation is 20MHz to 3GHz with a planned extension to 20GHz in CY04. The RF UGS SWAP (Size, Weight and Power) is consistent with other UGS systems and mini-UAVs. The system has been used in tactical/man-portable demonstrations since CY00.



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UGS

Power Source		Environmental	
Sensors	BA-5590-U COTS 12V lithium batteries 30 days (TBD) @ 24 activations/day @ -40°C 45 days (TBD) @ 24 activations/day @ +20°C	High Temp.	+55°C (TBD) Low Temp. -40°C (TBD)
Supplemental Battery Box	BA-5590-U COTS 12V lithium batteries Additional TBD days mission life	Altitude	0-12,000 ft (operating) 0-40,000 ft (transit)
Monitor	BA-5590-U COTS 12V lithium batteries Under Development	Humidity	90% non-condensing relative humidity per MIL-STD-810E
Repeater	BA-5590-U COTS lithium battery Under Development	Immersion	Withstands TBD hrs in 1m H <sub>2</sub> O at TBD°C differential
		Sand/Dust	Resistant in TBD-knot winds per MIL-STD-810E
		Salt	Resistant per MIL-STD-810E, Method 509.2
		Fungus	Resistant to TBD days growth period
		Shock/Vibe	Random vibration, drop test & loose cargo test/MIL-STD-810E
		EMI/EMC	Complies w/MIL-STD-461A, Level CE06, RE02, RE02.1, RS03

Sensor	Description	Detection	Size/Weight	Features
RF with Seismic/Acoustic Alert	Utilizes a sophisticated hardware/software architecture for RF signal processing. Performs at near theoretical levels to detect extremely weak RF signals from electronic sources. Has a seismic & acoustic activities monitoring sensor that alerts the RF sensor and has the potential to provide multi-INT exploitation capability within a single enclosure.	C&C Targets Classified Dual Use Equip. Classified Time Critical Tgts Classified Personnel w/ gear Classified	340mm x 296mm x 155mm Weight: 10.0 kg	<ul style="list-style-type: none"> <li>■ Passive detection</li> <li>■ Covert operation</li> <li>■ Low false alarm rate</li> <li>■ Time based monitoring or quiescent until activated by targets</li> <li>■ Operates on COTS batteries</li> <li>■ Low power DSP</li> </ul>

Device	Description	Message Type	Size/Weight	Features
Monitor	Provides the capability to display sensor transmissions. Can be used to relay sensor data to an external digital display via built-in RS-232 port.	Under Development	340mm x 296mm x 155mm Weight: 10.0 kg	<ul style="list-style-type: none"> <li>■ RS-232 port to Communications System (VHF SATCOM previously demonstrated)</li> <li>■ LPI/LPD ultra-short burst transmissions</li> </ul>
Repeater	Utilized to overcome line-of-sight obstructions or extend communications range.	Under Development	340mm x 296mm x 155mm Weight: 10.0 kg	<ul style="list-style-type: none"> <li>■ 5-watt transmitters to Sat Com (&gt;100km airborne – estimate)</li> </ul>