

Lightweight Aerostat System - II (LAS-II)

Mission Needs Customs and Border Protection, the Coast Guard and the Secret Service need overhead EO/IR surveillance of border crossings, seaports, airports, outdoor VIP events, etc. that is less costly and intrusive than aircraft or Unmanned Aerial Systems (UAS) while providing 24/7 operation, but with more coverage and fewer blind spots than towers.. Emergency response and law enforcement agencies need this surveillance capability and mobile equipment for wide area resilient and durable communications after a natural disaster or terrorist act that degraded existing communications systems. To meet these needs towers are height limited, providing only short range coverage while aircraft or UAS are expensive and have limited endurance. The most efficient means for persistent wide area coverage is an aerostat but traditional aerostats are expensive, large, manpower intensive, and cannot operate in adverse weather conditions. Their ground equipment has very limited mobility and lengthy set-up times.

To remove these limitations Carolina Unmanned Vehicles (CUV) developed the **Lightweight Aerostat System (LAS)**, creating a mobile cost effective aerostat system. CUV has provided LAS to the USAF, Sandia National Laboratory, and Lockheed Martin. The Small Tactical Multi-Payload Aerostat System (STMPAS) version of LAS was built for the Army and deployed to Afghanistan. CUV has developed the improved **Lightweight Aerostat System –II (LAS-II)** optimized for DHS and Emergency Response.

LAS-II is suitable for surveillance, communications relay, and research for Homeland Security and Law Enforcement missions. Compared to towers, UAS and aircraft, LAS-II has significant operational advantages for mobile surveillance and communications relay. It covers a far larger area than tower based cameras, and has reduced blind spots due to obstacles in the field of view. Operating and maintenance cost is a fraction of the cost of using aircraft or UAS to lift surveillance or relay payloads. It does not require the complicated flight clearances needed for UAS deconfliction with manned aircraft.

Operational Benefits LAS-II consists of three major subsystems: The Helikite / Helirest, Carrier, and Payloads. Taken together these comprise a system far smaller and more versatile than any comparable unit (Fig. 1). LAS uses a specially designed tethered blimp, called a Helikite that combines helium and wind lift so even very small sizes operate easily in high wind, allowing LAS to be a fraction of the cost and manpower of traditional lighter-than-air designs. With LAS-II the Helikite is launched directly from the trailer top rather than from the ground, for improved launch timeline, reduced problems with muddy / rocky ground, and allowing moving with the Helikite inflated atop the trailer. The Helirest air inflated unit on the trailer top restrains and protects to the Helikite during inflation / deflation and provides a safe working area for the two person crew, protecting them from falling. Winches are available to accommodate up to 10,000 feet of tether, and can be equipped with electrical slip rings and fiber optic rotary joints for power / data tethers. LAS-II retains the small crew size, high mobility, air transportability and logistics supportability of LAS-I.

CUV is a small Woman-Owned company in Raleigh, NC, focused on small aerostats and Unmanned Aerial Vehicles. Contact: Mike Rogers, (919) 851-9898, merogers@carolinaunmanned.com

Fig 1

CUV Lightweight Aerostat System - II

DHS MISSIONS:

- Border Control
- Port Security
- Post Disaster Communication
- Large Event Security
- VIP Security



FEATURES:

- All Equipment In One Pickup / HMMWV Off-Road Trailer
- Helikite Lifting Aerostat
- Helirest Protective Mount
- 2 Person Crew, Minimum Logistics
- Camera Payloads
- Networked Comm. Payloads