

PERSISTENT ELEVATED AWARENESS

Advancing the Next Generation

TCOM'S INTEGRATED C5ISR SOLUTIONS ENABLE INFORMATION DOMINANCE TO FULLY SUPPORT THE NETWORKED SOLDIER OF TOMORROW



VALUE OF THE AEROSTAT

Unrivaled elevated persistent awareness simplified

Tethered Aerostats provide significant value, supporting a wide range of payloads (from Comms to ISR and EW). Applicable across the joint force, aerostats provide persistent, cost-effective elevated awareness using a variety of sensors to enhance warning, mitigating anti-access/area-denial (A2/AD) threats.



AEROSTAT SYSTEM COMPONENTS AND ADVANTAGES

Advantages of Lighter-Than-Air (LTA) Tethered Platform

Range: High altitude provides extended line of sight with operational altitudes from 1,000 ft to over 16,000 ft. Persistence: Up to 30-day flight duration provides mission endurance. Fiber-optic powered tether enables high bandwidth and secure data transmission. Affordability: cost per platform and flight hour is superior to other platforms.

TCOM AEROSTAT BENEFITS

- ▶ Tethered Aerostat capabilities make valuable contributions to detection, deterrence, and the kill web at a fraction of the cost of the alternatives
- ▶ Aerostats can play a key role in an integrated elevated awareness and payload delivery network
- ▶ Simple, low cost, and resilient component of ISR networks and Kill Chain in highly contested regions
- ▶ Contributes to a resilient Common Operating Picture (COP)
- ▶ Competition: Persistent collection and warning enables Deterrence; Crisis: Persistent awareness enables decision advantage, denying enemy initiative; Conflict Phase: Targeting and Fire Control resilience
- ▶ Aerostats underpin asymmetric networks, contributing to decision advantage and complicate the enemy's decision making, employing a host of payloads including RF/EM countermeasures

TCOM HISTORY – OVER 50 YEARS OF DEVELOPMENT, PRODUCTION, OPERATION AND MAINTENANCE SUPPORT, AND TRAINING EXPERIENCE

Founded in 1971 and headquartered in Columbia, MD with manufacturing and test facilities in Elizabeth City, NC. TCOM is the only company with the in-house ability to Design, Produce, Integrate, and Test complete aerostat systems. Deployed worldwide, TCOM provides situational awareness in demanding environments.

We are proud to have offered the first surveillance aerostats to the U.S. Military for force protection in Afghanistan and Iraq and provide surveillance aerostats to US government and US allies and partners world-wide. We are the Program of Record under US Army, PD-Aerostat as well as Envelope Designer and Supplier for Advanced Airships and High-Altitude Balloons (HABs).

WITH OPERATIONS IN OVER 18 COUNTRIES AROUND THE WORLD, TCOM IS THE GLOBAL AUTHORITY IN AIRBORNE PERSISTENT SURVEILLANCE SOLUTIONS.



EVOLVING AIR & MISSILE DEFENSE THREATS

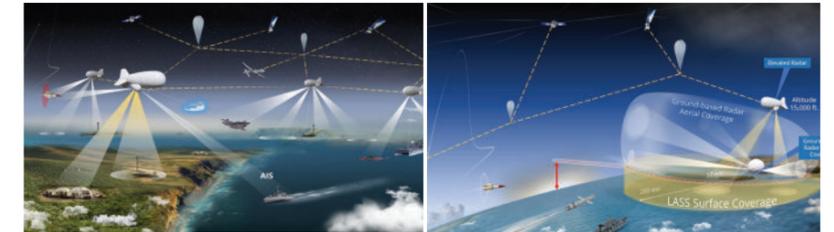
Closing the Radar Horizon Gap

Elevated radar expands the detection horizon adding valuable time in kill chains against hypersonic and other threats. TRL-9 solutions provide near-term capability and longer-term complementary resilience as space-based sensors still under development are fielded. With up to 30 days in flight duration, Aerostats provide low cost mission endurance and persistent 360-degree coverage.

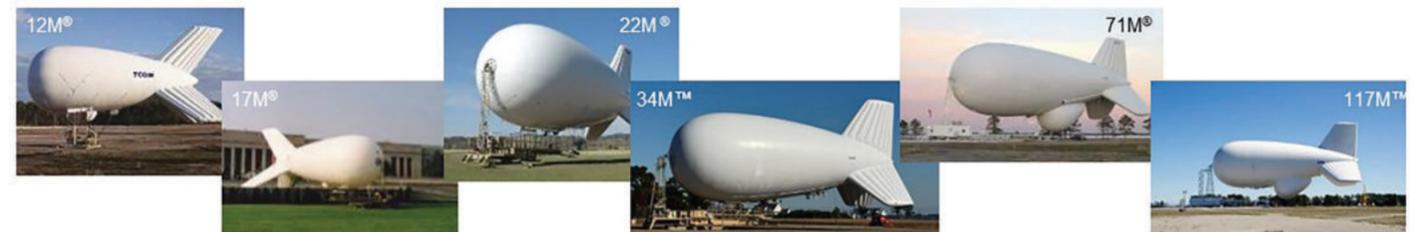


MULTI-DOMAIN AWARENES SYSTEM OF SYSTEMS

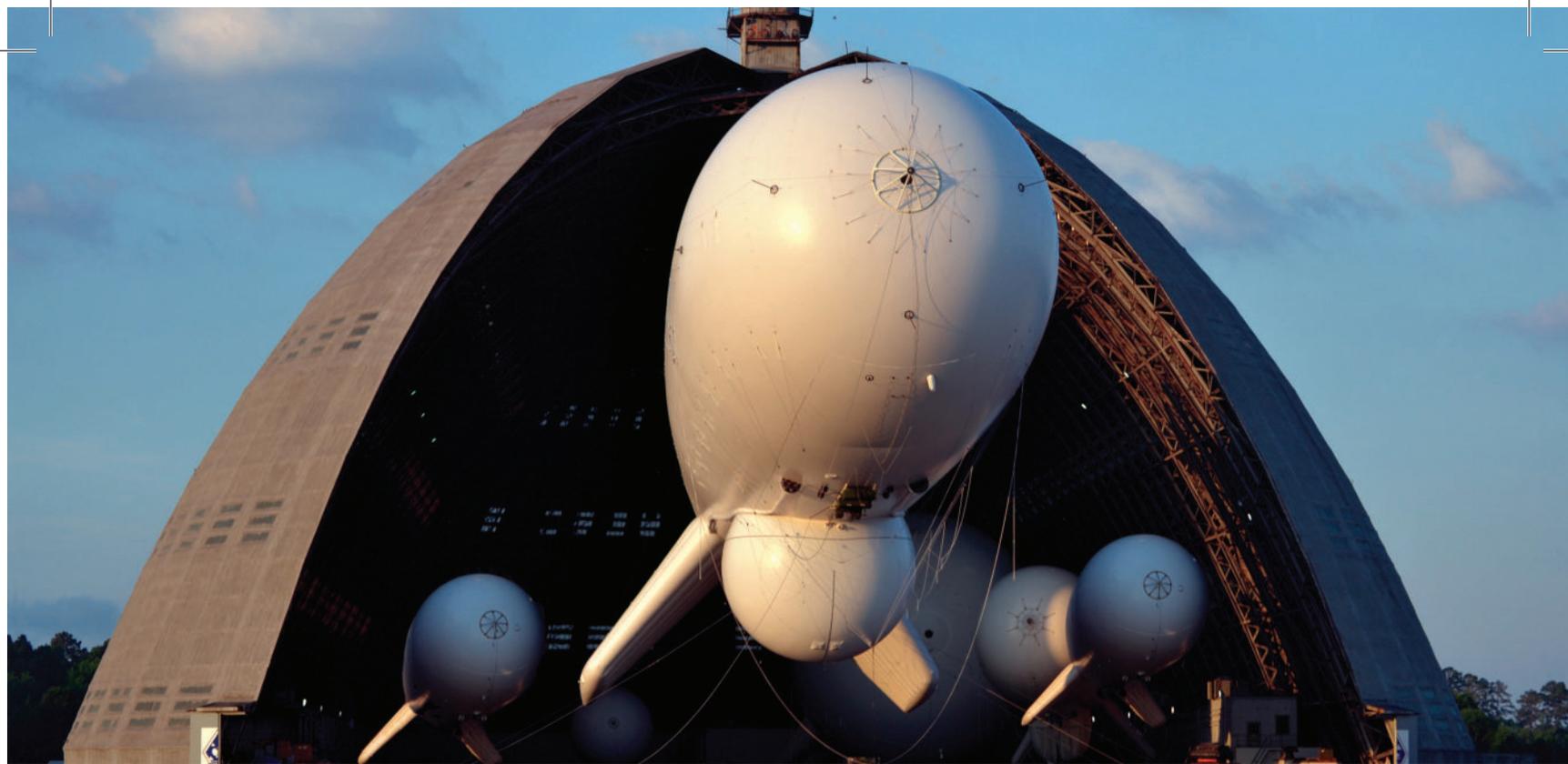
The TCOM Aerostat System of Systems offer a low risk, state-of-the-art, high performing and affordable persistent awareness solutions. In this era of rapid technology development, maintaining security is an evolving mission against revolutionary threats and changing targets. TCOM Elevated Awareness Solutions are custom-tailored to meet our customer needs for today and tomorrow. TCOM, a long-time global leader in lighter-than-air platforms, is proud to offer a full line of elevated awareness solutions. Combining custom selections of the world's most advanced sensors, customer-specific communications, and intelligent user interfaces with a broad range of airborne platforms, TCOM awareness solutions provide unparalleled capability and cost-effectiveness.



TCOM FAMILY OF AEROSTATS – TACTICAL AND STRATEGIC MISSIONS



Aerostat Model	12M [®]	17M [®]	22M [®]	28M [®]	34M [™]	55M [®]	71M [®]	74M [™]	117M [™]
Nominal Payload Capacity	27 kg (60 lbs)	145 kg (320 lbs)	202 kg (445 lbs)	385 kg (850 lbs)	689 kg (1,520 lbs)	907 kg (2,000 lbs)	2,155 kgs (4,750 lbs)	3,855 kgs (8,500lbs)	8,164 kg (18,000 lbs)
Payload Power	500 W	2 kW	2 kW	5 kW	5 kW	23.5 kVA	23.5 kVA	70 kVA	130 kVA
Nominal Altitude	305 m (1,000 ft)	610 m (2,000 ft)	915 m (3,000 ft)	1,525 m (5,000 ft)	1,525 m (5,000 ft)	2,133 m (7,000 ft)	4,570 m (15,000 ft)	3,050 m (10,000 ft)	4,877 m (16,000 ft)
Flight Duration	7 days	7 days	14 days	14 days	30 days	30 days	30 days	30 days	60 days
Typical Set-up Time	2 hrs	2 hrs	4 hrs	8 hrs	18 hrs	4 weeks	4 weeks	5 days	8 weeks
Wind Speeds – Operational	74 kph (40 kts)	74 kph (40 kts)	102 kph (55 kts)	102 kph (55 kts)	102 kph (55 kts)	130 kph (70 kts)	130 kph (70 kts)	130 kph (70 kts)	148 kph (80 kts)
Wind Speeds – Survival (knots)	93 kph (50 kts)	102 kph (55 kts)	139 kph (75 kts)	139 kph (75 kts)	139 kph (75 kts)	167 kph (90 kts)	167 kph (90 kts)	185 kph (100 kts)	167 kph (90 kts)
Helium Volume	170 m ³ (6k ft ³)	510 m ³ (18k ft ³)	793 m ³ (28k ft ³)	1,642 m ³ (58k ft ³)	2,380 m ³ (84k ft ³)	8,495 m ³ (300k ft ³)	17,840 m ³ (630k ft ³)	18,972 m ³ (670k ft ³)	68,000 m ³ (2,400k ft ³)



Persistent airtime up to 30 days on station



Ability to carry diverse and heavy payloads: up to 15,000 lbs



High available payload power up to 100 kVA



Range of operational altitude is 1,000 to 22,000 ft.



Broad geographic coverage: up to 130,000 sq. mi.



Secure high bandwidth data/ comms link



Fixed location reduces air traffic issues



Mobile deployment of smaller systems transportable by helicopter

	Platform	Cost/Flight Hour [^]	Sortie Duration
	E-3 Sentry*	\$53,300	7.3 Hours
	P-8 Poseidon*	\$29,900	5.2 Hours
	RQ-4 Global Hawk*	\$18,700	21 Hours
	MQ-9 Reaper*	\$5,350	15 Hours
	71M Aerostat	\$1,100	30 Days
	28M Aerostat	\$350	14 Days

[^]Source: CBO's June 2021 report Usage Patterns and Costs of Unmanned Aerial Systems.

Recurring costs per flying hour, which are the annual operating and maintenance costs of a fleet divided by the number of flying hours that fleet accumulated during a year.

INNOVATION ON AEROSTATS AND HIGH ALTITUDE BALLOONS (HABS)

- Payload agnostic – ease of integration
- Manpower/Sustainment (Autonomy)
- Mobility/Expeditionary
- Improved software which has increased Operational Availability/Survivability Steerable Sensors
- Resiliency
- Adaptable Sensor Payload
- Comms Redundancy with HABS
- Data Storage/Transmission–Front End Processing
- Perform extended range C2 at altitude

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TCOM's ISR Air Surveillance Systems are the Solution.

