MISSION-CRITICAL COMMUNICATIONS AT THE TACTICAL EDGE

Image: Deployment at the Southern US Border

ALTAEROS ST-FLEX DEPLOYS ADVANCED STREAMCASTER MANET RADIOS FROM SILVUS TECHNOLOGIES – ENABLING MULTI-DOMAIN OPERATIONS

Mission Ready

- Rapidly deployable ST-Flex equipped with Silvus StreamCaster® 4400E delivers ultra-wide-area tactical MANET communications
- Autonomous aerostat operation enables higher uptime than traditional aerostats or drones. Operational in winds up to 54mph
- Silvus' battle-proven MN-MIMO waveform technology provides reliable, high bandwidth connectivity for video, sensor and data communications in the world's most challenging conditions

Proven Results

- StreamCaster MANET radios are deployed onboard Altaeros' ST-Flex stationed at the Southern US Border
- Altaeros ST-Flex and Silvus StreamCaster 4400E demonstrated joint capabilities at T-REX 25-1 and T-REX 24-2 DoD-Sponsored Exercises at Camp Atterbury, Indiana
- Integrated StreamCaster 4400E can be deployed on an operational ST-Flex in less than 1 hour to begin providing wide-area service at the deployment site

Solutions:

- Port or Border Security
- Military Operations
- Law Enforcement
- Airborne ISR
- Maritime
- Emergency Response

Case Study: T-REX 25-1

Technology Readiness Experimentation (T-REX) is a full-scale Army exercise in an operationally relevant environment that is sponsored by the Department of Defense, Office of the Undersecretary of Defense for Research and Engineering, and the Indiana National Guard. It is held twice per year at Camp Atterbury in Indiana. T-REX 25-1 was hosted in March 2025 and showcased a variety of Counter-UAS technologies and support infrastructure. Silvus Technologies was chosen to provide full-exercise connectivity for all participants and evaluators. The Altaeros ST-Flex deployed at the event hosted Silvus SC4400E MANET radios, utilizing the Silvus MN-MIMO waveform that successfully streamed real-time video, telemetry, and IP data to over 23 nodes throughout the mesh network. The Altaeros node, flying at a height of 1000ft AGL, was a critical relay for bridging multiple sectors of the network. Key to the experiment's success was the persistent height of the Altaeros node, enabling the mesh network to permeate the dense tree line & terrain features around Camp Atterbury, which typically creates obstructions for ground-based communications.

ALTAEROS & SILVUS TECHNOLOGIES COMBINED SPECS

ST-FLEX AUTONOMOUS AEROSTAT SPECIFICATIONS

TRANSPORT	*TOWABLE, ATTLA MIL AIR TRANSPORT CERTIFIED*
SETUP	*RAPIDLY DEPLOYABLE AERIAL PLATFORM*
BACKHAUL	*FIBER, MICROWAVE, OR SATELLITE*
DATA TRANSMISSION	*OPTICAL FIBER IN TETHER PROVIDES SECURE DATA LINK TO GROUND*
FLIGHT DURATION	*UP TO 7 DAYS*
TOTAL PAYLOAD WEIGHT CAPACITY	*ST-FLEX: 132 LBS (60 KG), ST-FLEX+ 200 LBS (90 KG)*
PAYLOAD POWER	*1 KW (AIRBORNE THROUGH TETHER), 5KW GROUND*
ON-SITE CREW REQUIREMENTS	*2-4 FOR SET UP, 0 FOR AUTONOMOUS FLIGHT OPERATIONS*

STREAMCASTER 4400 ENHANCED (SC4400E) SPECIFICATIONS

OUTPUT POWER	*UP TO 20 WATTS (80W EFFECTIVE W/TX EIGEN BEAMFORMING)*
WAVEFORM	*MOBILE NETWORK MIMO (MN-MIMO)*
ENCRYPTION	*DES56 (STANDARD) AES256 (OPTIONAL)* *FIPS 140-3 LEVEL 2*
DATA RATE	*UP TO 100MBPS (ADAPTIVE)*
MIMO TECHNIQUES	*SPATIAL MULTIPLEXING, SPACE-TIME CODING, TX/RX EIGEN BEAMFORMING*
FREQUENCY BANDS	*SINGLE/DUAL BANDS FROM 300 MHZ TO 6 GHZ AVAILABLE*
CHANNEL BANDWIDTH	*20/10/5 (2.5/1.25 OPTIONAL)*
SCALABILITY	*550+ NODES*
SPECTRUM DOMINANCE	*EXPANSIVE SUITE OF LPI/LPD AND ANTI-JAMMING RESILIENCY CAPABILITIES*
FULL SPECS	*HTTPS://SILVUSTECHNOLOGIES.COM/*