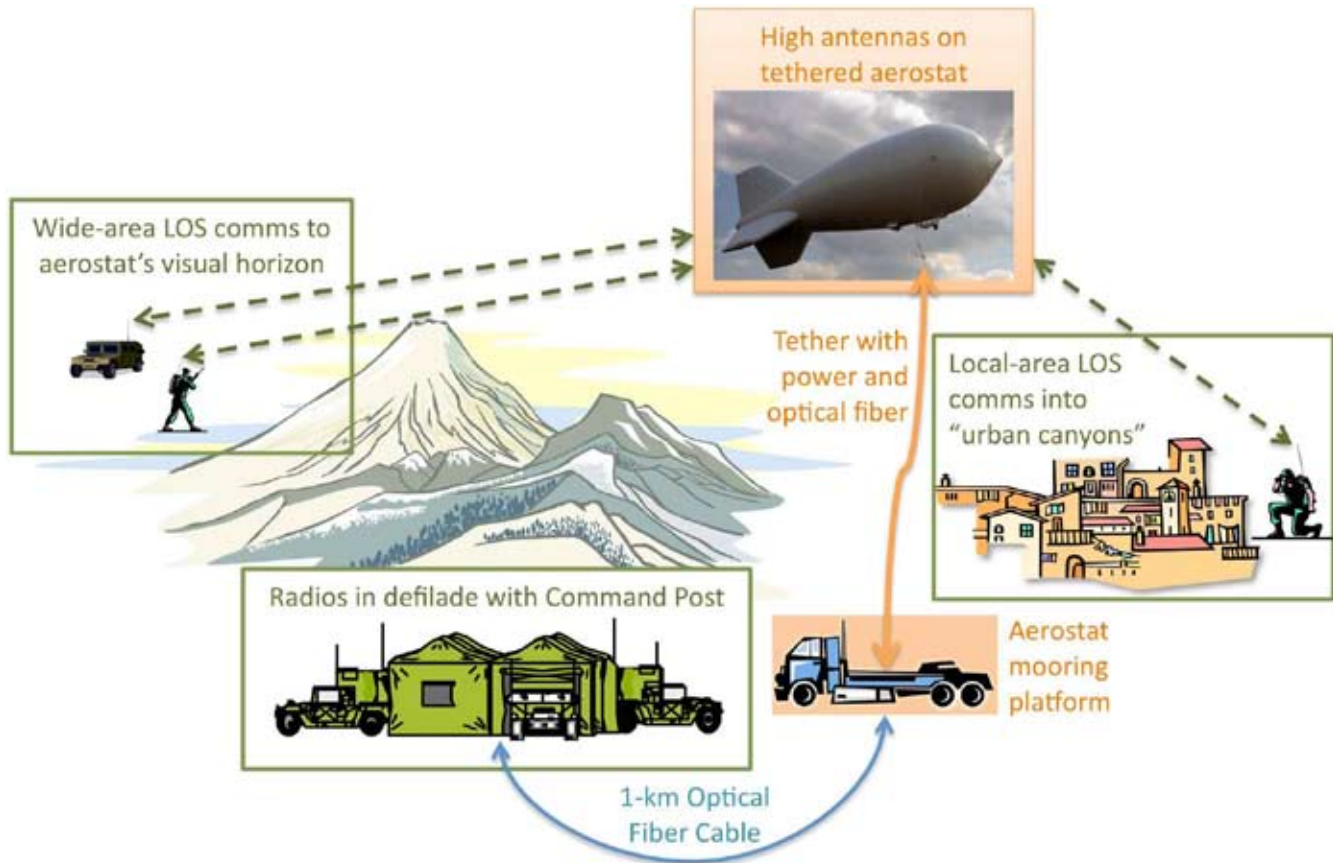


# FORAX-HARC, High Antennas for Radio Communications

## *Radios Conveniently on the Ground, Antennas High above the Battle Space*

### Extend Radio Range — Overcome LOS Obstacles

Syntonics' FORAX™ RF-over-fiber communication technology enables a tethered aerostat to serve as a tall radio tower. The FORAX-HARC system extends the range of radios and overcomes physical obstacles (high ridges, urban canyons) for LOS communications. The system capitalizes on proven FORAX™ technology to “fly” the antennas for as many as four SINCGARS radios and two EPLRS radios on aerostats. Variant HARC system can “fly” the antennas for almost any type of VHF or UHF radios, including P25 public safety radios. FORAX-HARC systems are operating today in-theatre.



#### FORAX-HARC provides:

- **SINCGARS range extension** for up to four SINCGARS radios (single frequency and hopping; independent radios and “retrans” pairs)
- **EPLRS range extension** for up to two EPLRS radios
- **Low payload weight** for maximum aerostat performance
- **Long-distance SINCGARS and EPLRS communications with handheld radios** such as the AN/PRC-148(C) MBITR, AN/PRC-152(C) Falcon III™, and EPLRS RT-1922 MicroLight
- Ground-based **radios located in existing command post** up to 1-km away from aerostat's mooring station, giving easy access for crypto key loading, radio changes, and maintenance.

## FORAX-HARC Highlights:

- High antennas improve line-of-sight (LOS) radio coverage over long distances PLUS into congested urban areas (“urban canyons”) PLUS over mountainous terrain.
- Aerostats can carry high antennas inexpensively. Aerostats provide a quasi-permanent tall “radio tower,” providing persistent wide-area radio coverage with minimal operating costs.
- FORAX-HARC uses a single optical fiber in the aerostat’s tether to connect many ground-based radios to antennas on the aerostat. Leaving the radios on the ground enables:
  - » Easy reconfiguration of all SINCGARS radios for single-frequency or frequency hopping, operating independently or in “retransmission” mode;
  - » Immediate access to radios for maintenance and crypto key loading: all radio controls are at the operators’ finger tips;
  - » Use of any tactical intercom or Internet connection on the ground.
- Minimal impact on aerostat’s primary mission and no interaction with any other payload(s).

## FORAX-HARC Configurations:

	FORAX-HARC-4S2E	FORAX-HARC-2S1E
Radios supported	<ul style="list-style-type: none"> <li>● 4-SINCGARS</li> <li>● 2-EPLRS</li> </ul>	<ul style="list-style-type: none"> <li>● 2-SINCGARS</li> <li>● 1-EPLRS</li> </ul>
Airborne weight	< 95-lb with antennas + cables	< 65-lb with antennas + cables
Electronics packaging	<ul style="list-style-type: none"> <li>● RIU — Four Line Replaceable Unit (LRU)</li> <li>● AIU — Four LRUs</li> </ul>	<ul style="list-style-type: none"> <li>● RIU — Three LRUs</li> <li>● AIU — Two LRUs</li> </ul>
Equipment supplied with each system	<ul style="list-style-type: none"> <li>● Radio Interface Unit (RIU) with UPS and rugged transit case for radio room</li> <li>● Antenna Interface Unit (AIU) with 19-in rack-mounting shelf (-4S2E only) for aerostat mounting</li> <li>● Lightweight multi-element antenna sticks and cables for aerostat mounting</li> <li>● 1-km tactical fiber optic (FO) cable and bulkhead FO connector to connect RIU to aerostat’s mooring platform</li> </ul>	
Radio operating modes	<ul style="list-style-type: none"> <li>● All SINCGARS operating modes supported, 30-88 MHz (single frequency and hopping; independent radios and retransmission pairs)</li> <li>● All EPLRS operating modes supported, 420-450 MHz</li> </ul>	

**FORAX-HARC-4S2E RIU (front):**



**FORAX-HARC-4S2E AIU (front):**



**Syntonics develops and supplies FORAX™ RF-over-fiber communications systems and innovative communications antennas.**

**FORAX™ systems are operating around the world with DoD and our allies**