

## High Altitude Helikite RF-over-Fibre Radio Relay

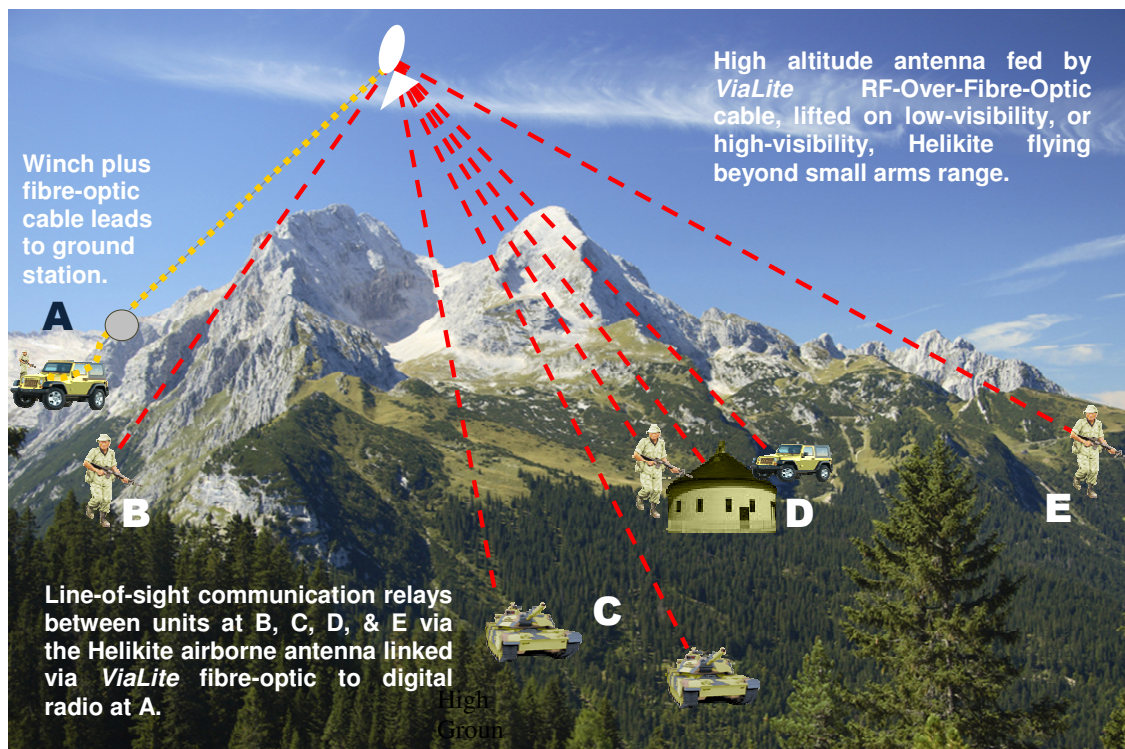
### Case Study 013

Military radio and data communications always present a challenge in difficult and inhospitable terrain. Typically these situations require high power transmission signals when using only ground-based radio systems. An alternative to this is to create a radio re-broadcaster (rebro) on an aerostat or blimp. However this can lead to other difficulties, such as encrypted assets in the air, targets for enemy fire and deployment issues.

In an ideal world you would have:

- long-range radio contact in mountainous and urban environments
- line of sight communication
- no encrypted assets outside the operating base
- low power transmission signals
- reliability in all weather conditions
- secure communications
- low weight and easy deployment.

These “ideals” can be realised by using an **Allsopp Helikite** in conjunction with a **ViaLite** RF-over-Fibre system and at a lower cost than alternative solutions.



**ViaLite** provides engineered solutions to match your radio interface requirements, effectively re-broadcasting the radio signals at high altitude on the Helikite. The **ViaLite** RF-over-Fibre system provides:

- low weight and low power RF-over-Fibre electronics on the Helikite
- low RF power transmission with minimum propagation loss
- battery powered system with solar recharge potential
- no loss of signal over long distance optical cabling
- small size and easily deployed Helikite
- tried and trusted RF-over-Fibre technology with many years of use in theatre.

## Helikite – High Altitude RF-over-Fibre Radio and Data Relay

### Reliable

Helikites can lift significant payloads and are more reliable in flight over long periods than other aerostats, blimps, UAVs or manned aircraft.

### Survivable

Small translucent Helikites are difficult to target. The flying line is thin and hard to see. The Helikite winch is hidden away and unattended for extended periods. Low loss fibre optic cable is run back to the operating base.

### Secure

No encrypted or sensitive equipment are lifted on the Helikite when using **ViaLite** RF-over-Fibre technology. Reduced personnel requirement increases safety.

### Simple and low cost

Helikites are very quick and easy to deploy, and require minimal training. Helikites can fly unattended for weeks at a time. The cost per square mile of radio coverage is low compared to other radio relay systems.

### Independent

No need to wait for air force cooperation, UAV pilot training or satellite availability. Simply release a Helikite for instant radio-relay. No requirement to involve any personnel from other units.

### Unlimited bandwidth and fine reception

Additional Helikites provide increased bandwidth. Helikites are electronically silent, so even long-distance or weak signals can be received. Line-of-site communication allows low transmission power reducing battery power requirements.

### COTS

Both the Helikite and **ViaLite** RF-over-Fibre components are based on COTS equipment.

### Helikite data link requirements

- 12ft long, 11 cubic metre stealth Helikite
- 1 x Helikite hand winch (or powered winch) and Dyneema line.
- 4 x 2ft tall helium bottles weighing 13kg each.
- 1 x operator and all-terrain vehicle.
- 1 x **ViaLite** RF-over-Fibre system plus small diameter fibre cable of the desired length.

## Helikite Design – Advanced, High Altitude, Tethered Aerostat

### Powerful

Harnessing both the reliable lift of helium and the considerable power of the wind, the Helikite has excellent payload performance. Many times the load bearing ability of similar sized blimps.

### Stable

Even the smallest Helikites fly well in high winds. Stability is ensured by the aerodynamic design, the stiff carbon-fibre spar and the relatively high gas pressure.

### High altitude

Helikites fly at high altitude to thousands of feet. They are naturally pushed skywards by both the helium blimp and wind forces acting on the kite. Tether weight and drag is very low.

### Extreme endurance

Helikites are designed to fly unattended for long periods and in all weathers. Helikites behave like aerials and with their excellent helium holding ability they have endurance measured in weeks rather than hours.

**Call PPM now to learn more about Helikites with ViaLite RF-over-Fibre radio relay.**

