

Silvus Delivers Bi-Directional 20 Mbps Air-to-Ground Link For Troll Systems Over Distance of 44km



Figure 1. Silvus SC3500 mounted onto helicopter at Troll Systems headquarters in Valencia, CA



Figure 2. Silvus SC3500 with Troll custom auto-tracking antenna assembly mounted to belly of helicopter

Background

Troll Systems designs and manufactures auto-tracking, air-to-ground data links delivering voice, video and data from an aircraft down to a ground base station. For more than 20 years, Troll Systems has been a major part of the commercial broadcast industry supporting air-to-ground HD video systems.

The Challenge

Solutions from Troll Systems are widely used to provide real-time video coverage of news and live events in high definition from an airborne helicopter to a ground station. Because of this, there is a need for high throughput, long-range and low latency. In evaluating the Silvus solution Troll required a link providing for 3 simultaneous IP sessions using a single radio at distances of 44 km or more. The three sessions included 18+ Mbps downlink for High Definition video, 1 Mbps downlink for critical telemetry data and 1 Mbps uplink command and control.

Silvus Solution

Silvus provided Troll Systems with a pair of SC3500 MIMO radios operating in the 2.4GHz ISM band. Figure 2 shows the radios integrated with Troll's custom auto-tracking air-to-ground antenna assembly. The helicopter was outfitted with cross-polarized +10dBi directional antennas and the ground station with +17.5 dBi dish antennas. The helicopter travelled along the predetermined flight path shown in Figure 3 at speeds above 100mph and altitudes ranging from 1 to 2 kilometers.

Figure 3 shows the data rate that was achieved over the flight path. A data rate of greater than 26 Mbps was maintained for nearly the entire flight path and out to 44 kilometers at the furthest point from the RX station on a single point-to-point link.

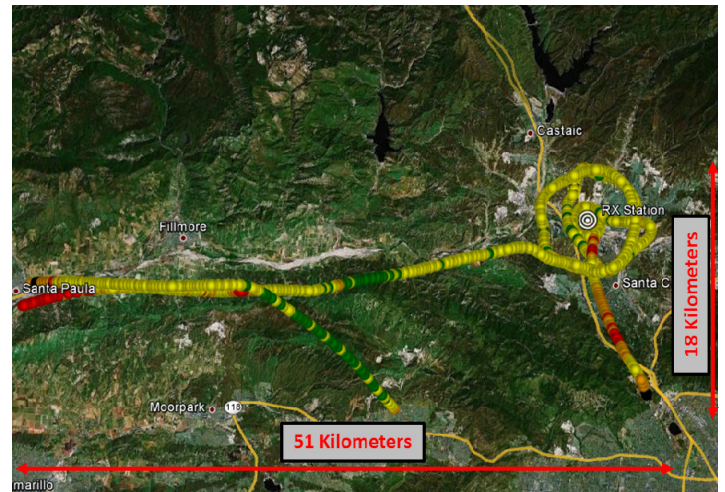


Figure 3. Throughput achieved over predetermined flight path

Customer Feedback

"Silvus' MIMO technology was chosen by Troll to create the new SkyLink IP Networking solution for broadcast, law enforcement and military markets. MIMO enables robust high throughput bidirectional links from airborne assets to multiple ground locations. When combined with Troll's tracking antenna solutions, industry leading link ranges are possible" – Julian Scott, CEO, Troll Systems