

# TERRESTRIAL COMMUNICATIONS LINK OPTIONS FOR UNMANNED AERIAL SYSTEMS

Marc Anderson and David Jackson  
Tellumat (Pty) Ltd  
64-74 White Road, Retreat 7945  
Western Cape  
Republic of South Africa  
Email : manderson@tellumat .com

## Abstract

For users of Unmanned Aerial Systems (UAS), tactical communications form an essential component of their operational capability, providing for control of the unmanned platform and its payloads as well as delivery of status data to the operator and payload data to the user recipients. However, not every user has access to dedicated space assets and medium to small sized UAVs are not able to carry a Satellite Communications (SATCOM) payload, typically forcing users to employ dedicated ground-air-ground line-of-sight (LOS) data links to provide reliable communications. LOS communications presents several challenges, including the need to fly at sufficient altitude to see over the radio horizon, dissemination of tactical data to the main point of use (typically in the vicinity of the target) and logistical constraints. Another risk factor affecting UAS operations is the possibility of deliberate interference with navigation systems. These and other problems may be overcome through careful system architecture design, equipment and component selection. Some possible solutions are discussed.