

Procedures

LOST LINK/MISSION PROCEDURES Capabilities and Procedures

NMSU operates the Aerostar from two different airports (Las Cruces and Playas) and within a very large flight area. Even though there are primary lost link points for both the Las Cruces and Playas airports the actual loss of link waypoint may be initially established at a variety of location and also modified based on weather, airport status, possible impact on other airspace users operations, etc. The same condition applies to the loss of link route and altitude(s). Therefore, in lieu of specifying a single loss of link waypoint, route and altitude, safety is enhanced by determining the most appropriate lost Link waypoint, route, and altitude for each flight operation based on real time conditions and location of flight operations. The PIC is responsible for establishing the loss link waypoint and revising it as appropriate, notifying ATC when a loss link occurs and providing updates to ATC, as appropriate, while the lost link condition exists.

Capabilities

There are two electronic control up-links between the Ground Control Station (GCS) and the Aerostar UA, UHF Omni and C-Band Directional. In order for there to be a total loss of control link between the GCS and the Aerostar UA both of these links must be out of service simultaneously.

The loss of link flight initiation action is dictated by the system and is dependent on which method is being used to control the flight operations of the Aerostar at the time the loss of link occurred. There are three modes in which the flight control is accomplished. One is the "stick" mode. In the stick mode the pilot, either external or internal, is using the flight control system that is primarily used by the external pilot during takeoff and landing or in close proximity to the airport. Another mode is the "Knobs" mode. The knobs mode is only available and used by the internal pilot for flight control of the Aerostar. The third mode is the "programmed" mode. This mode is also only available to the internal pilot. Program mode is similar to auto-pilot on a manned aircraft. When operating in the "stick" mode, the initiation of loss of link flight action occurs in one-half ($\frac{1}{2}$) of a second. In the "knobs" and "programmed" modes the loss of link action starts in 15 seconds.

The Aerostar's on board Flight Management Control System (FMCS) can be programmed prior to takeoff or while in flight, to define:

- Lost link waypoint and the associated holding airspace at the waypoint.
- Route of flight from any location along the mission flight route to the lost link waypoint.

- Single or multiple altitudes the Aerostar will operate at between the location where the loss of control link occurred and the lost link waypoint and the altitude to maintain while holding at the lost link waypoint.

Each of these lost link features (waypoint, route, and altitude) can be revised by the Pilot in Command (PIC), once or multiple times, while the Aerostar UA is airborne, as long as either control link is operational.

Procedures

During the development of the mission plan the lost link waypoint, flight route to the lost link waypoint, and altitude(s) to be utilized shall be established. The following criteria shall be used when developing the lost link procedures.

- Lost link waypoint and associated holding airspace shall be of sufficient distance from any airport so the traffic pattern at the airport are not affected.
- The route of flight from the location where the loss of control link occurred to the lost link waypoint will not require the Aerostar to operate within 3 nautical miles of any city or town, nor traverse any SUA.
- The established altitude(s) shall ensure the Aerostar operates at least 1,500 AGL.

PIC Responsibilities

- Prior to takeoff the PIC shall confirm that the appropriate loss of link waypoint, route, and altitude(s) have been entered into the Aerostar's FMCS.
- Ensure the loss of link waypoint, route, and altitude(s) are modified, as appropriate, during the flight.
- Notify ATC as soon as possible of the loss of link situation and provide details on the loss of link waypoint location, route to the waypoint, and holding airspace at the loss of link waypoint.
- Periodically, as appropriate, update ATC on any changes in the loss of link situation.