

Communication: Pilot, Observer, and Ground Control System Operator. While the SPAARO is capable of fully autonomous flight (including takeoff and landing), two dedicated pilots shall always be in position to assume immediate control through one of the two independent manual control systems (the primary 900MHz Piccolo system or the secondary 72MHz R/C system.)

A GCS operator constantly monitors the UAV's status. Flight plans are maintained by the GCS operator, including the timing of autonomous take-offs and landings. The pilots stand within 15 feet of the ground control system (GCS) operator and have direct verbal communication regarding the UAV's health and operational status.

At least one additional observer - also standing within 15 feet of the pilot and GCS operator - constantly monitors the airspace within the vicinity of the farm for other aircraft. If another aircraft is observed in the same airspace, the observer informs both pilots and the GCS operator, and the UAV is immediately re-directed to decrease altitude and land. The pilots have the authority and responsibility to take manual control, if necessary, to avoid any hazard.

All flights are conducted within a range of 2,500 ft of the pilots in any direction. The UAVs are always kept within the line-of-sight of the pilots and observers.

Communication: Ground Control System with UAV. The UAV is in constant communication with the ground station via two separate RF links, the primary 900MHz autopilot link and the secondary 72MHz R/C link. A pilot can take manual control of the UAV through the 900MHz link or the redundant 72MHz link. Flight data is telemetered from the UAV to the operator interface at 20Hz and the GCS software includes essential visible and audible alarms to indicate changes in status (e.g., if a specified altitude is exceeded, the engine RPM drops, etc.)