

From: Ryan Olson

To: Leann Nguyen
Date: June 17, 2010

Subject: FCC File# 0276-EX-PL-2010

Message:

June 17, 2010

To: Leann Nguyen
Federal Communications Commission
Office of Engineering and Technology
Leann.Nguyen@fcc.gov

From: Ryan Olson
National Test Pilot School/Flight Research Inc.
1030 Flight Line, Bldg. 72
Mojave CA 93505

Applicant: Flight Research Inc
File Number: 0276-EX-PL-2010
Correspondence Reference Number: 11228
Date of Original Email: 06/14/2010

The request has been submitted by Flight Research Inc. for a license to utilize the ST-2400/4CH-WP/2.4Ghz/10 Watt 4 Channel analog video and audio transmitter. The transmitter is to be installed in a Cessna 150 (N18531) Surrogate UAV. This vehicle has been certified by the FAA as an Experimental Research and Development Aircraft. In order to meet the needs of the National Test Pilot School (NTPS) to broaden its curriculum in UAV system flight test training, an actual UAV is needed. The purpose of the SUAV is to fly the aircraft locally as an academic exercise for students in a UAV flight test short course. Students will execute tests in remotely piloted and command directed modes from a ground control element, collecting data employing typical flight test techniques and evaluating the system.

The overall system comprises of three elements: first being the actual Surrogate Unmanned Air Vehicle (SUAV) and the second being the Ground Control Element (GCE) and the third being its associated data links that connect the two. All three have to be able to work in harmony with each other to fill the mission as a SUAV flight test training aircraft. The SUAV element is composed of three parts, the flight management system or autopilot, the flight control subsystem, and the video system. A dependable video link will be required to demonstrate flight test techniques. The video system will be completely independent of the autopilot system. It will comprise of a small lipstick camera mounted on the aircraft avionics panel, facing out though the front glare shield. The camera in this location should provide an uncompensated forward view though the approximate center of the glare shield. To incorporate systems flight test training an EO/FLIR gimbaled dual sensor camera will also be installed on the aircraft. The camera will be linked to a camera controller that adjusts the picture quality, white balance along with converting the picture to NTSC format. That signal will then be sent to a video transmitter. The transmitter is a 10 watt, 2.4 Ghz transmitter and will transmit the signal to a receiver box located with the GCE. Given the signal strength and frequency, it should provide adequate picture quality for the required 25 mile range of the SUAS.

The aircraft will be flown in airspace over the sparsely populated area near the Mojave Air and Space Port in California. All flights will be constrained within approximately 25nm of Mojave. The aircraft will be based at the National Test Pilot School, 1030 Flight Line (Hangar 72), Mojave, CA, 93502-0658.

We are planning to use the 10watt video and audio transmitter. The anticipated antenna to be installed

on the SUAV has a gain of 6dbi. The ERP is estimated to be around 28 watts. The test conductor in the GCE will maintain continuous verbal contact with the pilot aboard the SUAV via standard aircraft radio. If any interference is observed the test conductor will verbally command the pilot to shut down power to the video system. The test conductor will be an instructor at the National Test Pilot School [1030 Flight Line, Bldg. 72 Mojave, CA 93502 (661)824-2977]. Flight Research Inc. currently maintains licenses for two other telemetry frequencies. Previously we have been granted 5 year licenses for these frequencies. This system will continue to be utilized and developed over time and therefore we have requested a 5 year license.

If there are any further questions, please let me know.

Ryan Olson
Project Engineer
National Test Pilot School/Flight Research Inc.
rolson@ntps.edu
(661) 824-2977
1030 Flight Line, Bldg. 72
Mojave CA, 93501