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November 13th, 2020

Mr. Anthony Serafini,
Experimental Licensing Branch Chief, Office of Engineering and Technology
Federal Communications Commission, 445 12th Street, SW, Washington, DC 20554
anthony.serafini@fcc.gov,

Subject: Experimental License Request Research Project Description

Dear FCC License Evaluator,

The purpose of this Experimental License is to enable research involving live streaming engineering data over cellular networks from multiple Unmanned Aerial Systems (UAS), or drones, while in flight. No cellular communications will be used for UAS flight control. The only use of cellular data with this Experimental License is to transmit engineering data from the UAS sensor payload to a data collection computer during flight.

All drones, or UAS, are registered with the FAA and pilots follow all FAA part 107 flight rules. All drones, or UAS, use their own registered, flight-qualified flight control communications devices and channels. The drones are all commercially available, under 50 lbs, and have minor research modifications for engineering payloads. These drones can be considered "low and slow" and remain below the FAA mandated ceiling of 400ft for UAS. We have an Albatross fixed-wing UAV and several DJI multi-rotor vehicles.

Multiple university research projects need live, real-time engineering data transmission between a drone's payload and an engineering data monitoring station connected to the internet. This real time information will inform engineers and pilots making real-time flight decisions.

One project will collect engineering data from a UAS payload carrying GPS and multi-spectral cameras to monitor sea turtles on the East Coast near Melbourne, Florida. Turtle sightings can change flight path in real time. Another project involves collecting weather data for improved atmospheric modeling and prediction. This payload will include wind sensors, pressure, temperature, relative humidity and GPS. Data-driven flight decisions can improve overall research data quality.

The FCC rules are unclear or nonexistent for cellular or other communications from flying drones so this FCC Experimental License will provide clarity and enable valuable research using drones and cellular data networks. If FCC rulings are available and this request is not necessary, please provide the reference for the FCC ruling.

We look forward to this Experimental License approval and advancing our scientific and engineering research in wildlife monitoring and atmospheric observations.

Sincerely,

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