Form 442 Question 7: Experimentation Description

Rotor Technologies, Inc. (“Rotor”) is a helicopter technology research and development company based in Nashua, NH and Cambridge, MA. Rotor develops remotely piloted light aircraft for critical civil applications such as wildland firefighting, disaster relief, emergency transport, infrastructure maintenance, and agricultural aerial work.

Wireless communication systems are a crucial part of Rotor’s technology. Various radiofrequency links transmit commands in real time from the pilot, based in a ground control station, to the flying vehicle. Simultaneously, telemetry and sensor data are transmitted from the vehicle back to the ground control station.

So far, Rotor has used line-of-sight, ISM-band radios for the wireless data link, however the range, performance, and resiliency of these links are insufficient for further R&D work. Therefore, Rotor is seeking authority for a base ↔ mobile C2 link in the aeronautical C band, which is a more robust and longer-range data link, to support development and testing of its UAS platform at Drobish-Patterson Field in Merrimack, New Hampshire.

For the C-band data link, Rotor is using uAvionix's SkyLink system which uses a single-channel, bidirectional link between a ground control station ("GRS", includes a directional patch antenna) and airborne station ("ARS", includes a dipole antenna).

Rotor has already received concurrence by the FAA to use Block 2, Channel 1A (5040.9475 MHz). The serial numbers of the FAA's concurrences are NG T230616 and NG T230617 for the airborne and ground stations respectively. Having received FAA concurrence, Rotor is now requesting transmission authority from the FCC.

The mobile airborne station has a 10 NM radius of operation up to 10,000 ft, while the ground station may be repositioned within a 1 NM radius of operation to support various flight profiles.

The purpose of the testing is to validate the remote control of Rotor's UAS via this radio C2 link, and the link's performance across a range of flight profiles including various UAS attitudes and speeds, weather conditions, and onboard sensors.

Due to the complexity of the test program and Rotor's rigorous aircraft safety standards, we expect the development and testing to take longer than six months, so the application for an experimental license is appropriate.