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Experimental License Application Question 7: Purpose of Experiment

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- a. The University of Maryland's UAS Research and Operations Center (UROC) will be using radios that can operate in the 5.03-5.091GHz (C-Band) range as radios that can operate in the 2.4GHz range to command, control, and gain situational awareness from an unmanned aerial vehicle. The C-Band radios are capable of operating at 10W of output power, whereas the 2.4GHz radios are capable of operating at 4W of output power. The use of such radios is meant to be able to operate over long distances to showcase extended range capabilities. The purpose of showcasing these capabilities is to eventually be able to apply them to advancements in the robotics industry, help safely build up Maryland's Advanced Air Mobility capabilities, and to aid Maryland state Emergency Response capabilities. The C-Band radios are used for command and control of the UAS, while the 2.4GHz radio is used for a camera stream to aid in situational awareness.
- b. We are specifically looking to verify the advertised capabilities of the radios, as well as test them in the system as a whole to find where the practical limits are going to be so we can set our future operating procedures accordingly. We will test antenna placement and orientation, as well as altitudes and distances when conducting radio specific tests.
- c. This effort specifically looks to capitalize on the newly opened UAS specific section of the C-Band (5.03-5.091GHz) as a more robust way to control the aircraft for beyond visual line of sight (BVLOS) operations. Since there are fewer people using this frequency range, it will be less likely that we will experience interference, making it extremely reliable for command and control. We are also looking to use a



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well-established frequency range (2.4GHz) for a video link given its longer-range capabilities. This link is widely used by radio manufacturers and using it at a higher power greatly increases our range capabilities, opening up operation capabilities.