

6. Is this authorization to be used for providing communications essential to a reasearch project? (The radio communication is not the objective of the research project)? If "YES", include as an exhibit the following information:

- A description of the nature of the research project being conducted.
 - The Sinclair Community College program is in place to offer an educational research platform, provide training services to military and non-military candidates, develop business concepts for the use of UAS in the civilian sector, and provide the FAA with data for developing a program to safely fly unmanned aircraft systems in the NAS. Unmanned Aerial Systems (UASs) allow low cost and limited risk solutions for providing a variety of data sources supporting military, first responder applications while enabling operations without risk of human life. Sinclair will be using the Lockheed Martin Indago Quadcopter 1.2 GHz video downlink transmitter to research practical first-responder applications utilizing real-time Electro-Optical (EO) and Infrared (IR) imagery sent from the Indago.
- A showing that the communications facilities requested is necessary for the research project.
 - Digital IP Video & Data Link provides AES encrypted, high-speed, low-latency C2 and high-quality HD digital video in a single compact package that measures 3" x1.5" and weighs just 55 grams (2oz). The function of this transmitter is to relay real-time telemetry and imagery from the deployed UAS to the Ground Control Station (GCS). First Responders can analyze the live data feed and determine best courses of action. These scenarios can include everything from traffic accident investigation; forensics; search and rescue; tactical operations; emergency and disaster response; crowd control; HAZMAT/CBRNE management; fire investigation and damage assessment and fire management. Sinclair is examining best practice methods for First Responder scenarios.
- A showing that existing communications facilities are inadequate.
 - Given the geographically diverse nature of First Responder scenarios, this video downlink transmitter must be portable. This transmitter, the 1W LawMate TM-121800-US, is portable and integrated into the Lockheed Martin Indago quadcopter. It is designed to be deployed on-site, in the field, and transmit real-time data to its operators. Existing communications facilities are inadequate for this type of remote sensing operations.