



Special Temporary Authority to Test Radar Instrumentation

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A. Purpose of Operation and Need for License

The purpose of this application is to request authorization from the FCC for CRE SIS (Center for Remote Sensing of Ice Sheets) at the University of Kansas to operate a UAV (Unmanned Aerial Vehicle) radar systems during test flights (1-4 hours each flight) between April 1, 2017 and October 1, 2017, near the Perry Lake area in Oskaloosa, Kansas. We are integrating our miniaturized 2-18 GHz radar on to Pulse Aerospace's Vapor 55 Helicopter UAV (<http://www.pulseaero.com/uas-products/vapor-55>). We plan to fly small grids in the area indicated to demonstrate soil moisture measurements from an unmanned platform. Property to be flown is private property owned by the operator of the UAV.

B. Locations of Proposed Operation

The STA is requested to allow the collection of data using UAV-mounted radar and for the calibration and testing of the radar. The height of the transmitter will be a nominal flight altitude of no higher than 500 feet AGL. The locations of operation are outlined in Table 1.

Table 1 – Summary of Proposed Operation Locations

Proposed Location	Notes
Perry Lake Area – Oskaloosa Kansas Lat.: 39.1489 long: -95.4257	Within a 1 km radius of the described coordinates

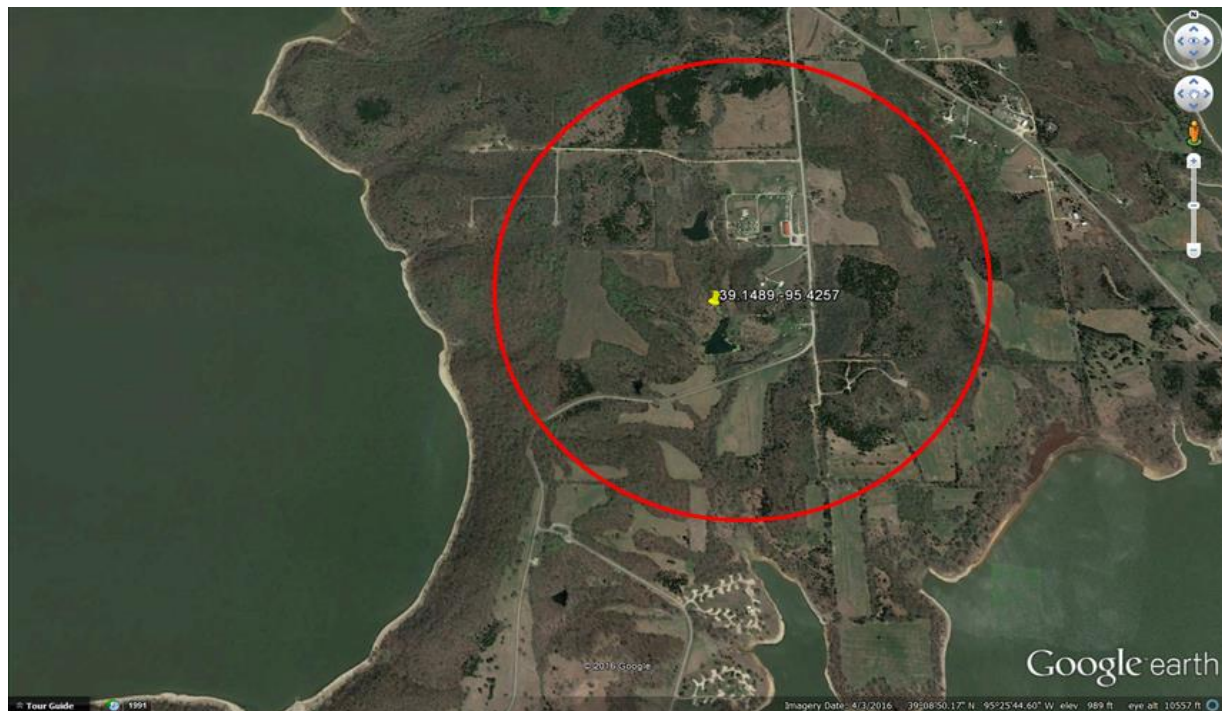


Figure 1 - Proposed Site (Perry Lake Area)

C. Technical Specifications

1. Frequency of Operation

CReSIS requests authorization to operate from 2-18 GHz

2. Effective Radiated Power (ERP)

The effective radiated power (ERP) will not exceed .1 W peak for 2-18 GHz

3. Modulation Signal Description and Emissions

For 2 - 18 GHz, the signal is an FMCW (frequency modulated continuous wave) radar signal with a pulse width of 192 μ s, duty cycle of 96%, and a pulse repetition frequency of 5 kHz. The primary emission designator is 16G0Q3N for 2 - 18 GHz.

4. Equipment Utilized

Equipment used for the radar system is custom built at CReSIS.

5. Station Class

This station will be Aeronautical Mobile in the areas described in section B, with a nominal altitude no higher than 500 feet AGL.

D. Contact Information

For questions about this application or in the unlikely event interference concerns should arise, please contact:

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