Radar Development and Testing on Government Contract

RE: Form 442 Q4: Project Description, Exhibit
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Systems & Technology Research (STR) is developing leading technology in airborne SAR and GMTI RADAR systems for supporting government (DoD and other) uses. One of those development efforts is the SERVAL radar system.

In concurrence with the DARPA RadarNet program, STR is continuing development of the SERVAL radar system, and will require airborne testing of the system that will occur utilizing Internal Research and Development (IRAD) funding, rather than that of the AFRL contract(s) supported by WJ2XXY.

The project will culminate in delivery of a radar sensor system, titled SERVAL (Software-defined Efficient Radar Versatile, Affordable, Lightweight), which we seek to conduct flight tests in various key locations in the surrounding area of ourselves in Boston, MA. STR is leading the efforts and will oversee testing and operation of the system.

To help calibrate our radar systems, we will deploy one Moving Target Simulator (MTS) at various positions on the ground. It is a battery powered, stationary unit mounted on a tripod that extends no more than 6 feet off the ground. It is used to simulate both moving and stationary targets for radar systems. It is a non-triggered repeater that will amplify a signal within its receive bandwidth by a fixed gain and repeat it back. It will temporarily be placed at various locations within the permitted ring to support various aircraft profiles and missions, then removed once the mission of the day is complete. This device currently operates under license WJ2XYB when supporting the AFRL contract effort(s).

This will involve performance testing of our system, requiring a large footprint in the Boston, MA area that is the same as under our existing Experimental Licenses (WJ2XXY for the airborne radars, and WJ2XYB for the MTS). Please see 0935-EX-CN-2018 and 0940-EX-CN-2018 for detailed specifics.

A maximum of two aircraft will be outfitted with SERVAL systems and simultaneously operating in the same region with identical radar equipment. Both systems will employ identically constructed phased array antennas. Both airborne systems will conduct missions using the MTS (WJ2XYB) as a calibrated ground target simulation instrument in various locations within the same region.

Aircraft altitudes will still be constrained to < 10,000 ft, using the same antenna systems as previously used. The same instantaneous bandwidth (800 MHz) and operating area will be required to be tested, hence the same 9.2 - 10.2 GHz band as

that granted in the respective WJ2XXY and WJ2XYB licenses is being requested in the Boston area.

This effort will be expected to begin in July, 2019, and extend for up to 36 months.