Exhibit D

L Band

Program Description

a. **The complete program of research and experimentation proposed including description of equipment and theory of operation.**

The current facility is a state-of-the-art Ground-Reflection Plane Radar Cross Section (RCS) Range designed to perform the precise far-field calibrated RCS level measurements. The system is located within a remote undeveloped swamp located in the interior 4,600 acre rectangular portion of the 290,000 acre Deseret Cattle and Citrus Ranch. The radar system is a System Planning Corporation MKIII – RF with the MKV – digital Instrumentation Radar System capable of phase coherent pulsed CW operation over the frequency range of 1.000 GHz to 18.000 GHz.

The radar performs a frequency step-chirp from the starting frequency to the final frequency. The system is computer- controlled which permits positive lock-out of any restricted frequency. The radar has a computer-controlled receiver that compensates for the frequency dependant transmission delays which allows for use of small (55-ns) transmit pulses. The radar will be operated at a system PRF of 60 KHz. The pulse modulated CW signal will have a pulse width of 55 nanoseconds. The system final power amplifier is a Mini-Circuits Solid State Amplifier with a nominal 30 W peak pulse output.

The passive RCS target is supported on a computer-controlled low RCS 7.92-m pylon capable of precisely positioning the target at the required azimuth and elevation position to measure the RCS level. The distance between the transmit/receive antenna and the pylon is 914.4-m. The narrow beamwidth antenna is designed to properly illuminate the passive RCS target with a far-field plane wave with the required horizontal and vertical field taper. The 1828.8-m fine aggregate asphalt paved ground-reflection grounded panel facilitates the far-field plane wave to form at the required target height with minimum bounce-gain power loss.

The RF field position and taper is verified by one-way power measurement field probes. After the RF field is verified, the antenna positioner is electrically disabled and mechanically locked in position. The same antenna is used for both transmit and receive. The antenna is oriented at a fixed 0-deg elevation (parallel to the ground-reflection plane) at a height of 4.877-m above ground-reflection plane. The antenna is aligned at a vector heading of 146-deg 56-min south-east.

The passive RCS target rotation speed is typically 0.100 degrees/second which allows for Coherent Signal Integration processing to occur. This processing allows phase-coherent target return signals, at levels below the system noise floor, to be detected and measured.

The 18 to 21-m tree-lined ellipse surrounding the paved ground-reflection plane provides natural formation that will absorb the transmitted radiation, shielding the antenna from other systems.

b. The specific objectives sought to be accomplished.

To perform a calibrated measurement of the radar cross-section (RCS) level of the test body mounted on a 7.92-m low RCS pylon in the far-field utilizing a ground-reflection radar range across the bands listed. The

recorded measured data will be appropriately processed across the required bands to ensure that the test article meets the Government's System Performance Specification. The requested increase in the measured frequency spectrum is required to certify that the measured RCS level complies with the entire Government's System Performance Specification.

c. How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion or utilization of the radio art, or is along line not already investigated.

The current system has proven capable to perform the required calibrated RCS level measurement over the approved frequency spectrum. The requested increase in the measured frequency spectrum allows the certification of the measured RCS level complies with the entire Government's System Performance Specification.