

SRI International S-band Movable Lift Radar Experiment

This document describes SRI International's S-band portable lift radar experiment which is the subject of the FCC Experimental License application.

Experiment Description

SRI is planning to test an experimental S-band radar system starting in July 2017. The radar system is designed to generate synthetic aperture radar (SAR) imagery. The radar system is built by SRI International and consists of a custom transmitter and receiver unit and utilizes an antenna with up to 20 dB gain. The radar system will be tested in the vicinity of SRI's facilities in Ann Arbor, Michigan.

Outdoor testing of the radar system will begin in July 2017 and continue during 2018. Radiative testing of the system will be infrequent: less than one week of outdoor testing per month at 12 hr intervals or less. During outdoor testing, the radar system will be installed on a movable lift system on a platform that extends approximately 100 ft above the ground. The radar antennas are attached to the platform in a fixed orientation, looking down at the ground. The antenna could be oriented in any azimuth direction depending on the orientation of the movable lift, but will always be down-looking. During the experiment, the lift is driven as the radar transmits and receives waveform pulses. Synthetic aperture imagery is formed from these recorded pulses. The radar system will be controlled by an operator on the ground.

If this system is used in proximity of any airport, SRI will receive approval from the airport prior to any use of the radar on the lift. The radar installation will not be permanent, it will be removed at the end of each day of experimental testing.

Radar Description

As discussed above, the radar consists of a custom S-band transmitter and receiver unit designed and built by SRI International. The radar transmits a linear FM chirp signal over 3.0 to 3.2 GHz. The waveform has a bandwidth of 200 MHz. The transmitter outputs the waveform with a peak power of 1 W. A 20 dBi gain antenna is used with the transmitter, resulting in an EIRP of 100 W peak.

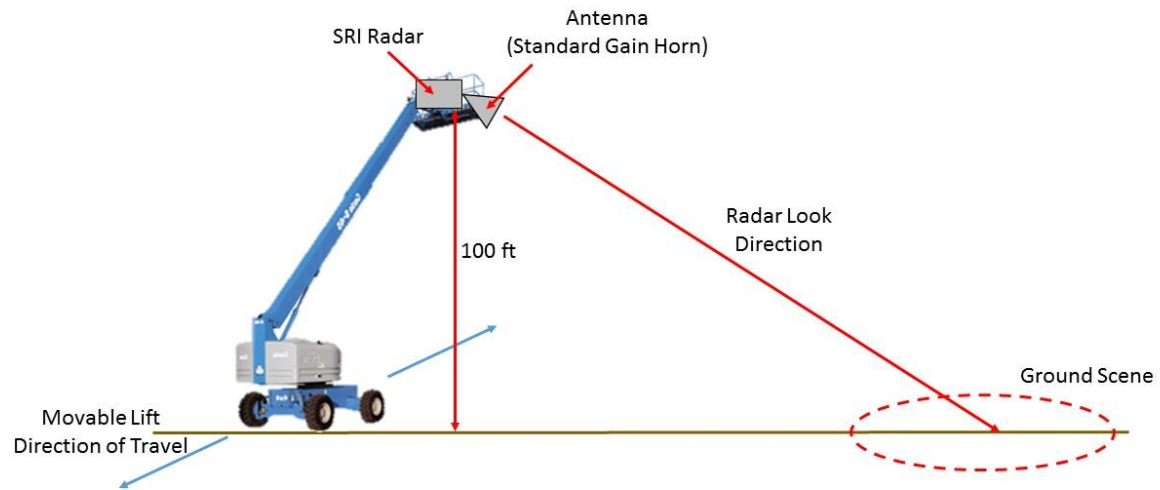


Figure 1. SRI S-band Movable Lift Radar Experiment Setup