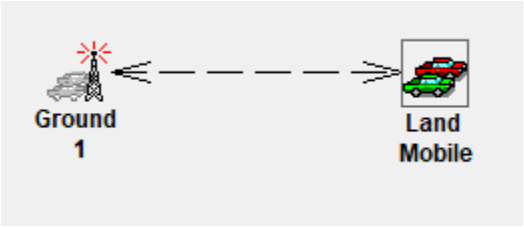
Description of Experiment

Under contract funding from the Air Force Research Laboratory ("AFRL"), Rockwell Collins, Inc., a part of Collins Aerospace ("Collins") is developing radio technology capable of hosting legacy and future waveforms. The system will also have the ability to locate and track distant ground mobile or airborne radio terminals. The AFRL contract requires a demonstration of the newly developed technology at a site of the customer's choosing. Prior to the final customer demonstration, integration of system elements (i.e., radio hardware, software, antennas, and pointing system) requires over-the-air testing at the Collins Aerospace facility in Cedar Rapids, Iowa.

The testing at the Collins Aerospace facility will involve a portable ground station—consisting of a tripod, rotating positioner, radio equipment, and a high gain dish antenna—and a mobile station—consisting of a van with electrical generation that will carry radio equipment and an omni-directional antenna. Two high gain antennas have been procured for the ground station (0.6 meter and 0.9 meter). The smaller antenna will be standard, but the larger antenna may be used for evaluation purposes. A low-gain omni-directional antenna is to be used on the mobile vehicle. Sketches of the basic configuration are provided below:

Portable Ground Station (Ground 1) Concept Drawing



Cedar Rapids Test Configuration

A typical test will involve establishment of the communications link with the mobile unit in a known location. Upon obtaining satisfactory link performance, the mobile unit will drive a route in the Collins Aerospace campus parking lots and local streets. Should unforeseen local interference be found, the test site will be moved to a more favorable location within the authorized test radius. Test metrics include obtaining satisfactory data throughput and message error rates, as well as proving the ability to locate and track the mobile unit. Upon successful completion of this effort, the system will be demonstrated for the AFRL customer.