

Special Temporary Authorization
File No.: 0663-EX-ST-2011

Exhibit 1: Overview and Antenna Pointing Information

L-3 Communications
Communications Systems – West
Salt Lake City, Utah
October 24, 2011

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Applicant Background:

L-3 Communication Systems-West is a leader in developing communications systems for high-performance intelligence collection, imagery processing and satellite communications for Department of Defense (DoD) and other government agencies. The company provides high-data rate, wideband, secure, real-time communications systems for surveillance, reconnaissance and other airborne intelligence collection systems.

Description of the Experiment:

Overview

The experimental operation requested in the STA application is for the demonstration of a prototype airborne reconnaissance system which includes a full-duplex data link for control of the sensor from the surface, and subsequent return of imagery from the sensor to the surface. The experiment involves the aircraft flying orbits around a location of interest at altitudes 20,000 ft MSL. Operation of the RF equipment is addressed in the STA application; other aspects of the tests requiring certification (e.g. flight planning, flight safety) are being addressed through the appropriate authorities.

Test Schedule

The tests will begin no earlier than November 4, 2011, and will conclude no later than February 4, 2012. Detailed flight plans will be available prior to any test flights.

Location of Testing

All testing covered by this STA will be performed in the vicinity of Warrenton, Virginia. The surface terminal will be located on the ground, approximately 1.9 km southeast of Warrenton. The test aircraft (i.e., mobile terminal) will fly overhead the surface terminal (orbit 1) or above Culpeper, Virginia (orbit 2).

Antennas and Antenna Pointing

Surface Terminal Antenna Pointing

The surface terminal directional antenna automatically points toward the aircraft, in elevation and azimuth, as it flies within line-of-sight of the surface terminal. Note that there are two separate orbits that will be flown by the aircraft; these orbits are identified as separate antennas in the application.

Azimuth angle. Orbit 1: the surface terminal azimuth pointing angle depends on the aircraft's location, and can vary to any point on the compass since the center of the circle on which the aircraft flies is coincident with the latitude and longitude of the surface terminal. For orbit 2, the azimuth angle is relatively limited, ranging from approximately 210 degrees from true north to 218 degrees from true north.

Elevation angle: The pointing angle is determined automatically by the surface terminal based on its location and the location of the aircraft. Orbit 1: the elevation angle will be fixed at approximately 71° based on aircraft altitude 20000 ft MSL. Orbit 2: the center of this orbit is approximately 28.8 km southwest of the surface terminal. The elevation angle is approximately 11.8 degrees.

Surface Terminal Antenna Pattern

The surface terminal utilizes a directional antenna. The measured azimuth relative gain pattern for this antenna is shown below. The elevation pattern is similar. Antenna polarization is right-hand circular.

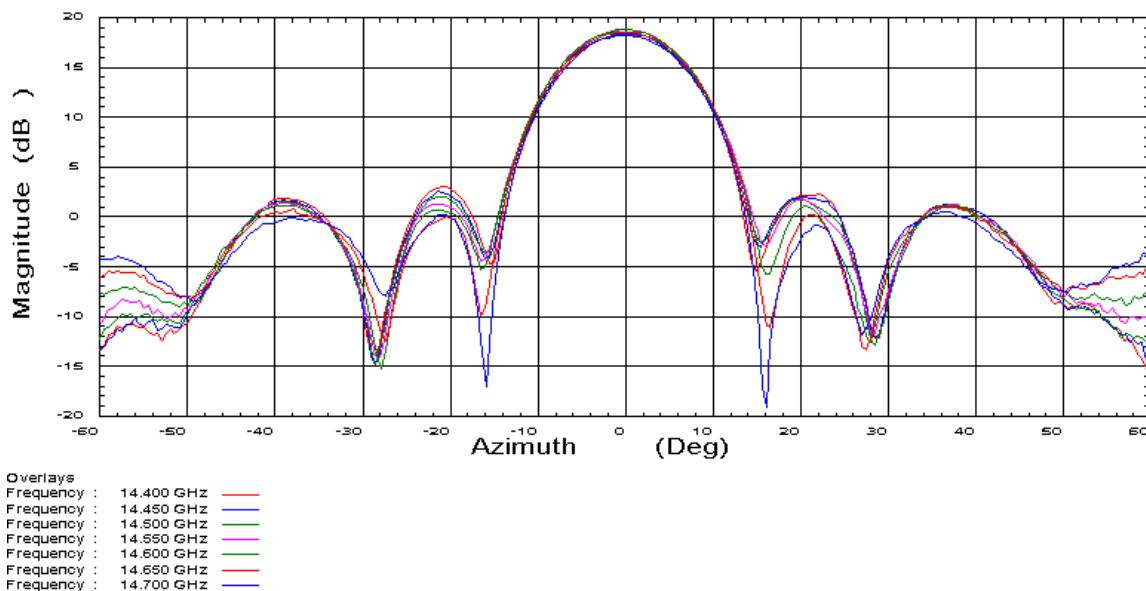


Figure 1. Surface Terminal Antenna Azimuth Pattern

Aircraft Terminal Antenna Pointing

The aircraft terminal antenna is omnidirectional in azimuth, with a peak gain of +3 dBi. The antenna has a switchable pattern in elevation. Pattern 1, intended for use with orbit 1, provides approximately hemispherical coverage below the aircraft, with very little energy directed toward the horizon. Pattern 2 provides maximum gain toward the horizon when the aircraft is in level flight, with very little energy directed straight down. The antenna is fixed onto the aircraft, so no pointing mechanism is used.

Stop Buzzer Contacts:

In the even of interference caused by the experiment, the following individuals will be responsible for ensuring that transmissions cease as soon as possible after notification:

Primary: Kevin Shallbetter (801) 837-1009 (cell)

Backup: Chuck Willoughby (734) 395-4055 (cell)