L3 Communications, CSW
Special Temporary Authorization
File No.: 0963-EX-ST-2014

Application Background:
The purpose of this project is flight test one aircraft against an omni antenna on the ground at Mather Airport. The intent of the flight test is to demonstrate that a data link can be established between one of the aircraft line-of-sight antennas and the omni ground antenna. The discovery link is used to establish the line-of-sight link between the air and ground. It is a narrowband direct sequence spread spectrum signal. The Link 16 datalink is used to pass telemetry data between the air and ground. It is acting as a back-up to the discovery link to connect the line-of-sight link. Link-16 is a frequency hopped spread spectrum waveform. See Figure 1 for a concept of operations.

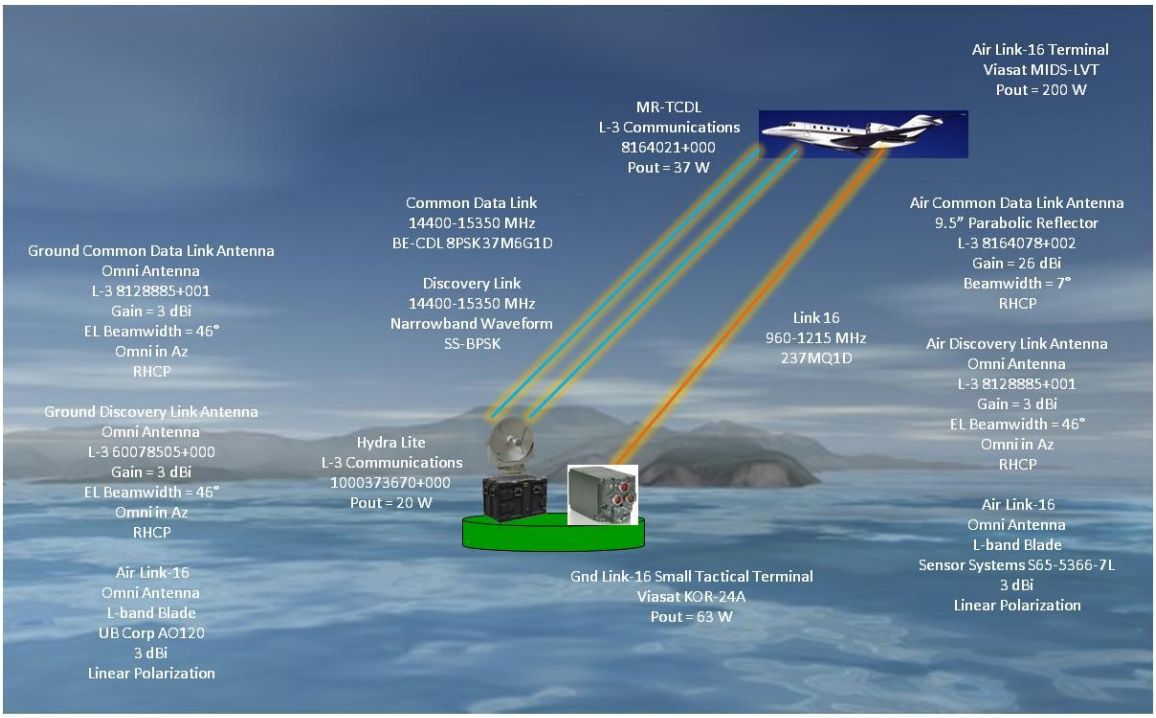

Figure 1 Concept of Operations

Spectrum Requirements and Test Scheduling:
Transmission frequencies are in the Ku Band. Lower band is 14.4 – 14.83 GHz and the upper band is 15.15 – 15.35 GHz. The maximum line-of-sight Ku-band bandwidth of any of the waveforms planned for transmission is 37 MHz. Link-16 frequency hops in the band 960-1215 MHz. The necessary bandwidth of Link-16 is 237 MHz. Tests are scheduled to happen between October 30, 2014 and November 29, 2014.

Location of Testing
Mather Airport, Mather California is the location of all antenna transmission ground testing and air to ground testing. The location of the ground omni antenna and aircraft transmission

boundaries are shown in a Google Earth map in Figure 2. A series of ground ring tests at Mather Airport are also planned. The ground tests are to verify the aircraft integration and the aircraft antenna pointing. All ground tests will take place on the tarmac at Mather Airport.

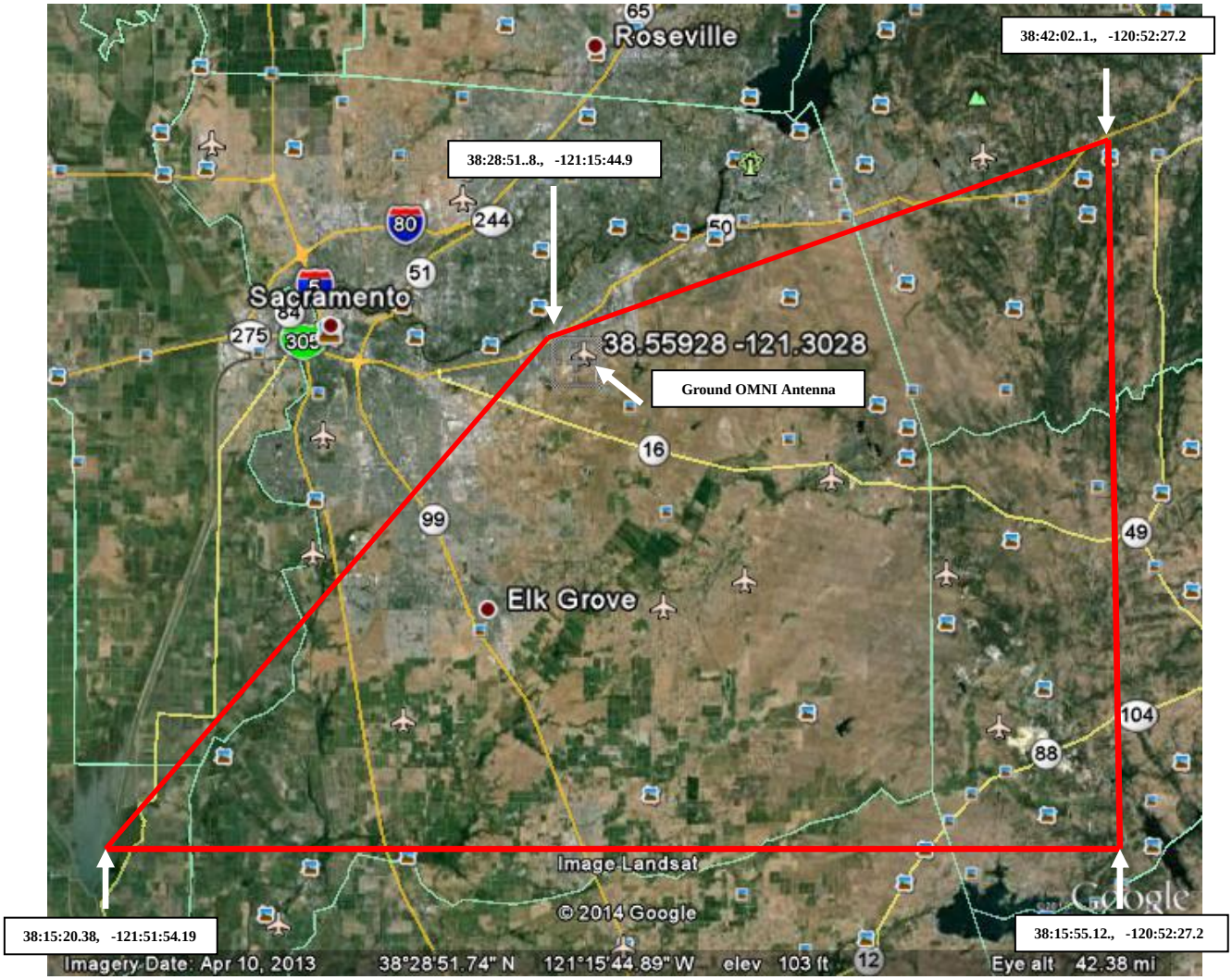

Figure 2. Ground Antenna Location and Aircraft Boundaries