

L3 Technologies , CS-W
Special Temporary Authorization
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License:

Application Background:

The purpose of this project is to ground test with point-to-point and mesh-network data links that can be used on autonomous vehicles.

Concept of Operations:

As shown in Figure 1, a ground-based communication link node is fixed at one side of a road or runway. The other 3 modems will be placed in the opposite corners of the parking lot and represent the “air” platforms. Transmit and Receive bands will vary based off its smart algorithm but will be 3.9 GHz to 4.14 GHz, 4.56 GHz to 4.98 GHz and 5.28 GHz to 6.0 GHz (with 60MHz channels). All modems operate with a BPSK modulated waveform in a Frequency Division Duplex (FDD) scheme.

Spectrum Requirements:

The necessary bandwidth for the waveform is ~60MHz (per channel). FDD is used by each transceiver to discriminate between received signals from different sources. All modems support the same bands of operation (1 Tx and 2 Rx) and implements frequency agility (60MHz channels moving throughout the frequency ranges specified above).

Local Ground Testing Summary

Ground tests within a 50m radius of the campus of L3 Technologies at 640 North 2200 West are intended to test the functionality of mesh network technology in an outdoor environment, outside of anechoic chambers and laboratories where initial testing is performed. All modems are capable of 1W transmit power with expected EIRP to be 1-3 dB less.

4 FDD ready modems be placed in various locations shown in Figure 1 to create a simple and controlled test environment to verify proper equipment operation and determine/validate preliminary results before going to a more complex test location that simulates the actual CONOPS. As shown in figure 1 measurements are intended to be performed from the Roof of Building A (the building south of the corner of 700 North and 2200 West, Salt Lake City, Utah 84116) to various mobile sites within a 10 km radius of building A. The modems will be at ground level. If approved, and pending HW available, a larger test radius will be assumed with various sites within a 10km radius of building E shown in Figure 2.

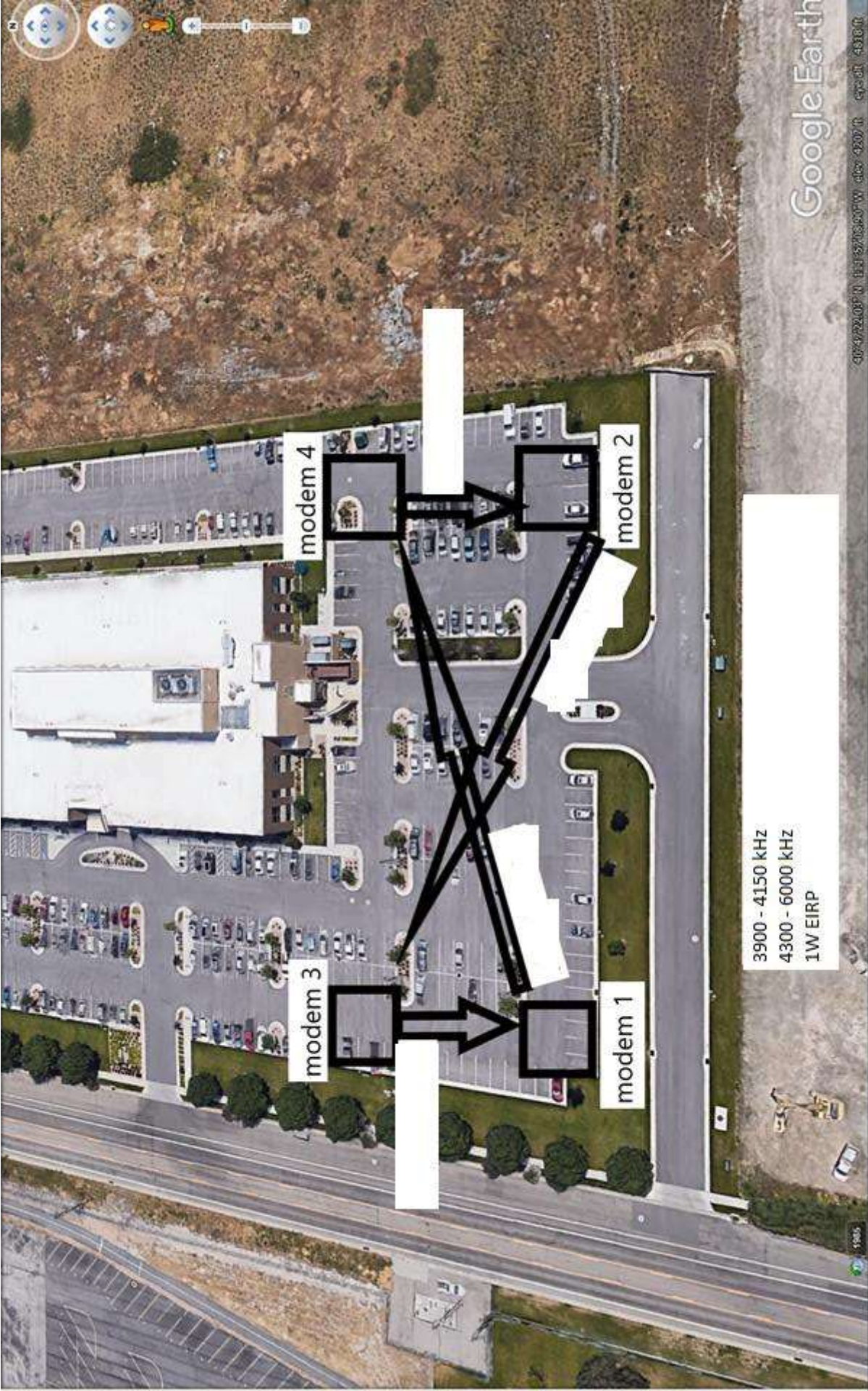


Figure 1 Concept of Operations – Ground Tests



Figure 2 Building E to mobile station