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Application Background:

The purpose of this project is to ground test with a multipoint data links for application to mobile communications with hotspots for military applications. This application is very similar to File No. EL745412; STA File No.: 0824-EX-ST-2016; STA File No: 1055-EX-ST-2020, License WJ9XYX. This new application adds an airborne element to the test scenario.

Concept of Operations

There will be three (3) test stations operating in a mesh network, each node establishing a link to the other 2 nodes using omni antennas. Max EIRP for each test station will be approximately 40.4 dBm. The test stations are all ground based.

Figure 1 illustrates the concept of operations for mesh network testing where the lightning bolts represent the data links. All testing will include ground-to-ground tests.

The test stations and associated data links are defined below:

- Station #1 will be ground based
- Station #2 will be ground based
- Station #3 will be ground based

Spectrum Requirements

The data links used will operate in Ku-Band, between 14400-14830 MHz and in Ku-Band, between 15150-15350 MHz, or C band between 4400-4850MHz and in C band 5150-5850GHz. The radio is an L3Harris product designed for these bands. A variety of data rates will be used, between 50 kbps and 11 Mbps.

The data link is comprised of the Apache MUMT-X Coyote Modem, with the Apache MUMT-X RFE (amplifier) (DD1494 J/F #####); one in an airborne application and one in a ground based application. The data link will operate in Ku-band (14400-14830 MHz)

for the up link and in Ku-band (15150-15350 MHz) for the downlink. The radios are both connected to omni antennas. The waveform used will vary in data rate and is spread, with an occupied bandwidth of 60 MHz. DD1494's are not available for this radio.

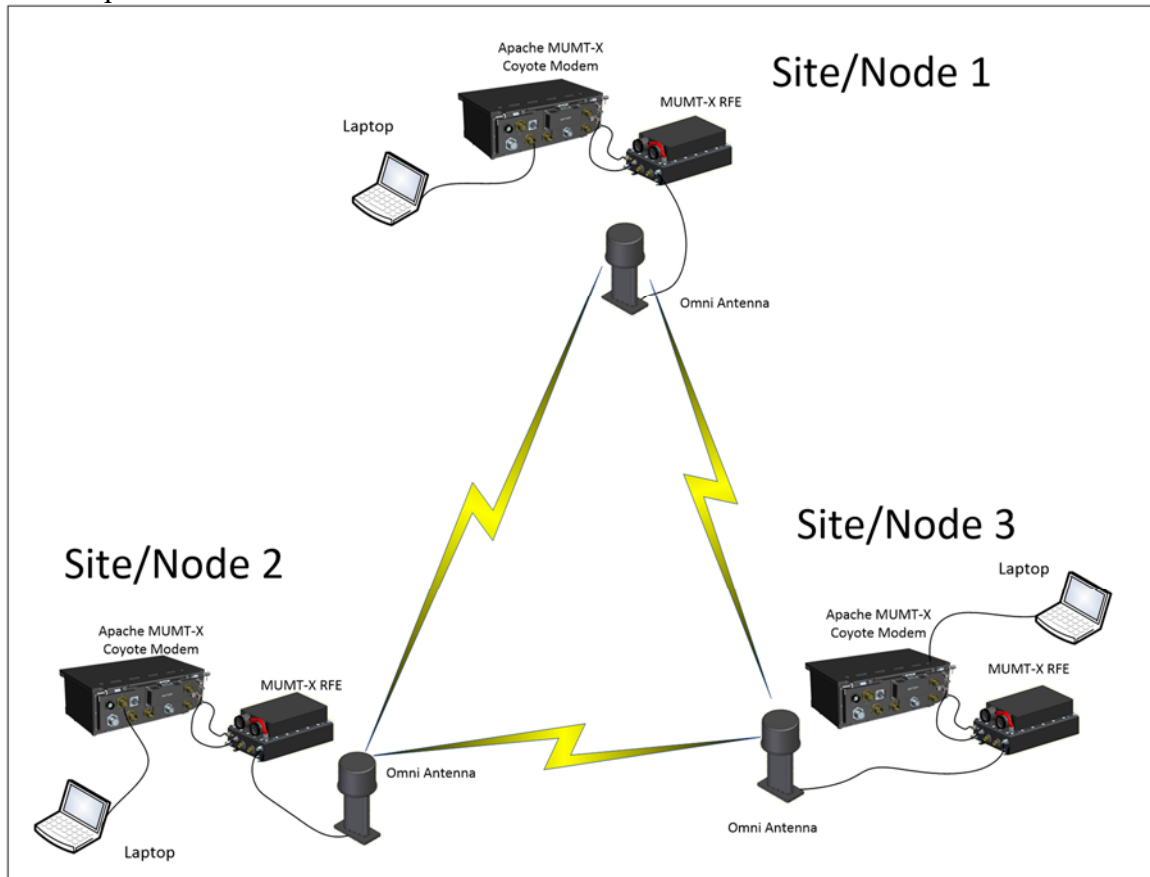


Figure 1: Datalink System Configuration

Ground Testing Summary

Location of Ground Equipment:

The approximate locations of the ground stations are shown in Figure 2. Only two out of the three location on L3 CSW campus would be used.

- Ground station #1, approximate location:
Lat: N 40° 47' 02.69", Long: W 111° 53' 34.29", Alt 4464 feet
- Ground station #2, approximate location:
Lat: N 40° 47' 02.07", Long: W 111° 57' 04.91", Alt 4259 feet (on the L-3 CSW campus).
- Ground station #3, approximate location:
Lat: N 40° 46' 52.92", Long: W 111° 57' 01.87", Alt 4262 feet (on the L-3 CSW campus).
- Ground station #4, approximate location:
Lat: N 40° 46' 34.22", Long: W 111° 57' 5.43", Alt 4272 feet (on the L-3 CSW campus).



Figure 2: Location of Test Equipment