

All amended items to the original experiment are shown in underlined text below. The primary purpose of this amendment is to add frequency range 14400MHz to 14900MHz, but some additional changes are made to characterize the experiment more accurately. Changes made:

1. 14400MHz to 14900MHz transmit frequency band is added to the application.
2. Transmitter locations are altered
 - a. Transmit angles towards receive location changes from -70°(West of true North) to -180°(West of true North)
 - b. Height of drone transmitter changed to 400m (still within FAA approvals)
3. Frequency mask, and antenna beam pattern documented show similar characteristics to previously approved frequency bands.

This experiment consists of transmitting a narrowband chirp from the MITRE campus softball fields, as well as various other areas within 1km of the receive location in the areas shown (Exhibit 6):

- MITRE: Fields
202 Burlington Rd.
Bedford Ma. 01730
North 42 30 14 West 71 14 5

Towards a receive location on top of MITRE building 'E':

- MITRE: Building E
202 Burlington Rd.
Bedford Ma. 01730
North 42 30 19 West 71 14 5

The transmit waveform consists of a 50 MHz wide BPSK/OQPSK modulated experimental waveform with up to 45Mb data rate similar to Common Data Link (CDL) waveforms.

Exhibit 1: Transmit Path. See Exhibit 6 for updates to the transmit locations

- Map overlay of the range of transmitter locations for the mobile transmitter.
Note that:
 - o The transmitter will always be aimed at the center of the receive location on top of E-building
 - o The transmitter may be fixed on a tripod or mini-tower up to 10 meters tall
 - o The transmitter may be fixed to a drone at elevation no higher than 31 400 meters from the ground (FAA approval previously granted)
 - o Minimum and maximum potential pointing angles shown with regard to true north

Exhibit 2: Zoomed out view of transmit directions outlined in Exhibit 1. Two closest airports shown.
Refer to Exhibit 6 for updated transmit locations and directions.

Exhibit 3: Spectral Mask

- This is the shape of the transmit source waveform in the spectral domain shown with the transmit mask for maximum ERP.
- Exhibit 7- Spectral Mask will be the same for added frequencies in amendment (14400MHz to 14500MHz)

Exhibit 4: Antenna beam pattern for various frequencies

- The widest 3dB beamwidth is conveyed in the application: 90 degree (3dB) @ 2.5GHz
- Highest gain of antenna beam is conveyed in link budget for maximum ERP
- Exhibit 8 shows the beam pattern for amended frequencies (74 degree- 3dB beamwidth at 14500MHz)

Exhibit 5: Specification summary for transmit antenna LX-20180-FR

Exhibit 6: Modifications to the transmit locations

- Transmit angles towards receive location expands from -70°(West of true North) to -180°(West of true North)

Exhibit 7: Spectral Mask

- Spectral mask stays the same with added center frequencies 14400MHz to 14900MHz

Exhibit 8: Antenna Beam Pattern for 14500MHz to 15000MHz

- Directional beam pattern is shown for the added center frequency range with similar characteristics to prior filings (Exhibit 4)