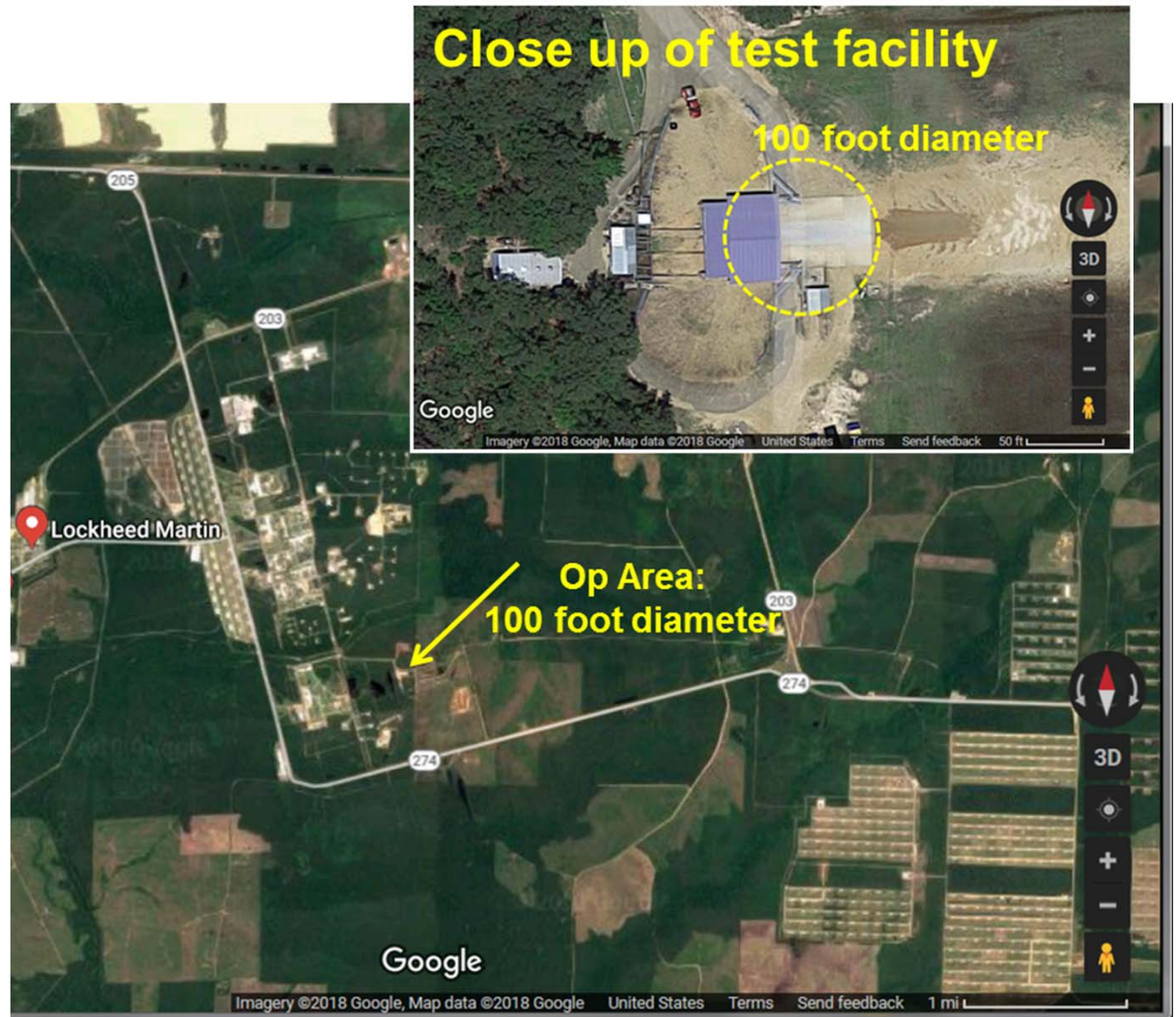
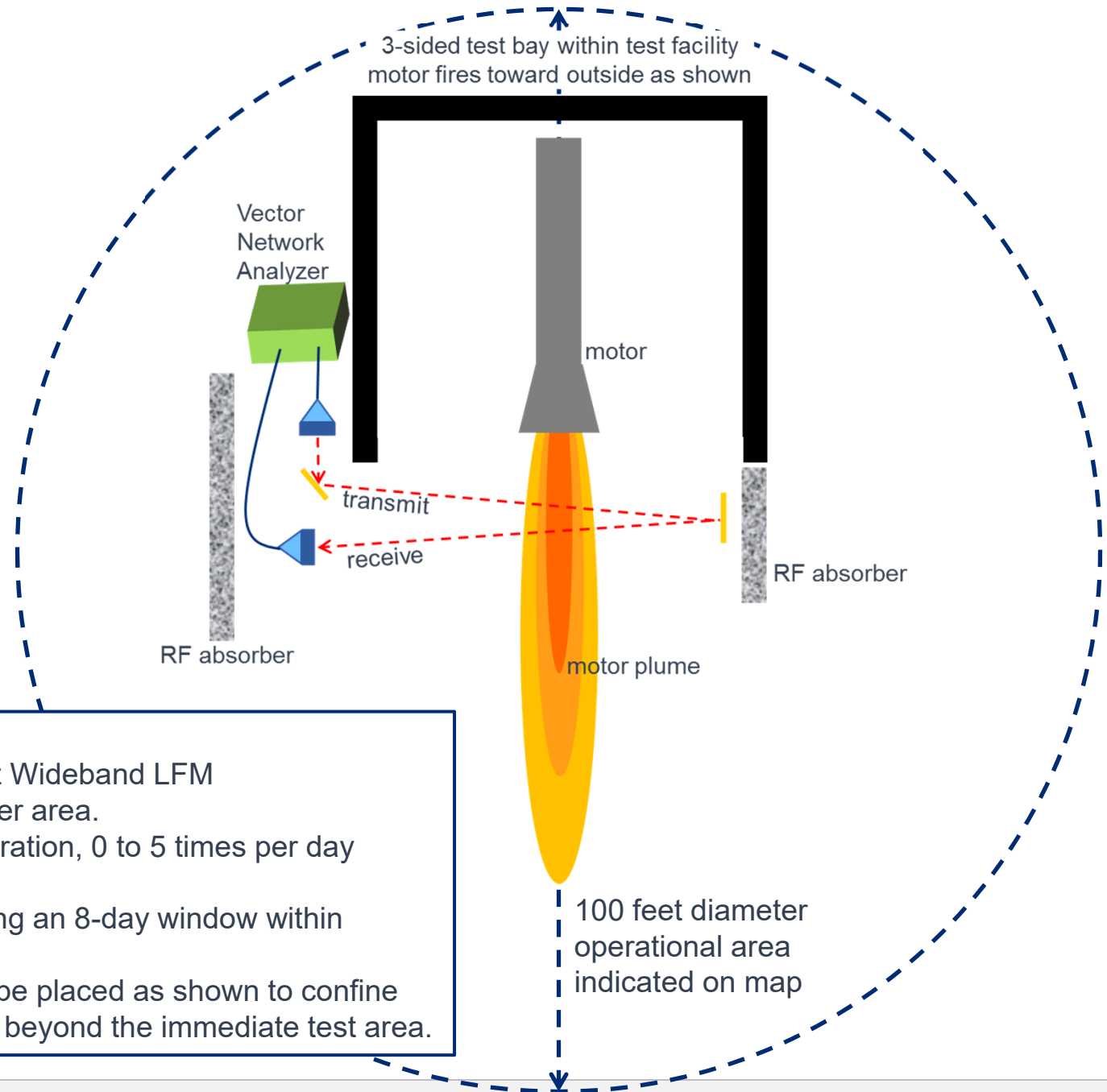


JHU/APL Motor Plume Measurement

- Purpose
 - Measure the attenuation of RF signal passing through a rocket motor plume to determine plasma properties and validate plume simulations
- Method
 - Use a Vector Network Analyzer (VNA) to transmit an RF beam parallel to the ground, at a height of a few feet. The transmitted beam intercepts the plume of the horizontally fired rocket motor. The test facility housing the rocket motor and the transmitting VNA is 3 sided with the motor firing toward the outside.
- Operational Area
 - 33°37'2.15"N, 92°40'37.61"W (Lockheed Martin Test Facility, East Camden, AR), 100 ft diameter test zone
- Vector Network Analyzer Description
 - Manufactured by Agilent
 - 8mW Tx Power
 - RF Freqs: 2 – 20 GHz sweep
 - Emission: Wideband LFM
 - PRF: CW
 - Antenna:
 - Gain: 20 dBi,
 - Beamwidth: 60° 3dB H/V
- FCC STA Request
 - Test window: 3/1/19 to 8/1/19
 - Transmission duration: 10 min/test, up to 10 times/day
 - Operation Window: Up to 5 days of testing within 5 month Test Window





Test Method

- RF Waveform: 2-20GHz Wideband LFM
- Within a 100 foot diameter area.
- Maximum 10 minutes duration, 0 to 5 times per day between 6 AM and 6 PM
- maximum of 5 days during an 8-day window within 3/1/2019 – 8/1/2019
- RF absorber sheets will be placed as shown to confine and minimize RF scatter beyond the immediate test area.