

DESCRIPTION OF OPERATIONS

Lockheed Martin Corporation (“Lockheed Martin”) hereby requests experimental license authority under Part 5 of the Commission’s rules to permit it to test and authenticate the effectiveness of MIMO technology as a viable option for control of an aircraft platform. Because conventional line-of-sight (LOS) CDL datalinks are prone to multipath issues in dense environments, Lockheed Martin seeks to demonstrate that MIMO technology, which is immune to multipath effects, can provide a viable alternative.

While the ultimate application of this technological development is intended for unmanned platforms, all testing will occur with manned aircraft, limited to LOS operations only, from various locations around the coordinates identified on the accompanying Form 442.

Initially, Lockheed Martin intends to focus on ground testing, which will consist of two fixed (ground station) radios geographically separated and a mobile radio installed in a truck. This configuration will assist to characterize the behavior of the datalink in dense or structurally challenging areas. The next phase of testing would involve installing the mobile radio in a manned flying testbed to characterize the behavior of the datalink in flight. Aircraft operations would be limited to an altitude of 35,000 ft.

Directional antenna.

One of the antennas identified on the equipment list of the Form 442 is the Silvus AS4D16470-NF. Details related to the operations of those sector antennas follow:

Is a directional antenna (other than radar) used? Yes

(a) Width of beam in degrees at the half-power point: Horizontal: 90 degrees; Vertical: 8 degrees

(b) Orientation in horizontal plane: Steerable between 0 – 360 degrees

(c) Orientation in vertical plane: Peak of beam relative to the horizon +/- 15 degrees

Will the antenna extend more than 6 meters above the ground, or if mounted on an existing building, will it extend more than 6 meters above the building, or will the proposed antenna be mounted on an existing structure other than a building? Initially the antennas will be mounted 2 meters on top a building. Later the antennas will be mounted on a variable height tower (3 – 15 meters). Note: Tower masts are equipped with obstruction lighting at tallest point

(a) Overall height above ground to tip of antenna in meters: When mounted on tower: 15 meters; When mounted on building: 32 meters (building = 30 m + antenna mount 2 m)

(b) Elevation of ground at antenna site above mean sea level in meters: When mounted on tower: 835 meters; When mounted on building: 851 meters

(c) Distance to nearest aircraft landing area in kilometers: 1 km

(d) List any natural formations of existing man-made structures (hills, trees, water tanks, towers, etc.) which, in the opinion of the applicant, would tend to shield the antenna from aircraft: Operations will be conducted on Lockheed Martin property, for which there are appropriate security measures in place as to access and also for which various structures are mapped to ensure safety of air navigation.