Exhibit B-2 – Experimentation Narrative Information
For 3.7 Meter Dish Antenna Earth Station

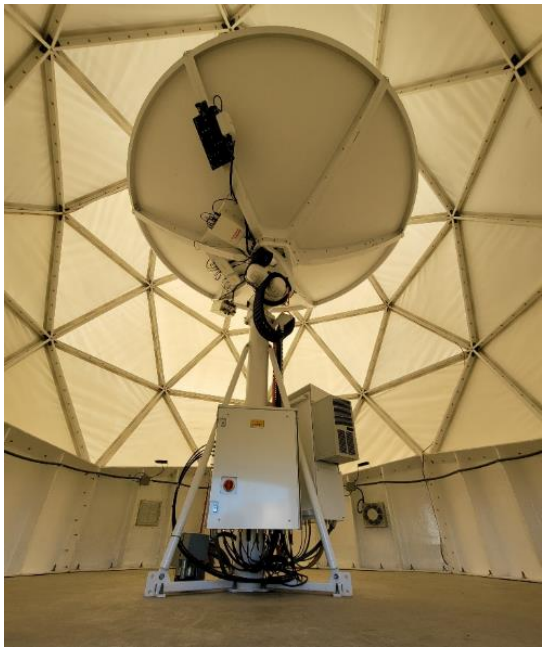
Program: LM400 (RADAR Pathfinder)
Company: Lockheed Martin Corporation, Space
Station Description: Satellite communication ground system supporting multiple experimental satellite configurations. Designed to support multiple satellite frequency configurations and orbits (LEO, MEO, GEO, etc.) for experimentation and Research and Development projects.
Location Reference: 39°30'46.2"N 105°06'54.1"W - Lockheed Martin Space, 12257 South Wadsworth Blvd, Littleton, CO 80127

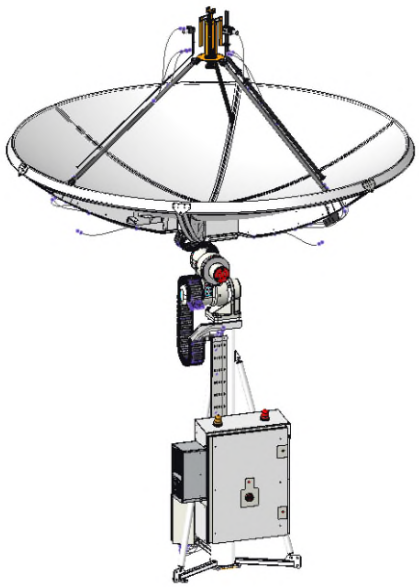
Emitter Description: 3.7m parabolic reflector (dish) type antenna, prime focus, circular, directional. 3 dB beamwidth 0.80^{o} (X-band Tx), max volume diameter (including Radome) 4.90m. Full motion satellite tracking antenna (LEO, MEO, GEO), 3-axis movement, located inside Radome on remote Lockheed Martin property.

Antenna Frequency Capability Overview:

Frequency (MHz):	Transmit or Receive:	Description:
Various: 7000 - 7250 MHz	Transmit (to satellite)	X-band uplink capability, wide and narrow band channel support
Various: 8000 - 8500 MHz	Receive (from satellite)	X-band downlink capability, wide and narrow band channel support

Antenna Picture Example (Littleton, Colorado, USA):





A. The complete program of research and experimentation proposed including description of equipment and theory of operation.

Theory Of Operation:

The IGS terminal is designed by Lockheed Martin for use with experimental satellite operations by supporting common satellite Earth terminal bands (S-band). As the evolution of satellites becomes more affordable for both the commercial, military, and experiential research industries, the ground system is rapidly becoming the expensive part of a satellite system, which is what helped identify a need for the IGS system. The concept of usage for the IGS terminal is to provide full duplex communication to/from experimental space craft (commercial, military, and experiential research) in order to support the evolution of satellite communication technologies and payloads.

The concept is similar to SCN (Space Communications Network, formally AFSCN). However, this technology will be more advanced, more versatile, and will forge the path to a more common "Ground Station as a Service" (GSaaS) platform using the Lockheed Martin "Horizon" software suite for control and status of the ground equipment. The Horizon software suite is being developed to help unify the ground station service by supporting common bands and configurations, and yet be versatile enough to be utilized by many different users in order to support multiple spacecraft types. The IGS terminal was designed to be versatile in order to support existing program needs and future satellite needs to help save cost by utilizing a common, existing satellite ground system instead of building a new ground system for each new satellite program.

The IGS system employs many different types of new and experimental technologies such as digitized RF over Networks for both the command and telemetry data will be used to transport the information to Software Defined Radio (SDR) solutions for processing. This antenna terminal is designed to support new experiential satellites yet also be compatible with current satellite communication standards to help support launch and on-orbit activities.

Horizon is a command and control software application developed by Lockheed Martin. It provides an extensive platform for real-time management and configuration of satellites, antennas, and ground hardware. Horizon delivers critical mission capability at low-cost for small, mid, and large satellite constellations. To meet specific mission needs, Horizon supports various plugin methods that different missions can utilize to inject their own business logic to tailor and extend capabilities.

IGS Antenna Operations (3.7m):

As mentioned earlier in this document, the IGS antenna is a parabolic 3.7m LEO, MEO, GEO tracking station with X-band transmit and receive capability. This antenna system along with the modem equipment will be monitored and controlled though the Horizon software suite (ground control). The Horizon software suite is designed to allow only certain user sections for frequency, bandwidth, modulation, output power, pointing, etc. of the ground terminal equipment based on current

standards. There are safeguards built into the system to not allow users to make selections which are not permitted in the configuration outside of the bands of operation (for Transmit).

X-band Transmit Operations:

Although this Lockheed Martin ground station plans to service specific X-band frequencies to support known upcoming projects (examples below), this system can transmit X-band throughout the EO (Earth Observation) frequency ranges (7000 - 7250 MHz) to better posture for supporting future satellite and space systems. The telemetry and payload data that is received/transmitted is sent over an IP socket over the network/internet for the end user to process.

This ground station architecture includes a versatile ground control software (Horizon) which is being developed to provide the users with a common platform for satellite access and TT&C. Versatility is a key component in this ground system design in order to provide the widest coverage possible to all existing, and future users. As a form of control, Horizon's software will restrict the user's ability to select frequencies to only those in the allocated frequency range, bandwidths and symbol modulation schemes. Any other experimental waveforms being proposed by the users outside normal parameters will be adjudicated though the FCC in the form of a follow-on request or addendum.

This versatility will help facilitate rapid development and deployment of new satellite systems, as the ground terminals can take long periods of time to develop and deploy. Lockheed Martin proposes a concept of operation in which a direct Point Of Contact (POC) for Horizon software support be provided to the FCC, so if any interference is suspected from the IGS ground terminal, the FCC and interested parties can call for confirmation of transmit frequencies and can request the transmission be terminated.

B. The specific objectives sought to be accomplished.

The objective of this Ground System is to provide long term support for reception and transmission to many different types of satellites and satellite payloads including IRAD (Internal Research And Development) and USG (United States Government) programs. This will not only help evolve satellite space communications technology as they evolve, but also help evolve ground based technologies, such as RF digitization and sensor data transport technology, on a parallel path.

For the duration of this mission, the antenna will be used to support:

Supporting Program Name:	Description:	Frequencies (reference to X-band):	Timeline:
LM400 (RADAR Pathfinder)	LM IRAD Project to demonstrate X-band ESA (SAR). Aggressive, Go-fast schedule, accelerated TRL-7, Class C/D processes to trailblaze for future program	Rx: 8.0-8.5 GHz Tx: 7.0-7.250 GHz	Q2, 2027

C. How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion, or utilization of the radio art, or is along line not already investigated.

The Horizon software along with the system architecture of the Ground Station is an experimental concept to provide a GSaaS solution, wherein the users use a web interface to configure, control and status the ground system during the allotted time of the satellite pass, and the system will provide an IP socket to send commands and retrieve telemetry/sensor data. This concept allows the cost of the ground system to be spread over many different users, offers more of a virtual interface and user experience, and allows for having a more affordable ground system (low cost for development and educational). Lockheed Martin is pioneering this technology, and it is considered experimental as the system as a whole is a new, experimental concept, and therefore will need to grow and develop despite the operation of this system having some existing known technologies. This Ground System will be used for experimental satellites and satellite payloads to support IRAD and USG programs. The system employs experimental technologies for waveforms and digitization, that also help support on-orbit experimental satellite constellations.