(U) GeoLite Training

(U) Task Objective:

(U) Understand GeoLite ☐ mission operations

(U) The **Geo**synchronous **L**ightweight **T**echnology **E**xperiment ☐ was launched in May 2001.

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(U) The **GeoLITE** program is managed and procured by the NRO. The prime contractor for the GeoLITE missions is TRW/DSD. The GeoLITE program mission operations ground station was originally the TRW Satellite Command and Control Center, SCCC, located in ☐ Va. The command and control has since been transferred ☐ for the IBS-S mission.
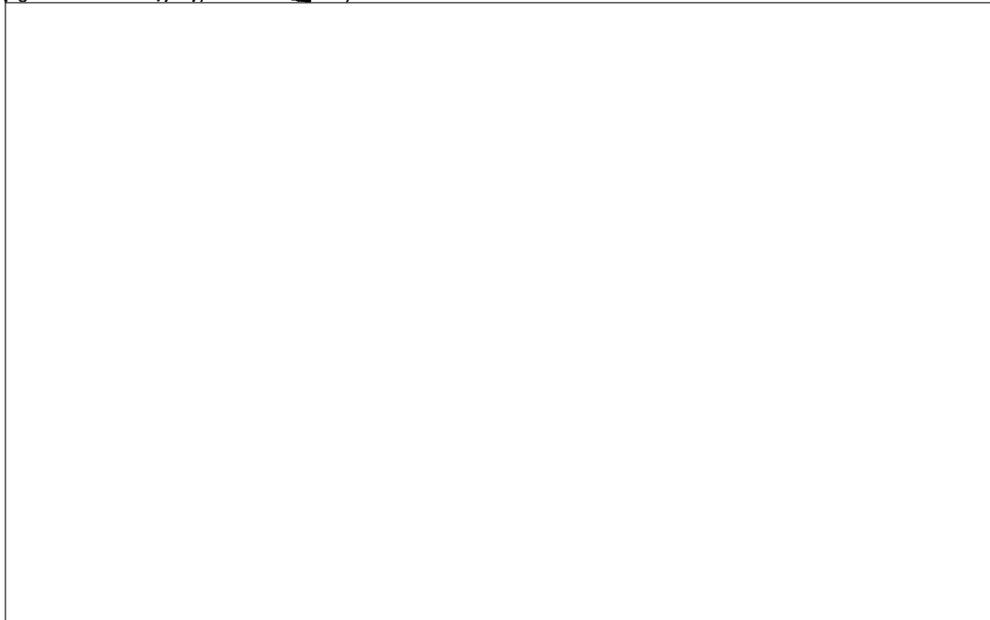
(U) The GeoLITE Spacecraft has two missions:
- (U) The original mission was:
  - Proof of concept of space/ground laser communication links.
  - GeoLITE Lasercom Optics Module (GLOM)

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- (S//TK//REL) The current mission ☐
  - To provide IBS coverage to the ☐
  - The operation of a broadcast communication system is also in support of the IBS.

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CL BY: ☐
DECL ON: 25X1, 20660505
DRV FROM: INCG 1.0 13 Feb 2012

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(U) Overview

(S//REL) The Geosynchronous Lightweight Technology Experimental space system consists of one satellite launched in May of 2001 to test a new, space-to-ground laser communications payload. Because of its relatively low cost, compared to other NRO satellites, ⬚ The experiment, which included the use of the GLOM and Radiometer payloads ⬚ Following this time, GeoLITE was

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drifted from its position over the SCCC in [ ] VA to its present location, where it services [ ] Total expected mission life is [ ]

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(U) [ ]

(S//REL) The GeoLITE vehicle's [ ]

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[ ] Broadcast messages are repeated several times over a specific interval to achieve a statistical probability of assured delivery.

The GeoLITE Space Vehicle Contractor (SVC) is Northrop Grumman Space Technology of Redondo Beach, California.

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(U) GeoLite C2 Hardware and Software (refer to figure below)

[ ] Front End Processor. The [ ] hardware, located in the RT Area, allows the EPOCH [ ] software running on the [ ] workstations to interface to the GeoLITE spacecraft via the [ ]
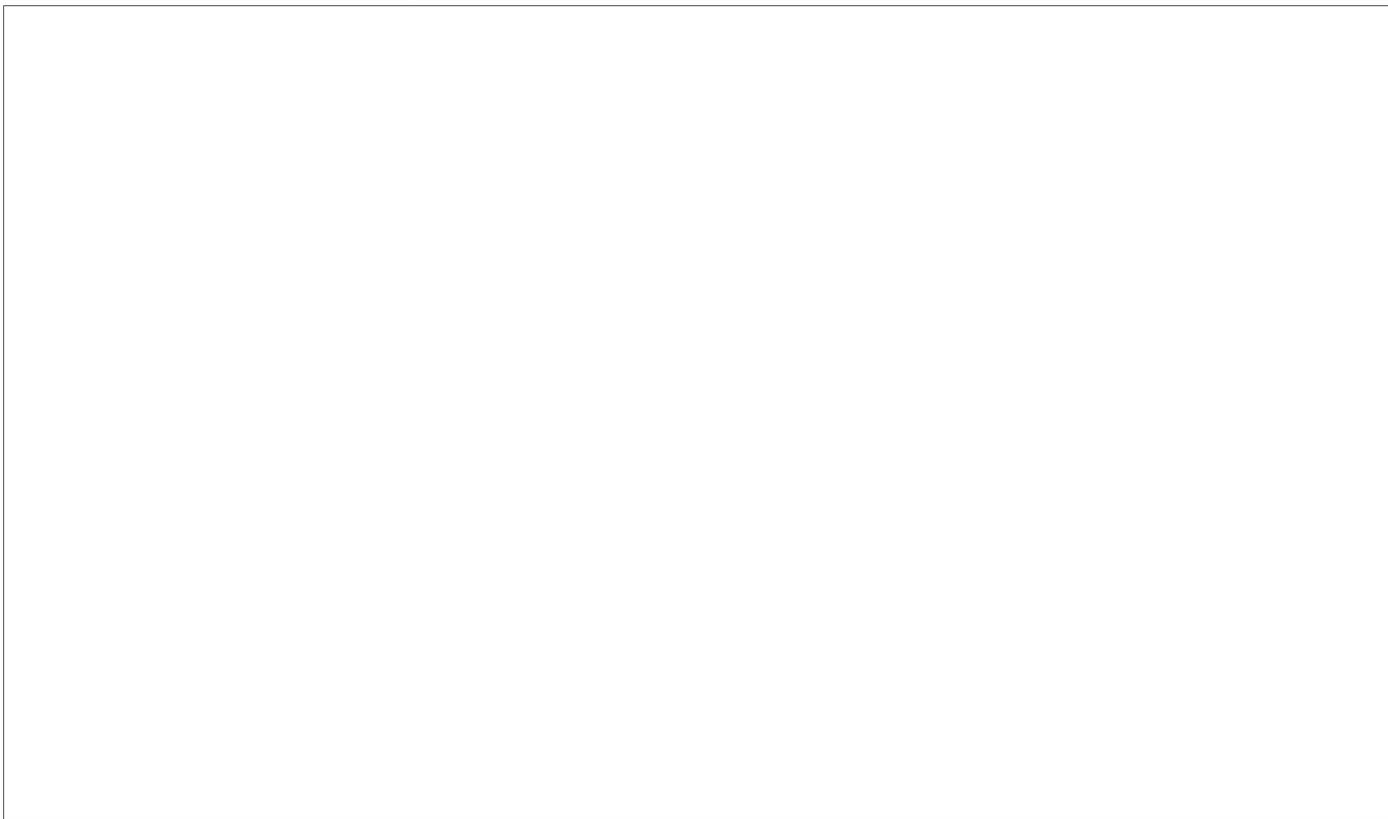
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(U) The ☐ is used to achieve: (b)(3)

- Telemetry frame synchronization.
- Command stream generation.
- Telemetry storage during the support.
- Archive pushed to ☐

(U) The ☐ The ☐ Box provides conversion
of the ternary uplink command stream generated by the Sys500 into the EXU format ☐ is   (b)(3)
hardwired into the GeoLITE ground Hardware.

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(U) Ephemeris Upload
The purpose of an ephemeris upload is to maintain earth center pointing by uploading pointing
coefficients that the Attitude Determination and Control System (ADCS) uses along with inputs   (b)(3)

(U) Momentum Unload   (b)(3)

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are conducted approximately once every couple months. It is important to verify signal strength following _____ has forgotten to update the pointing following the maneuver.
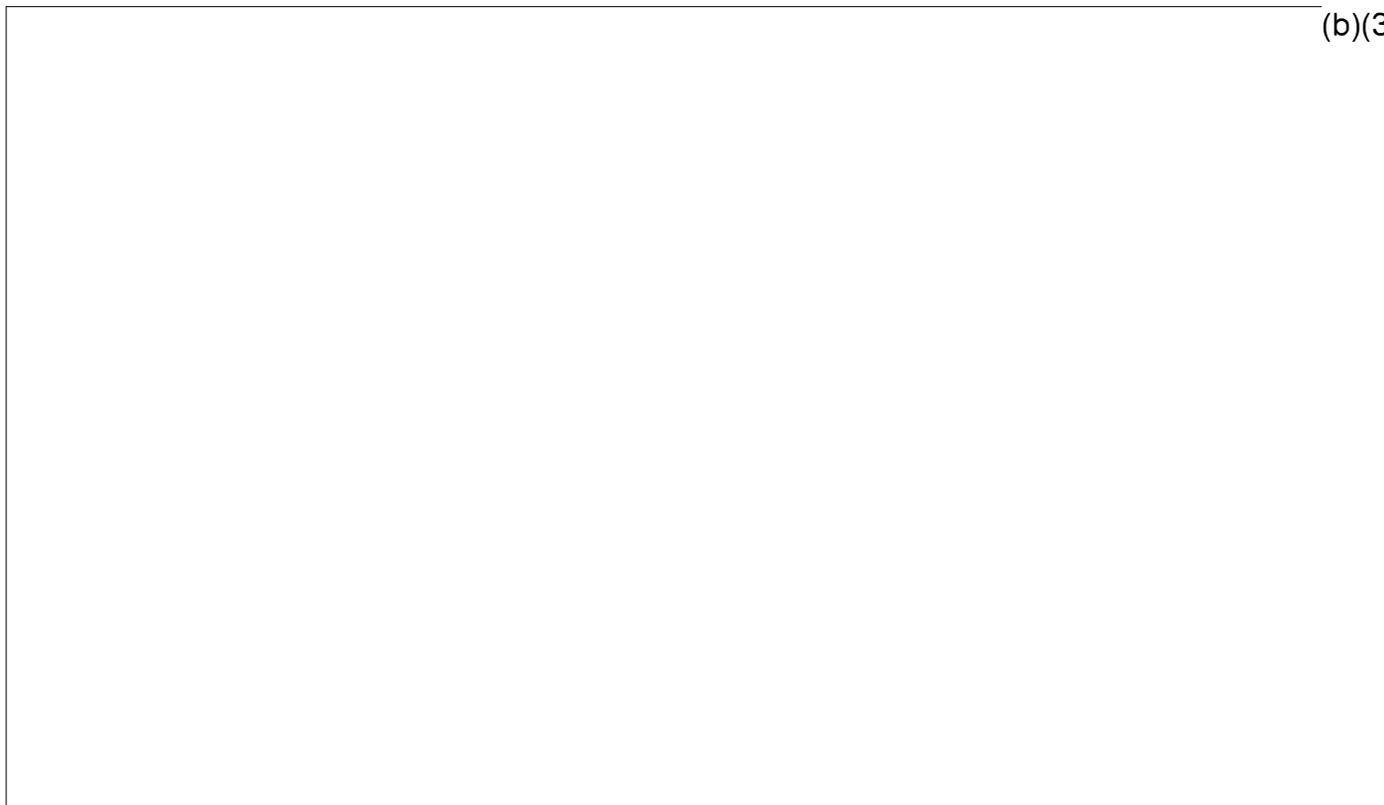
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(U) Yaw-flip

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(U) Daily Yaw Maneuvers

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(U) Components of the GeoLITE ADCS

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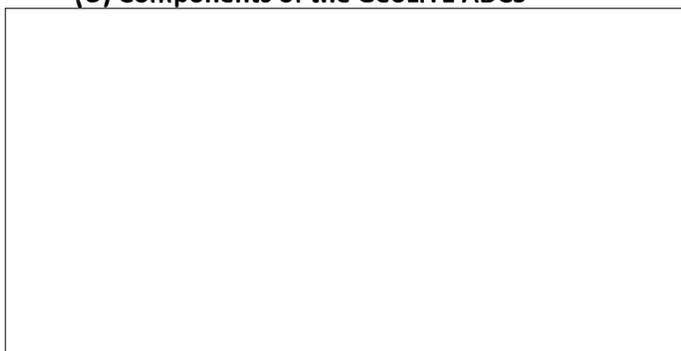
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(U) GeoLITE ADCS Operating Modes

Spacecraft Mode	Software Mode	ADACS Mode	Attitude Maintenance
Survival	Survival	None	
Safe Haven	Sun Thruster	Sun Thruster	
Safe Haven	Wheel Sun	Wheel Sun	
Safe Haven	Stellar Reference Acquisition	Stellar Reference Acquisition	
Normal	Wheel Normal	Wheel Normal	
Maneuver	Delta V	Delta V	

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