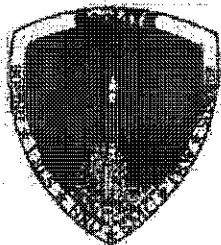


~~(S)~~ System [redacted]

~~SECRET//TK~~

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(U) GeoLITE Patch

~~(S//TK//REL TO USA, FVEY)~~

System [redacted] also known as GeoLITE (Geosynchronous Lightweight Technology Experiment) was a National Reconnaissance Office (NRO) advanced technology space flight program built by IRW (now Northrop

Grumman) through the NRO AS&T Office. GeoLITE featured an experimental laser communications package, known as the GLT, and a secondary

[redacted] known as [redacted] that provided IBS-S coverage for the

The GeoLITE mission was part of an NRO initiative to demonstrate advanced military space communications via laser communication that will eventually provide greater information bandwidth capability to US forces. On 31 January 2011, NRO Director Carlson announced that NRO funding for

[redacted] and that NRO intends [redacted] GeoLITE's IBS-S mission to [redacted] ensuring no loss of continuity.<sup>[1]</sup>

~~(S//TK//REL TO USA, FVEY)~~ Per NRO SitRep #499-2011 (DTG: [redacted] 2045Z (1645 EDT)),

[redacted] Integrated Broadcast Service (IBS-S) coverage [redacted] The Director, NRO, approved a plan for [redacted]

### Contents

All redactions this page: (b) (1), (b) (3)

System [redacted]

~~SECRET//TK//NOFORN~~

GeoLITE Satellite [redacted]

Organization/Country:	NRO
Mission Type:	Data Relay and Experimentation
Satellite of:	Earth
Satellite Type:	NTM
Launch Date:	18 May 2001
Launch Vehicle:	Delta II Expendable Launch Vehicle
Mass:	3981 lbm (2095 lbm dry / 1886 propellant)
Payload 1:	GLT LaserCOMM
Payload 2:	[redacted] IBS-S
Inclination:	[redacted]
Orbit:	[redacted]
Orbital Description:	[redacted]
Orbital Period:	[redacted]

(b)(1)  
(b)(3)

(b)(1)  
(b)(3)

- 1 (U) History
- 2 (U) Past Mission
- 3 (U) Payloads
  - 3.1 (U//FOUO) GeoLITE Laser Terminal (GLT) and Radiometer (GLOM) [redacted] (b)(1)
  - 3.2 (S//TK) [redacted] (b)(3)
- 4 (U) Orbital Parameters
- 5 (U) References
- 6 (U) See Also
- 7 (U) External Links

<b>Design Details:</b>	Manufactured by TRW
<b>Constellation Details:</b>	1 Satellite, Experimental
<b>Long Term Status:</b>	GLT: Retired, [redacted] Retired

(b)(1)  
(b)(3)

### (U) History

(U//FOUO) GeoLITE was the second in a series of technology demonstration satellites by the NRO's Advanced System and Technology Directorate. The first satellite, STEX (Space Technology Experiment), was launched in [redacted] and carried as many as 29 advanced technology experiments including a

[redacted]

(b)(3)

(S//TK) A DELTA-2 satellite launch vehicle launched GeoLITE on 18 May 2001 from the Cape Canaveral Air Force Station, Florida, [redacted]. The vehicle was located over the [redacted] until the laser communication package testing [redacted]

(b)(1)  
(b)(3)

[redacted] payload was activated on 8 June 2003 and the vehicle currently [redacted] the Integrated Broadcast Service (IBS-S) mission. GeoLITE is now operated out of [redacted]

[redacted]

(b)(1)  
(b)(3)

### (U) Past Mission

(S//TK) GeoLITE functioned as the [redacted] for the Integrated Broadcast Service (IBS-S) using the [redacted] IBS-S, formerly Tactical Related Applications (TRAP) Data Dissemination System (TDDS), is an intelligence dissemination "system of systems" that impacts virtually all tactical data producers and tactical data users. It is a theater-tailored dissemination architecture with global connectivity using a common message format in support of current and programmed tactical and strategic warfare systems. It provides an integrated, interactive dissemination system giving intelligence producers and other information sources the means to disseminate time-sensitive intelligence and information to the warfighter via multiple transmission paths as dictated by dynamic user-generated dissemination priorities.

[redacted] Coverage

(b)(1)  
(b)(3)

(S//TK) The IBS-S system architecture requires producers to send data to the Network Management Center

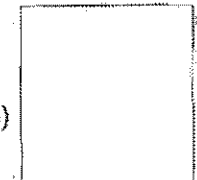
(NMC), where it is tailored (prioritized, categorized/grouped, filtered) and routed to each geographical theater based on guidance and direction provided by the cognizant Combat Commander. Data is forw(b)(1) from the NMC, via a terrestrial backbone network, to satellite uplink locations for broadcast to users (b)(3) wide. GeoLITE used [redacted] located at [redacted] to disseminate the data.

~~(S//TK)~~ [redacted] GeoLITE was removed from operations upon [redacted] integrated Broadcast Service (IBS-S) coverage to [redacted] (b)(1) (b)(3)

### (U) Payloads

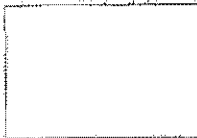
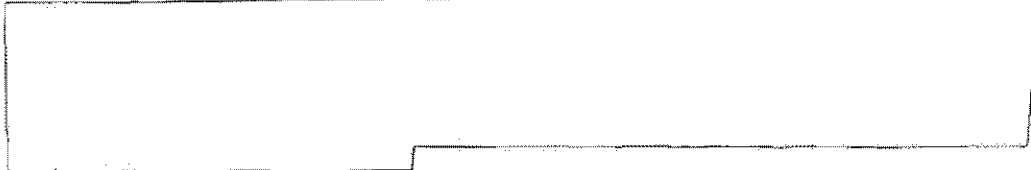
#### ~~(U//FOUO)~~ GeoLITE Laser Terminal (GLT) and Radiometer (GLOM)

~~(U//FOUO)~~ The laser communications payload was comprised of two primary units; the GLOM (Radiometer) and the GLT (GeoLITE Laser Terminal). The Radiometer payload provided a means of measuring the intensity fluctuations and polarization of laser beams transmitted from the Earth through the turbulent atmosphere to the (b)(3) GeoLITE satellite. The GLT payload provided a means [redacted]



(b)(3)

~~(U//FOUO)~~ GLT



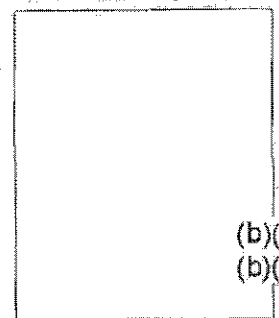
(b)(3)

~~(U//FOUO)~~ GLOM

~~(U//FOUO)~~ The objectives of the lasercom experiment and demonstrations were to provide the NRO sufficient information concerning high data rate, geosynchronous orbit-to-ground laser communication technology in varying atmospheric conditions. A secondary mission was to share lasercom technology and implementation lessons learned with other government agencies and National Space Communications Program (NSCP) industry partners to the greatest extent possible. The lasercom experiment results provided data to refine models and system designs; to reduce costs, risks, and schedule for operationally implementing space-based lasercom; and it greatly increase confidence in lasercom technology. This experimental mission lasted [redacted] (b)(3)

~~(S//TK)~~ [redacted] (b)(1) (b)(3)

~~(S//TK)~~ [redacted] communications payload that was part of the IBS-S architecture. This system replaced the old military satellite communications (MILSATCOM) architecture. The payload simultaneously received [redacted] [redacted] The payload, built by [redacted] was based on the [redacted] The remaining IBS-S coverage areas were/is supplied by [redacted] payload on the [redacted] while polar coverage was/is provided by the [redacted]



(b)(1) (b)(3)

~~(S//TK)~~

## (U) Orbital Parameters

~~(S//TK)~~ GeoLITE was located in a Geosynchronous Orbit  <sup>(b)(1)</sup>  
 <sup>(b)(3)</sup>


## (U) References

1. ~~(S//TK//REL)~~ NRO GeoLITE Termination Memo ([http://intellidocs.intelink.ic.gov/action.php?kt\\_path\\_info=ktcore.actions.document.view&fDocumentId=1388421](http://intellidocs.intelink.ic.gov/action.php?kt_path_info=ktcore.actions.document.view&fDocumentId=1388421)) <sup>(b)(1)</sup>  
<sup>(b)(3)</sup> <http://intellidocs.intelink.ic.gov/view.php?fDocumentId=1388421>

## (U) See Also

- ~~(S//TK)~~  Flight Ops GeoLITE Training (flight\_ops/mops/trai">http://www.flight\_ops/mops/trai) <sup>(b)(1)</sup>  
<sup>(b)(3)</sup> flight\_ops/mops/trai/system/common/cert\_classes/geolite.shtml">system/common/cert\_classes/geolite.shtml
- ~~(S)~~ Integrated Broadcast Service Simplex
- ~~(S//TK)~~ NRO IBS-S Overview (<http://www.nscb.ic.gov/briefs/2%20-%20Dissem%20Systems%20Overview%20%2006-25-07.pdf>)

## (U) External Links

 *This technical/technology-related article is a stub. You can help Intellipedia by expanding it.* <sup>(b)(1)</sup>  
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